

PROFESSIONAL APPOINTMENTS

- 2025- **Research Investigator**, School of Biological Sciences, Washington State University
2022-2025 **Liber Ero Postdoctoral Fellow**, School of Biological Sciences, Washington State University
2022-2024 **NSERC Postdoctoral Fellow**, School of Biological Sciences, Washington State University
2021-2022 **Postdoctoral Fellow**, Department of Integrative Biology, University of Guelph

EDUCATION

- 2021 **Ph.D. Toxicology**, School of Environmental Sciences, University of Guelph
2016 **M.Sc. Toxicology**, School of Environmental Sciences, University of Guelph
2014 **B.Sc. Hon. Toxicology**, College of Physical and Engineering Sciences, University of Guelph

PUBLICATIONS (‡ co-first authors | † undergraduate or graduate mentee)

Manuscripts in Review and Revision

25. **Shahmohamadloo, R.S.**, Gabidulin, A.R.†, Andrews, E.R.†, Rudman, S.M. (2025). **Microbiome evolution plays a secondary role in host rapid adaptation.** (In review with *Nature Communications*)

Peer-reviewed

24. Prilesion, E.G., Campagnari, B., Clare, C.I., Gabidulin, A.R., **Shahmohamadloo, R.S.**, Rudman, S.M. (2025). **Overwintering drives rapid adaptation in *Drosophila* with potential costs to insecticide resistance.** *Evolution*, qpaf205.
23. Tissier, M.L.‡, **Shahmohamadloo, R.S.**‡, Guzman, L.M.‡ (2025). **Pesticide risk assessment in a changing world.** *Glob. Change Biol.*, 31: e70203.
22. **Shahmohamadloo, R.S.**, Gabidulin, A.R.†, Andrews, E.R.†, Fryxell, J.M., Rudman, S.M. (2025). **A test for microbiome-mediated rescue via host phenotypic plasticity in *Daphnia*.** *Proc. R. Soc. B.*, 292: 20250365.
21. **Shahmohamadloo, R.S.**, Fryxell, J.M., Rudman, S.M. (2025). **Transgenerational epigenetic inheritance increases trait variation but is not adaptive.** *Evolution*, 79(6), 1033-1043.
20. Schiller, L., Tissier, M.L., Davis, A.C.D., Lamb, C.T., Mayer, S.O., Menzies, A.K., **Shahmohamadloo, R.S.**, Vanderwolf, K.J. (2025) **Hopeful insights from wildlife recoveries in Canada.** *FACETS*, 10: 1-17.
Media coverage: [The Narwhal](#), [The Canadian Press](#)
19. **Shahmohamadloo, R.S.**‡, Rudman, S.M.‡, Clare, C.I., Westrick, J.A., De Meester, L., Fryxell, J.M. (2024). **Intraspecific diversity is critical to population-level risk assessments.** *Sci. Rep.*, 25883.
18. **Shahmohamadloo, R.S.**‡, Tissier, M.L.‡, Guzman, L.M.‡ (2024). **Risk assessments underestimate threat of pesticides to wild bees.** *Conserv. Letters*, e13022.
Media coverage: [The CNRS](#), [USC Dornsife](#)
17. **Shahmohamadloo, R.S.**, Frenken, T., Rudman, S.M., Van West, P., Ibelings, B.W., Trainer, V.L. (2023). **Diseases and Disorders in Fish due to Harmful Algal Blooms.** *Climate Change on Diseases and Disorders of Finfish in Cage Culture* (3rd Ed). CABI, Oxfordshire, UK.
16. **Shahmohamadloo, R.S.**, Bhavsar, S.P., Ortiz Almirall, X., Marklevitz, S.A.C., Rudman, S.M., Sibley, P.K. (2023). **Cyanotoxins accumulate in Lake St. Clair fish yet their fillets are safe to eat.** *Sci. Total. Environ.*, 874, 162381.
Media coverage: [CBC News](#), [CBC Listen](#), [The Globe and Mail](#), [CBC News](#), [The Weather Network](#)
15. **Shahmohamadloo, R.S.**, Bhavsar, S.P., Ortiz Almirall, X., Marklevitz, S.A.C., Rudman, S.M., Sibley, P.K. (2023). **Lake Erie fish safe to eat yet afflicted by algal hepatotoxins.** *Sci. Total. Environ.*, 861, 160474.

