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Robin R. Rohwer, PhD

Education

- PhD, University of Wisconsin-Madison** (Madison, WI) 2012 - 2019
Environmental Chemistry and Technology Program
Advisor: Katherine D. McMahon
Thesis: Temporal and taxonomic scales of change in freshwater microbial community composition
- BA, Oberlin College** (Oberlin, OH) 2005 - 2009
High departmental honors in Biochemistry
Advisor: Robert Q. Thompson
Thesis: An HPLC-MS method for determining Oberlin student exposure to bisphenol A from polycarbonate cups and water bottles

Professional Positions

- The University of Texas at Austin** (Austin, TX) 2022 -
NSF Postdoctoral Fellow, Department of Integrative Biology
Advisor: Dr. Brett Baker
Microbial evolution in a freshwater metagenome time-series
- Lawrence Berkeley National Lab** (Berkeley, CA) 2020 - 2022
Postdoctoral Fellow, The DOE Joint Genome Institute
Advisor: Dr. Emiley Eloe-Fadrosh
Environmental Metagenomics
- The University of Wisconsin-Madison** (Madison, WI) 2020
Postdoctoral Fellow, Department of Microbiology
Advisor: Dr. Katherine (Trina) McMahon
Freshwater microbial ecology and evolution
- The Pennsylvania State University** (State College, PA) 2011 - 2012
Research Technologist, Biochemistry and Molecular Biology Department
Advisors: Dr. B. Tracy Nixon, Dr. Ming Tien
Recombinant cloning to express tagged fungal cellulases
- Martek Biosciences Corporation** (Columbia, MD) 2010 - 2011
Research Associate, Development Department
Advisor: Dr. Wei Wang-Nolan
DHA-fortified dairy product development and stability testing
- Nanotech Innovations, LLC** (Oberlin, OH) 2007 - 2008
Research Assistant at month-old startup
Advisor: Dr. Jesse Rowsell
Carbon nanotube production optimization and purity analysis

Publications

PEER-REVIEWED:

Rohwer RR*, Ladwig R*, Hanson PC, Walsh JR, Vander Zanden MJ, Dugan HA. 2023. Increased anoxia following species invasion of a eutrophic lake. *Limnology and Oceanography Letters*

*Equally contributing first authors.

Vázquez Rosas Landa M, De Anda V, **Rohwer RR**, Angelova A, Waldram G, Gutierrez T, Baker BJ. 2023. Exploring novel alkane-degradation pathways in uncultured bacteria from the North Atlantic Ocean. *mSystems* 0:e00619-23.

Rohwer RR, Hale RJ, Vander Zanden MJ, Miller TR, McMahon KD. 2023. Species invasions shift microbial phenology in a two-decade freshwater time series. *Proceedings of the National Academy of Sciences* 120:e2211796120.

Linz AM, He S, Stevens SLR, Anantharaman K, **Rohwer RR**, Malmstrom RR, Bertilsson S, McMahon KD. 2018. Freshwater carbon and nutrient cycles revealed through reconstructed population genomes. *PeerJ* 6:e6075.

Rohwer RR, Hamilton JJ, Newton RJ, McMahon KD. 2018. TaxAss: Leveraging a Custom Freshwater Database Achieves Fine-Scale Taxonomic Resolution. *mSphere* 3:e00327-18.

Software: github.com/McMahonLab/TaxAss

Hall MW, **Rohwer RR**, Perrie J, McMahon KD, Beiko RG. 2017. Ananke: temporal clustering reveals ecological dynamics of microbial communities. *PeerJ* 5:e3812.

Software: github.com/beiko-lab/Ananke

PREPRINTS:

Rohwer RR, McMahon KD. 2022. Lake iTag measurements over nineteen years, introducing the limony dataset. *bioRxiv* <https://doi.org/10.1101/2022.08.04.502869>.

Software: github.com/rrohwer/limony

Datasets

Rohwer RR, McMahon KD. 2022. Lake Mendota Microbial Observatory Secchi Disk Measurements 2012-present. Environmental Data Initiative.

Rohwer RR, McMahon KD. 2022. Lake Mendota Microbial Observatory Temperature, Dissolved Oxygen, pH, and conductivity data, 2006-present. Environmental Data Initiative.

Patents

Wang-Nolan W, Pena POV, **Rohwer RR**. April 2014. Milk and dairy products containing omega-3 and omega-6 hufas and pasteurization processes thereof. WO2012122531A3.

