

## Graduate position modeling sea lamprey movement and behaviour

A graduate research position (PhD) is available with a collaborative project involving laboratories in the Department of Integrative Biology, University of Guelph (<http://www.uoguelph.ca/ib/>) and Great Lakes Fishery Commission. Students interested in integrating physical and ecological systems using mathematical and statistical modelling approaches to understand animal movement and decision-making are encouraged to apply.

The research project is part of efforts to improve understanding of behavioural responses of sea lamprey to hydraulic patterns and help facilitate trap placement and selective passage/diversion to support sea lamprey assessment and control in the Great Lakes. The project team seeks to determine if sea lamprey movements are related to statistics of the dynamic flow field at various spatiotemporal scales. The analysis will use the Eulerian-Lagrangian agent method (ELAM), a state-of-the-art cognitive-based computer model, to analyze movement decision-making of sea lamprey in response to water flow patterns simulated by high-resolution hydraulics models (Goodwin et al. PNAS 111:5277). The student will be directly involved with the implementation of the ELAM to analyze sea lamprey movement captured by past telemetry studies in the St. Mary's River. The student will be responsible for developing a behavioural rules set to describe sea lamprey responses to hydraulic stimuli (i.e., water velocity, pressure, accelerations). Knowledge of animal movement and behaviour, ecological modelling, and computer programming would be valuable, but training in these areas will be provided. The student will have opportunities to participate in a basin-wide sea lamprey control and selective passage initiatives involving management agencies from across the Great Lakes basin.

To apply, send a brief description of your research experience and interests, your CV and transcripts (unofficial is fine), an example of your best writing, and contact information for two references. Your application and any questions about the position can be emailed to Rob McLaughlin, U. Guelph ([rlmclaug@uoguelph.ca](mailto:rlmclaug@uoguelph.ca)). We hope to find a candidate willing to start in spring 2018.