Media coverage: [CBC News](#), [CBC Listen](#), [The Globe and Mail](#), [CBC News](#), [The Weather Network](#)

14. Hataley, E.K.†, **Shahmohamadloo, R.S.**, Ortiz Almirall, X., Harrison, A.L., Rochman, C.M., Zou, S., Orihel, D.M. (2022). [Experimental evidence from the field that naturally weathered microplastics accumulate cyanobacterial toxins in eutrophic lakes](#). *Environ. Toxicol. Chem.*, 41(12), 3017-3028.

13. **Shahmohamadloo, R.S.**, Febria, C.M., Fraser, E.D.G., Sibley, P.K. (2022). [The Sustainable Agriculture Imperative: The need for an Agrosystem Approach to Meet the United Nations Sustainable Development Goals by 2030](#). *Integr. Environ. Assess. Manag.*, 18(5), 1199-1205.

Media coverage: [The Rockefeller Foundation](#), [Farmtario](#), [U of G News](#)

12. **Shahmohamadloo, R.S.**, Ortiz Almirall, X., Simmons, D.B.D., Bhavsar, S.P., Poirier, D.G., Sibley, P.K. (2022). [Fish tissue accumulation and proteomic response to microcystins is species-dependent](#). *Chemosphere*, 287, 132028.

11. **Shahmohamadloo, R.S.**, Ortiz Almirall, X., Simmons, D.B.D., Lumsden, J.S., Bhavsar, S.P., Watson-Leung, T., Vander Eyken, A.†, Hankins, G.†, Hubbs, K.†, Konopelko, P.†, Sanarcki, M.†, Strong, D.†, Sibley, P.K. (2021). [Cyanotoxins within and outside of *Microcystis aeruginosa* cause adverse effects in Rainbow Trout \(*Oncorhynchus mykiss*\)](#). *Environ. Sci. Technol.*, 55(15), 10422-10431.

Award: [2022 IFHAB Best Paper Award](#)

10. Guo, Y., O'Brien, A.M., Lins, T.F., **Shahmohamadloo, R.S.**, Ortiz Almirall, X., Rochman, C.M., Sinton, D. (2021). [The Effects of Hydrogen Peroxide on Cyanobacterium *Microcystis aeruginosa* in the Presence of Nanoplastics](#). *ACS ES&T Water*, 1(7), 1596-1607.

Award: [2021 ACS ES&T Water Best Paper Award](#)

9. **Shahmohamadloo, R.S.** (2020). [Mentoring with trust](#). *Science*, 369(6508), 1270.

8. Anaraki, M.T., **Shahmohamadloo, R.S.**, Sibley, P.K., MacPherson, K.A., Bhavsar, S.P., Simpson, A.J., Ortiz Almirall, X. (2020). [Optimization of an MMPB Lemieux Oxidation method for the quantitative analysis of microcystins in fish tissue by LC-QTOF MS](#). *Sci. Total Environ.*, 737, 140209.

7. **Shahmohamadloo, R.S.**, Simmons, D.B.D., Sibley, P.K. (2020). [Shotgun proteomics analysis reveals sub-lethal effects in *Daphnia magna* exposed to cell-bound microcystins produced by *Microcystis aeruginosa*](#). *Comp. Biochem. Phys. D.*, 33, 100656.

6. **Shahmohamadloo, R.S.**, Ortiz Almirall, X., Bhavsar, S.P., Poirier, D.G., Sibley, P.K. (2020). [Assessing the toxicity of cell-bound microcystins on freshwater pelagic and benthic invertebrates](#). *Ecotox. Environ. Safe.*, 188, 109945.

5. **Shahmohamadloo, R.S.**, Ortiz Almirall, X., Holeton, C., Bhavsar, S.P., Poirier, D.G., Sibley, P.K. (2019). [Adopting a culture technique to produce and sustain high concentrations of microcystins by *Microcystis aeruginosa* in laboratory](#). *MethodsX*, 6, 2521-2535.

4. Gene, S.M.†, **Shahmohamadloo, R.S.**, Ortiz, X., Prosser, R.S. (2019). [Effect of Microcystis aeruginosa-associated microcystin-LR on the survival of 2 life stages of freshwater mussel \(*Lampsilis siliquoidea*\)](#). *Environ. Toxicol. Chem.*, 38(10), 2137-2144.

