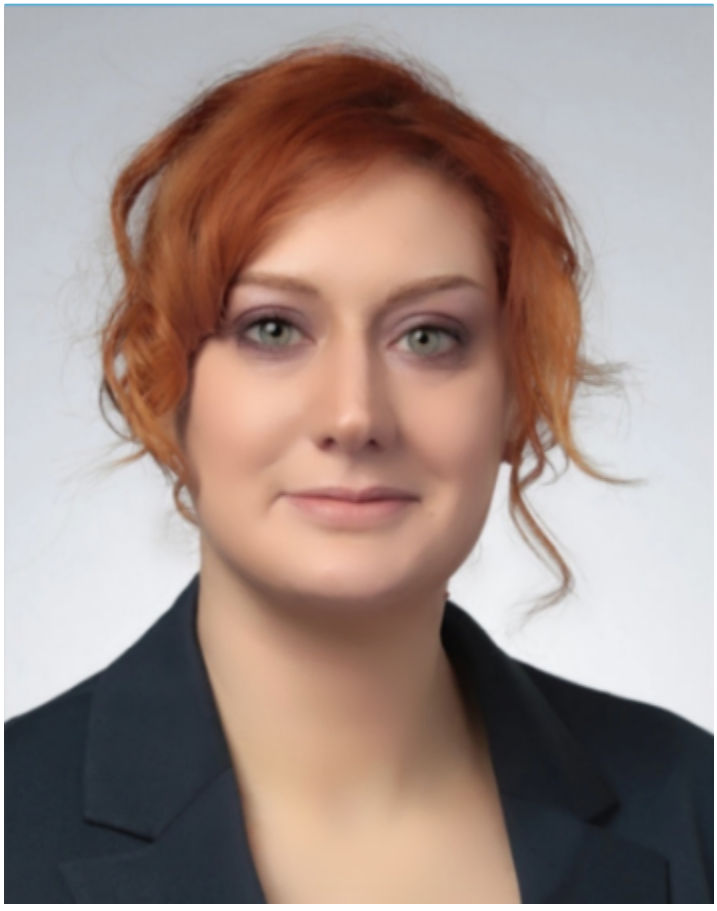
Toronto Metropolitan University

Urban Water

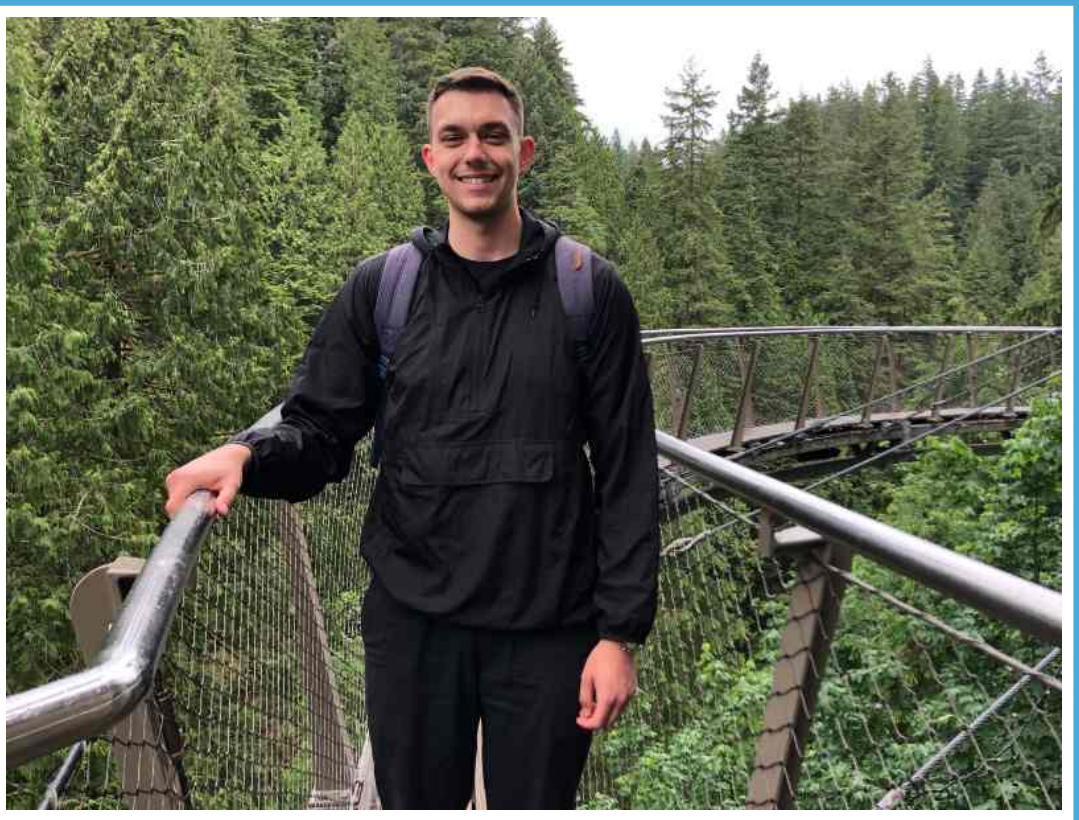
Urban Water TMU - Spring 2025

Tapping into Canada's Heartbeat with Sustainable Ice Making Technologies



Stefania Impellizzeri and the Jet Ice Research Team are gliding into the spotlight with recent article Women Behind the Ice, publication in Nature Scientific Reports, and presentations at AARFP and SCAS. Thank you Jet Ice Team for breaking the ice on sustainable ice making technologies, building relationships with the NHL, and rallying around Canada's game.

Introducing the 2025 Winner of the Nicholas Reid Memorial Award - Eric Fries!

