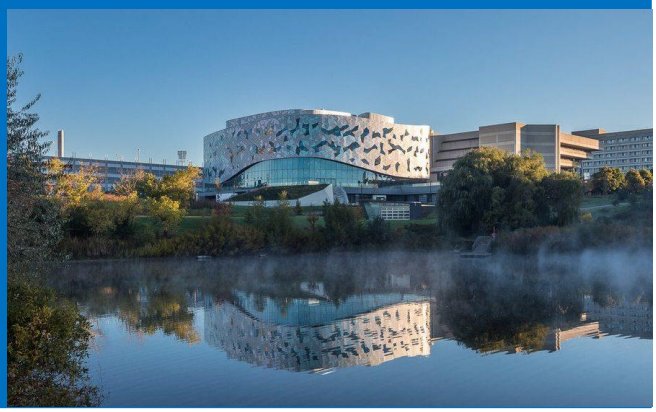
One WATER Institute

Newsletter

Issue 2
February-March 2025



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Where Water meets Innovations

Message from the Director

Dr. Satinder Kaur Brar
Director of One WATER

Water is a fundamental necessity for human existence, playing a crucial role in sustaining life and ecosystems. As stewards of this invaluable resource, it is our collective responsibility to ensure its preservation and sustainable management for future generations.

At One WATER Institute, we are committed to collaborative efforts aimed at addressing the challenges impacting water resources. Through interdisciplinary research, innovation, and knowledge-sharing, we strive to develop solutions that mitigate environmental pressures and promote long-term resilience.

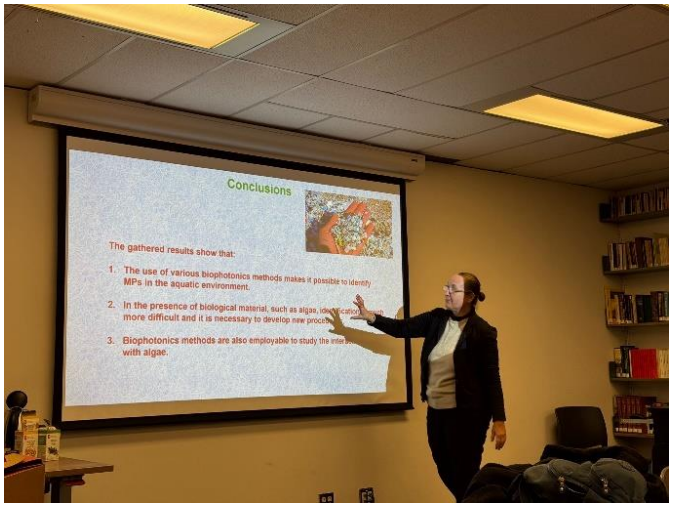
Our vision aligns with the principles of a circular resource economy, emphasizing water reuse, conservation, and responsible management. By adopting sustainable strategies and advancing scientific and engineering approaches, we are working toward a future where water remains abundant, clean, and accessible for all. Hear from Dr. Satinder Kaur Brar, Director of One WATER, as she shares our mission, vision, and research focus here.

PREVIOUS EVENTS

One WATER Seminar Series: Microplastics & Biophotonic Methods

On January 31, 2025, the One WATER Institute hosted an engaging seminar featuring **Prof. Alzbeta Marcek Chorvatova**, an expert in cellular biophotonics. The event focused on the detection of microplastics in aquatic environments using advanced biophotonic techniques such as fluorescence microscopy, FLIM, FTIR, and Raman spectroscopy.

Attendees had the opportunity to engage in insightful conversations and explore interdisciplinary approaches to tackling microplastic pollution. The event concluded with networking and refreshments, providing a platform for knowledge-sharing and collaboration. Here are some highlights from the session!

