

HEILI E. LOWMAN

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EDUCATION:

- 2020 Ph.D. Ecology, Evolution, and Marine Biology. University of California Santa Barbara.
- 2012 B.A. Chemistry, French and Francophone Studies. Vassar College.

PROFESSIONAL EXPERIENCE:

- 2021-*present* Postdoctoral Scholar. Department of Natural Resources and Environmental Science. University of Nevada, Reno (UNR).
- 2020-2021 Scientist. Department of Biology. Southern California Coastal Water Research Project (SCCWRP).
- 2015-2020 Graduate Researcher. Santa Barbara Coastal Long Term Ecological Research (SBC LTER) Project. University of California Santa Barbara (UCSB).
- 2016-2019 Teaching Assistant. Department of Ecology, Evolution, and Marine Biology (EEMB); Bren School of Environmental Science and Management. UCSB.
- 2013-2015 Research Assistant. Departments of Biology and Engineering. University of Iowa.
- 2012-2014 Senior Associate. Healthcare Performance Improvement Practice. Berkeley Research Group.
- 2012 Communications Coordinator. National Marine Sanctuary Foundation.
- 2009-2012 Research Assistant. Department of Chemistry. Vassar College.
- 2011 Research Intern. Biogeochemistry Group. Stroud Water Research Center.
- 2010 Research Intern. Department of Marine Science. Texas A&M University Galveston (TAMUG).

PUBLICATIONS: (+denotes undergraduate mentee co-author)

Peer-reviewed manuscripts

In Press or Published

- 2021 **Lowman, H.E.**, K.A. Emery, J.E. Dugan, and R.J. Miller. 2021. Nutritional Quality of Giant Kelp Declines Due to Warming Ocean Temperatures. *Oikos*. <https://doi.org/10.1111/oik.08619>
- Lowman, H.E.**, M. Moingt, M. Lucotte, J.M. Melack, and H.M. Page. 2021. Terrestrial Organic Matter Inputs to Nearshore Marine Sediment Under Prolonged

- Drought Followed by Significant Rainfall as Indicated by Lignin. *Estuaries and Coasts*. 44: 2159-2172. <https://doi.org/10.1007/s12237-021-00931-4>
- 2019 **Lowman, H.E.**, K.A. Emery, L. Kubler-Dudgeon⁺, J.E. Dugan, and J.M. Melack. 2019. Contribution of Macroalgal Wrack Consumers to Dissolved Inorganic Nitrogen Concentrations in Intertidal Pore Waters of Sandy Beaches. *Estuarine, Coastal and Shelf Science*. 219: 363-371. <https://doi.org/10.1016/j.ecss.2019.02.004>
- 2015 Schroer, A.L., **H.E. Lowman**, and C.L. Just. 2015. Educating the Aware, Informed, and Action-oriented Sustainable Citizen. *Sustainability*. 7(2): 1985-1999. <https://doi.org/10.3390/su7021985>
- 2014 Aldeborgh, H., K. George, M. Howe, **H. Lowman**, H. Moustakas, N. Strunsky, and J.M. Tanski. 2014. Analysis of Small Molecule X-Ray Crystal Structures: Chemical Crystallography with Undergraduate Students in a Teaching Laboratory. *Journal of Chemical Crystallography*. 44(2): 70-81. <https://doi.org/10.1007/s10870-013-0485-z>

In Review, Submitted, or In Preparation

- 2021 Halpern, B., C. Bottiger, M.C. Dietze, [and 105 others, including **H.E. Lowman**]. Priorities for Synthesis in Ecology and Environmental Science. *submitted to Frontiers in Ecology and the Environment*.
- Lowman, H.E.**, M.E. Hirsch, M.A. Brzezinski, and J.M. Melack. Sandy Marine Sediments Surrounding Giant Kelp Forests Provide Recycled Nutrients. *submitted to Marine Ecology Progress Series (pdf available upon request)*.
- Thornton Hampton, L., **H. E. Lowman**, S. Coffin, [and 15 others]. A Living Tool for the Continued Exploration of Microplastic Toxicity. *submitted to Microplastics and Nanoplastics*.