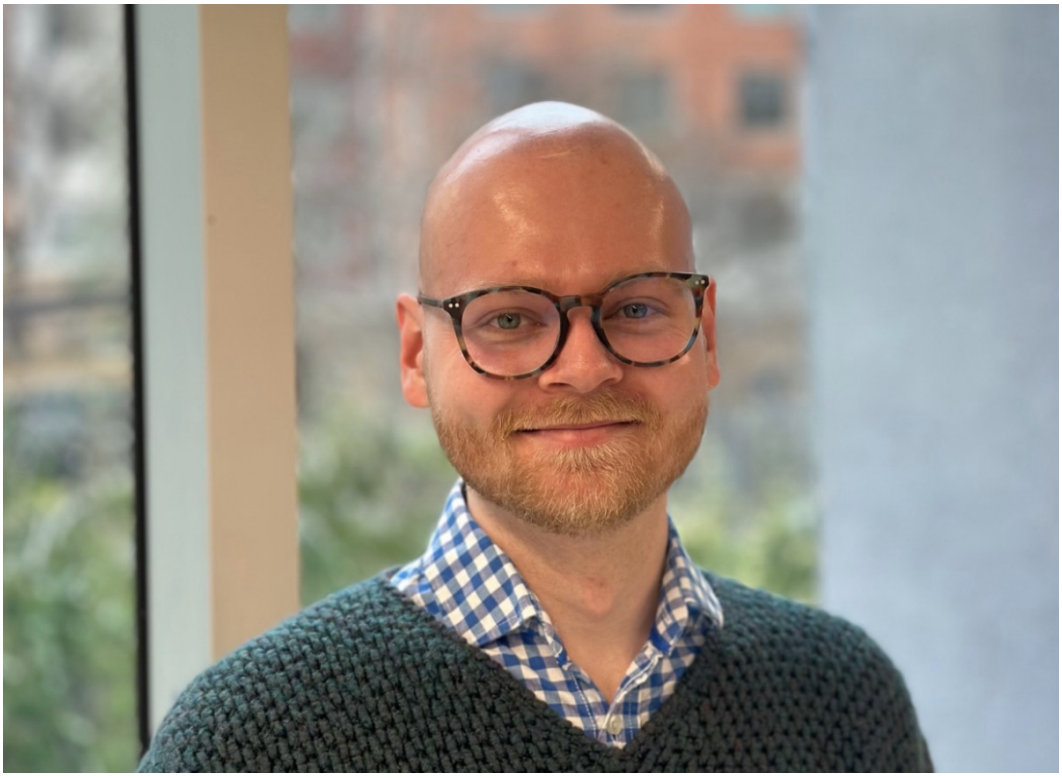


This year's Nicholas Reid Memorial Award recipient is Eric Fries, a PhD student in the Environmental Applied Science and Management program at TMU!

Eric's research in the **Emerging Contaminants Lab** investigates the invisible threat of chemicals leaching from plastics into water systems. Eric's dedication to water stewardship and his leadership and mentorship among students make him an exceptional leader in the field. Through his efforts, he is **advancing policy change** and carrying forward Nick