3. **Shahmohamadloo, R.S.**, Lissemore, L., Prosser, R.S., Sibley, P.K. (2017). [Comparative evaluation of four biosolids formulations on the effects of triclosan on plant-arbuscular mycorrhizal fungal interactions in three crop species](#). *Sci. Total. Environ.*, 583, 292-299.

2. **Shahmohamadloo, R.S.**, Lissemore, L., Prosser, R.S., Sibley, P.K. (2016). [Evaluating the effects of triclosan on three field crops grown in four formulations of biosolids](#). *Environ. Toxicol. Chem.*, 36(7), 1896-1908.

1. Prosser, R.S., Lissemore, L., **Shahmohamadloo, R.S.**, Sibley, P.K. (2015). [Effect of biosolids-derived triclosan and triclocarban on the colonization of plant roots by arbuscular mycorrhizal fungi](#). *Sci. Total. Environ.*, 508, 427-434.

Manuscripts in Preparation

- P1. Rudman, S.M., Faber-Hammond, J.J., Sherman, R.E., **Shahmohamadloo, R.S.**, MacMillan, H.A., Jeyasingh, P.D., Schmidt, P.S. (2025). Ecology stoichiometry and life history theory, not evolutionary genomics, predict rapid adaptation.

- P2. Cannon, S.E., Adams, C.A., Bugg, W.S., Diana, Z.T., Lewthwaite, J.M.M., Mordecai, G.J., Piczak, M.L., Perron, M.A.C., **Shahmohamadloo, R.S.**, Tissier, M.L., Otto, S.P., Palen, W.J. (2025) The false choice driving environmental rollbacks.

FELLOWSHIPS AND GRANTS

Fellowships & Scholarships Awarded		(Total: \$497,000 CAD, \$2,000 USD)
2022-2025	Liber Ero Postdoctoral Fellowship	\$190,000 CAD
2022-2024	NSERC Postdoctoral Fellowship*	\$90,000 CAD
2022	Mitacs Globalink Research Award	\$6,000 CAD
2021-2022	University of Guelph Postdoctoral Fellowship	\$50,000 CAD
2020	IAGLR Scholarship	\$2,000 USD
2018-2020	Ontario Graduate Scholarship (x2)	\$30,000 CAD
2016-2020	NSERC CREATE Doctoral Scholarship	\$84,000 CAD
2016-2018	University Graduate Scholarship (x3)	\$9,000 CAD
2016	Graduate Excellence Entrance Scholarship	\$30,000 CAD
2015	Dean's Scholarship	\$500 CAD
2014	OSCIA Research Scholarship	\$1,000 CAD
2011	URA Award in Department of Chemistry	\$6,500 CAD

*Ranked ‘Outstanding’ (1st out of 74 applicants in Evolution and Ecology section)

Grants Awarded		(Total: \$4,000 CAD, \$34,000 USD)
2025-2026	Twist Gene-ius Grant	\$30,000 USD
2023	NSF ADVANCE ACCESS+ DEI Mini-Grant	\$2,000 USD
2016-2018	SETAC North America Student Travel Grant (x2)	\$1,000 USD
2018	OFAH Fisheries Research Grant	\$4,000 CAD

Grants Pending

2025-	USDA NIFA AFRI A1112 “Field Evolved-and-Resequence Experiments to Improve Identification and Management of Insecticide Resistance Evolution” (Lead PI: Dr. Seth Rudman, Dr. Shahmohamadloo a major contributor)	\$630,000 USD
2025-	OMAFA Alliance Tier 1 Research Program “Pairing field sampling, field experiments, and genomic tools to manage insecticide resistance in Spotted Wing Drosophila across Ontario” (Lead PI: Dr. Ryan Prosser and Dr. Seth Rudman, Dr. Shahmohamadloo a major contributor)	\$240,000 CAD
2025-	Niagara Peninsula Fruit and Vegetable Growers Association “Insecticide Resistance Management in Spotted Wing Drosophila” (Co-PI with Dr. Seth Rudman)	\$10,000 CAD
2025-	Oregon Raspberry and Blackberry Commission “Insecticide Resistance Management in Spotted Wing Drosophila” (Co-PI with Dr. Seth Rudman)	\$10,000 USD
2025-	Washington Red Raspberry Commission “Insecticide Resistance Management in Spotted Wing Drosophila” (Co-PI with Dr. Seth Rudman)	\$15,000 USD
2025-	North American Strawberry Growers Association “Insecticide Resistance Management in Spotted Wing Drosophila” (Co-PI with Dr. Seth Rudman)	\$15,000 USD
2025-	North American Raspberry and Blackberry Association	\$5,000 USD