Reports and theses

- 2021 Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., **Lowman, H.**, Allen, A., Leidy, R., Robb, J.T., and David, G.C.L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Arid West of the United States. V 1.0. Document No. EPA-800-5-21001
- 2020 **Lowman, H.** Nutrient and Organic Matter Cycling in the Nearshore Ocean and Marine Sediment of the Santa Barbara Channel. Ph.D. Dissertation. University of California Santa Barbara. <https://escholarship.org/uc/item/7nj792b9>

Datasets

- 2021 Santa Barbara Coastal LTER, **Lowman, H.**, J. Melack, M. Brzezinski. 2021. SBC LTER: Ocean: Diel nearshore water profiles (CTD and chemistry) during stratified conditions. *Environmental Data Initiative*. <https://doi.org/10.6073/pasta/7a41a41c52b425c564de7aa079839049>
- 2020 **Lowman, H.**, K. Emery, L. Kubler-Dudgeon⁺, J. Dugan, J. Melack. 2020. SBC LTER: Beach: Data to support “Contribution of macroalgal wrack consumers to dissolved inorganic nitrogen concentrations in intertidal pore waters of sandy

beaches.” *Environmental Data Initiative*.
<https://doi.org/10.6073/pasta/ab62a56a85ce73f2cb93269d5482e79e>

2018 Santa Barbara Coastal LTER, Page, H., **H. Lowman**, J. Melack, J. Smith, D. Reed. 2018. SBC LTER: OCEAN: Particulate Organic Matter Content and Composition of Stream, Estuarine, and Marine Sediments. *Environmental Data Initiative*. <https://doi.org/10.6073/pasta/05ca288d7203107bddab618e95524c0a>

R Shiny Applications (if required, access credentials available upon request)

2021 Wong, C., S. Kotar, A. Zuelow, **H. Lowman**, A. Wong, E. Miller, D. Lin, R. Sutton, S. Weisberg. 2021. Contaminants of Emerging Concern Data Tool. https://sccwrp.shinyapps.io/cec_data_tool/

2020 Thornton Hampton, L., **H. Lowman**, S. Coffin, [and 16 others]. 2020. Toxicity of Microplastics Explorer. https://sccwrp.shinyapps.io/aq_mp_tox_shiny/

Mazor, R., **H. Lowman**, A. Holt., 2020. Beta Streamflow Duration Assessment Method for the Arid West: Online Report Generating Tool Version 1.0. https://sccwrp.shinyapps.io/beta_awsdam_report/

Software Packages

2019 Bui, A., **H. Lowman**, A. Guerra. 2019. *calecopal*: a California-inspired package of color palettes. <https://github.com/an-bui/calecopal/>

FELLOWSHIPS, SCHOLARSHIPS, AND AWARDS:

2021	Coastal and Estuarine Research Federation (CERF) Participation Grant.	\$300
2019-2020	President’s Dissertation Year Fellowship. UCSB.	\$76,600
2020	Ocean Sciences Meeting Travel Grant.	\$380
2019	Doctoral Student Travel Grant. UCSB.	\$400
2019	Graduate Division Travel Grant. UCSB.	\$1,000
2019	Coastal and Estuarine Research Federation Travel Grant.	\$300
2016-2019	Santa Barbara Coastal LTER Graduate Fellowship. UCSB.	\$76,000
2015	EEMB Departmental Fellowship. UCSB.	\$45,000
2012	Environmental Research Institute Scholarship. Vassar College.	\$5,000
2010	National Science Foundation Research Experiences for Undergraduates (REU) Award. TAMUG.	\$5,000

RESEARCH GRANTS:

2018	Worster Award. EEMB, UCSB. “Investigating Zooplankton as a Source of Nitrogen for Kelp Forests During Low Nutrient Periods.” Role: Lead PI.	\$5,400
2018	Emergency Grant. Associated Students Coastal Fund, UCSB. “Composition of Debris Deposited on Goleta Beach and Persistence in Marine Ecosystems.” Role: Lead PI.	\$8,840
2018	Departmental Block Grant. EEMB, UCSB. “Lignin Phenols as Biomarkers of Terrestrial Organic Matter in the Santa Barbara Channel.” Role: Graduate Researcher.	\$1,000

INVITED SEMINARS:

- 2020 Southern California Coastal Water Research Project. Costa Mesa, CA.
2017 Biogeosciences Seminar Series. UCSB. Santa Barbara, CA.