Reid's legacy of innovation and commitment to sustainable urban water practices!

Please see more here

Student Corner: Updates from Urban Water SLC President



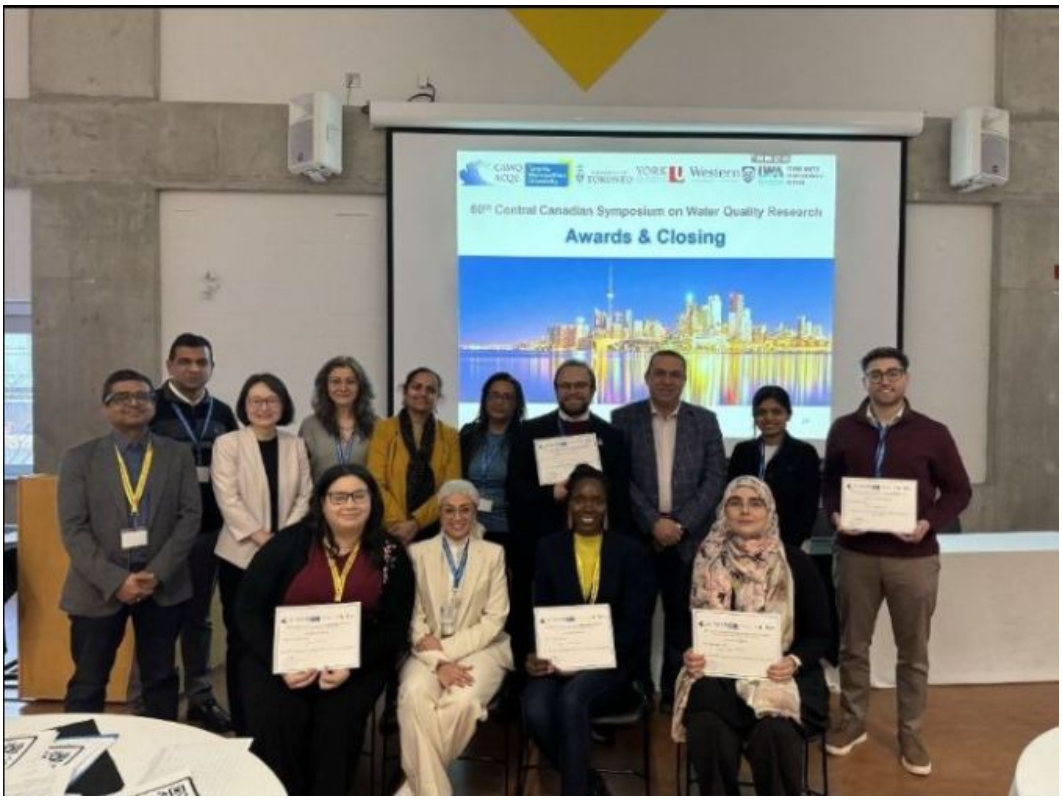
In the last few months, the Urban Water Student Leadership Committee (SLC) organized a number of social activities that brought students together from various disciplines across campus. These activities included: Movie nights (The Abyss, Flushed Away), Painting with algae, Board game night, and a garbage and debris clean up at Yellow Creek.

