

## **Erin M Eggleston, PhD**

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### **Education:**

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#### **2015**

*PhD* Microbiology, Cornell University, Ithaca, NY (Minors in genomics and biogeochemistry) Dissertation:  
Investigating Aquatic Microbial Community Dynamics from Rivers to Oceans  
Using Molecular Biological Techniques

#### **2008**

*Bachelor of Arts* Environmental Microbiology, Hampshire College, Amherst, MA  
Thesis: Characterization of Microbial Communities in Biofilms Associated with Rock Varnish from  
Panamint Valley, CA

### **Research Experience and Training:**

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#### **2017-Present**

Eggleston Lab at Middlebury College

- Molecular Microbial Ecology
  - Major Projects:
    - Mercury methylation in St. Lawrence River Wetlands
    - Lake virome diversity assessment
  - Minor Projects:
    - Extreme membrane adaptations of archaeon *Sulfolobus islandicus*
    - Coral reef microbiome resilience
    - *Toxiplasma gondii* detection in traditional foods

#### **2018**

Strategies and Techniques for Analyzing Microbial Population Structures course Marine Biological Laboratory

#### **2016**

Clarkson University

- Collaboration with Dr. Michael Twiss on Hg-methylating wetland microbes

UNOLS Great Lakes Chief Scientist Training Cruise

- Chief Scientist for Leg 3 onboard the R/V Blue Heron

#### **2010-2015**

Graduate Student, Hewson Laboratory

- Life in the Dead Zone: Bacterioplankton metatranscriptomic analysis in Chesapeake Bay
- Atlantic Ocean viral genotype tracking and deep water viral community analysis

#### **2009-2010**

Research Technician for Dr. Thomas Ravens at University of Alaska Anchorage, School of Engineering, Civil Engineering

- Delft3D and SWAN modeling of sediment transport throughout Cook Inlet, AK
- Project Manager for Kenai Peninsula Bluff Erosion Project
- Logistics coordinator and assistant surveyor for a statewide hydrokinetic feasibility study (assessing possible small scale hydro turbines in villages throughout rural AK)

- Yukon-Kuskokwim Delta storm surge model and sediment analysis
- UAA Coordinator for the US Army Corp of Engineers Workshop on Climate Change

### Summer 2007

American Society for Microbiology Undergraduate Research Fellowship Research at Hampshire College with Dr. Jason Tor

### Teaching Experience:

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#### Fall 2017-Present

Assistant Professor of Biology, Middlebury College

- FYSE 1560 Gut Check: Exploring Microbiomes
- BIOL 140 Ecology & Evolution
- BIOL 310 Microbiology (with lab)
- BIOL 365 Molecular Microbial Ecology (with lab)
- BIOL 371 Advanced Field Biology
- BIOL 449 Extremophiles Seminar
- BIOL 500/700/701 Independent Research/Senior Ind Study/ Senior Thesis

#### Spring 2017

Adjunct Professor, Clarkson University, Department of Biology

- BY320 Microbiology

#### Fall 2016-Spring 2017

Visiting Assistant Professor, St. Lawrence University, Department of Biology

- BIO 231 Microbiology (with lab)

#### Fall 2015–Spring 2016

Adjunct Professor Rensselaer Polytechnic Institute, Department of Biology

- BIOL 4320-01 Microbiology Laboratory
- BIOL2120 Intro to Cell & Molecular Biology Lab

Adjunct Professor Sage College of Albany, Department of Biology

- BIO 110 Environmental Issues
- BIO 208 Microbiology Lab

#### 2010-2015

Teaching assistant/lead instructor/guest lecturer for six semesters, Cornell University

- BioMI 2900: General Microbiology (with lab)

#### Summer 2013

Teaching Assistant for Microbial Diversity, Marine Biological Laboratory. Course directors: Drs. Steven Zinder and Daniel Buckley.

