

Resampling historic sites in the Niagara River

by Knut Mehler

The last few months were busy – especially for our graduate student Anthony Cevaer. After finishing field work last August, the extensive work switched from the field to the lab. Anthony worked on identification of benthic invertebrates collected from 13 sites in the upper and lower Niagara River. The last time those sites were sampled was over 30 years ago – before water treatment improved and before the mussels *Dreissena polymorpha* and *Dreissena rostriformis bugensis* arrived in the river.

The goal of this part of our [larger study](#) of the Niagarara River is to determine if the benthic community changed over the past three decades and if so, what are the reasons? More than 2000 individual organisms were collected and are currently being processed in the lab. The good news: We found a huge number of the caddisfly *Brachycentrus* spp. – a genus with a very low tolerance to organic pollution.

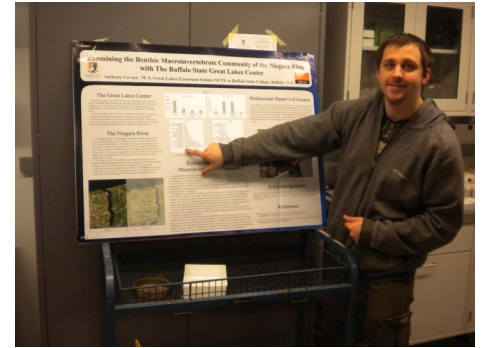


Anthony, a graduate student, collecting benthic samples from the lower Niagara River (left) and sorting through samples in the lab (right).

The next step is to compare our current data with the historic data. We would expect that sites with hard substrate are now dominated by invasive *Dreissena* spp., but we would also expect more pollutant-intolerant species due

to improvements in water and remediation practices.

Anthony has already given a talk about this project and is going to present a poster at the next International Association of Great Lakes Research (IAGLR) in Guelph, Canada. •



Anthony about to present his work for the Great Lakes Ecosystem Science and Professional Applied and Computational Mathematics Professional Science (PSM) Advisory Board meeting on December 16, 2015.

GLC in Chicago to discuss EPA benthic monitoring project, present seminar talks

by Lyubov Burlakova and Alexander Karatayev

In collaboration with Cornell University, GLC scientists are in the midst of a U.S. EPA grant, "[Great Lakes Long-term Biological Monitoring Program](#)," for 2012-2017. The EPA Monitoring Program is designed to provide managers access to biological data on zooplankton and benthos to support decision-making. Scientists from the Great Lakes Center, including Alexander Karatayev, Lyuba Burlakova and Susan Daniel, collect benthos data across the five Great Lakes, analyze this data, and make it available to environmental and fisheries managers.

In February, together with our Cornell partners Drs. Rudstam and Watkins, Knut Mehler, Lyuba Burlakova and Alexander Karatayev traveled to EPA's Great Lakes National Program Office (GLNPO) in Chicago to present talks at the "Science at Work" Seminar: "Aliens, GoPros, and Popcorn: counting invasive mussels on the bottom of Lake

Michigan" (Karatayev, Mehler, Burlakova) and "This way up - daily migrations of Great Lakes animals (mysids, zooplankton, and fish)" (Rudstam and Watkins).

Afterwards, we met with GLNPO staff and presented preliminary results of our analysis of the 15 years of benthic dynamics in the Great Lakes (GLNPO data), and new technologies like the benthic imagery we used in 2015 to evaluate *Dreissena* distribution and population densities in Lake Michigan. Results of these studies will be published in the special issue of the *Journal of Great Lakes Research* in October 2017 "U.S. EPA Great Lakes National Program Office Long-Term Monitoring of the Laurentian Great Lakes: approaches, achievements and lessons learned." This special issue (guest editors Burlakova, Warren, Hinchey-Malloj, Karatayev and Nettesheim, associate editor Rudstam) lists 23 potential manuscripts that include papers on the history of the GLNPO program and analysis of changes in the main components of Great Lakes ecosystems.



Knut Mehler counting quagga mussels on the bottom of Lake Michigan using underwater video files. This was the topic of the talk "Aliens, GoPros, and Popcorn: counting invasive mussels on the bottom of Lake Michigan."

GLC and Cornell scientists will give more than a dozen presentations on Great Lakes Monitoring at the 59th Annual Conference on Great Lakes Research in June 2016 in Guelph, Canada. Drs. Rudstam, Karatayev, Burlakova, and Watkins are co-chairing a session that focuses on long-term Great Lakes monitoring at this meeting. •