Most recently the Urban Water SLC forged a partnership with the TRCA to improve green space around TMU campus. This partnership began with the planting of 102 trees and shrubs in the Fall of 2024.

In Spring 2025, Urban Water SLC will join forces with TMU's Architecture Department to plant 100 additional shrubs around the Centre for Urban Innovation and the Architecture Building. **Stay tuned for updates on this incredible initiative!**

Wyatt Weatherson, President, Urban Water SLC

Congratulations Rania Hamza and TMU for Hosting the 60th Central Canadian Symposium for Water Quality Research!

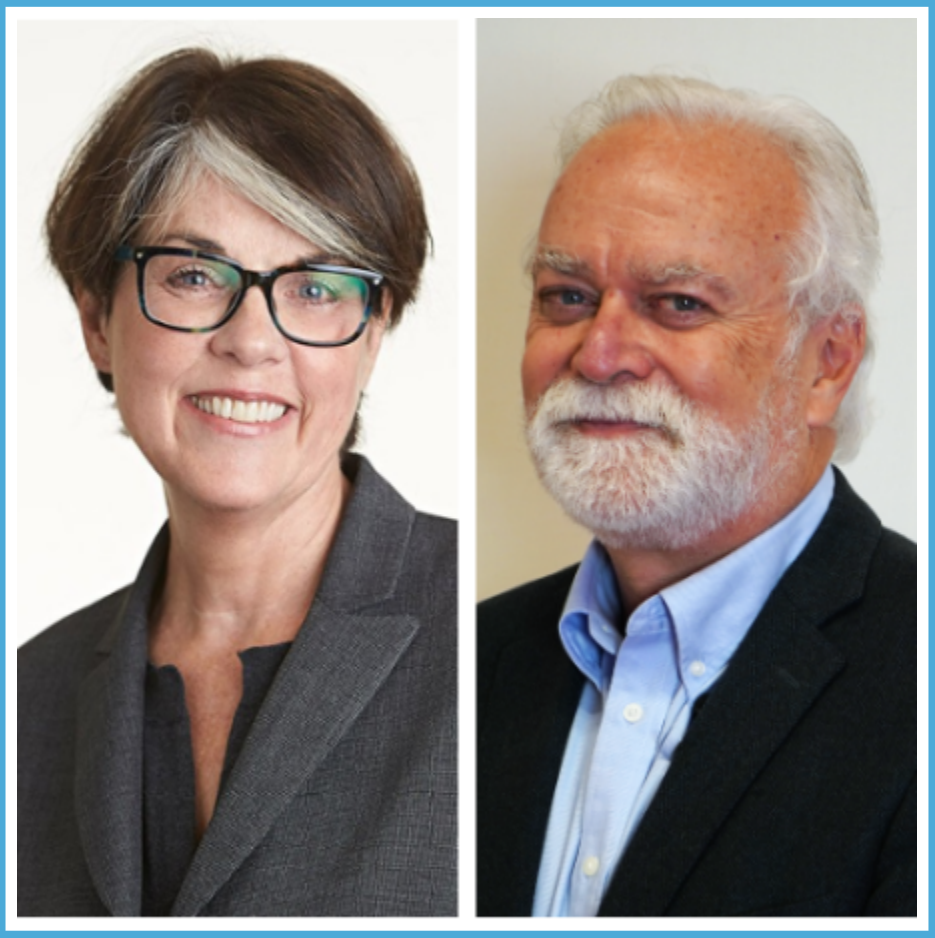


In February, TMU proudly hosted the 60th Central Canadian Symposium for Water Quality Research! This milestone event, spearheaded by Urban Water's **Dr. Rania Hamza,** brought together researchers, professionals, and students for two packed days of knowledge sharing, collaboration, and inspiration.

