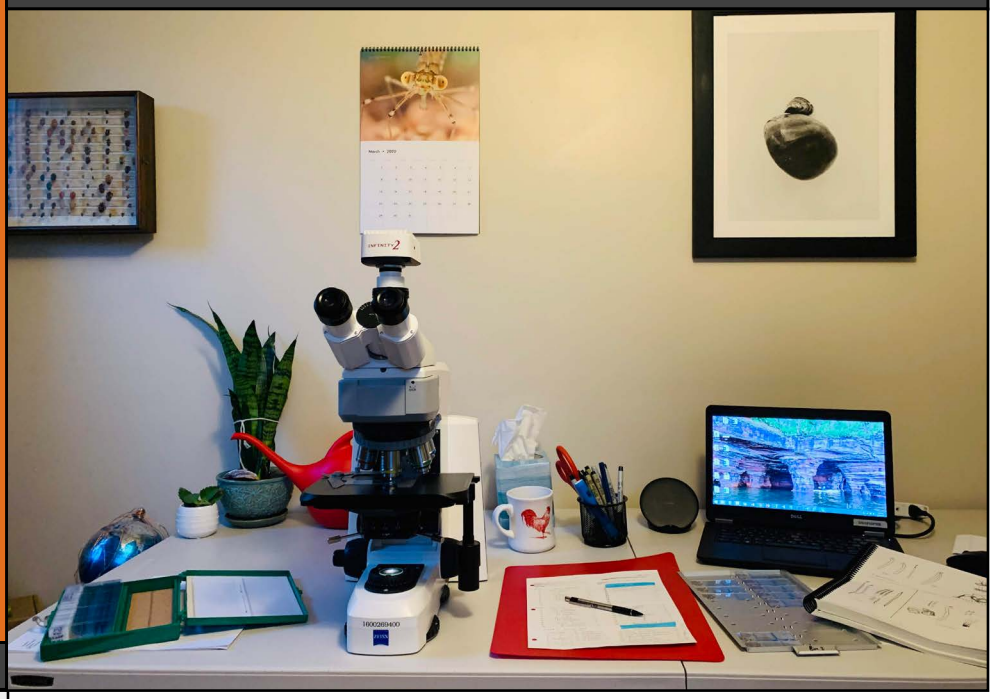
Great Lakes Center Newsletter

Spring 2020

RESEARCHING THE GREAT LAKES AND THEIR TRIBUTARIES SINCE 1966



A microscope set up at home to continue research during the pandemic.

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Buffalo State
Great Lakes Center
Since 1966

GLC adapts to COVID-19

by Kit Hastings

Everyone has been affected by the COVID-19 pandemic, and Buffalo State College is no exception. After weeks of speculation, things began to rapidly impact us: first, all SUNY schools had to move instruction online. Classes were canceled a week early to extend Spring Break and give everyone time to adjust.

The next week, as social distancing guidelines strengthened along with the Governor's orders, Buffalo State sent home all non-essential workers. The GLC closed all lab facilities and switched most people to working remotely. This meant that some of us brought home microscopes to continue identifying organisms on slides, while others shifted their focus to other work. After the campus labs were thoroughly cleaned, a few people were cleared to continue working in the lab, since they were deemed essential. Field Station staff have taken turns working to prepare for the field season.

The situation is still in flux, but by now most of us have settled into a routine. I asked GLC staff to share how they have adapted to our new working conditions:

- **Sasha Karatayev, GLC Director**: "Lyuba Burlakova and I are working on reports and papers. We brought computers, screens and printer. We still have our regular Monday Lab meetings, but not in person (using Zoom). Brianne Tulumello and Susan Daniel took microscopes home [cover image] and are working on species identification."

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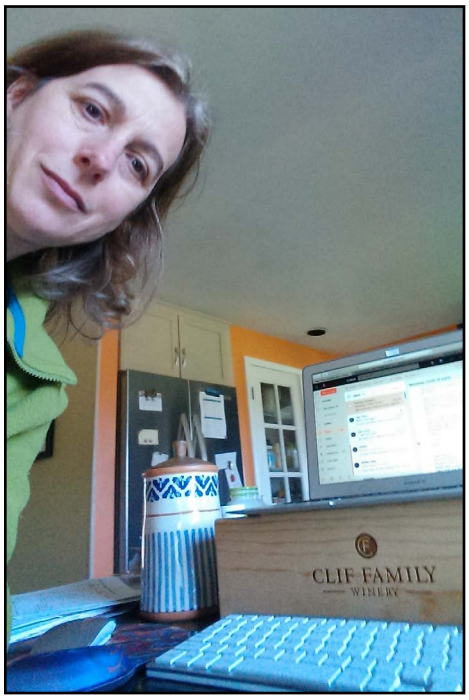

Alicia Pérez-Fuentetaja in her home office.