“Insecticide Resistance Management in Spotted Wing Drosophila” (**Co-PI** with Dr. Seth Rudman)

Honors & Prizes

2022	IFHAB Best Student Paper Award	\$750 CAD
2021	ACS ES&T Water Best Paper Award	
2020	Rockefeller Foundation Food System Vision Prize (Semi-Finalist) [†]	
2016	SETAC North America Best Presenter Award (2 nd Place)	\$500 USD
2013	André Auger Citizenship Award	
2011	International Film Contest Winner, Tony Blair Institute for Global Change	

[†]Co-PI. Selected as one of 75 semi-finalists from 1,300 applicants worldwide

TEACHING EXPERIENCE

Courses Taught

2025-	Instructor Course: Genomic Approaches to Questions in Ecology and Evolution (BIO589)	(WSU)
2016-2019	Teaching Assistant Course: Capstone Project in Environmental Sciences (ENVS4001, ENVS4002) Course: Pesticides in the Environment (ENVS3020)	(U. Guelph)

Guest Lectures

2024	Pesticides and the Environment (ENVS3020)	(U. Guelph)
2024	Human Health and the Environment (ENVS6882)	(U. Guelph)
2021	Multiple Stressors in the Great Lakes (ENVS6470)	(U. Guelph)

Teaching Accreditations

2019	Graduate Research and Project Management, certificate course	(U. Guelph)
2018	University Teaching: Theory and Practice, credit course	(U. Guelph)

Advising (* authored publication during mentorship | † research presented at a conference)

2024-	Brynne Ruotsalainen	HHMI RAISE paid undergraduate researcher (WSU)
2024-	Cristian Zetina	Paid undergraduate researcher (WSU)
2024-	Amir Gabidulin*†	Postbaccalaureate researcher (WSU)
2023-	Timur Gabidulin	Paid undergraduate science illustrator (WSU)
2023-2024	Lily Jonas	Undergraduate research for credit program (WSU)
2023-2024	Ellie Andrews*†	Paid undergraduate researcher (WSU)
2023-2024	Kayley Breslin	Undergraduate honors thesis (U. Guelph)
2022-2023	William Smith†	Undergraduate co-op term (U. Guelph)
2021-2023	Megan Braun†	Undergraduate honors thesis & lab volunteer (U. Guelph)
2021-2022	Julia Bourdeau†	Lab volunteer (U. Guelph)
2021-2022	Mathew Mervyn†	Undergraduate honors thesis & lab volunteer (U. Guelph)
2019-2020	Gabrielle Hankins*†	Undergraduate research for credit program (U. Guelph)
2019-2020	Kate Hubbs*†	Undergraduate research for credit program (U. Guelph)
2019-2020	Polina Konopelko*†	Undergraduate research for credit program (U. Guelph)
2019-2020	Michael Sanarcki*†	Undergraduate research for credit program (U. Guelph)
2019-2020	Dann Strong*†	Undergraduate research for credit program (U. Guelph)
2019-2020	Angela Vander Eyken*†	Undergraduate research for credit program (U. Guelph)

2018-2019	Samantha Gene*†	Undergraduate volunteer (U. Guelph)
2020	Rockefeller Foundation and EAT Foundation	

SERVICE TO PROFESSION & SOCIETY

Departmental

2022-2025	Member , Equity, Diversity, and Inclusion Committee	(U. Guelph)
2018-2020	Member , Undergraduate Curriculum Committee	(U. Guelph)
2016-2020	Member , Communications and Outreach Committee	(U. Guelph)
2016-2020	Organizing Committee , Kenneth Hammond Lecture	(U. Guelph)
2017-2018	Search Committee , Canada 150 Research Chair in Agriculture	(U. Guelph)
2017-2018	Search Committee , Assistant Professor in Soil Science	(U. Guelph)