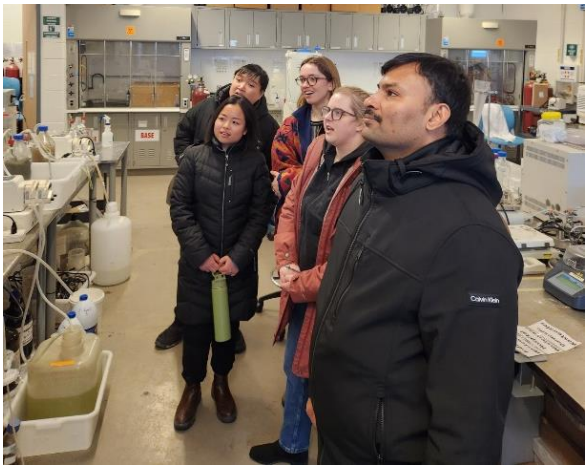


🔍 Tour of Toys: Exploring York's Water Labs

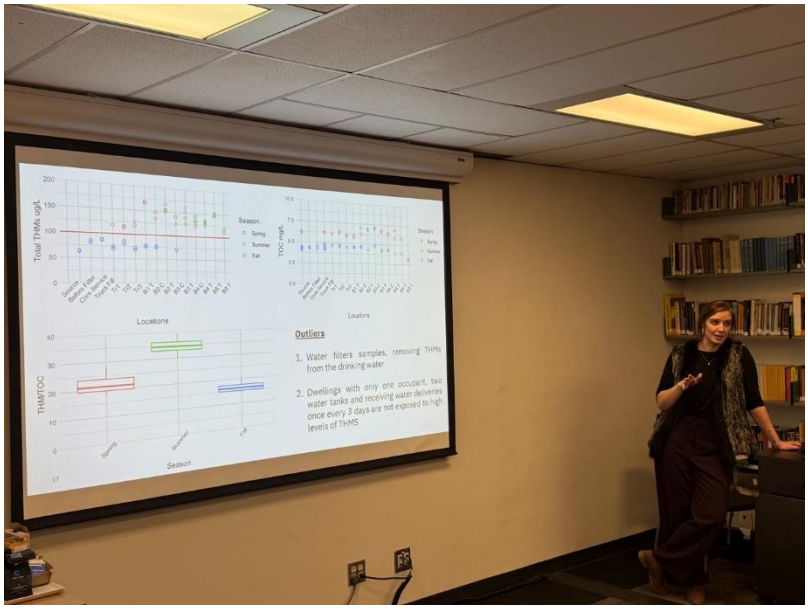
On February 4th, the One WATER Student Chapter hosted an exclusive Tour of Toys: Part 1, an exciting exploration of York University's state-of-the-art water labs. Led by Student Chapter President, **Brian Waters**, the event provided students with a behind-the-scenes look at cutting-edge water research and advanced laboratory equipment.

Participants engaged in insightful discussions with researchers, gaining firsthand experience of how water quality, treatment, and sustainability are studied. The tour included interactive demonstrations, opportunities to ask questions, and valuable networking with fellow students and faculty members.

The event was a great success, sparking curiosity and enthusiasm for water science among attendees. Stay tuned for Part 2 of the Tour of Toys, where we continue our deep dive into the world of water research at York!



🎤 One WATER Seminar Series: Exploring Drinking Water Safety in the Arctic



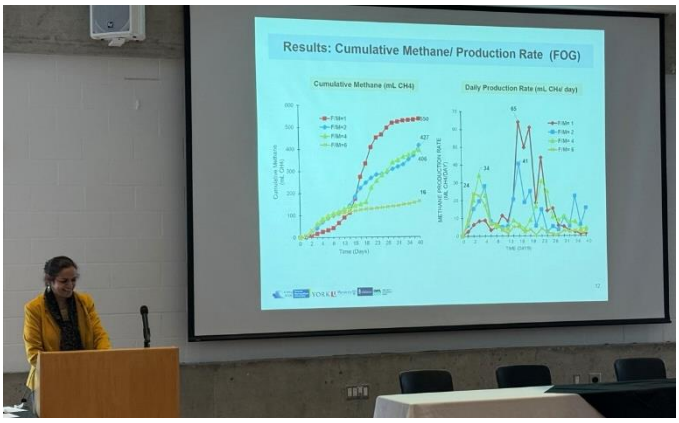
On February 25, 2025, the One WATER Institute hosted a compelling seminar featuring **Caroline Duncan**, a final-year PhD candidate under the supervision of **Dr. Stephanie Gora** at the Lassonde School of Engineering. Caroline shared insights from her doctoral research, which focuses on drinking water safety in Cambridge Bay, Nunavut. Her fieldwork involved extensive water quality sampling and collaborative workshops with stakeholders to identify key hazards affecting water safety in Arctic communities. The presentation highlighted crucial findings on water quality characteristics and the participatory system dynamics modeling approach she employs to optimize drinking water accessibility in remote regions.

