An Examination of Mercury Mobilization in St. Lawrence River Wetlands

Mentor: Dr. Michael R. Twiss, Department of Biology, Clarkson University

Project Description: Human environmental change influences freshwaters and the ecosystem services they provide. Water level regulation in the globally significant Saint Lawrence River, the natural outflow of the North American Great Lakes, has an impact on river ecology. Water levels in the St. Lawrence River have been tightly regulated since 1958 when the Moses-Saunders power dam was built for power generation, flood control, and navigational purposes. In the past 60 years, the region has been impacted by sulfur and mercury (Hg) deposition. New water level regulation protocols (Plan 2014), designed to restore wetland biodiversity, have the potential to mobilize legacy deposits of Hg by stimulation microbial Hg-methylating bacteria. The field of focus of this project will be natural and human-influenced environmental gradients in the International Section of the St. Lawrence River. There is a pressing need for developing monitoring and modeling capability that can be used to guide adaptive management practices by the International Joint Commission St. Lawrence River Board of Control, which regulates water outflows from Lake Ontario for environmental sustainability. The student involved with this project will assist in a project designed to measure mercury flux in Saint Lawrence River wetlands. Students will obtain expertise in field sampling and analytical chemistry techniques that will be used to test hypotheses regarding the fate of Hg in the natural environment.

Program: The objective of this 10-week summer research program is to engage a diverse group of undergraduate students in first-class research projects in the theme area of Advancing Sustainable Systems and Environmental Technologies to Serve Humanity (ASSETs to Serve Humanity) at Clarkson University. Participants will gain professional experience, valuable mentorship, and graduate school preparation in a positive research environment. Participants will receive a stipend for research work, food and travel. In addition, housing will be provided at no cost. The program is funded by the National Science Foundation through their Research Experience for Undergraduates Program.

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Application deadline: Monday, March 5, 2018

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