External

2024-	Co-Chair , IDEA+ Committee, International Association for Great Lakes Research
2017-	Founding Member , Interdisciplinary Freshwater Harmful Algal Blooms Workshop
2021-2024	Board of Directors , International Association for Great Lakes Research
2012-2016	STEM Educator , Upper Grand District School Board
2007-2016	Youth Group Facilitator , Junior Youth Empowerment Program

Ad-hoc Reviewer (number of papers reviewed per journal)

2017-	Aquatic Toxicology (5), Bioinformatics Advances (1), Biology (1), Biology Letters (1), Chemosphere (6), Comprehensive Reviews in Food Science and Food Safety (1), Ecological Informatics (2), Ecology and Evolution (1), Ecotoxicology and Environmental Safety (23), Environmental Chemistry and Ecotoxicology (1), Environmental Management (1), Environmental Pollution (5), Environmental Quality Management (1), Environmental Science and Pollution Research (7), Environmental Science & Technology (1), Environmental Toxicology and Chemistry (2), Freshwater Biology (1), Frontiers in Microbiology (1), Frontiers in Toxicology (1), Harmful Algae (4), Journal of Environmental Management (3), Journal of Hazardous Materials (6), Journal of Industrial and Engineering Chemistry (1), Marine and Freshwater Behaviour Physiology (1), Marine Pollution Bulletin (2), Neurotoxicity Research (1), Pest Management Science (1), Reviews of Environmental Contamination and Toxicology (1), Science of the Total Environment (38), Toxicon (8), Water Research (1)
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Ad-hoc Grant Reviewer (number of grants reviewed)

2021-	BiodivERsA (1), French National Research Agency (1), Water JPI (1)
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INVITED TALKS AND CONFERENCE ACTIVITIES

Invited Talks

2022	Department of Biological Sciences, University of Memphis
2022	Department of Biology, University of Waterloo
2022	School of Biological Sciences, Washington State University
2022	Department of Biology, University of New Brunswick Saint John
2022	Department of Integrative Biology, University of Windsor
2022	Department of Biology, Mount Allison University
2021	Ontario Ministry of Natural Resources and Forestry
2021	Department of Biology, Queen's University

Conferences/Symposia Organized

- 2017-2025 1st to 7th IFHAB Workshop, 100-150 participants
2018 Kenneth Hammond Lecture & Spring Sustainability Symposium, 75-90 participants

Panels Organized

- 2022 12th International Conference on Toxic Cyanobacteria, "Current and future issues in HAB detection, monitoring, mitigation and management"
2017 Canadian Ecotoxicity Workshop, "Harmful algal bloom toxins in biota of the Great Lakes"
2017 60th IAGLR Conference, "The Science and Policy of Multiple Stressors and Cumulative Effects in the Great Lakes"

Invited Panelist

- 2022 12th International Conference on Toxic Cyanobacteria, "Experts in the hot seat: Greatest challenges facing the management and reduction of HABs"
2020 63rd IAGLR Conference, "The state of Great Lakes research in the face of COVID-19"

Contributed Conference Presentations (Total: 22 presentations)