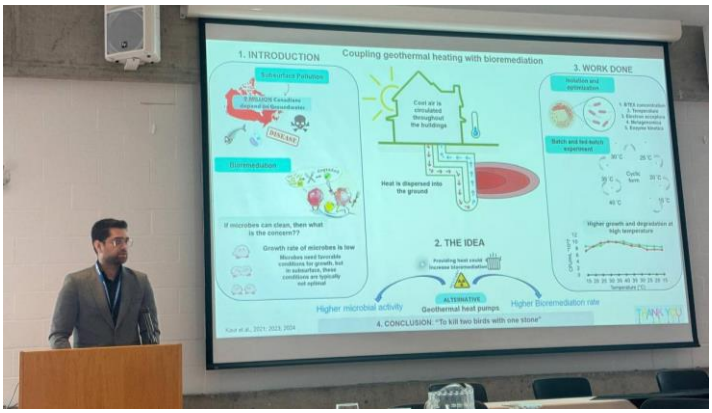
The event attracted a diverse audience, including students, faculty members, and water industry professionals, fostering engaging discussions on the challenges of ensuring safe drinking water in cold climates. Attendees appreciated Caroline's in-depth analysis of seasonal variations in water contaminants, the effectiveness of water filters, and policy implications for Arctic water governance. The seminar was an excellent opportunity to learn about cutting-edge research that directly impacts community well-being and sustainable water management. We extend our gratitude to Caroline for sharing her valuable insights and wish her the best in her PhD research!

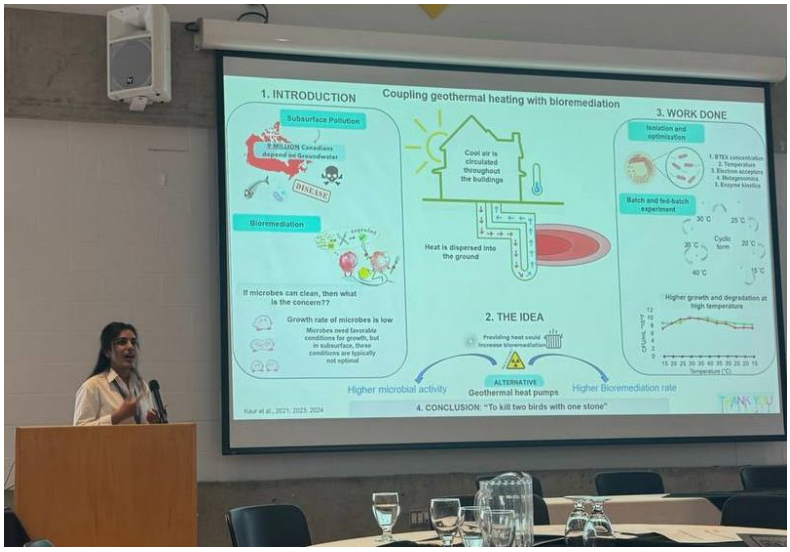
🔬 Advancing Water Quality Research: Highlights from 60th CAWQ Symposium

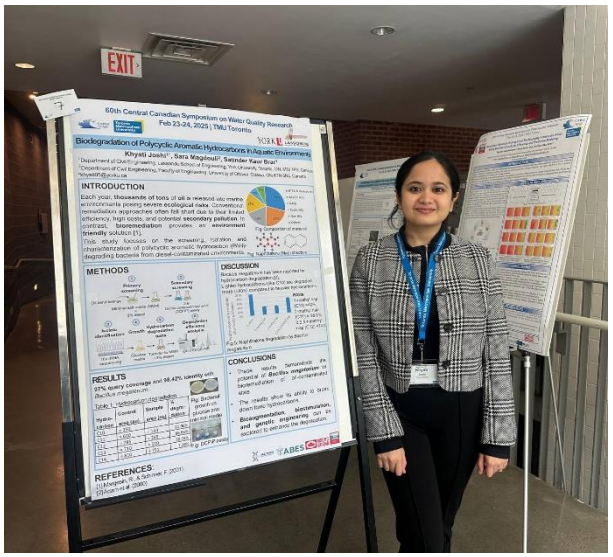
The 60th Central Canadian Symposium on Water Quality Research, hosted at **Toronto Metropolitan University** on February 23-24, 2025, brought together leading experts, academics, and professionals to discuss innovative solutions and advancements in water quality research. Organized by the **Canadian Association on Water Quality (CAWQ)**, the symposium featured a variety of sessions, including discussions on emerging contaminants, wastewater treatment innovations, stormwater management, and the role of digitalization in smart water solutions. With keynote addresses from Dr. Arthur Umble and **Dr. Robert Andrews**, the event provided a platform for interdisciplinary collaboration, fostering connections between university researchers, industry leaders, and policymakers to tackle Canada's pressing water challenges.