##### *Teaching responsibilities:*

- Supervise graduate students, post-docs, and faculty on individual microbial ecology research projects
- Maintain and facilitate ion chromatograph equipment and sample processing
- Prepare growth media for a variety of microbial enrichment experiments

#### Peer Reviewed Publications: (\* denotes student author)

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1. Parker K, Ward JO, **Eggleston EM**, Fedorov E\*, Parkinson JE, Dahlgren C, and R Cunning. (2020) Characterization of a thermally tolerant *Orbicella faveolata* reef in Abaco, The Bahamas. *Coral Reefs* (online)
2. Brahmstedt ES\*, Zhou H, **Eggleston EM**, Holsen TM, MR Twiss. (2019) Assessment of mercury mobilization potential in Upper St. Lawrence River riparian wetlands under new water level regulation management. *Journal of Great Lakes Research*. **45**(4) 735-741

3. **Eggleston EM** and I Hewson. (2016) Abundance of two *Pelagibacter ubique* bacteriophage genotypes along a latitudinal transect in the North and South Atlantic Oceans. *Frontiers in Microbiology* **7** (Sept.) 1-9.
4. Pepe-Ranney C, Koechli C, Potrafka R, Andam C, **Eggleston EM**, Garcia-Pichel F, and DH Buckley. (2016) Non-cyanobacterial diazotrophs dominate dinitrogen fixation in biological soil crusts during early crust formation. *ISME Journal* **10**(2) 287-298.
5. **Eggleston EM**, Dong Y, Owens MS, Cornwell JC and I Hewson. (2015) Key respiratory genes elucidate bacterial community respiration in a seasonally anoxic bay. *Environ Microbiol* **17** 2306-18.
6. Lee DY, Owens MS, Doherty M, **Eggleston EM**, Hewson I, Crump BC and JC Cornwell. (2015) The effects of oxygen transition on community respiration and potential chemoautotrophic production in a seasonally stratified anoxic estuary. *Estuaries and Coasts* **38**(1) 104-117.
7. Hewson I, **Eggleston EM**, Doherty M, Lee DY, Owens M, Shapleigh JP, Cornwell JC and BC Crump. (2014) Life in the dead zone: Metatranscriptomic analyses of plankton communities inhabiting surface and subpycnocline waters of the Chesapeake Bay during oxic-anoxic-oxic transitions. *Applied and Environmental Microbiology*. **80**(1) 328-338.
8. Hewson I, Barbosa JG, Brown JM, Donelan RP, Eaglesham JB, **Eggleston EM** and BA LaBarre. (2012) Temporal dynamics and decay of putatively allochthonous and autochthonous viral genotypes in contrasting freshwater lakes. *Applied and Environmental Microbiology* **78**(18) 6583-91.