Grants and Fellowships

- ESA 2023 Registration Grant, **\$360** 2023
- Texas Advanced Computing Center Research Allocation, **20,000 node hours** 2023
- ASLO 2023 Travel Grant, **\$500** 2023

- Texas Advanced Computing Center Research Allocation, **31,000 node hours** 2022
- NSF Postdoctoral Research Fellowship in Biology Supplement, **\$69,000** 2021
- NSF Postdoctoral Research Fellowship in Biology, **\$138,000** 2020
- E. Michael and Winona Foster WARF Wisconsin Idea Fellowship, **\$29,500** 2018
- The ISME16 Travel Grant, **€300** 2016
- Anna Grant Birge Memorial Award for summer research in limnology, **\$1,100** 2015
- Anna Grant Birge Memorial Award for summer research in limnology, **\$2,050** 2014

Awards

- Best Early Career Flash Talk, EGSB Annual Meeting, \$500 2022
- JW Costerton Award, €500 2014
For research that best evolves new theories in microbial ecology and wider interdisciplinary significance, awarded through the International Society for Microbial Ecology at ISME15
- The International Society for Microbial Ecology (ISME15) Poster Award 2014
- High departmental honors in Biochemistry, Oberlin College 2009

Teaching and Mentoring

- Peter Golightly**, UT Austin Ecology, Evolution, and Behavior master's student 2023 -
- Jasmine Yuan**, UT Austin Biology undergraduate student 2023 -
- Jacqueline Lemaire**, UW-Madison Genetics PhD student 2023 -
- Riley Hale**, UC San Diego Scripps Institution of Oceanography PhD student 2018 -
NSF Graduate Research Fellowship in Biology
Masters Thesis: Characterization of the cyanobacterial community and cyanotoxins in Lake Mendota across time, space, and the water column
North Temperate Lakes Long Term Ecological Research Program REU
- Krys Kibler**, UW-Madison Freshwater and Marine Sciences PhD student 2019
- Kylie (Zhiyan) Huang**, UW-Madison Industrial Engineering undergraduate student 2015 - 2018
- Samuel Schmitz**, UW-Madison Microbiology undergraduate student 2015 - 2016
American Society of Microbiology Undergraduate Research Fellowship
William Harmon Write Microbiology Undergraduate Research Scholarship
- Joshua Breider**, UW-Madison Microbiology undergraduate student 2015 - 2016
- Patrick Dowd**, UW-Madison Civil and Environmental Engineering undergraduate student 2014 - 2015
Holstrom Environmental Fellowship Award
Jean B. and E.T. Juday Award
- Emily Hardcastle**, UW-Madison Chemistry undergraduate student 2015
- Kaitlin Jasper**, UW-Madison Biology undergraduate student 2012 - 2015
North Temperate Lakes Long Term Ecological Research Program REU
Holstrom Environmental Fellowship Award
Senior Biology Honors Thesis

Rachel Russel, McFarland High School student 2013

Invited Talks

- Freshwater bacteria populations shift on decadal and seasonal time scales over 20 years 2023
Center for Computational, Evolutionary and Human Genomics Seminar,
Stanford University, Stanford, CA
- Direct observations of ecological and evolutionary dynamics in a two-decade freshwater microbial time series. Scripps Institution of Oceanography Ecology Seminar, 2023
University of California San Diego, San Diego, CA
- Computational Barriers to Realistic Reproducibility: Examples From a 20-year, 471-metagenome Freshwater Time Series, Incorporating Data Science and Open Science in Aquatic Research (Hacking Limnology), Virtual Summit 2023
- Species Invasions Shift Microbial Phenology in a Two-Decade Freshwater Time Series 2023
Mycotoxins and Phycotoxins Gordon Research Conference, Easton, MA
(Cancelled due to positive COVID test)
- Seasonal Patterns and Decadal Shifts: Microbial Change in a 20-year Freshwater Time Series 2023
CEOAS Ocean Ecology and Biogeochemistry Seminar
Oregon State University, Corvallis, OR
- Custom Databases in Amplicon Sequencing 2022
Leveraging Microbiome Research in Environmental Engineering and Science
AEESP Workshop, St. Louis, MO
- Macro-scale Invasions Shift Microbial Phenology 2022
North Temperate Lakes LTER Science Meeting, Madison, WI

Contributed Talks

- Freshwater Bacteria Populations Shift on Decadal and Seasonal Time Scales Over 20 Years 2023
Ecological Society of America (ESA 2023), Portland, OR
- Freshwater Bacteria Populations Respond to Seasonal and Decadal Environmental Change Over 20 Years, Association for the Sciences of Limnology and Oceanography (ASLO23) 2023
Palma de Mallorca, Spain
- Species Invasions Shift Microbial Phenology in a Two-decade Freshwater Time Series 2022
18th International Symposium on Microbial Ecology (ISME18), Lausanne, Switzerland
- Macro-species Invasions Shift Microbial Phenology over 19 years 2022
Joint Aquatic Sciences Meeting (JASM 2022), Grand Rapids, MI
- Invasive Species Shift Cyanobacterial Phenology 2022
EGSB Annual Meeting, Lawrence Berkeley National Lab, Berkeley, CA
- Temporal and Taxonomic Scales of Change in Freshwater Microbial Communities 2019
Defense, UW-Madison: <https://youtu.be/VI-H1KATQIO>
- Facilitating further integration of microbes into long-term ecological research (workshop leader) 2018
Long-Term Ecological Research All Scientists' Meeting (LTER-ASM), Pacific Grove, CA