Designed as a student-led experience, the symposium showcased the talents of TMU students, who took the lead on everything from promotional materials, to event logistics, to poster and podium presentations. **It was an unforgettable celebration of water research, innovation, and student leadership!**

The Symposium is an annual event guided by a Steering Committee from TMU, UofT, York, and Western. **Huge congratulations to Chair Rania Hamza and students of TMU!**

Dynamic Seminar on Modernization of the Canada Water Act



In February 2025, Urban Water TMU hosted an excellent seminar on the Modernization of the Canada Water Act. Led by legal scholar Dr. Patricia Hania and Canada's foremost policy expert Mr. Mike Goffin, the seminar attracted researchers, students, and partners alike. The event was timely as the Government of Canada has just invited public consultation on this foundational piece of water legislation.

Dr. Hania shared insights from her recent work on the Act's legal foundations and cooperative federalism, while Mr. Goffin highlighted the process for legal and policy change in Canada, modern considerations like co-developing legislation with Indigenous communities and incorporating regular freshwater reporting.

The seminar sparked thoughtful dialogue on how law, policy, and science can collectively shape Canada's water future. And how the speed of climate change and social media and political considerations may impact the process and longevity of legal and policy frameworks.

Read more on our website here

Upcoming Events

1. David McCarthy Seminar – Monday, May 5, 2025 | 1–2pm
Come and learn about waterborne pathogens and urban water systems with Dr. David McCarthy, Canada Excellence Research Chair at the University of Guelph. He'll share his research on pathogen fate and transport, urban hydrology, and smart water quality monitoring! Hybrid in CUI-219 or Zoom!

2. Science Rendezvous – Saturday, May 10, 2025 | 11am–3pm
Come learn about the impacts of microplastics and road salt in our Canadian freshwaters on Gould Street on TMU campus!

Recent Publications of Urban Water Researchers

Full Members are highly involved in the Centre and are regular contributors to Urban Water research projects and initiatives. Check out their recent publications below.

Azmi, H., **Melles, S. J.**, & **Laursen, A. E.** (2025). Does selenium offset methylmercury toxicity across trophic levels in a primary producer, *Auxenochlorella pyrenoidosa* , and a detritovore, *Aeolosoma variegatum*? *FACETS*, *10*, 1–13. https://doi.org/10.1139/facets-2024-0061

Biagi, K. M., Pardy, A., Luymes, M., Mazumder, B., Thomas, J. L., Sorichetti, R. J., & **Wellen, C. C.** (2025). Phosphorus mass balance of 11 temperate agricultural headwater catchments: Accumulating and depleting watersheds exhibit contrasting stream load patterns. Environmental Research: Water. https://doi.org/10.1088/3033-4942/adc829

El Sayed, A., Ismail, A., Rabii, A., Hamze, A.**, Hamza, R. A**., & **Elbeshbishy, E**. (2025). Biochemical Methane Production Potential of Different Industrial Wastes: The Impact of the Food-to-Microorganism (F/M) Ratio. Processes, 13(3), 802. https://doi.org/10.3390/pr13030802

Hegazy, N., Peng, K. K., D'Aoust, P. M., Pisharody, L., Mercier, E., Ramsay, N. T., Kabir, M. P., Nguyen, T. B., Tomalty, E., Addo, F., Wong, C. H., Wan, S., Hu, J., Dean, C., Yang, M. I., Dhiyebi, H., Edwards, E. A., Servos, M. R., Ybazeta, G., Habash, M., Goodridge, L., Poon, A. F. Y., Arts, E. J., Brown, S., Payne, S. J., Kirkwood, A., Simmons, D. B. D., Desaulniers, J.-P., Ormeci, B., Kyle, C., Bulir, D., Charles, T., McKay, R. M., **Gilbride, K. A**., **Oswald, C. J.,** Peng, H., DeGroot, C., WSI Consortium, Renouf, E., & Delatolla, R. (2024). Variability of Clinical Metrics in Small Population Communities Drive Perceived Wastewater and Environmental Surveillance Data Quality: Ontario, Canada-Wide Study. *ACS ES&T Water*. https://doi.org/10.1021/acsestwater.4c00958

