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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 -
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 Eloie-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**, Kirkpatrick M, Garcia SL, Kellom M, McMahon KD, Baker BJ. 2025. Two decades of bacterial ecology and evolution in a freshwater lake. *Nature Microbiology* 1–12.
- Zhou Z, Tran PQ, Martin C, **Rohwer RR**, Baker BJ, McMahon KD, Anantharaman K. 2025. Unravelling viral ecology and evolution over 20 years in a freshwater lake. *Nature Microbiology* 1–15.
- Oliver T, Varghese N, Roux S, Schulz F, Huntemann M, Clum A, Foster B, Foster B, Riley R, LaButti K, Egan R, Hajek P, Mukherjee S, Ovchinnikova G, Reddy TBK, Calhoun S, Hayes RD, **Rohwer RR**, Zhou Z, Daum C, Copeland A, Chen I-MA, Ivanova NN, Kyrpides NC, Mouncey NJ, del Rio TG, Grigoriev IV, Hofmeyr S, Olikier L, Yelick K, Anantharaman K, McMahon KD, Woyke T, Eloe-Fadros EA. 2024. Coassembly and binning of a twenty-year metagenomic time-series from Lake Mendota. *Scientific Data* 11:966.
- Vander Zanden MJ, Gorsky A, Hansen GJA, Johnson PTJ, Latzka AW, Mikulyuk A, **Rohwer RR**, Spear MJ, Walsh JR. 2024. Nine Lessons about Aquatic Invasive Species from the North Temperate Lakes Long-Term Ecological Research (NTL-LTER) Program. *BioScience* 74:509–523.
- Krinos AI, Bowers RM, **Rohwer RR**, McMahon KD, Woyke T, Schulz F. 2024. Time-series metagenomics reveals changing protistan ecology of a temperate dimictic lake. *Microbiome* 12:133.
- Rohwer RR***, Ladwig R*, Hanson PC, Walsh JR, Vander Zanden MJ, Dugan HA. 2024. Increased anoxia following species invasion of a eutrophic lake. *Limnology and Oceanography Letters* 9:33–42.
*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/IN REVIEW:

- Rohwer RR**, McMahon KD. 2024. A two-decade microbial time series from a freshwater lake, introducing the limony and TYMEFLIES datasets. *bioRxiv* <https://doi.org/10.1101/2022.08.04.502869>.
Software: github.com/rrohwer/limony

Datasets

Rohwer RR. 2024. TYMEFLIES Robinning MAGs not included in NCBI SRA BioProject PRJNA1158976. *OSF*.

Rohwer RR. 2024. rrohwer/TYMEFLIES_manuscript: v1.0 (v1.0). *Zenodo*.

Rohwer RR, Ladwig R, Dugan HA, Hanson PC, Walsh JR, Vander Zanden MJ. 2023. Dataset: The aftermath of a trophic cascade: Increased anoxia following invasive species introduction of a eutrophic lake (v0.1). *Zenodo*.

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*.

Hall M, **Rohwer R,** Perrie J, McMahon K, Beiko R. 2017. Ananke Data Sets. *figshare*
<https://doi.org/10.6084/m9.figshare.c.3707938.v1>.

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

- ASLO 2024 Early Career and Childcare Grants, **\$410** 2024
- Texas Advanced Computing Center Research Allocation, **10,000 node hours** 2024
- 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

Ariel Bellatin , UT Austin Marine Science Institute PhD student	2025 -
Sofia Haggard Arce , UT Austin Interdisciplinary Life Sciences PhD student	2024 -
Natalie Sarno , UT Austin Marine Science Institute PhD student	2024 -
Emily Aguilar-Pine , UT Austin Integrative Biology Technician	2024 -
Jasmine Yuan , UT Austin Biology undergraduate student	2023 -
Disabled in STEM mentor , https://disabledinstem.wordpress.com/	2023 - 2014
Jacqueline Lemaire , UW-Madison Genetics PhD student	2023 - 2024
Peter Golightly , UT Austin Ecology, Evolution, and Behavior master's student	2023
Riley Hale , UC San Diego Scripps Institution of Oceanography PhD student 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	2018 - 2023
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 American Society of Microbiology Undergraduate Research Fellowship William Harmon Write Microbiology Undergraduate Research Scholarship	2015 - 2016
Joshua Breider , UW-Madison Microbiology undergraduate student	2015 - 2016
Patrick Dowd , UW-Madison Civil and Environmental Engineering undergraduate student Holstrom Environmental Fellowship Award Jean B. and E.T. Juday Award	2014 - 2015
Emily Hardcastle , UW-Madison Chemistry undergraduate student	2015
Kaitlin Jasper , UW-Madison Biology undergraduate student North Temperate Lakes Long Term Ecological Research Program REU Holstrom Environmental Fellowship Award Senior Biology Honors Thesis	2012 - 2015
Rachel Russel , McFarland High School student	2013