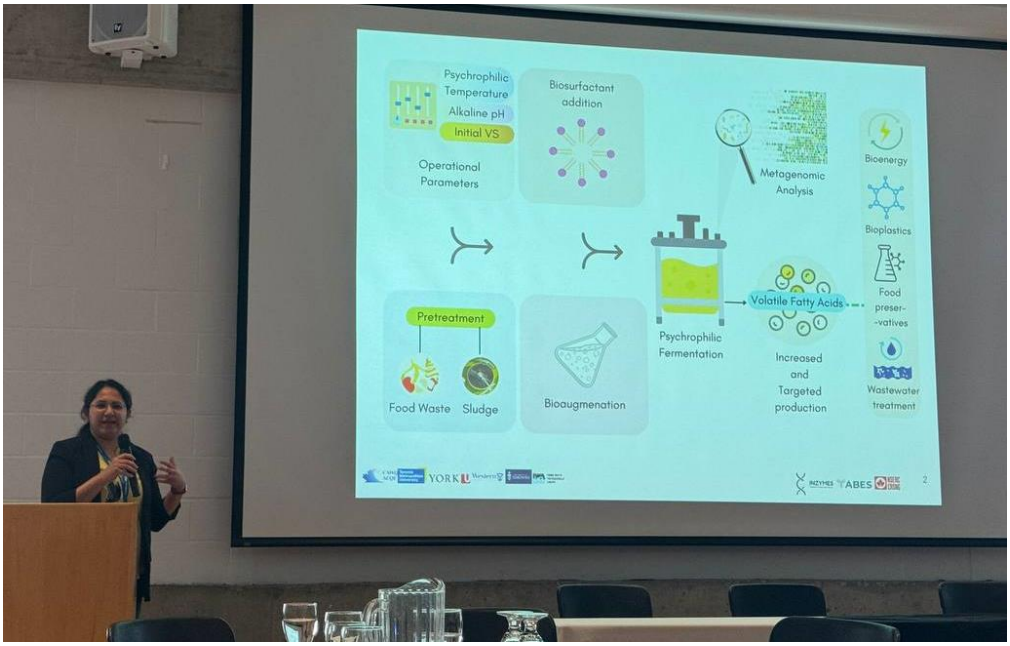
Dr. Stephanie Gora, a co-chair of the symposium, played a crucial role in organizing and leading sessions, ensuring a well-structured program that addressed key water quality issues. She also chaired technical discussions, contributing her expertise to the advancement of research in the field. Meanwhile, **Dr. Satinder Brar**, Director of the One WATER Institute, also served as a session chair, leading discussions on wastewater as a resource for water, energy, and nutrients. Her session focused on sustainable wastewater management and innovative reuse strategies, highlighting the shift towards a circular economy in water systems. Additionally, **Farshad Dabbaghi**, the symposium coordinator, served as the chair for the highly anticipated Three-Minute Thesis (3MT) competition, where students showcased their research in concise and compelling presentations, demonstrating the next generation's role in water quality advancements.

