



Great Lakes Research Consortium

Research, Education and Outreach on behalf of our Great Lakes

2015 Program Activity Summary



From the director...Dr. Greg Boyer

The Great Lakes Research Consortium is an organization of eighteen colleges and universities in New York, with nine affiliate campuses in Ontario, dedicated to collaborative research and education on the Great Lakes. Along with the activities outlined below, the GLRC hosted an inaugural "Mentoring Workshop" for new Great Lakes Faculty. We had 23 participants representing 10 campuses. Don Zelasny, NYSDEC Great Lakes Program Coordinator commented recently, "*I've been reviewing the small grant applications and am finding a remarkable difference in quality between those PIs who attended the mentoring conference and others outside the GLRC family. Great job!*"

New York Great Lakes Protection Fund Small Grants

Non-native bloody red shrimp in the Great Lakes Basin: Developing novel methods for early-detection and quantifying interaction with fish in New York State

PI: Meghan Brown, Department of Biology, Hobart & William Smith Colleges

Collaborators: Brent Boscarino (Poughkeepsie Day School), Bruce Smith (Ithaca College)

The bloody-red mysid, *Hemimysis anomala* (hereafter *Hemimysis*) is a recent Ponto-Caspian invader that was first reported in North America in 2006 and has become established in the Great Lakes, St. Lawrence River, inland lakes (Oneida, Seneca, and Cayuga Lakes, New York), the Seneca-Cayuga Canal and the Erie Canal. This grant will: (1) develop novel methods of early detection for *Hemimysis*, which are currently lacking and needed for research, management and monitoring programs, and (2) elucidate which, and to what extent, naturalized fish species consume *Hemimysis*.



The use of low-altitude unmanned helicopter remote sensing to detect invasive plant species in the Erie Canal System: method development applied to water chestnut (*Trapa natans*)

PI: Tao Tang, Department of Geography & Planning, Buffalo State College

Collaborators: Mary Perrelli (BSC), Christopher Pennuto (BSC), Joseph J. Gould (Buffalo/Niagara RIVERKEEPER)

This project will develop a transferrable protocol to use low-altitude unmanned vehicle technology to perform rapid detection and coverage estimation of invasive species. We will perform a pilot study of water chestnut in Tonawanda Creek and the Erie Canal system from its western terminus east to Rochester by sampling 100, 500-m lengths of shoreline.

NY Great Lakes Protection Fund Small Grants - continued

The past is the key to the future: Can we use water isotopes to reconstruct rain and lake effect snowfall during past warm climates?

PI: Elizabeth Thomas, Department of Geology, University at Buffalo

Collaborator: Loren Smith (Beaver Meadow Audubon Center)

The purpose of this project is threefold: 1. Assess the seasonality of leaf wax hydrogen isotopes ($\delta^2\text{H}_{\text{wax}}$) in Western New York as starting point for a larger project to reconstruct rain and snow variability during warm climates. 2. Address an outstanding question in the climate reconstruction discipline: what season does $\delta^2\text{H}_{\text{wax}}$ record? 3. Develop and assess the effectiveness of an outreach program using water resource issues as a starting point to discuss climate change.

GLRC at the Great NYS Fair



The GLRC partnered with New York Sea Grant and the Great New York State Fair to bring the "Lakes of NY: Over, Under, Around and Through", a 21st Century Technologies Exhibit to the 2015 Great New York State Fair. The exhibit featured high tech components including an ROV (remotely operated Vehicle) and a weather data sensing buoy located in the State Fair pool. The exhibit also included in-water demonstrations of ROVs built through a partnership with local middle and high schools as part of the Oneida Lake Education Initiative.

GLRC Internship Program

The Great Lakes Research Consortium offers an internship program that attempts to match students with researchers looking for student help. Recent GLRC interns are:

Daniel Rockefeller, SUNY ESF
Morgan Zyzik, Clarkson University
Mike Burke, SUNY Oswego
Vanessa Gravenstine, SUNY ESF
Alexandra Souverneva, SUNY ESF

GLRC Student Travel Awards

GLRC offers travel support to students from member campuses to travel to, and present at local and national scientific conferences. Recent recipients include:

Anthony Russo, Clarkson
Robert Pattridge, SUNY Brockport
Katherine Perri, SUNY ESF

GLRC Student Research Projects

In 2013, the GLRC initiated a very small grants program to facilitate student research at its member institutions. Grants are made in the amount of up to \$1,000 and are intended to help defray research expenses that the student may otherwise need to pay for out of personal funds. The 2015 recipients are:

Isabel Hannes, SUNY Buffalo:
Species boundaries and levels of intermixing between freshwater mussel (Family: Unionidae) species: implications in conservation and restoration

Jeremy Kraus, SUNY Brockport:
Interpreting predator - prey interaction in Cayuga Lake fishes using fatty acid signature analysis

Jeremy Pike, SUNY Brockport:
Effects of dietary fatty acids on lake trout (Salvelinus namaycush) fatty acid signature and thermal stress response



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