**Presentations:** (\* denotes student author)

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1. Broeren E\*, Loftis C\*, and **EM Eggleston** (2019) Building a Virome: The Role of Phages in Harmful Cyanobacterial Blooms. Biology Department Seminar Middlebury College. (Oral Presentation)
2. Broeren E\*, Loftis C\*, and **EM Eggleston** (2019) Building a Virome: The Role of Phages in Harmful Cyanobacterial Blooms. Middlebury Summer Research Symposium 2019. (Poster Presentation)
3. Fedorov, E\*, Valencia O\*, Tran T\*, Chiu B, Leavitt W, and **EM Eggleston** (2019) The Effect of Geranylgeranyl Reductase on GDGT Membrane Cyclization in the Extremophilic Archaeon *Sulfolobus islandicus* REY15A. Middlebury Summer Research Symposium 2019. (Poster Presentation)
4. R Lightman\*, E Brahmstedt\*, M Windle, M Twiss, J Ridal, and **EM Eggleston** (2019) Microbial Community Structure in St. Lawrence River Wetlands and Management of Mercury-Methylation. NEMPET 2019. (Oral Presentation)
5. R Lightman\* and **EM Eggleston** (2019) Characterizing Mercury Methylating Microbes for River Wetland Management. Middlebury Spring Student Symposium. (Oral Presentation)
6. R Lightman\* and **EM Eggleston** (2019) Characterization and Mercury Methylation Capacity of St. Lawrence River Microbes. Dartmouth M2P2 Retreat. (Oral Presentation)
7. **EM Eggleston** (2019) Microbial Community Structure in St. Lawrence River Wetlands and Management of Mercury-Methylation. Dartmouth M2P2 Retreat. (Oral Presentation)
8. Lightman R\*, Seixas M\*, and **EM Eggleston** (2018) Downstream Effects: Determining Wetland Microbes' Capacity for Environmental Impact After Water Management Changes in the St. Lawrence River, Middlebury College 2018 Summer Research Symposium. (Poster Presentation).
9. Seixas M\*, Lightman R\*, and **EM Eggleston** (2018) Phages in Stages: An Investigation of Cyanobacterial Harmful Algal Bloom Dynamics in Lake Champlain, Middlebury College 2018 Summer Research Symposium. (Poster Presentation).
10. **Eggleston EM**, Brahmstedt E\*, Holsen T, Waller ME, Windle M, Ridal J and M Twiss (2018) Microbial Community Structure in St. Lawrence River Wetlands and Management of Mercury Methylation, IAGLR 61<sup>st</sup> Conference on Great Lakes Research, Toronto, ON. (Oral presentation)
11. Brahmstedt E\*, Zhou H\*, **Eggleston EM**, Holsen T, Waller M, Windle M, Ridal J and M Twiss (2018) Water Levels May Impact Mercury Cycling in Upper St. Lawrence River Riparian Wetlands, IAGLR 61<sup>st</sup> Conference on Great Lakes Research, Toronto, ON. (Oral presentation)
12. **Eggleston EM** (2016) Investigating Aquatic Microbial Communities Using Molecular Biological Techniques. Institute for Health & Environment Group Meeting, SUNY Albany, Invited Speaker.
13. **Eggleston EM**, Lee DY, Owens MS, Cornwell JC, Crump BC and I Hewson (2014) Curated gene analysis elucidates bacterial community respiration in seasonally anoxic Chesapeake Bay. ASM 114<sup>th</sup> General Meeting, Boston, MA. (Poster Presentation)

14. **Eggleston EM**, Lee DY, Doherty M, Crump BC, Cornwell JC, Owens MS, Barbosa JG and I Hewson (2013) Metatranscriptomic insights into microbial community respiration in seasonally anoxic Chesapeake Bay. ASLO 2013 Aquatic Sciences Meeting, New Orleans, LA. (Poster Presentation)

#### **Web-Based Publications and Press:**

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- 2019** Murphree G. "Biology Professor Examines Toxic Blooms on Lake Champlain and Other Vermont Waters" *Middlebury Newsroom*. <http://www.middlebury.edu/newsroom/archive/2019-news/node/629433>
- 2019** Spencer C and S Ray. "Biology Field Course Explores the Health of Coral Reefs in the Bahamas" *Middlebury Newsroom*. <http://www.middlebury.edu/newsroom/archive/2019-news/node/612674>
- 2019** Diehl S. "Professor's Research Warns of Potential Mercury Release in Upper St. Lawrence River" *Middlebury Newsroom*. <http://www.middlebury.edu/newsroom/archive/2019-news/node/615926>
- Contributor at *Femina Sciscitator*** (<https://www.feminasci.com/blog>)
- 2019** "So You Want to Work at a Liberal Arts College? Tips for applying and interviewing at a PUI" (April 28)
- 2018** "Who is Your Science Idol or Role Model?" (August 31)
- 2018** "Interview: Early Career Quantitative Scientists" (April 7)
- 2018** "Reflections on 2017" (January 25)
- 2017** "2017 in Review" (December 31)
- 2017** "March for Science" (April 28)
- 2017** "The Oroville Dam Crisis: Part 1" (March 7)
- 2017** "Books! Books! and more Books!" (February 17)
- 2017** "Does Basic Research Matter?" (February 9)
- 2017** "Science & Scientists in Politics" (January 31)
- 2017** "Women's March Musings" (January 26)
- 2017** "Science & Hope in 2017" (January 17)

#### **Grants, Fellowships, and Awards:**

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##### **Submitted:**

**2020** NSF URoL MTM "Assessing the role of the phycosphere microbiome as a regulator of cyanobacterial bloom maintenance and function" Co-PI (\$1,433,711) *submitted March 2, 2020*

