

## Emma K. Wear

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### Professional Employment

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Postdoctoral research associate, November 2017 - present

Flathead Lake Biological Station, University of Montana; supervisor: Dr. Matthew Church

Postdoctoral associate, April - October 2017

University of California, Santa Barbara

### Education

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**Ph.D.**, 2017; Marine Science, University of California, Santa Barbara

Advisor: Dr. Craig Carlson

Dissertation: Bottom-up Drivers of Bacterial Community Composition and Metabolism of Dissolved Organic Carbon in the Santa Barbara Channel, CA

**M.S.**, 2009; Coastal Marine and Wetland Studies, Coastal Carolina University, Conway, SC

Advisor: Dr. Eric Koepfler

Thesis: Effects of Inter-tributary Dissolved Organic Carbon Variability on Heterotrophic Microbial Communities in Upper Winyah Bay, SC

**B.S.**, 2007; Biology, English minor, magna cum laude, Phi Beta Kappa

Illinois Wesleyan University, Bloomington, IL

### Research Fellowships Obtained

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2012 NASA Earth and Space Science Fellowship (3 years, \$90,000)

2008 National Estuarine Research Reserve System Graduate Research Fellowship, North Inlet-Winyah Bay NERR (1 year, \$20,000)

### Peer-reviewed Publications

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8. MJ Church, E Kyi, RO Hall, DM Karl, M Lindh, A Nelson, and **EK Wear**. *In press*. Production and diversity of microorganisms associated with sinking particles in the subtropical North Pacific Ocean. *Limnology and Oceanography*.
7. **EK Wear**, MJ Church, BN Orcutt, CN Shulse, MV Lindh, and CR Smith. 2021 (in press). Bacterial and archaeal communities in the abyssal Clarion-Clipperton Zone: Emerging patterns and considerations for future monitoring studies. *Frontiers in Marine Science* (part of special issue on Biodiversity, Connectivity, and Ecosystem Function Across the Clarion-Clipperton Zone). doi: 10.3389/fmars.2021.634803
6. **EK Wear**, CA Carlson, and MJ Church. 2020. Bacterioplankton use of phytoplankton lysates across a cyclone-anticyclone eddy dipole impacts the cycling of semi-labile organic matter in the photic zone. *Limnology and Oceanography* 65: 1608-1622. doi:

10.1002/Ino.11409

5. **EK Wear**, 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* 20: 2709-2726. doi: 10.1111/1462-2920.14091
4. **EK Wear**, CA Carlson, LA Windecker, and MA Brzezinski. Roles of diatom nutrient stress and species identity in determining the short- and long-term bioavailability of diatom exudates to bacterioplankton. 2015. *Marine Chemistry* 177: 335-348. doi: 10.1016/j.marchem.2015.09.001
3. **EK Wear**, CA Carlson, AK James, MA Brzezinski, LA Windecker, and CE Nelson. 2015. Synchronous shifts in dissolved organic carbon bioavailability and bacterial community responses over the course of an upwelling-driven phytoplankton bloom. *Limnology and Oceanography* 60: 657-677. doi: 10.1002/Ino.10042
2. **EK Wear**, ET Koepfler, and EM Smith. 2014. Spatiotemporal variability in dissolved organic matter composition is more strongly related to bacterioplankton community composition than to metabolic function in a blackwater estuarine system. *Estuaries and Coasts* 37: 119-133. doi: 10.1007/s12237-013-9651-y
1. BP Durham, J Grote, KA Whittaker, SJ Bender, H Luo, SL Grim, JM Brown, JR Casey, A Dron, L Florez-Leiva, A Krupke, CM Luria, AH Mine, OD Nigro, S Pather, A Talarmin, **EK Wear**, TS Weber, JM Wilson, MJ Church, EF DeLong, DM Karl, GF Steward, JM Eppley, NC Kyrpides, S Schuster, and MS Rappé. Draft genome sequence of marine alphaproteobacterial strain HIMB11, the first cultivated representative of a unique lineage within the Roseobacter clade possessing a remarkably small genome. *Standards in Genomic Sciences* 9: 632-645. doi: 10.4056/sigs.4998989