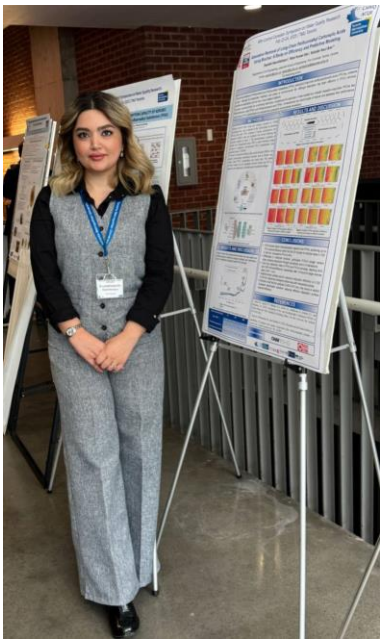










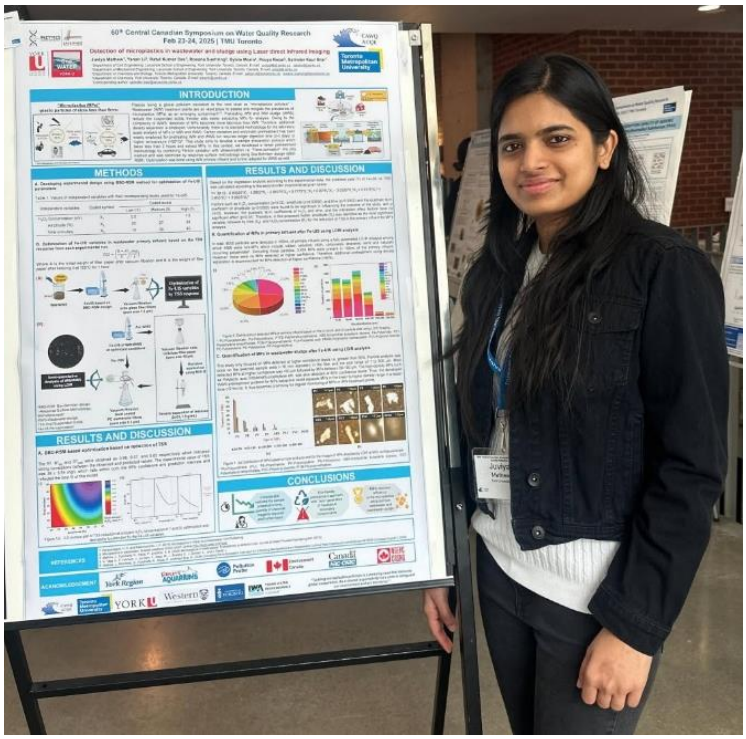


🤝 Empowering Connections: One WATER Leads Networking at CAWQ

Brian Waters, President of the Student Chapter, and **Dr. Stephanie Gora** led an engaging networking session on February 23 from 3:30 - 4:30 PM. The session focused on helping attendees overcome networking challenges, initiate meaningful conversations, and connect with experts beyond their specific research fields. Through interactive discussions and insights from experienced researchers, participants learned strategies to confidently engage with peers, industry professionals, and academic leaders. This session provided a valuable opportunity for students and early-career researchers to establish relationships that would continue to grow throughout the conference. Attendees also gained practical tips on effective communication, including how to craft impactful introductions and maintain professional connections beyond the event. By fostering a supportive environment, the session encouraged collaboration and knowledge-sharing among participants. The success of this initiative highlighted the importance of mentorship and professional development in shaping the future of water quality research.

🏅 Juviya Mathew Shines at CAWQ with Award-Winning Research

Securing first place in the prestigious poster competition at CAWQ on Water Quality Research, a remarkable achievement was made under the guidance of **Dr. Satinder Brar**. **Juviya Mathew**, a Ph.D. student, earned top honors for her research on innovative approaches to detecting microplastics in wastewater sludge using advanced imaging techniques. Her work stood out for its scientific depth, clarity, and real-world impact, competing against talented students from leading institutions. This accomplishment not only highlights the cutting-edge research at One WATER Institute but also reinforces the importance of student-driven innovation in tackling global water challenges. Congratulations to Juviya for her outstanding achievement and for representing One WATER Institute with excellence!



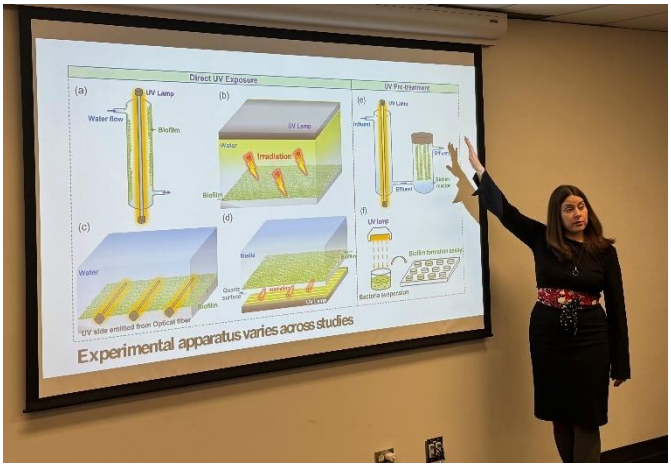
🌎 Swan Lake Citizen Science Lab: Exploring the Future of Environmental Engagement Through Technology

York University Markham campus hosted an engaging workshop where researchers from One Water institute, CIFAL York, ADERSIM, Ducks Unlimited, and Toronto Nature Stewards showcased their latest innovations in VR, simulation, and AI-integrated technologies, demonstrating their applications in the Swan Lake Citizen Science Lab. Alongside these cutting-edge tools, The workshop also explored the theoretical foundations that drive our approach to community-driven environmental research. This initiative highlights the power of immersive technology in fostering environmental Citizenship, data-driven decision-making, and citizen engagement.