• **Alicia Pérez-Fuentetaja, Research Scientist/Professor**: "I am teaching my graduate course Trophic Interactions online using Blackboard. The course was a hybrid, so it has not been too difficult to adapt it to 100% online, although we all miss the personal interaction. My "office" is in my kitchen, which offers a great view of the backyard and unlimited snacks!"

• **Andrea Locke, WNY PRISM Coordinator**: "WNY PRISM staff have completely shifted over to working from home, trading in human co-workers to those of the furry variety. We've been keeping in touch through regular use of conference calls and Webex meetings, and while COVID-19 has significantly impacted aspects of our programming, such as education and outreach events, much has continued close to normal as we prepare for the field season. Since mid-March, our efforts have focused on seasonal hiring, project planning, and the development of survey and assessment protocols."

• **Susan Dickinson, Administrative Assistant**: "As the campus has urged employees to work remotely when possible, it is not feasible in some cases…that's the category I fall into. I have been deemed essential as I cannot perform my job duties remotely and therefore still have to come into the office on a daily basis for my typical shift. For the most part, I am the only one in the building on a regular basis. The lack of people in the GLC offices/labs and in SAMC doesn't feel all too odd to me: It's typically pretty quiet here during the summer months when our staff is out sampling, plus the wing of SAMC where our offices and labs are located is a low traffic area, as is. During this time I have made myself available to the other occupants (staff and faculty) of SAMC with regards to transporting mail and packages from the Central Mail Room to and from SAMC, and notifying them when they receive a package. I figure, in these days of isolation and social distancing, it helps to minimize contact of employees in the Mail Room and keeps people away from campus if they don't need to be here."

• **Mark Clapsadl, Research Scientist/Field Station Manager**: "I am preparing to deploy our Great Lakes Observing System buoy, which we station in the eastern basin of Lake Erie in the summer. The publicly available weather, wave, and internal lake condition data provided by the buoy are used by boaters and anglers as well as researchers. Currently, I am repairing the electronic hardware and software that collect, process, and transmit the data. I'm hoping that we'll be able to deploy it as soon as social distancing guidelines are relaxed. I also built a mini-greenhouse at home to plant seeds that we collected last fall from our migrator gardens. I had been planning to use these seeds to work with high school students to grow additional plants for the gardens, but that obviously didn't work out. So far I have planted Joe Pye weed, butterfly milkweed, and Virginia creeper. I'm hoping to start a few other varieties of plants that produce fruit or flowers."


Mark Clapsadl's mini-greenhouse.

We are eagerly awaiting the return to campus and continuing our research. Thanks to all the people engaged in keeping campus going for the students still living on campus, and all those adapting to keeping our academic work and research moving forward. For updates on Buffalo State's response to the pandemic and additional resources, follow the Buffalo State COVID-19 Information page. •

Shoreline damage at the Field Station

by Brian Haas

With the mild winter over and the warmth of spring upon us, it's easy to forget this past fall, but down at the Field Station we have a haunting reminder of the frightening force that rose from Lake Erie on Halloween night. It wasn't ghouls or goblins, but instead howling west winds raised the historically high water level even higher and created a storm surge that ripped away soil, washed out stone, and cast debris across the grounds. When the winds finally relinquished, a seiche took form as the water, free from the force of the wind, sloshed back and forth continuing the erosive damage until the lake reached an equilibrium and the waters calmed.

Upon arrival at the field station the next day, we estimated the water rose around 8 feet, flooding the parking lot and coming very close to entering our buildings. Approximately 150 feet of shoreline experienced substantial erosion when the water breached the top of the rip rap. The fury of the storm also pulled thousands of pounds of stone from the rip rap and deposited it in our boat launch. Large stumps and huge wooden beams that weighed hundreds of pounds, lay strewn across the lawn, showing the impressive height of the flood waters and the power behind them.