### Other Publications

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2. Technical report: Church, MJ, **EK Wear**, BN Orcutt, CR Young, and JM Smith. 2019. Taxonomic diversity of Bacteria and Archaea in the Clarion-Clipperton Zone of the North Pacific Ocean. In: DeepCCZ Biodiversity Synthesis Workshop Report, prepared for the International Seabed Authority. <https://www.isa.org.jm/files/files/documents/Deep%20CCZ%20Biodiversity%20Synthesis%20Workshop%20Report%20-%20Final-for%20posting-clean-1.pdf>
1. Commentary: CE Nelson and **EK Wear**. 2014. Microbial diversity and the lability of dissolved organic carbon. *PNAS* 111: 7166-7167. doi:10.1073/pnas.1405751111

### Publications in Progress

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2. **EK Wear**, CR Smith, JC Drazen, and MJ Church. In prep. Distinct sediment bacterial and archaeal communities between adjacent seamount and abyssal plain sites in the Clarion-Clipperton Zone of the North Pacific Ocean.
1. NJ Hawco, B Barone, MJ Church, L Babcock-Adams, DJ Repeta, **EK Wear**, RK Foreman, KM Björkman, S Bent, BAS Van Mooy, U Sheyn, EF DeLong, M Acker, RL Kelley, A Nelson, J Ranieri, DM Karl, and SG John. In prep. Mesoscale eddies as natural iron

fertilization experiments to the deep chlorophyll maximum. For Global Biogeochemical Cycles.

### **Recent Conference and Workshop Presentations**

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- 2021 **EK Wear**, LA Windecker, JL Jones, AK James, ER Halewood, MA Brzezinski, and CA Carlson. **Talk:** Distinct heterotrophic bacterioplankton communities associated with upwelling-driven diatom and *Phaeocystis* blooms in different physiological states. Aquatic Sciences Meeting, virtual.
- 2020 **EK Wear**, CR Smith, JC Drazen, and MJ Church. **Talk:** Deep-sea bacterial and archaeal communities of the western Clarion-Clipperton Zone. Ocean Sciences Meeting, San Diego, CA.
- 2019 **EK Wear**, CA Carlson, and MJ Church. **Poster:** Bacterioplankton metabolism of phytoplankton lysates across a cyclone-anticyclone eddy dipole impacts the cycling of semi-labile organic matter in the photic zone. SCOPE Annual Meeting, New York City.
- 2019 **EK Wear** and MJ Church. **Talk:** Synthesis of microbial diversity in the CCZ. DeepCCZ Biodiversity Synthesis Workshop, Friday Harbor, WA.
- 2019 **EK Wear**, J Ranieri, S Devlin, and MJ Church. **Poster:** Bottom-up effects on Flathead Lake bacterioplankton community composition during summer stratification. Montana Aquatic Research Colloquium II, Flathead Lake Biological Station, Polson, MT.
- 2019 **EK Wear**, CA Carlson, and MJ Church. **Talk:** Mesoscale eddy effects differentially impact bacterioplankton use of phytoplankton lysates across a cyclone-anticyclone dipole in the North Pacific Subtropical Gyre. Aquatic Sciences Meeting, San Juan, PR.
- 2018 **EK Wear**, CA Carlson, and MJ Church. **Poster:** Phytoplankton lysate effects on bacterioplankton growth and organic matter utilization vary across a mesoscale eddy dipole transect in the North Pacific Subtropical Gyre (R/V *Falkor* cruise 2018). SCOPE Annual Meeting, New York City.
- 2018 **EK Wear**, EG Wilbanks, CE Nelson, and CA Carlson. **Poster:** 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.
- 2016 **EK Wear**, CA Carlson, D Siegel, N Guillocheau, and CE Nelson. **Poster:** Spatial and temporal patterns in bacterioplankton community composition vary in their relationship with bottom-up factors in a heterogeneous coastal system. ISME 16, Montreal, Can.

### **Invited Talks**

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- 2019 BIOS-SCOPE Annual Workshop. San Juan, PR.

## Workshops

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- 2020 Participant: Ocean Nucleic Acids 'Omics Intercalibration and Standardization Workshop, Ocean Carbon & Biogeochemistry, Chapel Hill, NC
- 2019 Topic section assistant: DeepCCZ Biodiversity Synthesis Workshop, International Seabed Authority and DeepCCZ Project (University of Hawaii), Friday Harbor, WA.