Hyder, U. S., **Elbeshbishy, E.,** McPhee, J., AlSayed, A., & Misir, R. (2025). Chemical conditioning approach to post-treat temperature-phased anaerobic digestate to improve resource recovery, odour reduction and biosolids quality. *Environmental Technology*, 1–17. https://doi.org/10.1080/09593330.2024.2423905

Jiao, J., Afroogh, S., Chen, K., **Atkinson, D.,** & Dhurandhar, A. (2025a). AGGA: A Dataset of Academic Guidelines for Generative AI and Large Language Models (arXiv:2501.02063). *arXiv*. https://doi.org/10.48550/arXiv.2501.02063

Jiao, J., Afroogh, S., Chen, K., **Atkinson, D**., & Dhurandhar, A. (2025b). *G*enerative AI and LLMs in Industry: A text-mining Analysis and Critical Evaluation of Guidelines and Policy Statements Across Fourteen Industrial Sectors (arXiv:2501.00957). *arXiv*. https://doi.org/10.48550/arXiv.2501.00957

Jiao, J., Afroogh, S., Chen, K., **Atkinson, D.,** & Dhurandhar, A. (2025c). The global landscape of academic guidelines for generative AI and LLMs. *Nature Human Behaviour*. https://doi.org/10.1038/s41562-025-02124-6

Kakar, F. L., Aqeel, H., Okoye, F., **Elbeshbishy, E.,** & **Liss, S. N.** (2025). Microbial shifts and VFA production in the optimization of anaerobic digestion by thermal hydrolysis coupled with vacuum fermentation. Bioresource Technology, 132481. https://doi.org/10.1016/j.biortech.2025.132481

OLMo, T., Walsh, P., Soldaini, L., Groeneveld, D., Lo, K., Arora, S., Bhagia, A., Gu, Y., Huang, S., Jordan, M., Lambert, N., Schwenk, D., Tafjord, O., Anderson, T., **Atkinson, D**., Brahman, F., Clark, C., Dasigi, P., Dziri, N., … Hajishirzi, H. (2025). *2 OLMo 2 Furious* (arXiv:2501.00656). arXiv. https://doi.org/10.48550/arXiv.2501.00656

Pandit, A., Hogan, S., Mahoney, D. T., Ford, W. I., Fox, J. F., **Wellen, C**., & Husic, A. (2025). Establishing performance criteria for evaluating watershed-scale sediment and nutrient models at fine temporal scales. *Water Research*, *274*, 123156. https://doi.org/10.1016/j.watres.2025.123156

Smenderovac, E., Kielstra, B. W., Kluke, C., Johnston, T. A., Bhavsar, S. P., Mackereth, R., **Melles, S**., Lescord, G. L., & Emilson, E. J. S. (2025). Mixed Model Approaches Can Leverage Database Information to Improve the Estimation of Size-Adjusted Contaminant Concentrations in Fish Populations. *Environmental Science & Technology*. https://doi.org/10.1021/acs.est.4c10303

Vaezafshar, S., Wolk, S., Arrandale, V. H., **Suehring, R.**, Phipps, E., Jantunen, L. M., & Diamond, M. L. (2025). Young Children's Exposure to Chemicals of Concern in Their Sleeping Environment: An In-Home Study. Environmental Science & Technology Letters. https://doi.org/10.1021/acs.estlett.5c00051

See Our Full List of Publications by Urban Water Researchers