The Field Station was not the only property that bore the wrath of the Halloween storm. The Buffalo breakwall and the Bird Island Pier sustained major structural damage and our neighbor, the West Side Rowing Club, had their floating dock destroyed. The storm was so intense and widespread in New York that 18 counties, including Erie County, were declared Federal Disaster areas. The Buffalo State administration has filed a claim through SUNY to receive funding from FEMA to repair the damage. •

Brian Haas inspecting a section of shoreline with major erosion showing the loss of lawn from the high waters.

Stone deposited in the boat launch from the storm, filling most of the ramp with gravel of various sizes.

Various wood and stone debris showing the height of the flood waters.

Field Station spring update

by Kit Hastings

This spring at the Field Station has been very quiet so far due to COVID-19, but Mark Clapsadl and Brian Haas have been coming down one at a time to complete outdoor work. Most exciting, however, are the signs of spring. Mark has spotted common terns, cormorants, and tree swallows, migratory birds that spend the summer in the vicinity of the Field Station. Brian put up the purple martin housing and tree swallow houses. The gourds are closed for now, but the dawn song is playing, using bird calls to attract purple martins; Brian plans to open the gourds in the next week or two. Lastly, Mark spotted an osprey flying near our osprey tower. He hopes that with the decreased human presence this spring it might encourage a pair to nest there! •

The purple martin housing gourds are reinstalled.

Our new research scientist

by Lyubov Burlakova

This spring, the Great Lakes Center hired Allison Hrycik to be our new research scientist. Allison will work on the U.S. EPA funded project Great Lakes Long-Term Biological Monitoring Program 2017-2022.

Allison Hrycek working in a greenhouse.

Allison completed her undergraduate education at Cornell University, and her M.S. in Fisheries and Aquatic Sciences at Purdue University. Currently, she is working on her doctoral dissertation at the University of Vermont. Allison's research revolves around food web ecology and community ecology, and her dissertation research explores these themes in lake plankton communities in the context of changing winter conditions. Allison has already published 6 peer-reviewed papers in high profile journals based on results of her undergraduate, M.S., and Ph.D. research, and was successful in obtaining external funding. Her experience with community ecology, remote sensing, and statistical analysis of large, multivariate data sets will be important assets for our team. At the Great Lakes Center she will work on benthic ecology and limnology using spatial and long-term benthic data from all of the Great Lakes. Allison will also be involved in remote sensing and image processing, as well as in grant writing and management.

We're glad to have you on board, Allison! •

Mapping historical lake sturgeon spawning sites

by Chris Pennuto

After completing a successful project on the foraging and spatial ecology of lake sturgeon in the lower Niagara River, GLC personnel are again collaborating with Dr. Dimitri Gorsky, USFWS research fishery biologist, on a lake sturgeon project. Dr. Chris Pennuto will bring a new graduate student on board for a sturgeon mapping project.

A lake sturgeon (*Acipenser fulvescens*) encountered during prior collaborative work with USFWS in the lower Niagara River.

The goal is to create historical habitat maps relevant to sturgeon spawning sites throughout the Lake Erie watershed within the U.S. Once maps are generated with the locations of historical spawning grounds, those sites will be revisited and coarse assessments of habitat suitability and accessibility will be made.

These assessments can provide some assistance in management decisions on the best location for lake sturgeon spawning habitat rehabilitation and decisions concerning tentative dam removals. For example, in early January, Drs. Gorsky and Pennuto took part in a conference call with leaders and invested stakeholders for a dam removal project along the Cuyahoga River in Ohio, a river with historical documentation of sturgeon spawning activity.

This mapping project should provide an up-to-date assessment of potential rehabilitation success for this and other locations throughout the Lake Erie watershed. •

CSMI 2020 Lake Michigan workshop

by Alexander Karatayev and Lyubov Burlakova

The Great Lakes Center hosted the CSMI 2020 Lake Michigan workshop on March 12, 2020. The purpose of this workshop was to plan the upcoming benthic survey of Lake Michigan this summer. Scientists from GLC, EPA Great Lakes National Programs Office, Cornell University, Wright State University, and USGS participated in the workshop to discuss survey dates, logistics, equipment, and collaborations. Because of travel restrictions due to the COVID-19 outbreak, only six scientists were present, with the other eleven participating remotely via Zoom.

