Lauren E. Manck

Ph.D., Oceanography

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Education

2020	Doctor of Philosophy: Oceanography Scripps Institution of Oceanography, University of California, San Diego
2014	Master of Science: Earth Sciences Scripps Institution of Oceanography, University of California, San Diego
2012	Bachelor of Science (with honors): Chemistry with American Chemical Society Certification Calvin University (formally Calvin College)

Grants, Fellowships, and Honors

2020-present	Simons Postdoctoral Fellowship in Marine Microbial Ecology
2012-2017	National Science Foundation Graduate Research Fellowship
2012-2013	Fulbright Scholarship
2012	Karen J. Carlson Muyskens Outstanding Senior in Chemistry Award, Department of Chemistry and Biochemistry, Calvin College
2011-2012	Goldwater Scholarship
2010-2012	Klanderman Family Scholarship, Department of Chemistry and Biochemistry, Calvin College
2008-2012	Presidential Scholarship, Calvin College

Research Experience

2020-present Flathead Lake Biological Station, University of Montana, Postdoctoral Research Associate (Advisor: Dr. Matthew Church)

My postdoctoral work focuses on investigating the mechanisms of organic matter remineralization at Station ALOHA in the North Pacific subtropical gyre in an effort to understand the connections between carbon and iron cycling by marine heterotrophic bacteria in this oligotrophic system.

2013-2020 Scripps Institution of Oceanography, Graduate Researcher (Advisor: Dr. Katherine Barbeau)

My dissertation work focused on understanding iron acquisition strategies in heterotrophic marine bacteria and the downstream effects these have on iron and carbon cycling in the marine environment. This incorporated both culture-based and field-based work making use of current techniques in molecular biology, next generation sequencing, microscopy, and analytical chemistry.

2012-2013 University of Cádiz, Spain, Fulbright Program Graduate Researcher (Advisor: Dr. María Jesús Ortega)

Combined HPLC, NMR, and LC-MS techniques to identify and quantify flavonoids produced by several seagrass species along the Spanish coastline in an effort to better understand the ecological role these compounds serve.

2012 Calvin College, Chemistry Student Researcher (Advisor: Dr. David Benson)

Used GFAA to determine the lead concentration in drinking water in the homes of Grand Rapids, MI residents where lead pipe replacement projects were being undertaken by the city in an attempt to better understand the consequences of partial lead line replacements.

2011 University of Cádiz, Spain, National Science Foundation Research Experience for Undergraduates (Advisor: Dr. María Jesús Ortega)

Made use of HPLC and GC-MS techniques to determine the stability of marine diatom-produced polyunsaturated aldehydes in seawater under various environmental conditions with the goal of assessing their potential as a chemical defense mechanism for diatoms.

2009-2011 Calvin College, Chemistry Student Researcher (Advisor: Dr. Douglas Vander Griend)

Used UV-VIS spectrophotometric titrations in conjunction with equilibrium-restricted factor analysis via the modeling program SIVVU to characterize the self-assembly of various metal-ligand supramolecular structures.

Teaching Experience and Training

2018	University of California, San Diego Teaching and Learning Commons, Introduction to College Teaching
2016-2018	University of California, San Diego, Teaching Assistant, Life and Climate on Earth
2011-2012	Calvin College, Supplementary Information Instructor, General Chemistry
2009-2012	Calvin College, Student Academic Services Tutor
2010-2012	Calvin College, Lab Assistant, General Chemistry

Field Experience

2017 June	RV *Roger Revelle*, CCE LTER Process Cruise
2017 March	RV *Sally Ride*, SR1708 Zooplankton Collection
2016 June	RV *Blue Heron*, UNOLS Chief Scientist Training Cruise
2016 April	RVIB *Nathaniel B. Palmer*, Fjord Ecosystem Structure and Function on the West Antarctic Peninsula
2015 July	RV *Oceanus*, CCE LTER Student Cruise
2015 June	RV *Kilo Moana*, CMORE Summer Course for Microbial Oceanography
2014 August	RV *Melville*, CCE LTER Process Cruise

Professional Affiliations

Association for the Sciences of Limnology and Oceanography

American Society for Microbiology

Mentoring and Outreach

2015-2020	Graduate Student Representative for Beach Science Program, Birch Aquarium at Scripps
2019	Mentor for Ashley Kumar, CCE LTER NSF REU
2018	Mentor for Kellie Lemoine, CCE LTER NSF REU
2016	Mentor for Bretton Coppedge, CCE LTER NSF REU

2015-2016 Mentor for Zoe Marsh and Maxwell Menke, High Tech High School

2014-2015 Mentor for Ana Armenta-Vega, Arroyo Paseo High School

Publications and Presentations

Publications

Manck, L.E., Espinoza, J.L., Dupont, C.L., and Barbeau, K.A. 2020. Transcriptomic study of substrate-specific transport mechanisms for iron and carbon in the marine copiotroph *Alteromonas macleodii*. *mSystems*. **5**: e00070-20.

