POSTDOCTORAL AND GRADUATE TRAINING OPPORTUNITIES: BIOGEOCHEMISTRY OF BLOOM-AFFECTED LAKES

FORMBLOOM (Forecasting Tools and Mitigation Options for Diverse Bloom-Affected Lakes) seeks up to 3 graduate students (Masters and/or PhD) and one postdoctoral fellow to research the drivers of freshwater cyanobacterial blooms and develop tools for bloom mitigation. Numerically, ecologically, or geochemically oriented researchers are welcomed to help engage in data collection, analysis and development of predictive models using rich long-term data and sensor data. The successful applicants will have access to outstanding laboratory facilities and world-renowned field sites, with opportunities to engage in whole ecosystem experiments at the IISD-Experimental Lakes Area in northwestern Ontario.

Successful applicants will work in a collaborative 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). Students will enroll in the MSc or PhD program at one of Laurier, Waterloo or University of Saskatchewan. Opportunities to work at multiple universities are available with potential for supervision or cosupervision by multiple faculty.

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.

Projects will examine nutrient and trace metal dynamics through bloom progression, assess links between physical conditions, sediment-surface redox and cyano-HAB development, experimentally manipulate conditions in whole lakes to test triggers of bloom onset and bloom mitigation, and assess ecological changes associated with evolving bloom risk using long-term data complemented by multiple years of genomic data and model-based assessment.

Graduate students and the postdoctoral fellow 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 Global Water Futures program and outstanding graduate training programs at the partner universities.

Eligibility & application process

Students will require good quantitative capabilities and possess strong verbal and writing skills. A background in limnology, hydrology, genomics or geochemistry is welcomed. For field-oriented programs, students with a hearty appetite for boat-based field work and experience with sensor-based instrumentation are particularly welcomed. The successful postdoctoral fellow must have a strong background in data analysis using R, excellent data management skills, and a background in limnology, ideally in bloom ecology.

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 and Helen Baulch helen.baulch@usask.ca with the subject line: FORMBLOOM applicant.

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

Positions are fully funded with competitive stipends.

Application deadline: We will review applications as they are received, and positions will remain open until suitable candidates are found. The start date is flexible, with remote options if students wish to start their programs in early 2021.