

HANNAH M. PALMER

Curriculum vitae

Earth and Planetary Sciences Department, University of California, Davis
Bodega Marine Laboratory
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EDUCATION

Ph.D. in Earth and Planetary Sciences

University of California, Davis
Department of Earth and Planetary Sciences and Bodega Marine Laboratory
Dissertation: Investigating ocean and climate change in the Holocene and Anthropocene using Southern California marine sediment records
Completed July 2021

B.S. Marine Biology

University of California, Los Angeles
Department of Ecology and Evolutionary Biology, Minor in Spanish
Completed 2013

PROFESSIONAL APPOINTMENTS

University of California, Merced

Chancellor's Postdoctoral Fellow, September 2021 – present

- Advisors: Dr. Sora Kim and Dr. Asmeret Asefaw Berhe
- Investigating the impacts of wildfire intensity and fuel type on geochemical signatures of pyrogenic carbon following wildfires in California

University of California, Davis

Graduate student researcher – Ocean Climate Lab, August 2016 - present

- Advisor: Dr. Tessa M. Hill
- Investigated climate and ocean change in the past 11,000 years along the US West Coast
- Published research in major academic journals and in multiple public-facing media
- Collaborated with researchers from diverse disciplines and institutions

Teaching assistant, September 2016 - March 2018

- Taught discussion and lab courses: The Earth, Oceanography, and Biological Oceanography
- Designed and implemented modules on critical thinking, scientific writing, and research design

University of California Center Sacramento

Presidential Graduate Opportunities for Leadership Development Fellow, March 2020 - July 2020

- Engaged with the policymaking community in the California state capitol, including correspondence with state agencies, legislative and executive offices, nonprofit organizations, and academic institutions
- Led Careers in Science Policy Panel for undergraduate students and supported undergraduate education
- Conducted and published public policy research on issues relevant to California, including wildfire

Environmental Policy Instructor, January 2021 - March 2021

- Developed all curriculum for environmental policy course intended for non-STEM students completing an immersive public policy quarter in-residence in Sacramento
- Conceptualized course focused on evaluating case studies in environmental policy, facilitating dialogue around current issues in environmental policy, and building communication skills

California Council on Science and Technology

Science Intern, April 2020 - November 2020

- Co-authored a report on Costs and Losses of Wildfire in California with an intended audience of legislative, agency, and executive leadership for the State of California; including leadership of sections on societal cost of wildfire, wildfire impacts on water infrastructure, and wildfire impacts on certain populations
- Built relationships with economists, industry leaders, health specialists, and social scientists to address challenge of wildfire

California Academy of Sciences

Research Assistant, Summer 2019

- Advisor: Dr. Peter Roopnarine
- Researched the Holocene and Anthropocene as windows into the future of marine systems, digitization of marine microfossil collection

University of Colorado, Boulder

Visiting Research Assistant, Oceans and Climate Lab, May 2015 – June 2016

- Advisor: Dr. Kristopher Karnaskaus
- Analyzed suitability of estimating terrestrial potential evaporation using near surface climate factors; developed global map of impact of vertical motion of ocean currents on larval dispersal

FELLOWSHIPS AND AWARDS

Outstanding Student Presentation Award. American Geophysical Union Fall Meeting. December 2020.

Asking Different Questions Scholar. Feminist Research Institute. UC Davis. Fall 2020.

UC Davis Dissertation Year Fellowship. 2020 – 2021. (\$50,000)

UC Center of Sacramento Presidential Graduate Opportunities for Leadership Development (GOLD) Fellowship. Spring 2020. (\$14,000)

Russell J. and Dorothy S. Bilinski Bodega Marine Lab Fellowship. Fall 2018. (\$20,000)

National Science Foundation Graduate Student Fellowship Honorable Mention. 2017.

PEER-REVIEWED PUBLICATIONS

Palmer, HM., Vriesman, V., Banker, R, Bean, J. A database of Holocene nearshore marine mollusc shell geochemistry from the Northeast Pacific. *In prep.*

Palmer, HM., Hill, TM., Vriesman, V., Livsey, C., Fish, C. A review of Holocene climate and oceanography of the Western United States and Northeast Pacific. *In prep.*

Davis, CV., Livsey, CM., **Palmer, HM.,** Hull, PM., Thomas, E., Hill, TM., Benitez-Nelson, C. Extensive morphological variability in asexually produced planktic foraminifera. *Science Advances*. 10 Jul 2020: Vol. 6, no. 28 DOI: 10.1126/sciadv.abb8930. Paper available [here](#).