CONFERENCE ACTIVITIES: (+undergraduate mentee lead presenter/author, *accepted)

Presentations

- 2021* A. Webster, **H. Lowman**, B. Summers, T. Harms, S. Earl, X. Dong, A.M. Reinhold, J. Blaszcak, M. Lauck, L. Gaines-Sewell, N.B. Grimm. “Wildfire impacts to aridland stream chemistry across a hydroclimatic gradient.” American Geophysical Union Fall Meeting. New Orleans, LA.
- 2021 **H. Lowman**, M. Hirsch, M. Brzezinski, J. Melack. “Marine Sediments Surrounding Giant Kelp Forests Supply Recycled Nutrients to the Overlying Water Column.” CERF Conference. *Virtual summit*.
- 2019 **H. Lowman**, M. Moingt, A. Zimmerman, J. Melack. “Distribution of Terrestrial Organic Material in Nearshore Marine Ecosystems due to Debris Flow Emergency Response.” CERF Conference. Mobile, AL.
- 2019 K. Le⁺, **H. Lowman**. “Investigating Pelagic Zooplankton as a Source of Nitrogen for Giant Kelp Forests during Low Nutrient Periods.” Worster Award Symposium. UCSB. Santa Barbara, CA.
- 2018 E. Staguhn⁺, **H. Lowman**, J. Melack. “The Impact of Thomas Fire Debris on Nitrogen Cycling in Nearshore Marine Sediments in the Santa Barbara Channel”. Ocean Global Change Biology REU Symposium. UCSB. Santa Barbara, CA.
- 2018 **H. Lowman**, M. Moingt, J. Melack, M. Page, M. Lucotte. “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, British Columbia.
- 2018 **H. Lowman**. “Data Science in the Classroom: Lessons Learned from Using R, JMP, MATLAB, and Excel.” Graduate Student Teaching Symposium. UCSB. Santa Barbara, CA.
- 2018 **H. Lowman**, J. Melack. “Investigating Benthic Marine Sediments as a Nutrient Source to the Overlying Water Column.” EEMB Graduate Symposium. UCSB. Santa Barbara, CA.
- 2014 C. Just, **H. Lowman**. “Sustainability Education and Community Conversation Training.” Just Sustainability Conference. Seattle University. Seattle, WA.
- 2012 **H. Lowman**, A. Spodek Keimowitz. “The Effect of Organic Matter on Metal Cycling in Wetland Soils.” Department of Chemistry Thesis Symposium. Vassar College. Poughkeepsie, NY.
- 2010 **H. Lowman**, S. Moller, D. Aguirre, P. Louchouart. “Tracing Black Carbon in Local Aqueous Environments Using Levoglucosan and Free Lignin Phenols.” National Science Foundation REU Symposium. TAMUG. Galveston, TX.

Chaired Sessions

- 2022* A. Carter, **H. Lowman**. “Ecological Models as Tools for Integrating Aquatic Sciences.” Joint Aquatic Sciences Meeting. Grand Rapids, MI.

2020 **H. Lowman**, T. Treude. “Marine Sediments: Fluxes, Fauna, and Forecasting.” Ocean Sciences Meeting. San Diego, CA.

Posters

- 2020 **H. Lowman**. “Investigating Benthic Marine Sediments near Giant Kelp Forests as a Nutrient Source to the Overlying Water Column.” Ocean Sciences Meeting. San Diego, CA.
- 2018 **H. Lowman**, J. Melack. “Investigating Benthic Marine Sediments as a Nutrient Source to the Overlying Water Column.” LTER All Scientists’ Meeting. Asilomar, CA.
- 2018 C. Smith⁺, **H. Lowman**, J. Melack. “Effects of Low pH on Microbially Mediated Nitrogen Transformations in Marine Sediments.” Ocean Sciences Meeting. Portland, OR.
- 2016 **H. Lowman**, J. Melack. “Monitoring Fluctuations in Dissolved Inorganic Nitrogen in Local Kelp Forest Environments.” Santa Barbara Coastal LTER Annual Meeting. UCSB. Santa Barbara, CA.
- 2012 **H. Lowman**, A. Spodek Keimowitz, K. Wovlkuvich. “What might the *Deepwater Horizon* oil spill have done to Gulf Coast marshes? A Study of the Effects of Organic Matter on Metal Cycling in Wetland Soils.” Hudson River Symposium. Vassar College. Poughkeepsie, NY.
- 2009 **H. Lowman**, E. Eberhardt. “Impact of Hydroxylation on Poly (*L*-Proline) Type II Helix Formation and Protease Resistance.” Mid-Hudson American Chemical Society Research Symposium. Mount Saint Mary College. Newburgh, NY.