Participants of the Lake Michigan Planning Workshop. From left to right: Ashley Elgin (NOAA), Susan Daniel, Allison Hrycik, and Lyuba Burlakova (GLC) (Photo by Sasha Karatayev). Other participants: Sonya Bayba (GLC); remote participants: Elizabeth Hinchey and Annie Scofield (US EPA GLNPO), Joe Connolly (Cornell U), Knut Mehler (GLC), Richard Kraus (USGS), Leon Katona (Wright State U), Julie Lietz (GDIT), Janet Nestlerode (EPA), Molly Wick and Ted Angradi (EPA ORD GLTED), and Olesya Makhutova (Krasnoyarsk U).

Sasha Karatayev presented an overview of the planning survey that includes 80 sampling stations for benthic samples, and an additional 20 stations for *Dreissena* and crustaceans. At these 100 stations, we are planning to deploy a drop-down camera for bottom image analysis, to collect samples for sediment granulometry and nutrient analyses, and to deploy a CTD profiler for physico-chemical characteristics of the water column. Sasha also presented preliminary results of CSMI video surveys conducted in Lake Ontario in 2018 and Lake Erie in 2019. He emphasized that in the upcoming Lake Michigan survey we are planning to implement a Rapid Assessment of *Dreissena* population in real time, produce maps of mussel distribution, and estimate preliminary lake-wide dreissenid density by the end of the cruise. Lyuba Burlakova presented a talk on Lake Erie benthoscapes, describing how benthic habitats can be classified based on bottom video imaging.

Several other presentations covered the results of previous CSMI surveys and planned research activities during the 2020 CSMI survey. Leon Katona (Wright State U) is planning to collect benthic algae to study the difference in algae productivity on soft sediment vs. *Dreissena* shells in Lake Michigan in 2020. Leon presented results on changes in bottom algal productivity across depths in lakes Erie and Ontario. Joe Connolly (Cornell U) will continue sampling Harpactacoida copepods to study their distribution in the Great Lakes. Joe is also interested in using this microbenthic order to assess the regulations of ballast water as a common path of introduction for invasive species. Janet Nestlerode (EPA) gave a presentation about the application of a sediment profile camera in Lake Erie to study changes at the sediment-water interface in the hypoxic zone, and how this information could be linked to benthic community structure. Molly Wick (ORISE, EPA ORD GLTED) informed us about the plans of National Coastal Condition Assessment in 2020 and survey enhancements in Lake Michigan nearshore zone. Ashley Elgin (USGS) presented the results of Lake Erie 2019 quagga mussel length-weight regressions and reproductive status, and updates on 2018 and 2019 Western Lake Erie *Dreissena* and *Hexagenia* surveys.

CSMI 2020 is planned for this summer, and sample collection will take place from the *R/V Lake Guardian*, the EPA's 180-foot ship. •

Rails to Trails Pathway Project

by Emily Thiel

One of WNY PRISM's most exciting new programs is a collaboration with the Town of Tonawanda. The program focuses on the Town of Tonawanda's Rails to Trails Pathway, a 3.9-mile trail constructed atop an abandoned railbed in 2016. Since then, the trail has become an important part of the local community, one that gives residents the opportunity to connect with nature and their neighbors.

This important community resource, similar to many trails in Western New York, is bordered by an abundance of invasive species including Japanese knotweed (*Reynoutria spp.*), common reed (*Phragmites australis*), glossy buckthorn (*Frangula alnus*) and many others. When these species began to threaten the path's infrastructure, the Town of Tonawanda approached WNY PRISM to help develop a volunteer program to manage invasive species and maintain the pathway as a community asset for many years to come.

Our first step was to recruit volunteers. Thankfully, the tight-knit community of Tonawanda was willing to step up. Since we introduced the program to the community at a Town Board Meeting in November, over 60 volunteers signed up to take part in the effort.

We held our first event in February to introduce our volunteers to invasive species identification, our mapping protocol, and removal techniques. Despite a night of wintery conditions, 30 enthusiastic volunteers attended, eager to learn more.

Early this summer we plan to have our second training to review invasive species identification and teach our volunteers how to map the invasive species along the Rails to Trails Pathway. Volunteers will then adopt a portion of the pathway and will be tasked with mapping the area.

The data we receive from volunteers will allow us to create a management plan for the area and will guide our Volunteer Workday in mid-summer. Here, our volunteers will get their hands dirty helping to remove invasive species along the trail.

We're always looking for more volunteers, so if you'd like to learn about invasive species in your area, connect with your neighbors, and protect this great community asset, register at: bit.ly/rails2trailsvolunteer. •

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