



## Three 2-year Postdoctoral positions in the Water Pathways research cluster

The Water Pathways research cluster (<https://www.utscc.utoronto.ca/labs/water/>) at the University of Toronto Scarborough invites applications for three **Water Pathways Postdoctoral Fellows** to start in **fall 2023** (before December 1<sup>st</sup>). The Water Pathways Postdoctoral Fellowship program aims to enable creative collaborative research in aquatic sciences that blends curiosity-inspired questions with applied research to meet the needs of First Nations, conservation authorities, not-for-profits, local governments, and grassroots community water groups. The three positions are for two years with a salary of \$60,000 plus benefits as well as \$5000 annually for research and travel. Proposals that explicitly link two or more Water Pathways affiliated labs or work with external partner(s) will be prioritized. To work as Post-doc at UofT, applicants must be within 5-years of graduating from a PhD.

**About the Water Pathways research cluster:** The water quality problems in Ontario are difficult and multi-faceted, demanding an interdisciplinary approach. Hence the Water Pathways cluster brings together an interdisciplinary team combining innovative approaches to environmental fluid mechanics of lakes and rivers (**Mathew Wells**), the changing dynamics of frozen lakes (**Laura Brown**), the winter ecology of freshwater fishes (**Bailey McMeans**), environmental ecosystem and climate change modelling (**George Arhonditsis**), watershed hydrology and contaminants (**Carl Mitchell**), biogeochemistry of lake sediments (**Maria Dittrich**), conservation physiology of aquatic animals (**Cosima Porteus**), aquatic invasive species and habitat restoration (**Nicholas Mandrak**), complex mixtures of chemical stressors, including microplastics in aquatic systems (**Chelsea Rochman**) and community science/stewardship, water and environmental justice and support for First Nations water governance (**Bonnie McElhinny**), to enhance the impact, reach, and implementation of transformative solutions to water quality, and our relationship to water. By combining physical and social science perspectives this cluster will be bigger than the sum of its parts and aims to make transformational change.

As a **Water Pathways Postdoctoral Fellow**, here is what you can expect from us:

- Mentoring and support for you in your research, teaching, outreach and career goals
- Opportunities to establish connections and links with our partner organizations
- Opportunities to participate in collaborative working groups through the Water Pathways

As a **Water Pathways Postdoctoral Fellow**, here is what we expect from you:

- Establish your own independent research program
- Contribute to building a dynamic and collaborative research community in the Water Pathways research cluster by attending lab meetings, seminars and mentoring students

- Contribute to collaborative interactions with our research partners and with water stakeholders and rights-holders, including support for funding applications;
- Organize and lead a monthly discussion group or lead a workshop

We welcome applications that broadly align with the following five themes – potential applicants should carefully discuss ideas for projects with potential faculty mentors before submitting a proposal.

**Theme 1. The changing nature of winter in lakes.** (Wells, Bailey, Brown, Porteus, Dittrich)

Winter is a season that defines Canada, yet monitoring of water quality has historically only been done in the summer growing season. Hence very little is known about processes that occur during the rest of the year and particularly in winter. Key questions to resolve are (a) how does winter nutrient loading influence the subsequent summer eutrophication, (b) what is the influence of changing ice duration and thickness on summer dissolved oxygen levels and eutrophication, and (c) how do shorter vs. longer winters affect fish growth and reproduction.

**Theme 2. Eutrophication and fate of loaded nutrients.** (Arhonditsis, Mitchell, Dittrich)

With an expanding population in Ontario, it is critical to protect water quality. We need to better understand the sources and pathways of nutrients, such as phosphorus, nitrogen, sulphates and carbon, to determine how nutrient loading drives eutrophication and water quality within and between systems, and how these cycles will change in a warmer climate.

**Theme 3. Aquatic invasive species.** (Mandrak, Bailey, Porteus)

Many aquatic invasive species (AIS) are now present in the Great Lakes basin. To focus on proactive, preventative measures, an urgent question is how to best predict when and where invaders are likely to establish under current and future climate conditions. We also need to know how invasive species change food-web dynamics in aquatic ecosystems. The release of aquatic invasive species in urban areas (e.g. in storm-water ponds) and their subsequent entry into the wild are emerging issues.