## Cruises

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- 2018 DeepCCZ, R/V *Kilo Moana*, Clarion-Clipperton Zone; 32 days, May-June
- 2018 SCOPE cruise, R/V *Falkor*, North Pacific Subtropical Gyre; 14 days, March-April
- 2010-15 Plumes and Blooms, R/V *Shearwater*, Santa Barbara Channel; 35 one-day cruises
- 2011 Course-associated cruise, R/V *Kilo Moana*, North Pacific Subtropical Gyre; 10 days, June
- 2011 SBDOM11, R/V *Point Sur*, Santa Barbara Channel; 6 days, May
- 2010 Course-associated cruise, R/V *Atlantic Explorer*, Sargasso Sea; 2 days, June
- 2010 SBDOM10, R/V *Point Sur*, Santa Barbara Channel; 7 days, April

## Teaching Experience

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Teaching Assistant, Introductory Biology Laboratory II, UCSB, 2015W

Teaching Assistant, Chemical and Physical Methods of Aquatic Environments (lab), UCSB, 2012W

Teaching Assistant, Processes in Oceans (discussion section), UCSB, 2010W, 2011W

Teaching Assistant, Plant Anatomy and Physiology Lab, IWU, 2007S

### Guest lectures in the following courses:

- 2018 Microbial Ecology, Diversity, and Evolution, University of Montana: "Bacterial metabolic activity on dissolved organic matter"
- 2018 Principles and Applications of Genetics, Salish Kootenai College: "How genetic analyses help us understand dissolved organic matter biogeochemistry"

### Pedagogical and Diversity and Inclusion training pursued:

- 2019 Mental Health First Aid, University of Montana
- 2019 Engaging Teaching Practices, University of Montana online course
- 2019 LGBTQ Allies Faculty and Staff Training, University of Montana
- 2019 Indigenous Mentoring Program Workshop, University of Montana
- 2019 Optimizing the Practice of Mentoring, University of Minnesota online course
- 2017 CIRTL Network MOOC: An Introduction to Evidence-Based Undergraduate STEM Teaching

## Professional Service and Affiliations

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Reviewer: Aquatic Microbial Ecology; Archives of Microbiology; Biogeosciences; BMC Genomics; Environmental Microbiology; Environmental Microbiology Reports; Environmental Science and Pollution Research; Estuarine, Coastal and Shelf Science; Frontiers in Microbiology; The ISME Journal; Journal of Geophysical Research – Oceans; Limnology and Oceanography; Marine Chemistry; mSphere; PeerJ; Science of the Total Environment

- I track my reviews on Publons: <https://publons.com/researcher/1401893/emma-k-wear/>

Member: Association for the Sciences of Limnology and Oceanography; International Society for

Microbial Ecology

### **Institutional Service**

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- 2020-21 Seminar organizer, postdoctoral representative, FLBS
- 2019 Postdoctoral research associate search committee member, FLBS
- 2014-15 Faculty search committee student representative, UCSB marine science program
- 2012 Seminar organizer, UCSB marine science program

### **Outreach and Diversity Activities**

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- 2019 Panelist, ESA SEEDS coffee hour, Salish Kootenai College
- 2018 Contributor, DeepCCZ cruise blog through NOAA Ocean Exploration and Research
- 2016 Guest speaker, UCSB Summer Sessions Intro to Marine Science (high school students)

### **Professional Training**

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- 2018 Data Intensive Biology Summer Institute ANGUS: Analyzing High Throughput Sequencing Data, University of California, Davis
- 2013 Cornell Satellite Remote Sensing Training Program, Cornell University
- 2011 Summer Course on Microbial Oceanography, Center for Microbial Oceanography: Research and Education, University of Hawai`i
- 2010 Microbial Oceanography course, Bermuda Institute of Ocean Sciences

### **Supplemental Funding Awards**

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- 2019 ASLO Early Career Travel Grant to attend Aquatic Sciences Meeting
- 2013 UCSB Academic Senate Doctoral Student Travel Grant
- 2013 Ocean Carbon & Biogeochemistry funding to attend Cornell Satellite Remote Sensing Training Program

### **Student Research and Communications Positions**

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- Laboratory Student Worker, Environmental Quality Lab, Coastal Carolina University, summer 2009
- Graduate Research Assistant, Coastal Carolina University, June 2007 – May 2008
- Interdisciplinary Watershed Studies REU Fellow, The College of William & Mary, summer 2006
- Laboratory Intern, City of Bloomington Water Treatment Plant, Hudson, IL, summer 2005
- Communications Peer, Illinois Wesleyan University Career Center, 2004-2007
- Editorial Staff, *Argus* student newspaper, Illinois Wesleyan University, 2004-2005