22. "Assisted gene flow prevents extinction when adaptation alone fails under chronic insecticide stress". SETAC North America 46th Annual Meeting. Portland, OR, USA. Oral Presentation (2025).
21. "Assisted gene flow prevents extinction when adaptation alone fails under chronic insecticide stress". Canadian Ecotoxicity Workshop. Victoria, BC, Canada. Oral Presentation (2025).
20. "Transgenerational epigenetic inheritance increases trait variation but is not adaptive". 3rd Joint Congress on Evolutionary Biology. Montréal, QC, Canada. Oral Presentation (2024).
19. "Transgenerational epigenetic inheritance increases trait variation but is not adaptive". CSEE 2024. Vancouver, BC, Canada. Oral Presentation (2024).
18. "The eco-evolutionary consequences of rapid adaptation". EVO-WIBO 2023. Port Townsend, WA, USA. Oral Presentation (2023).
17. "Harmful algal blooms of the cyanobacterium *Microcystis* cause deleterious effects in aquatic organisms: Implications for freshwater biodiversity conservation". 12th International Conference on Toxic Cyanobacteria, Toledo, OH, USA. Poster Presentation (2022).
16. "Harmful algal blooms of the cyanobacterium *Microcystis* cause deleterious effects in aquatic organisms: Implications for freshwater biodiversity conservation". JASM, Grand Rapids, MI, USA. Oral Presentation (2022).
15. "From genes to populations: intraspecific genetic variation in the sublethal effects of harmful algae". SETAC North America 42nd Annual Meeting, Portland, OR, USA. Oral Presentation (2021).
14. "Intraspecific genetic variation in the sublethal effects of harmful algae". Canadian Society of Ecology and Evolution, University of British Columbia, BC, Canada. Oral Presentation (2021).
13. "The ecotoxicology of microcystins in freshwater environments: prospects for future research". Interdisciplinary Freshwater Harmful Algal Blooms Webinar: The Future of Freshwater Harmful Algal Blooms Research, University of Montréal, QC, Canada. Oral Presentation (2021).
12. "Microcystins in both intracellular and extracellular states can cause disease-related effects in Rainbow Trout (*Oncorhynchus mykiss*)". IAGLR 64th Conference (Virtual), Michigan Technological University, MI, USA. Oral Presentation (2021).
11. "Distinguishing the toxicokinetics between intracellular and extracellular microcystin exposure to Rainbow Trout (*Oncorhynchus mykiss*)". SETAC North America 41st Annual Meeting, SciCon2, Waco, TX, USA. Oral Presentation (2020).
10. "Sorption of Microcystins to Microplastics in Freshwater Ecosystems". SETAC North America 41st Annual Meeting, SciCon2, Waco, TX, USA. Oral Presentation (2020).
9. "Shotgun proteomics analysis reveals sub-lethal effects in *Daphnia magna* exposed to cell-bound microcystins produced by *Microcystis aeruginosa*". IAGLR 63rd Conference (Virtual), Winnipeg, MB, Canada. Poster Presentation (2020).

8. "Building Resiliency in Agricultural Landscapes: A Conceptual Framework Focused on Risk Management". SETAC Europe 28th Annual Meeting, Dublin, LEN, Ireland. Poster Presentation (2020).
7. "Assessing the differences in uptake and depuration potential of intra- and extracellular microcystins in *Salvelinus namaycush* and *Oncorhynchus mykiss*". SETAC North America 40th Annual Meeting, Toronto, ON, Canada. Poster Presentation (2019).
6. "An efficient and affordable laboratory method to produce and sustain high concentrations of microcystins by *Microcystis aeruginosa*". SETAC North America 40th Annual Meeting, Toronto, ON, Canada. Poster Presentation (2019).
5. "Microcystis aeruginosa adversely impacts Daphnia spp.: Posing risks to food webs of the Great Lakes". SETAC North America 39th Annual Meeting, Sacramento, CA, USA. Poster Presentation (2018).
4. "Microcystis aeruginosa adversely impacts Daphnia spp.: Posing risks to food webs of the Great Lakes". IAGLR 61st Conference, Toronto, ON, Canada. Oral Presentation (2018).
3. "A resourceful approach to managing sewage sludge: An effects-based look at the micro-constituents in land-applied biosolids". FarmSmart Conference: Municipal Biosolids Beneficial Use Education Day, Milton, ON, Canada. Oral Presentation (2017).
2. "Evaluating the effects of triclosan on field crops and arbuscular mycorrhizal fungi in biosolids-amended soil". SETAC North America 36th Annual Meeting, Salt Lake City, UT, USA. Oral Presentation (2015).
1. "Evaluating the effects of triclosan on field crops and arbuscular mycorrhizal fungi in biosolids-amended soil". Canadian Ecotoxicity Workshop, Ottawa, ON, Canada. Oral Presentation (2014).

LANGUAGES

English (Native proficiency), French (Limited working proficiency), Persian (Limited working proficiency)

PROFESSIONAL MEMBERSHIPS

Society for the Study of Evolution (SSE), Canadian Society for Ecology and Evolution (CSEE), International Association for Great Lakes Research (IAGLR), Society of Environmental Toxicology and Chemistry for North America (SETAC NA), Laurentian Chapter for the Society of Environmental Toxicology and Chemistry (L-SETAC)