

PhD position at Wilfrid Laurier University, Canada, focusing on the cumulative impacts of beavers and climate on stream and lake hydrology: Professor Philip Marsh

Project Description: This PhD position is available in the Department of Geography and Environmental Studies, and Cold Regions Research Centre, at Wilfrid Laurier University in Waterloo, Ontario.

Beavers are expanding north of the Arctic treeline and into the tundra regions, and the climate is changing rapidly. These changes are expected to impact the hydrology, permafrost, aquatic ecology and communities in these regions. Potential hydrologic impacts may include changing snowcover; creation of new aquatic habitats; fragmenting watersheds; changing water storage; impacting flows; changing lake levels; increasing lake evaporation and contributing to permafrost thaw.

This PhD project will quantify beaver and climate impacts on stream and lake hydrology through observations and modelling that will focus on two watersheds north of Inuvik, NWT, Trail Valley Creek and Hans Creek. Both have over 45 years of streamflow observations that cover the period of beaver expansion. Using data from these streams, the project will consider the effects of climate, beavers and their dams on lake area and numbers, water storage volume, lake/stream flows, water temperature, and permafrost. In winter, the project will investigate the role of beavers on snowcover and pond ice cover.

This position is fully funded and is a component of an integrated environmental project with researchers from the Inuvialuit Settlement Region, and universities across Canada and the United Kingdom.

Funding: Graduate students at Laurier receive competitive funding packages that come from a combination of teaching assistantships, internal scholarships, and research assistantships. All students are strongly encouraged to apply for a variety of external scholarships. Students in Marsh's research teams have been very successful in receiving external awards. Canadian applicants are strongly encouraged to apply. Funding for Arctic field research is provided by external research grants. Further information on the Laurier graduate student program (joint with the University of Waterloo) is available at:

<https://uwaterloo.ca/waterloo-laurier-graduate-program-in-geography/>

<https://www.wlu.ca/academics/faculties/graduate-and-postdoctoral-studies/funding-at-a-glance/index.html>

Qualified Candidates will have: Previous degrees in relevant disciplines (e.g. geography, environmental science, hydrology, physics, engineering), and should possess aptitude and enthusiasm for understanding the integrated impacts of climate change and beavers on Arctic hydrology. Experience in northern environments is an asset but is not required.

Start Date: September 2022. Possibility of start date in June 2022 as a summer employee.

Application: 1) Cover letter outlining qualifications and research interest; 2) Curriculum vitae; 3) Contact information for 2 academic references.

To apply: Send the requested application information to Dr. Philip Marsh (pmarsh@wlu.ca)

Further Information: [Trail Valley Creek Research Watershed](#)
[Cold Regions Research Centre](#)