WORKSHOPS LED:

- 2021 Co-Organizer and Co-Instructor. Introduction to R for Ecologists. UCSB (*Virtual workshop*). https://hlowman.github.io/ucsb_r_workshop/
- 2020-2021 Organizer and Lead Instructor. *Tidy Tuesday* R Workshop Series. SCCWRP (*Virtual tutorials*). <https://github.com/hlowman/TidyTuesday>
- 2020 Co-Organizer and Co-Instructor. Visualizing and Mapping Bioassessment Data in R. California Aquatic Bioassessment Workgroup/California Chapter of the Society for Freshwater Science (*Virtual workshop*). https://ucd-cws.github.io/CABW2020_R_training/
- 2017 Co-Organizer and Co-Instructor. Introduction to R Workshop. SBC LTER.

WORKSHOPS ATTENDED:

- 2021 Mentoring Mentors, Office of Postdoctoral Affairs, UNR.
- 2021 Culturally Relevant Education in Environmental Data Science, Environmental Data Science Inclusion Network, *Virtual summit*.
- 2021 The Future of Synthesis in Ecology Workshop, National Center for Ecological Analysis and Synthesis, *Virtual summit*.
- 2020 The Carpentries Instructor Training, *Online course*.
- 2020 Incorporating Data Science and Open Science Techniques in Aquatic Research, *Virtual summit*.
- 2020 California Water Data Science Symposium, California Water Boards.

- 2020 Ocean Sciences Data Labs Workshop, Ocean Observatories Initiative.
2019 University of California Office of the President Fall Meeting, University of California Berkeley.
2019 Scientific Communication Workshop, Schmidt Ocean Institute.
2017 Coastal Resiliency Workshop, University of California Irvine (UCI).
2017 Software Carpentry Workshop, EcoDataScience, UCSB.

TEACHING EXPERIENCE:

Academic Teaching Experience

Bren School of Environmental Science and Management, UCSB

Graduate-level coursework

Teaching Assistant. ESM 202: Environmental Biogeochemistry.

Winter 2017, 88 students

Winter 2018, 83 students

Winter 2019, 74 students

Department of Ecology, Evolution, and Marine Biology, UCSB

Undergraduate-level coursework

Teaching Assistant. EEMB 148: Stream Ecology.

Spring 2017, 141 students

Spring 2018, 125 students

Teaching Assistant. EEMB 142B: Environmental Processes in Oceans/Lakes.

Winter 2016, 86 students

Collegebound Santa Barbara

Undergraduate and High School-level coursework

Tutor. SAT Prep, Algebra, English Composition.

Summer 2019, 6 students

Bilingual Teaching Experience

The Experiment in International Living, World Learning

(Primary Spoken Language: French)

Group Leader. France: French Language and Culture.

Summer 2012, 10 students

Seedrioru Estonian Summer Camp

(Primary Spoken Language: Estonian)

Counselor. Suured Tüdrukud.

Summer 2008, 10 campers

MENTORING:

Undergraduate Independent Research Projects Advised and Student Awards

- 2017-2019 Katherine Le, UCSB. “Investigating Pelagic Zooplankton as a Source of Nutrients for Giant Kelp Forests.” Worster Award (2018).

- 2018 Elena Staguhn, University of Maryland. “The Impact of Thomas Fire Debris on Nutrient Cycling in Nearshore Marine Sediments.” National Science Foundation REU (2018).
- 2017-2018 Lila Kubler-Dudgeon, UCSB. “Contribution of Talitrid Amphipods and their Kelp Wrack Consumption to Sandy Beach Nitrogen Cycling.” Co-author on ECSS publication (2019).
- 2017 Chloe Smith, Oregon Institute of Technology. “Effects of Low pH on Microbially Mediated Nitrogen Transformations in Marine Sediments.” National Science Foundation REU (2017), ASLO Multicultural Program Award (2018).

Undergraduate, Graduate, & Professional Mentees and Affiliations

- 2021 Annie Holt, Department of Biology, SCCWRP.
- 2021 Angelina Zuelow, Department of Biological Science, California State University (CSU) Fullerton.
- 2020-2021 Jhenevieve Cabasal, Department of Biological Sciences, CSU Long Beach.
- 2020 Megan Mirkhanian, Department of Civil and Environmental Engineering, UCI.
- 2019-2020 Tyler Daniel, Santa Barbara Coastal LTER, UCSB.
- 2017-2019 Angela Delossantos, Department of Environmental Science, UCSB.
- 2017-2018 Kristine Robinson, Women in Science and Engineering, UCSB.