Palmer, HM., Hill TM, Roopnarine PR, Myhre SM, Donnefield JT, Reyes, KR. Southern California margin benthic foraminiferal assemblages record recent centennial-scale changes in oxygen minimum zone. *Biogeosciences*. 03 June 2020. Vol 17, 2923–2937. DOI: 10.5194/bg-17-2923-2020. Paper available [here](#).

REPORTS AND OTHER PUBLICATIONS

California Council on Science and Technology. The Costs of Wildfire in California: An Independent Review of Scientific and Technical Information. October 2020.

Chapter 2: Background—California Wildfires. Evans, SM., Feo, TJ., **Palmer, HM.**, Cook, B.

Chapter 3: Fire Prevention, Mitigation, and Suppression. Evans, SM., Feo, TJ., **Palmer, HM.**, Cook, B.

Chapter 4: Buildings and Infrastructure. Feo, TJ., Cook, B., **Palmer, HM.**

Chapter 5: Health Impacts. Cannedy, C. Feo, TJ., **Palmer, HM.**

Chapter 6: Ecosystem Processes. Feo, TJ., **Palmer, HM.**, Cook, B.

Chapter 7: Additional Economic Impacts of Wildfires. Evans, SM., **Palmer, HM.**, Cook, B.

RESEARCH GRANTS

Durrell Fund UC Davis Geology Research Award. 2020. (\$1000)

*National Science Foundation. “Collaborative Research: The Holocene & Anthropocene as windows into the future of marine systems”. 9/1/2018-8/31/2020, co-PIs Hill, T, Roopnarine, P & Pak, D. 2018 – 2020. (\$433,796)

Durrell Fund UC Davis Geology Research Award. 2018. (\$1000)

Geological Society of America- Student Travel Grant. 2017.

Cushman Foundation- Student Travel Grant. 2017.

Durrell Fund UC Davis Geology Research Award. 2017. (\$1350)

William V. Sliter Research Award, Cushman Foundation. 2017. (\$1000)

Geological Society of America Graduate Student Research Grant. 2017. (\$1,526)

*Graduate students are unable to serve as PI on these grants according to UC policy; I contributed significantly to the writing of this proposal.

TEACHING EXPERIENCE

Instructor of Record

2021. Environmental Policy – UC Center of Sacramento – planned for Winter Quarter 2021

Designed and built all curriculum for environmental policy course intended for policy-focused students (majority non-STEM) completing immersive policy quarter “in-residence” in Sacramento

Focus of course on evaluating case studies in environmental science and interrogating all policy through an environmental justice lens

Teaching Assistant

2018. Oceanography – UC Davis

Taught 3-hour weekly discussion section for introductory oceanography

Co-generated course material with instructor of record

Designed rubrics for evaluation of student research papers and presentations

Built and taught modules on how to read scientific paper, critical thinking and evaluation of multiple sources of information, scientific writing, experimental design, and global change

2017. Biological Oceanography – UC Davis

Hands-on immersive field course

Led student field activities including tidepool experiment, plankton sampling from boat, marine mammal observation, and marine debris assessment

Designed and taught lab lecture on data analysis methodology and data visualization

2016. The Earth – UC Davis

Taught one-hour weekly session on earth science for non-science majors

Collaborated with multiple teaching assistants and instructor to design course materials and grading rubrics

2013. Marine Botany – University of California, Los Angeles

Undergraduate teaching assistant

Prepared laboratory samples and led field trips for algal collection

INVITED PRESENTATIONS OF RESEARCH

Palmer, HM. Holocene Paleoclimate: approaches, processes, and patterns. University of the Pacific. Global Change Course. October 7, 2020.

Palmer, HM. Southern California margin benthic foraminiferal assemblages across a modern environmental gradient record recent centennial-scale changes in oxygen minimum zone. Fossil Coffee Series. University of California Museum of Paleontology at UC Berkeley. Berkeley, CA. April 30, 2019.

