



MSc AND PhD OPPORTUNITIES: FORECASTING AND BIOGEOCHEMISTRY OF BLOOM-AFFECTED LAKES

FORMBLOOM (Forecasting Tools and Mitigation Options for Diverse Bloom-Affected Lakes) seeks 2–4 graduate students (MSc and/or PhD) to research the drivers of freshwater cyanobacterial blooms and develop tools for bloom prediction and mitigation.

Successful applicants will work in a co-supervised environment with Prof. Helen Baulch (School of Environment and Sustainability and Global Institute for Water Security, University of Saskatchewan), Prof. Sherry Schiff (Department of Earth and Environmental Sciences, University of Waterloo), and Prof. Jason Venkiteswaran (Department of Geography and Environmental Studies, Wilfrid Laurier University) and will enroll in the MSc or PhD program at one of those universities. Opportunities to work at multiple universities are available.

Start dates: September 1, 2017 and January 1, 2018.

Project Summary

Harmful algal blooms (HABs) in lakes and reservoirs constitute a major threat to human health and, by extension, to the Canadian economy. HABs, especially those associated with cyanobacteria (cyano-HABs), have direct impacts on the safety of drinking water supplies by producing a variety of liver and nerve toxins in addition to causing taste and odour problems. Cyano-HABs have been increasing in recent years across Canada from Newfoundland to British Columbia. There is an urgent need to improve the science and to develop risk management tools for cyano-HABs.

Field campaigns in Buffalo Pound, Saskatchewan, Lake 227, Ontario, and Conestogo Lake, Ontario combined with laboratory experiments and modelling exercises will evaluate the contributions of nutrients, metals, and lake structure to the timing and severity of cyano-HABs. Carefully selected samples and datasets from other lakes and reservoirs across Canada (including the 47-year dataset from IISD–ELA) will be incorporated into cyano-HAB forecasting and mitigation efforts.

Graduate student research projects will **(1)** examine nutrient and trace metal dynamics through bloom progression; **(2)** assess links between physical conditions, sediment-surface redox and cyano-HAB development; and **(3)** perform long-term data analysis with a focus on winter conditions and bloom severity.

Graduate students will benefit from working with a multi-university and multidisciplinary research team and will interact with partner organizations and ecosystem managers. Students will have opportunities to participate in enhanced training opportunities associated with the NSERC CREATE in Water Security, and the Global Water Futures program.

Eligibility

Students will perform applied lab and field research, and require quantitative abilities, a hearty appetite for boat-based field work, and possess strong verbal and writing skills. Students with experience with sensor-based instrumentation are particularly welcomed.

Applicants should send their areas of research interest in a cover letter, with CV, unofficial transcripts, and contact information of three references as a single PDF file to Prof Jason Venkiteswaran, jvenkiteswaran@wlu.ca.

FORMBLOOM is funded by the Global Water Futures program, gwf.usask.ca.