Pan, B.J. Vernet, M., **Manck, L.E.,** Forsch, K.O., Ekern, L., Mascioni, M., Barbeau, K.A., Almandoz, G. and Orona, A. 2020. Environmental Drivers on Phytoplankton Taxonomic Composition in an Antarctic Fjord. *Prog. Oceanogr*. **183**: 102295.

Manck, L.E., Quintana, E., Suárez, R., Brun, F.G., Hernández, I., Ortega, M.J. and Zubía, E. 2017. Profiling of phenolic natural products in the seagrass *Zostera noltei* by UPLC-MS. *Nat. Prod. Commun.* **12**: 687-690.

Manck, L.E., Benson, C.R., Share, A.I., Park, H., Vander Griend, D.A. and Flood, A.H. 2014. Self-assembly snapshots of a 2x2 copper(I) grid. *Supramol. Chem.* **26**: 267-279.

Hall, B. R., **Manck, L.E.**, Tidmarsh, I.S., Stephenson, A., Taylor, B.F., Blaikie, E.J., Vander Griend, D.A. and Ward, M.D. 2011. Structures, host-guest chemistry and mechanism of stepwise self-assembly of M_4L_6 tetrahedral cage complexes. *Dalton Trans.* **40**: 12132-12145.

Oral Presentations:

Manck, L.E., Dupont, C. and Barbeau, K.A. Functional Genomics Reveals Novel Insights into Iron Acquisition Pathways Utilized by Heterotrophic Bacteria in Marine Systems. Gordon Research Seminar Chemical Oceanography, Holderness, NH, July 2019.

Manck, L.E., Dupont, C. and Barbeau, K.A. Functional Role of Siderophore Biosynthesis in Iron Acquisition within Marine Systems. ASLO 2019 Aquatic Sciences Meeting, San Juan, Puerto Rico, February 2019.

Manck, L.E., Forsch, K.O., Pan, J.B., Ekern, L., Smith, C.R., Barbeau, K.A. and Vernet, M. Microbial Dynamics of a Fjord Ecosystem Along the West Antarctic Peninsula. Gordon Research Seminar Polar Marine Science, Ventura, CA, March 2017.

Manck, L.E., Dupont, C. and Barbeau, K.A. Iron Acquisition Strategies Employed by Copiotrophic Marine Bacteria and Downstream Effects on Iron Remineralization Processes. ASLO 2017 Aquatic Sciences Meeting, Honolulu, HI, February 2017.

Poster Presentations:

Manck, L.E., Coale, T., Dupont, C.L., Allen, A.E., and Barbeau, K.A. A Spectrum of Nutrient Limitation in the Heterotrophic Prokaryotic Community of the California Current Ecosystem. 2020 Ocean Sciences Meeting, San Diego, CA, February, 2020.

Manck, L.E., Dupont, C. and Barbeau, K.A. Functional Genomics Reveals Novel Insights into Iron Acquisition Pathways Utilized by Heterotrophic Bacteria in Marine Systems. Gordon Research Conference Chemical Oceanography, Holderness, NH, July 2019.

Manck, L.E., Forsch, K.O., Dupont, C. and Barbeau, K.A. Microbial Remineralization of Organic Matter in the California Current Ecosystem. LTER All Scientists Meeting, Pacific Grove, CA, October 2018.

Manck, L.E., Forsch, K.O., Ekern, L., Dupont, C., Vernet, M. and Barbeau, K.A. Distribution and Biogeochemical Role of the Bacterial Community within a Fjord Ecosystem Along the West Antarctic Peninsula. 2018 Ocean Sciences Meeting, Portland, OR, February 2018.

Manck, L.E., Forsch, K.O., Pan, J.B., Ekern, L., Smith, C.R., Barbeau, K.A. and Vernet, M. Microbial Dynamics of a Fjord Ecosystem Along the West Antarctic Peninsula. Gordon Research Conference Polar Marine Science, Ventura, CA, March 2017.

Manck, L.E., Bundy, R.M., Hogle, S.H., Ruacho, A. and Barbeau, K.A. Bacterial Community Response to Iron Availability in the California Current System. LTER All Scientists Meeting, Estes Park, CO, August 2015.

Manck, L.E., Zubía, E. And Ortega, M.J. Spatial Scale Patterns in Seagrass Defenses: Phenolic Compounds in *Zostera noltei*.VI Reunión Química-Orgánica del Mediterráneo (6th Organic Chemistry of the Mediterranean Meeting), Granada, Spain, June 2013.

Manck, L.E., Ortega, M.J. and Bartual, A. The Persistency of Polyunsaturated Aldehydes in Seawater at Multiple Temperatures. 243rd American Chemical Society National Meeting, San Diego, CA, March 2012.

Manck, L.E. and Vander Griend, D.A. Nanomolecular Building Projects with Spectrophotometric Characterization. West Michigan Regional Undergraduate Science Research Conference, Grand Rapids, MI, November 2010.

Manck, L.E., Vander Griend, D.A., Flood, A.H. and Share, A.I. Nanomolecular Building Projects. 239th American Chemical Society National Meeting, San Francisco, CA, March 2010.