CONFERENCE PARTICIPATION

PAPERS PRESENTED

Palmer, HM. Smart, A., Brumbaugh, S. A marine science internship, without the ocean: transitioning a community college internship program to a virtual setting. American Geophysical Union Fall Meeting. December 2020. (oral, virtual)

Palmer, HM, Hill, TM, Roopnarine, PD, Stott, LD, Exploring changes to ocean oxygenation and seafloor ecosystems in Southern California Borderlands through the Holocene. American Geophysical Union Fall Meeting. December 2020. (poster, virtual)

Padilla Vriesman, V, **Palmer, HM,** Banker, RMW, Bean, JR, Carlson, SJ, and Hill, TM. Evaluating chemical changes in culturally significant intertidal marine calcifier throughout the Holocene. SACNAS - The National Diversity in STEM Conference. October 20, 2020. (poster)

*Langlois, S, **Palmer, HM,** and Hill, TM. The Impact of Ocean Temperature and Oxygenation on Benthic Foraminiferal Size in the Southern California Borderlands. SACNAS - The National Diversity in STEM Conference. October 20, 2020. (poster)

Palmer, HM, Hill, TM, Stott, LD, Roopnarine, PD, Pak, DK. Oxygenation and ventilation of Southern CA marine basins through the Holocene: evidence from benthic microfossil assemblages and foraminiferal oxygen and carbon stable isotope records. Ocean Sciences Meeting. February 2020. San Diego, CA. (poster)

Hill, TM, Ricart, AM, Kroeker, K, Spalding, A, Gaylord, B, Sanford, E, Kauzer, J, Carter, H, Whiteman, E, **Palmer, HM.** Ward, M, Kennedy, E, Close, S, Knight, E. Changing Ocean Chemistry on the US West Coast: From Knowledge to Action. Ocean Sciences Meeting. February 2020. San Diego, CA.

Garcia C, **Palmer HM.,** Vriesman, V, Hill, TM, Roopnarine, PD, Angel, M, Pearson, LK. New Data from Old Cores: Supplementing the Paleoceanographic Sedimentary Archive with Museum Collections. Ocean Sciences Meeting. February 2020. San Diego, CA.

Palmer, HM. Hill, TM, Vriesman, V, Livsey, C, Fish, C. A review of Holocene climate and oceanography of the Western United States and Northeast Pacific. American Geophysical Union Fall Meeting. December 9, 2019. San Francisco, CA. (poster)

Palmer, HM. Southern California microfossils record changes in ocean oxygenation in the last 1500 years. UC Davis Coastal Marine Sciences Research Symposium. Davis, CA. April 23, 2019. (oral)

Palmer, HM. Hill TM, Myhre, SM. Donnefield, JT, Reyes, KR. Spatial and temporal variability of benthic foraminiferal assemblages across a modern environmental gradient on the California Margin. PACLIM – On climate variability of the Eastern Pacific and Western North America. Pacific Grove, CA. February 18, 2019. (poster)

- Palmer, HM.** Hill, TM, Padilla Vriesman, V, Bean, JR. Southern California Margin oceanographic and ecological change through the Holocene. SACNAS - The National Diversity in STEM Conference. San Antonio, TX. October 12, 2018. (poster)
- *Reyes, KR. **Palmer, HM.** Hill, TM. A Spatial and Temporal Study of Benthic Foraminifera Morphology on the San Diego Margin. SACNAS - The National Diversity in STEM Conference. San Antonio, TX. October 12, 2018. (poster)
- Palmer, HM.** Recent past as a window to the future. Bodega Marine Laboratory Research Seminar Series. Bodega Bay, CA. April 16, 2018. (oral)
- *Donnenfield, JT. **Palmer, HM.** Hill, TM. Recent paleoceanographic history of the San Diego Margin, California: A benthic foraminiferal perspective. Geological Society of America North Central Section Meeting. Ames, IA. April 16, 2018. (poster)
- Palmer, HM,** Myhre, SE, Hill, TM, Donnenfield, JT. Recent fossil record provides unique insight into impacts of multiple stressors on community ecology. Ocean Sciences Meeting. Portland, OR. February 16, 2018. (oral)
- Palmer, HM,** Myhre, SE, Hill, TM, Donnenfield, JT. Utilizing microfossil community ecology to understand spatial and temporal changes to San Diego Margin oxygen minimum zone. Geological Society of America- Annual Meeting. Seattle, WA. October 25, 2017. (oral)
- Palmer, HM.** The GLOBE International STEM Network. NCAR Networking and Day of Discovery. Boulder, CO. April 22, 2016. (oral)
- Palmer, HM.** Estimating climate on small islands using near surface climate factors. CU Boulder Atmospheric and Oceanic Sciences Poster Conference. Boulder, CO. November 13, 2015. (poster)
- *Lead author is student mentee.

SESSIONS ORGANIZED

- Session convener and chair. Marine-terrestrial Connections between the Pacific and the Americas. American Geophysical Meeting (virtual). December 2020.
- Session convener and chair. Paleo to policy: bridging the gap between the paleo-sciences and decision-making. American Geophysical Meeting. December 2019.
- Session convener and chair. Utilizing Ecological and Oceanographic Records to Understand Ecological Responses to Modern Climate Change. Ocean Sciences Meeting. Portland, OR. February 2018.

