

Spencer W. Roth
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Education

2016 – 2021 PhD, Environmental Sciences
Rutgers University, The State University of New Jersey – New Brunswick, New Jersey
2009 – 2013 Bachelor of Arts, Biology, Molecular Biology, Minor in Chemistry
Coe College – Cedar Rapids, Iowa

Research Experience

2016 – 2021 Graduate Assistant
Rutgers University – New Brunswick, New Jersey
Dr. Tamar Barkay and Dr. Jeffra K. Schaefer – Advisors
Investigating microbial mercury methylation in Alaska wetlands through laboratory microcosms, microbial community analyses, and geochemical characterization.
2013 Research Assistant in Water Chemistry
Coe College – Cedar Rapids, Iowa
2011 Research Assistant in Microbiology
Coe College – Cedar Rapids, Iowa

Honors and Awards

2018 – 2021 National Science Foundation Graduate Research Fellowship Program Award (\$138,000)
2019 Rutgers University Department of Microbial Biology and Biochemistry Robert S. and Eileen A. Robison Scholarship Award for Excellence in Graduate Studies (\$300)
2018 “Effects of wetland trophic status on microbial community structure/function and potential mercury methylation in Alaskan peatlands”. T. Barkay, **S. Roth**, J. Schaefer. Department of Energy Joint Genome Institute Community Science Program Sequencing Project (Co-PI)
2019 New Jersey Water Environment Association Scholarship Award (\$1500)
2018 Rutgers University Dissertation Development Award (\$1900)
2013 Coe College Outstanding Senior in Biology (\$3000)
2009 – 2013 Coe College Presidential Scholarship and Scholarship in Biology

Publications

- **S. Roth**, L. Zhang, X. Liu, J.K. Schaefer, B. Poulin, D. Krabbenhoft, Z. Baumann, M.E. Hines, T. Barkay. 2020 “Climate change driven nutrient inputs promote microbial mercury methylation in Alaskan peatlands” – *In prep**
- A. Kruger and **S. Roth**. 2020 “Effects of cohabitation and temporal dynamics on amphibian skin microbiota” – *Submitted Frontiers in Microbiology**

- J.L. Wilmoth, J.K. Schaefer, D. Schlesinger, **S. Roth**, P.G. Hatcher, J.K. Schoemaker, X. Zhang. 2020 “The role of oxygen in stimulating methane production in wetlands” – *In Revision at Global Change Biology*
- C. Wang[†], **S. Roth**[†], J.K. Schaefer, J.R. Reinfelder, N. Yee. 2020 “Production of methylmercury by methanogens in mercury contaminated estuarine sediments” – Editor’s Choice at *FEMS Microbiology Letters*

*Draft available upon request

[†]Authors contributed equally to this work

Conference Presentations

- **S. Roth**, B. Poulin, D. Krabbenhoft, M. E. Hines, J. Schaefer, and T. Barkay. Oral Presentation – “Effect of nutrient inputs on microbial community structure and mercury methylation in northern wetlands” International Conference on Mercury as a Global Pollutant, 2019
- **S. Roth**, J. Schaefer, and T. Barkay. Oral Presentation – “Impacts of climate change on mercury methylation in subarctic wetlands” Rutgers Polar Symposium, 2019
- T. Barkay & **S. Roth**. Oral Presentation – “Mercury cycling in the GI tract: risks and safe-havens” Rutgers Microbiology and Biochemistry Fermentation Seminar, 2019
- **S. Roth**, B. Poulin, D. Krabbenhoft, M. E. Hines, J. Schaefer, and T. Barkay. Oral Presentation – “Effect of nutrient inputs on microbial community structure and mercury methylation in northern wetlands” Theobald Smith Society Fall Meeting, 2018
- **S. Roth**, B. Poulin, D. Krabbenhoft, M. E. Hines, J. Schaefer, and T. Barkay. Poster – “Effect of nutrient inputs on microbial communities and mercury methylation in Alaskan peatlands” International Society for Microbial Ecology Conference, 2018, Rutgers Microbiology Symposium, 2019
- **S. Roth**, L. Zhang, M. E. Hines, J. Schaefer, and T. Barkay. Poster – “Effect of Trophic Status on Syntrophy and Mercury Methylation” NEMPET Conference, 2017, Rutgers Microbiology Symposium, 2018
- **S. Roth**, L. Xhang, M. E. Hines, J. Schaefer, and T. Barkay. Poster – “Effect of Trophic Status on Propionate Degradation” Rutgers Microbiology Symposium, 2017

Teaching Experience

2018 – 2020	Science Demonstrator/Instructor – Rutgers Science Explorer New Jersey Middle Schools
2017 – 2018	Teaching Assistant – Environmental Microbiology, Environmental Analytical Chemistry Rutgers University – New Brunswick, New Jersey
2015 – 2016	Substitute High School Teacher Grant Wood Area Education Agency – Cedar Rapids, Iowa
2009 – 2013	Writing Consultant Coe College Writing Center – Cedar Rapids, Iowa
2009 – 2012	Supplemental Instructor (SI) in Biology Coe College Academic Achievement – Cedar Rapids, Iowa

Research Advising

- 2019 – 2020 John Fastenau – Rutgers University
J. Fastenau, 2020 “The cryptic sulfur cycle of an Alaskan wetland trophic gradient and impacts on peatland carbon cycling” – Rutgers University Department of Biological Sciences
- 2018 – 2019 Yelizaveta Rassadkina – Rutgers University
Y. Rassadkina, S. Roth, T. Barkay, 2020 “Characterizing and evaluating the diverse microbial communities and their mercury resistance potential from hot spring sites representing gradients in temperature and pH in Yellowstone National Park” – Rutgers Undergraduate Research Journal

Relevant Professional Experience

- 2013 – 2015 Program Assistant
Coe College Wilderness Field Station – Ely, Minnesota
- 2013 – 2014 College Laboratory Assistant in Biology
Inver Hills Community College – Inver Grove Heights, Minnesota

Extracurricular and Volunteer Experience

- Virtual Summer Science Camp Organizer and Scientist, 2020
- Office of Advanced Research Computing Graduate Student Liaison, 2019
- Science Fair Judge, Monmouth Junction PTO Science Fair, 2019
- International Society for Microbial Ecology (ISME), Student Member 2018 –
- American Society for Microbiology, Rutgers University Chapter, President 2018, Treasurer 2019
- Rutgers Day Science Demonstrator, 2017 – 2019
- New Jersey Shore Bowl Judge 2017 and 2018
- Rutgers Environmental Sciences Graduate Student Organization Member 2016 –
- Coe College Biology Club, Member 2009 – 2013, President 2012 – 2013
- Coe College Chemistry Club, Member 2010 – 2013
- Iowa Science Olympiad Judge, 2010 – 2012
- Coe College Playground of Science Demonstrator, 2009 – 2012