

is to determine if native unionid mussels survived the dreissenid mussel invasion, and to locate possible mussel refuges in the lower Great Lakes. This project is a large collaborative study that includes scientists from 12 universities and federal and state agencies in Michigan, Ohio, Pennsylvania and New York.

In 2011 we surveyed Lake Erie and St. Clair and found that despite a sharp decline in the diversity and density of unionids in the Great Lakes associated with *Dreissena* invasion, native clams survived in many refuges including bays, river mouths, and coastal wetlands. Based on the survey's data, Jon Bossenbroek (University of Toledo) produced a predictive model for unionid refuges in Lake Ontario, and our goal for the 2012 summer season was to find refuges on the lake and check if this model is working.

During four weeks of surveys, we sampled 56 sites in Lake Ontario and found 1,802 live unionids belonging to 10 species. Preliminary data analysis indicated that infested unionids had fewer attached dreissenid mussels than in the early 1990s, and much lower than the

threshold number for causing unionid mortality.



A Century of Change in the Molluscan Community of Oneida Lake

In the summer of 2012, we spent three wonderful weeks at the Cornell University Biological Field Station on Oneida Lake doing an extensive mollusc survey and enjoying the warm hospitality of its faculty, staff, and especially the Station's Director, Lars Rudstam. This trip was a result of several discussions with Lars in the preceding

years about a potential collaboration between the Great Lakes Center and the Cornell Biological Field Station at Shackelton Point to understand the possible reasons for the decline in the molluscan diversity in Oneida Lake.

This lake was a subject of multiple studies at the beginning of the 20th century conducted by a prominent malacologist Frank Baker. According to Baker, in the early 20th century this lake hosted an abundant and diverse molluscan community of 41 species, including 12 unionid bivalves. Now, due to habitat loss, the introduction of invasive species, and other results of human activity, the diversity of molluscs has dramatically declined. We found that at least 34 species of molluscs are currently present in Oneida Lake, including an exotic snail, Chinese mystery snail, which we found in the lake for the first time. At the same time all native *Unionidae* have been extirpated from the lake, most likely due to the impact of dreissenids. (To read more, visit the [project webpage](#).)

New Graduate Programs Coming in 2013

by Alexander Karatayev

The Great Lakes Center, in conjunction with the Departments of Geography & Planning, Earth Sciences, Biology, and the Dean's Office, has made significant progress toward developing two new graduate programs in **Professional Science Master** and **Master of Science in Great Lakes Ecosystem Science**. These degrees build upon an effort begun nearly a decade ago to create a Great Lakes-focused graduate research degree.

Buffalo State College provide a unique opportunity to study the effects of the interactions of physical and biological processes with social, economic and civil activities of the humans living on one of the world's most precious resources - fresh water. We are planning to recruit the first students into these programs in the fall of 2013.

For more information on the new programs, please visit our [website](#) or contact:

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The programs will be able to accommodate a range of students and faculty outside the GLC, but will still lean toward our core interests. The locale and facilities of