Invited Talks

Abrupt changes overlay seasonal phenologies, insights into microbial evoogy and evolution from a two-decade freshwater time series. Forest Lab invited seminar, San Diego State University, San Diego, CA	2024
From community ecology to strain evolution, two decades of microbial change in a freshwater lake Boise State Biological Sciences Seminar, Boise State University, Boise, ID	2024
Bacterial ecology and evolution converge on seasonal and decadal scales Association for the Sciences of Limnology and Oceanography (ASLO24)	2024

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

Contributed Talks

Bacterial ecology and evolution converge on seasonal and decadal scales Department of Integrative Biology Ecolunch Seminar Series The University of Texas at Austin, Austin, TX (remote)	2024
Freshwater Bacteria Populations Shift on Decadal and Seasonal Time Scales Over 20 Years Ecological Society of America (ESA 2023), Portland, OR	2023
Freshwater Bacteria Populations Respond to Seasonal and Decadal Environmental Change Over 20 Years, Association for the Sciences of Limnology and Oceanography (ASLO23) Palma de Mallorca, Spain	2023
Species Invasions Shift Microbial Phenology in a Two-decade Freshwater Time Series 18 th International Symposium on Microbial Ecology (ISME18), Lausanne, Switzerland	2022
Macro-species Invasions Shift Microbial Phenology over 19 years Joint Aquatic Sciences Meeting (JASM 2022), Grand Rapids, MI	2022
Invasive Species Shift Cyanobacterial Phenology EGSB Annual Meeting, Lawrence Berkeley National Lab, Berkeley, CA	2022
Temporal and Taxonomic Scales of Change in Freshwater Microbial Communities Defense, UW-Madison: https://youtu.be/VI-H1KATQIO , Madison, WI	2019
Facilitating further integration of microbes into long-term ecological research (workshop leader) Long-Term Ecological Research All Scientists' Meeting (LTER-ASM), Pacific Grove, CA	2018

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

Outreach

Press The microbial year, by Caroline Ash 2025
Research Highlights: In Other Journals. **Science** 387:485–486.

Press Lake Mendota reveals revolutionary findings about bacteria evolution, by Alisyn Amant 2025
Madison Magazine

Press Scientists Found a Strange Life Form Caught in an Evolutionary Time Loop, by Darren Orf 2025
Popular Mechanics

Press Coverage of my Nature Microbiology paper in Arabic, by Abdullah Taha 2025
Al Jazeera

Press Some Bacteria Evolve Like Clockwork With the Seasons, by Marc Airhart 2025
UT Austin CNS News, HPC Wire, TACC News, UW Madison Water Blogged

Video The Megadata of Lake Mendota: Sample Set Up for a 20-year Microbial Archive 2024
DOE Joint Genome Institute YouTube channel

Video The Megadata of Lake Mendota: Sampling a Frozen Lake 2023
DOE Joint Genome Institute YouTube channel

Podcast, The Megadata of Lake Mendota – Part 3: Boating Out to David Buoy <i>Genome Insider</i> S4 Episode 8	2023
Press Rivers Are Drowning in Toxic Sludge, by Chris Baraniuk <i>Wired</i>	2023
Radio Species Invasions impact on Microbes and Toxins in Lake Mendota 15 min interview with <i>Madison's WORT 89.9 FM</i> on the 8 O'clock Buzz	2023
Tweet Viral tweet about long-term data, phenology, climate change, and data visualization <i>Twitter</i> , 2.1M Views, 37.2K Likes	2023
Press Earlier Algae Blooms, Lingering Toxins, by Adam Hinterthuer <i>UW-Madison News</i> , NSF News, Center for Limnology Water Blogged	2023
Mentor Big Sister in Big Brothers Big Sisters Madison Chapter	2014 - 2020
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 <i>GROW</i> , 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 program (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: Nature Biotechnology, Nature Communications, mBio, Microbiome, Environmental Microbiology, Limnology and Oceanography, Freshwater Biology, Ecosphere, mSystems, mSphere

Software Maintenance and Support: limony R package, TaxAss software