**Theme 4. Waterborne contaminants.** (Rochman, Porteus, Wells, Mitchell, Dittrich)

Emerging contaminants, such as microplastics and car tire fragments, are ubiquitous in rivers and lakes. Salinity levels are steadily increasing due to applications of de-icing road salts. We need to identify the sources of these contaminants, determine how they are transported, and what concentrations are of serious concern to aquatic animals, our ecosystems and human health.

**Theme 5. Water sovereignty and water stewardship.** (McElhinny)

In addition to identifying key strategies for mitigation of negative impacts, in this theme we are interested in research on effective forms of water protection which focus on supporting, educating, building and drawing on communities who engage in day-to-day stewardship, restoration, policy and other forms of political and social change. We also are interested in

research on and examples of Indigenous approaches to governance of and relation with the water, robust forms of consultation with Indigenous nations, in alignment with UNDRIP, treaties and human rights law, and best strategies for building just coalitions and forms of solidarity around, with and for the water.

### **Eligibility:**

1. Potential applicants should have (or be close to completion) a PhD in the broad area of Aquatic Sciences, Environmental Studies or related fields and will be required to produce proof of completion prior to commencing appointment. Completion does not mean graduated, but rather satisfying all requirements for graduation, usually meaning submission of a final approved dissertation following the PhD defense.
2. Applicants can be a citizen of any country, but international applicants must meet Canadian immigration requirements.
3. Applicants must have secured the support of a Water Pathways affiliated faculty member who would promote their application (see the ten professors listed at <https://www.utsc.utoronto.ca/labs/water/people/>) and partially fund the fellowship.

### **Application components:**

1. Research statement with a description of past research accomplishments and proposed research including potential Water Pathways faculty mentors (2 pages)
2. An updated CV
3. A short statement from potential Water Pathways faculty mentors supporting the proposal, and describing how it fits into the goals and long-term vision of a sustainable Water Pathways program (<1 page). The supervisor's statement would confirm support, identifying benefits that the applicant would bring to their research program, resources available to the applicant and any other considerations. The supervisors' statement can be e-mailed separately, directly by supervisor to the adjudication committee ([m.wells@utoronto.ca](mailto:m.wells@utoronto.ca) and [cosima.porteus@utoronto.ca](mailto:cosima.porteus@utoronto.ca)).
4. A brief description of the proposed workshop, seminar or discussion group series the Fellow would lead (1 page or less)
5. Copies of 2 publications (preprints are welcome)
6. Contact information for three references

### **Application processes:**

- To apply, please submit **application components** as a single PDF by August 31<sup>st</sup> 2023 (email to [m.wells@utoronto.ca](mailto:m.wells@utoronto.ca) and [cosima.porteus@utoronto.ca](mailto:cosima.porteus@utoronto.ca), with subject line "LastName-Water Pathways-Fellowship-application"):
- Decisions will be made by September 15<sup>th</sup>

### **Diversity Statement.**

Water Pathways, and the University of Toronto, are strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women,

Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ persons, and others who may contribute to the further diversification of ideas.

Water Pathways, and the University of Toronto, strive to be an equitable and inclusive community, and proactively seek to increase diversity among its community members. Our values regarding equity and diversity are linked with our unwavering commitment to excellence in the pursuit of our academic mission. We are committed to the principles of the Accessibility for Ontarians with Disabilities Act (AODA). As such, we strive to make our recruitment, assessment and selection processes as accessible as possible and provide accommodations as required for applicants with disabilities. If you require any accommodations at any point during the application and hiring process, please contact [utlhr@utoronto.ca](mailto:utlhr@utoronto.ca)

As part of your application, you will be asked to complete a brief Diversity Survey. This survey is voluntary. Any information directly related to you is confidential and cannot be accessed by search committees or human resources staff. Results will be aggregated for institutional planning purposes. For more information, please see <http://uoft.me/UP>.