💡 World Water Day Seminar Highlights: Advancing Innovation in Water Research & Environmental Communication 📣

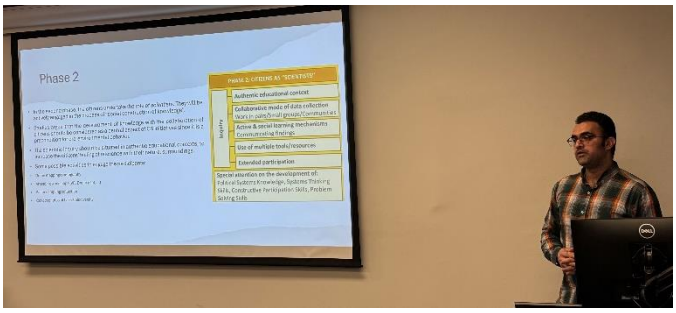
On March 27, 2025, the One WATER Institute hosted a special seminar in celebration of **World Water Day**, featuring two impactful presentations that brought together scientific innovation and community engagement. **Dr. Stephanie Gora** shared key insights from her recent critical review, "Control of Biofilms with UV Light", exploring how ultraviolet (UV) technologies are being applied to manage biofilm formation across diverse sectors—from water infrastructure to healthcare. Her talk emphasized the need for standardized methodologies, better reporting practices, and continued interdisciplinary collaboration to move UV-based biofilm control toward real-world application.

🎥 Watch Dr. Gora's full World Water Day presentation here.



PhD candidate **Peyman Naeemi**, under the supervision of **Dr. Ali Asgari**, presented his research on the integration of behavior change and audience engagement theories into digital media design. Using the Swan Lake Citizen Science Lab as a case study, Peyman examined how communication frameworks can be used to foster environmental citizenship and strengthen community involvement in local science initiatives. His work illustrates the powerful intersection between media innovation and environmental education.

🎥 You can watch his full presentation here.



🏆 Breaking Boundaries in Research: Dr. Razieh Salahandish Named One WATER's First Researcher of the Month!

As part of One WATER Institute's new initiative to spotlight outstanding faculty contributions, **Dr. Razieh (Neda) Salahandish**, Assistant Professor at York University's Department of Electrical Engineering and Computer Science, has been named Researcher of the Month.

Dr. Salahandish is a distinguished scholar with expertise in nano-structure-based biosensors, microfluidics, and point-of-care diagnostics.

Her research focuses on developing miniaturized electrical and electrochemical sensors, wearable medical devices, and smart organ-on-chip platforms to enhance early disease detection and medical diagnostics. Prior to joining York University's Lassonde School of Engineering, she conducted groundbreaking work as a postdoctoral fellow at the University of Calgary, where she helped develop in-vitro diagnostic (IVD) platforms for the rapid detection of diseases, including COVID-19.

Beyond academia, Dr. Salahandish is also a successful entrepreneur, co-founding Criticare Dx, a medical device startup dedicated to advancing diagnostic technology.

She actively collaborates with various industry leaders, including CardiAI Inc. and Selective Lab, to translate research innovations into real-world applications.

Her recent projects include the development of smart capsules for gut microbiome exploration, biosensors for wearable diagnostics, and electrochemical sensors for brain injury biomarker detection.

Dr. Razieh Salahandish
Assistant Professor, Department of Electrical Engineering and Computer Science

Through her interdisciplinary research, Dr. Salahandish continues to make significant contributions to medical technology, biosensing, and personalized healthcare solutions, reinforcing One WATER Institute's commitment to cutting-edge scientific advancements. We congratulate Dr. Salahandish on this well-deserved recognition!

🎥 Watch a video feature from Dr. Salahandish and her research team here as they showcase their innovative work.

🌟 Emerging Scholar of the Month – March 2025

Elnaz Haghani
PhD Student

We are thrilled to announce the launch of a new initiative at the One WATER Institute: The Emerging Scholar of the Month series—designed to highlight exceptional graduate researchers advancing innovation in water-related and interdisciplinary fields.