UNDERGRADUATE MENTORSHIP

Sonali Langlois. Santa Rosa Junior College, Summer 2020

Mentored on an independent research project. Virtual mentorship during COVID-19. Adapted all mentorship to remote setting. She will present research at SACNAS National Diversity in STEM Conference in Fall 2020.

Nik Nurhafieza 'Fieza' Nik Mohd Rosidi, UC Davis, 2018-2019

Year-long professional development mentorship through Association for Women in Geosciences. Catered to unique needs of international student and job search in foreign country.

Kimberly Bowman, UC Davis, Summer 2019

Mentored on independent summer research project. Presented work at UC Davis Bodega Marine Laboratory Research Symposium.

Katherine Reyes, Santa Rosa Junior College, 2017-2019

Long term-mentorship. Mentorship began with independent research project in Summer 2018. Presented research at SACNAS conference. SACNAS Travel Grant recipient. Co-author on manuscript in *Biogeosciences*. Returned to complete senior practicum with my mentorship.

Olivia Zanzonico, UC Davis, lab volunteer. Summer 2019.

Jonas Donnenfield, Carleton College. 2017-2018.

Mentored on independent research project. Completed senior thesis project and earned Honors on

Senior thesis. Presented research at Geological Society of America Regional Meeting. Co-author on manuscript in *Biogeosciences*. Returned to lab to complete Senior thesis project.

Brendan O'Shea, UC Davis, Summer 2016

Mentored on independent summer research project. Presented work at UC Davis Bodega Marine Laboratory Research Symposium.

ACADEMIC SERVICE

- 2020 – present Facilitator of UC Davis Coastal and Marine Sciences Anti-racism Reading Group
- 2019 – present Director of Santa Rosa Junior College – Bodega Marine Laboratory Internship Program
- 2019 – present Member of Bodega Marine Laboratory Diversity, Equity, and Inclusion Committee
- 2019 Scheduler and organizer on Bodega Marine Laboratory Seminar Committee
- 2018 – 2019 Co-founder and lead organizer of NorCalPaleo Conference (April 6, 2019)
- 2018 – 2019 Co-organizer of Paleoclimate to Policy Workshop held at the Bodega Marine Laboratory (February 20-22, 2019)
- 2018 Member of Bodega Marine Laboratory Transportation Committee
- 2017 Leader of UC Davis Geology Graduate Group new student welcome trip
- 2017 Committee to establish UC Davis chapter of Association for Women Geoscientists
- 2016 – present Member of Bay Area Pod of 500 Women Scientists

PEDAGOGICAL DEVELOPMENT

- 2018 – 2019 Education and Outreach Intern, University of California, Museum of Paleontology at UC Berkeley
- Fall 2016 Climate Change Curriculum Development Course. A collaboration between UC Davis Geology and UC Davis Mathematics and Science Teacher Training Program.
- 2015 Education and Training Coordinator for The GLOBE Program, Boulder, CO.

PROFESSIONAL DEVELOPMENT

- January 2020 Bystander Intervention Training
- February 2019 Paleo2Policy Workshop. UC Davis, Bodega Marine Laboratory.
- August 2018 NOAA Satellite Data Course. University of Washington.
- January 2018 R Software Carpentry Course.
- April 2017 UC Davis Science Communication Short Course. Coastal and Marine Science Institute.
- Fall 2016 Science Communication Course. Bodega Marine Laboratory.

OUTREACH AND PUBLIC ENGAGEMENT

- Judge for The GLOBE Program International Virtual Science Fair. 2016, 2017, 2018, 2019, 2020.
- Public talk. Science Uncorked Series, Bodega Bay, CA. January 23, 2019
- March for Science San Luis Obispo Co-organizer and Social Media Manager. April 2017.
- Education and Training Coordinator for The GLOBE Program, Boulder, CO. 2015.

FIELD EXPERIENCE

- 2019 Live foraminifera culture, Bodega Marine Laboratory
- 2017 Applied California Current Ecosystem Studies. Science intern.
 - Three 5-day cruises.
 - Conducted water chemistry sampling and CTD casts.

2012 Marine Biology Field Course
 Moorea, French Polynesia
 5-week intensive field course in coral reef ecosystem, including >40 scientific
dives
AAUS SCUBA Certified Scientific Diver – over 40 dives completed