##### **Awarded:**

- 2019** VGN Small Award "Investigating the Role of Cyanophage in Cyanobacterial Harmful Algal Blooms" PI (\$5,000)
- 2018** NSF BSC-MRI "Acquisition of High Performance Computing Equipment for Research and Teaching at an Undergraduate Liberal Arts College," Key Personnel (\$151,164)
- 2018** *Feminist of the Year Faculty Award, Middlebury College*
- 2017** Great Lakes Research Consortium Co-PI (\$20,338)
- 2017** OMECC Best in Science Contract (\$10,000)
- 2016** UNOLS Chief Scientist Trainee Grant (\$1,500)
- 2014** Sigma Xi Grant in Aid of Research (\$999)
- 2014** Cornell Graduate Student Conference Travel Grant (\$400)
- 2013** *ASLO Aquatic Sciences Meeting Outstanding Student Presentation Award*
- 2013** Cornell Graduate Student International Travel Grant (\$2,000)
- 2013** Cornell Graduate Student Conference Travel Grant (\$400)
- 2012** Cross-scale Biogeochemistry and Climate IGERT Small Grant (\$4,000)
- 2011** *CALS Microbiology Outstanding Teaching Assistant Award*
- 2011** *NSF Graduate Research Fellowship Program Honorable Mention*
- 2007** *American Society for Microbiology Undergraduate Research Fellowship* (\$4,000)

##### **Unfunded Proposals:**

**2019** NSF EPSCoR "Determination of Viromes in Environmental Samples" Co-PI (PI: Scott Morrical UVM, total award \$3,865,504, sub-award to Middlebury \$421,492). *Resubmission planned*

**2018** VGN Pilot Award “Investigating the Role of Cyanophage in Cyanobacterial Harmful Algal Blooms” PI (\$24,999)

**2018** Johnson & Johnson Women in STEM<sup>2</sup>D Scholars Program “Disentangling cyanotoxin gene mobility in harmful algal blooms” PI (\$150,000)

**Service:**

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**July 2019-June 2021** Committee on Diversity Equity and Inclusion, Middlebury College

**Fall 2019** Letters to a Pre-Scientist pen pal (Santa Ana, CA)

**Fall 2018-Spring 2019** Ad-hoc Center for Teaching, Learning, and Research Faculty Advisory Committee

**September 2019** Middlebury Academic Forum: Biology Department

**Fall 2018** Middlebury College Aquatic Ecology Search Committee Member

**Fall 2018, Fall 2019** Middlebury Academic Forum: Biology Department

**Fall 2017, Spring 2018, Fall 2018, Fall 2019**

Skype-a-Scientist mentor (VA Robious Middle School 6<sup>th</sup> and 7<sup>th</sup> graders, western MA home school group, NC Salisbury High)

**Spring 2014 and 2015**

Career Day presenter for Homer Junior High School

**Spring 2011-2015**

Expanding Your Horizon: Workshop Leader and Registration Chair

- An outreach program for middle school girls to generate interest in STEM

**Reviewer:** Frontiers in Microbiology, Aquatic Microbial Ecology, National Geographic Society, Journal of Plankton Research, Freshwater Science, AAAS Research Competitiveness Program, and MN Sea Grant.

**Experience At Sea:**

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**2017-2019** R/V Folger, 1-2 days per summer, Lake Champlain, Chief Scientist Dr. Erin Eggleston. *Lake virome diversity assessment and cyanobacterial bloom dynamics.*

**2016** R/V Blue Heron, 4 days, Lake Michigan and Lake Superior, Chief Scientist Dr. Erin Eggleston. *Chief Scientist Training Cruise, Leg 3.*

**2013** R/V Knorr, 45 days, Montevideo, Uruguay to Bridgetown, Barbados, Chief Scientist Dr. Elizabeth Kujawinski WHOI, *Deep DOM: Characterizing DOM in Deep Atlantic Waters.*

**2011** R/V Sharp, 7 days, Chesapeake Bay, Chief Scientist Dr. Mary Doherty UMCES Horn Point Laboratory, *Life in the Dead Zone.*