Our inaugural honoree is Elnaz Haghani, a PhD candidate in Biomedical Engineering at York University under the supervision of **Dr. Razieh Salahandish**. Elnaz's research focuses on AI-assisted wearable platforms for sweat biomarker analysis, enabling non-invasive, early-stage detection of diseases such as cancer and neurological disorders. As co-founder of WearNovAi, she merges expertise in biosensors, microfluidics, and nanobiotechnology to design cutting-edge point-of-care diagnostic tools.

With a growing portfolio of high-impact publications, a filed patent, and recognition through the Carswell Scholarship and a Mitacs internship, Elnaz exemplifies the spirit of innovation and impact that One WATER seeks to champion through this new recognition program. We congratulate Elnaz on this well-earned achievement and celebrate her commitment to meaningful, translational research. We wish her continued success in her studies and look forward to the future impact of her work.

🎥 Watch the interview with Elnaz here.

NEWS

🎓 Celebrating Student Achievement

We're proud to share that **Gaurav Bhardwaj**, a graduate student under the supervision of **Dr. Satinder Brar**, was selected as a recipient of the prestigious **OOWA Scholarship** and attended the Award Ceremony and Reception in Ottawa on March 31st, 2025. Hosted by the **Ontario Onsite Wastewater Association**, the event celebrated exceptional student contributions to water and environmental research. Gaurav attended the evening reception and represented the One WATER Institute with distinction. His achievement highlights the impactful work being carried out by our graduate researchers. Congratulations to Gaurav on this well-deserved recognition—your dedication and achievements make us proud!

Exciting Tenure-Track Opportunities in Water Quality at the University of Guelph

The University of Guelph is expanding its research excellence in Water Quality with five tenure-track positions as part of its vision to establish an international centre of excellence in the field. This initiative builds on the leadership of Dr. David McCarthy's Canada Excellence Research Chair in Waterborne Pathogens and aims to attract top researchers dedicated to advancing water quality science.

Currently, four tenure-track positions are open:

- **Assistant Professor in Waterborne Disease Modelling** – Expertise in computational modeling of pathogens, risk assessments, and climate change impacts.
- **Assistant Professor in Next Generation Sensing of Waterborne Pathogens** – Focus on sensor development and validation for detecting waterborne pathogens/AMR.
- **Assistant Professor in Smart, Nature-Based Treatment of Waterborne Pathogens** – Specializing in passive treatment systems integrated with real-time monitoring and automation.
- **Assistant Professor in Waterborne Epidemiology** – Expertise in water-based epidemiology, molecular subtyping, and disease transmission modeling.

These roles offer a unique opportunity to contribute to groundbreaking water research. If you or someone in your network is interested, apply now or share these openings with potential candidates!

SSHRC Grant Opportunity: Partnering for Policy Innovation

The **Social Sciences and Humanities Research Council (SSHRC)** has launched the **Policy Innovation Partnership Grants**, fostering collaboration between postsecondary institutions and federal government departments to address key policy challenges. The **2025 focus is on Improving Canada's Productivity**, supporting research on **technology adoption, workforce development, investment strategies, and economic resilience**.
With **up to $6 million in funding over 15 years**, the grant supports data-driven research to inform federal policy and enhance access to knowledge. **Only one partnership will be funded**, making this a highly competitive opportunity.
Interested researchers must notify their **Faculty Research Office and the Office of Research Services (ORS)**. A **one-page proposal summary and CV are due by April 4, 2025**, with the final application deadline on **September 10, 2025**. For details, contact **Diana Frasca (dfrasca@yorku.ca)**.

NSERC–ECCC Call for Proposals: Plastics Science and Innovation for a Cleaner Future

NSERC, in partnership with Environment and Climate Change Canada (ECCC), has launched a **new funding opportunity** to support research in plastics science and sustainability. The **Plastics Science for a Cleaner and More Sustainable Future** program invites Canadian university researchers to lead collaborative projects that address critical issues related to plastics in the environment. Funding ranges from **$50,000 to $200,000 per year** for **1 to 3 years**, with an optional one-year extension. The **Letter of Intent deadline is May 15, 2025**, with full applications due **September 18, 2025**, by invitation only.