Undergraduate Teaching Assistants (UCSB)

- 2018 Belle Jiyarom, Sophie O’Hare
- 2017 Timothy Ngo, Paige Rasmussen

OUTREACH, EDUCATION, AND DIVERSITY RELATED ACTIVITIES:

- 2021 Student Presentation Judge and Mentor, CERF Conference
- 2021 Facilitator, Data Therapy Monthly Meeting Series, Global Water Center (UNR)
- 2020 Facilitator, Cover Letter and CV Workshop for Undergraduates, SCCWRP
- 2020 Panelist, EEMB 120 Career Panel for Ecology Undergraduates, UCSB
- 2019 Volunteer, CERF Conference
- 2019 Co-facilitator, Ocean Change Biology REU Research Skills Workshop, UCSB
- 2019 Panelist, Graduate Students for Diversity in Science Panel, UCSB
- 2019 Judge, Santa Barbara County Science Fair
- 2018, 2019 Facilitator, Ocean Change Biology REU Career Panel, UCSB
- 2018 Mentor, LTER All Scientists’ Meeting
- 2017, 2018 Mentor, NSF REU Program
- 2017-2018 Mentor, Women in Science and Engineering, UCSB
- 2017-2018 Panelist, EEMB 142 Career Panel for Aquatic Biology Undergraduates, UCSB
- 2017 Volunteer, Santa Barbara World Oceans Day
- 2017 Presenter, EEMB 142 Graduate School Workshop, UCSB
- 2016-2017 Editor/Contributor, “Roots to STEM” blog
- 2016 Facilitator, EEMB 142 Career Panel for Aquatic Biology Undergraduates, UCSB
- 2010 Volunteer, Texas Marine Mammal Stranding Network
- 2009 Volunteer, Auburn Heights Preserve

PROFESSIONAL SERVICE:

Peer-review activities

Journal reviewer: *Biogeochemistry*, *Hydrobiologia*, *European Journal of Phycology*

Professional memberships and associations

American Geophysical Union (AGU)
Association for the Sciences of Limnology and Oceanography (ASLO)
Coastal and Estuarine Research Federation (CERF)
Society for Open, Reliable, and Transparent Ecology and Evolutionary Biology (SORTEE)
University of Nevada Global Water Center (GWC)
Santa Barbara Coastal Long Term Ecological Research Project (SBC LTER)
Collaborative for Research in Aridland Stream Systems (CRASS)
The Carpentries

DEPARTMENTAL AND INSTITUTIONAL SERVICE:

University of Nevada, Reno

2021-present Member, Global Water Center Strategic Planning Committee

Southern California Coastal Water Research Project

2020-2021 Member, Professional Development Training Team

University of California Santa Barbara

2019-2020 Graduate Representative, Freshwater Ecology Faculty Hiring Committee
2018-2020 Coordinator, Biogeosciences Seminar Series
2019 Judge, EEMB Graduate Student Symposium
2018 Organizer, Professional Development Seminar Series: Academic Positions
2017-2018 Organizer, Statistical Methods and Data Visualization in Ecology Group
2016 Organizer, Foundational Literature in Ecology Reading Group

Vassar College

2011-2012 Captain, Synchronized Ice Skating Team
2010-2012 Tour Guide, Office of Admissions
2009-2012 Captain/Treasurer, Ski Team

ADDITIONAL MEDIA:

2021 Interviewed for *KCBX* story (90.1 FM San Luis Obispo): [Article link](#).
2021 “Warmer Water, Less Nutrition.” *The UCSB Current*: [Article link](#).
2021 Metadata Tutorial, SBC LTER Data Help Desk: [Video link](#).
2020 SCCWRP Scenes, *SCCWRP Director’s Report (Fall 2020)*: [Report link](#).
2019 Featured Scientist, *Long Term Ecological Research Network*: [Instagram](#).
2018 Interviewed for *KEYT* News story, “Clearing the Shoreline”: [Video link](#).

ADDITIONAL SKILLS AND EXPERTISE:

Software & Computing

R – RStudio, RMarkdown, Shiny;
Git/GitHub; Zotero (*proficient*)

High performance computing clusters, STAN,
JMP, MATLAB, Mendeley (*working knowledge*)

SQL (*novice*)

Languages

English, Estonian, French (*fluent*)
Italian (*novice*)

Certifications

The Carpentries Certified Instructor