Development of Quantum Dot Probes for Studies of Synergy Between Components of the Wood Degrading Fungal Enzymes, DOE Genomic Science Contractors Grantees Meeting 2012

Posters

Temporal Scales of Change in Freshwater Microbial Communities 2018
 Long-Term Ecological Research All Scientists' Meeting (LTER-ASM), Pacific Grove, CA

Temporal Scales of Change in Freshwater Microbial Communities 2018
 17th International Symposium on Microbial Ecology (ISME17), Leipzig, Germany

What Does Real Microbial Community Change Look Like? Incorporating Variability of Biological Duplicates into 16S Analyses, Madison Microbiome Meeting, UW-Madison 2018

17 Years of Bacterial Community Dynamics in Lake Mendota 2017
 Water@UW Poster Session, UW-Madison

Finer Taxonomic Resolution Achieved with a Custom Database: Introducing TaxAss 2016
 16th International Symposium on Microbial Ecology (ISME16), Montreal, Canada

Finer Taxonomic Resolution Achieved with a Custom Database: Introducing TaxAss 2016
 Kenneth B. Raper Symposium, UW-Madison

A Decade of Microbial Community Dynamics in Lake Mendota 2014
 15th International Symposium on Microbial Ecology (ISME15), Seoul, South Korea

Microbial Communities in Lake Mendota and Trout Bog 2013
 Intl. Water Association Microbial Ecology & Water Engineering Conference (MEWE), Ann Arbor, MI

Microbial Communities in Lake Mendota and Trout Bog 2013
 DOE Joint Genome Institute Microbial Genomics and Metagenomics Workshop, Walnut Creek, CA

Training

Introduction to Programming for Bioinformatics (Python short course) 2021
 Center for Computational Biology, University of California, Berkeley, Berkeley, CA

ASM Scientific Writing and Publishing Online Course 2018

Microbial Genomics and Metagenomics Workshop 2013
 US DOE Joint Genome Institute, Walnut Creek, CA

Dispersions in Liquids: Suspensions, Emulsions, and Foams 2012
 American Chemical Society Short Course, Anaheim, CA

Sea Education Association Oceanography Study Abroad Program 2008
 Accredited by Boston University, Woods Hole, MA, and North Pacific Gyre

Outreach

Press Rivers Are Drowning in Toxic Sludge, by Chris Baraniuk 2023
 Wired

Radio	Species Invasions impact on Microbes and Toxins in Lake Mendota 15 min interview with Madison's WORT 89.9 FM on the 8 O'clock Buzz	2023
Tweet	Viral tweet about long-term data, phenology, climate change, and data visualization 2.1M Views, 37.2K Likes	2023
Press	Earlier Algae Blooms, Lingering Toxins, by Adam Hinterthuer NSF News, Phys.org, UW-Madison News, and Center for Limnology Water Blogged	2023
Mentor	Big Sister in Big Brothers Big Sisters Madison Chapter	2014 - 2023
Demo	Sampling Methods walk-by hands-on lesson Annual Center For Limnology Open House	2013 - 2019
Demo	Sonde measurements paired with shiny app visualization of full time series Wisconsin Congressional Staffers Research Tour App: tiny.cc/mymendota Code: github.com/rrohwer/MyMendota/	2019
Press	Wading through Mendota's Mysteries, by Erik Ness GROW, Wisconsin's Magazine for the Life Sciences	2017
Talk	Limnology on Lake Mendota Hooper Sailing Club Winter Ed Seminar Series	2016
Demo	Lake Stratification 30-minute hands-on lesson Expanding Your Horizons, program for middle school age girls	2015
Demo	Winogradsky Columns walk-by hands-on lesson Wisconsin Science Festival	2015

Professional Memberships

North Temperate Lakes Long-Term Ecological Research (NTL-LTER)

International Society for Microbial Ecology (ISME)

American Society for Microbiology (ASM)

American Society for Limnology and Oceanography (ASLO)

Ecological Society of America (ESA)

Service

Reviewer: Limnology and Oceanography, Nature Biotechnology, Freshwater Biology, Environmental Microbiology, Ecosphere, Scientific Reports, mSystems, mSphere, Water Research

Stack Overflow Contributor: Top 9% in 2023

Software Maintenance and Support: limony R package (<https://github.com/rrohwer/limony>)
TaxAss software pipeline (<https://github.com/McMahonLab/TaxAss>)