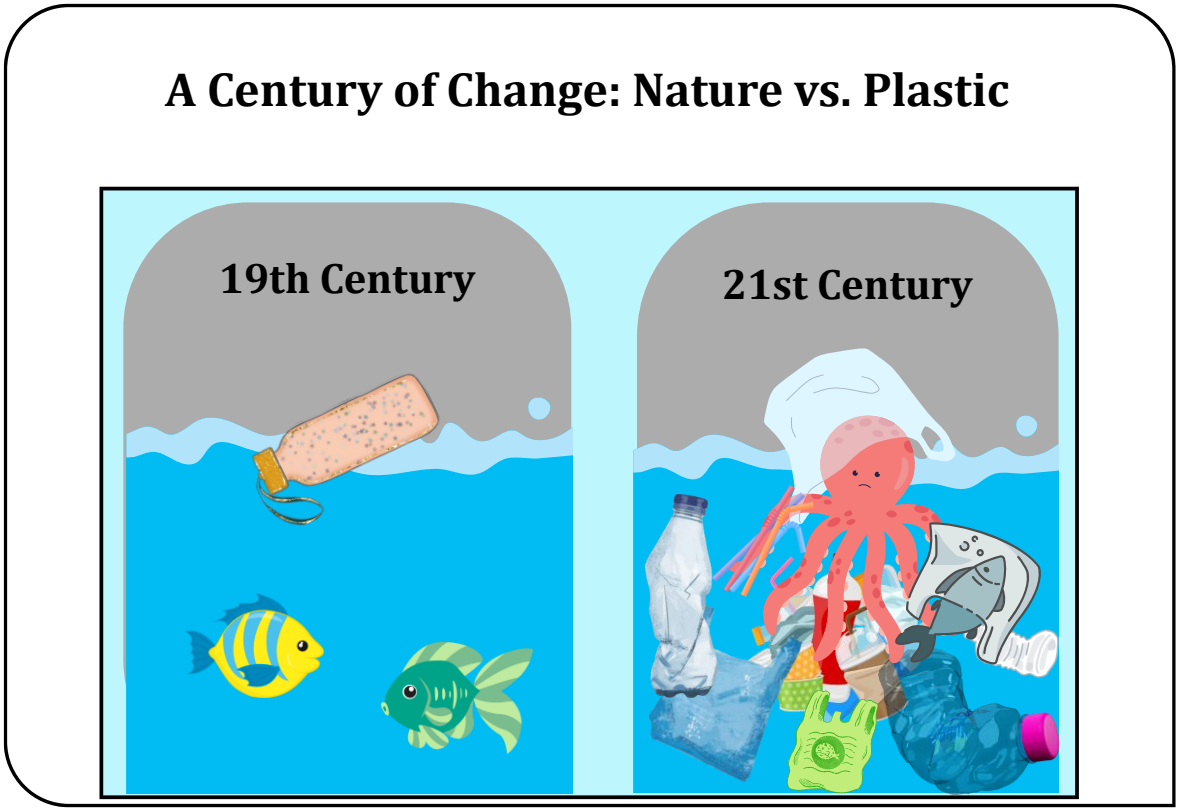
Proposed projects must align with at least one of five key research themes:

1. **Detection and characterization of plastics in the environment**
2. **Impacts on wildlife, human health, and ecosystems**
3. **Sustainable plastic design and alternatives**
4. **Social, behavioral, and interdisciplinary sustainability insights**
5. **Waste diversion, recovery, and plastic removal technologies**

This call provides an excellent opportunity for researchers working on environmental engineering, materials science, public health, sustainability, and circular economy topics. It promotes collaboration across sectors—including academia, government, and industry—and encourages innovative, solution-focused approaches to plastic pollution and sustainability challenges.

🔗 **For full details and application guidelines, please visit here.**

😊 WATERTOON – Where Science Meets a Smile, One Splash at a Time



Stay Connected with One WATER Institute!

We're excited to announce the launch of the **One WATER Institute YouTube Channel!** Stay tuned for **seminar recordings, research highlights, expert interviews, and behind-the-scenes insights** into cutting-edge water research. **Subscribe now** and be the first to explore the latest innovations in water quality and sustainability!

📺 Subscribe now: One WATER Institute YouTube Channel

📩 **Have news, research updates, or achievements to share? We'd love to feature your work in the next edition of our newsletter! Send your submissions to onewater@yorku.ca.**

Let's keep the **One WATER** community growing!