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Newsletter Fall 2016

Christopher J. Norment
College at Brockport, cnorment@brockport.edu

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SUNY BROCKPORT ENVIRONMENTAL SCIENCE & BIOLOGY FALL 2016 NEWSLETTER

November 2016

Message from the Chair

As I write this, the 2016 Presidential election cycle is drawing to a close. It's been an acrimonious and bitter campaign, with many casualties—civility, tolerance, the quality of public discourse, and even hope. But one of the most distressing aspects of the campaign has been the public's willingness to dismiss evidence, and filter "information" through the uncompromising lens of ideology. Examples of this disintegration can be found in the back-and-forth arguments on topics ranging from immigration to economics and foreign affairs, but nowhere is it more apparent than in how science—its practice and findings—has been either ignored or dismissed. Aside from the fact that one of the most important issues confronting humanity—climate change—was ignored during the presidential debates, many in the American public essentially have allowed statements such as the one calling climate change "a hoax invented by the Chinese" to go unchallenged. On topics ranging from evolution to immunization, many people appear willing to ignore all credible scientific evidence that conflicts with their worldview. In other words, my team good, your team bad.



President Obama has written that "values are faithfully applied to the facts before us, while ideology overrides whatever facts call theory into question." Whatever one may think of Obama, his distinction between values and ideology is critically important. And understanding the relationship between ideology and evidence, and therefore cultivating the ability to think critically about the world, is central to the mission of the Department of Environmental Science and Biology. What we do, whether in the classroom, laboratory, or field, should be about evidence—collecting and analyzing data, making accurate observations about the natural world, and faithfully applying our conclusions, rather than our prejudices, to the problems facing *our* environment.

The right practice of science has been described as the search for "successive approximations of the truth" (note the lower-case "t"). And so, in this newsletter, I hope that you will find evidence of environmental science students, staff, and faculty engaging in "right practice": doing good and satisfying work, gathering information and applying the results of their studies in ways that hopefully will make the world a better place. And in some small way, I hope that what they are doing and learning will serve as an antidote to the poisonous atmosphere of our perilous political times.

"When we try to pick out anything by itself, we find it hitched to everything else in the universe."

- John Muir

Environmental Science & Biology Department

- Dr. Kathryn Amatangelo, Assistant Professor
- Ms. Andie Graham, Instructional Support Associate
- Dr. James Haynes, Professor, Interim Provost & VP of Academic Affairs.
- Ms. Tammy Jo Manz, Secretary
- Dr. Christopher Norment, Professor & Chair
- Dr. Jacques Rinchar, Associate Professor
- Dr. Douglas Wilcox, Professor
- Dr. Clayton Williams, Assistant Professor

(Figure 1)



(Figure 2)



(Figure 3)



Wetland Restorations Galore

The Brockport wetlands team, under the direction of **Dr. Douglas Wilcox**, spent much of the summer involved in wetland restoration projects at nearby Lake Ontario sites. Sixth-year follow-up sampling of a sedge/grass meadow restoration on low-lying former agricultural lands adjacent to the West Creek drowned-river-mouth tributary to Braddock Bay was conducted by Instructional Support Associate **Andie Graham** and grad student **Scott Ward** (Figure 1). A paper describing the overall project was published by **Dr. Wilcox** and former grad student **Alexander Healy** in the journal *Ecological Restoration*.

Restoration projects at Buck Pond and Buttonwood Creek (also a Braddock Bay tributary) continued this summer. In cooperation with Ducks Unlimited, these Great Lakes Restoration Initiative projects began in 2015 and involved creating channels and potholes through invading cattail mats to provide fish access and more open wildlife habitat. Cattail-control methods previously developed by grad students **Alex Czayka** and **Katie Buckler** were also employed, along with sedge/grass meadow restoration efforts. The lead on vegetation work was grad student **Eli Polzer**; she was assisted by recent graduate **Steven Hart** (Figure 2). Related fish sampling was conducted by graduate students **Dan Madziarz** and **Jon Podoliak** (Figure 3). Amphibian and bird sampling was also conducted by recent graduates **Amy Jessmer** and **John Bateman** and current undergraduate student **Alex Fisher**. Oversight on the entire project was provided by Research Scientist **Brad Mudrzynski**.

Another wetland restoration in Braddock Bay proper was implemented by the U.S. Army Corps of Engineers in early 2016 using methods similar to those in Buck Pond and Buttonwood Creek. Follow-up vegetation sampling was led by grad student **Alex Silva**, with field assistance from recent graduate **Cassie Wolfanger** (Figure 4). Fish sampling was conducted by graduate students **Dan Madziarz**, **Jon Podoliak**, and **Matt Futtia**, and undergraduate student **Chris Diguardi**.

Amphibian sampling was conducted by **Amy Jessmer** and **Alex Fisher**. Water quality sampling and analyses were conducted by **Dr. Clay Williams**, with assistance from now-graduate student **Cassie Wolfanger** and undergraduate student **Taylor Listowski**. Oversight on the entire project was again provided by **Brad Mudrzynski**.

Yet another restoration began in a remnant fen (peatland receiving mineralized water) discovered in Buttonwood Creek last year by **Eli Polzer**, where she observed massive cattail invasion occurring. **Dr. Wilcox**, along with **Brad Mudrzynski**, **Eli Polzer**, and **Andie Graham**, received a large grant under the Great Lakes Restoration Initiative to remove invading cattail using methods similar to those at Buck Pond, Buttonwood Creek, and Braddock Bay. Much of the field implementation was carried out by undergrads **Robert Tyler**, **Dan Kenney**, and **Nate Jones**, with recent graduate **Tyler Ohle** acting as the field lead for the project (Figure 5). A peat core was also collected by paleoecologist **Dr. Robert Booth** (Lehigh University), with assistance from **Wilcox**, **Mudrzynski**, **Graham**, and **Polzer**, to assist in learning how this rare wetland type developed in such an unlikely location (Figure 6). With assistance from **Dr. Booth**, Eli is analyzing plant macrofossils in the core.

Looking ahead, sampling at the West Creek site will likely continue in 2017; work on the Buck Pond/Buttonwood Creek project will likely be complete; and Braddock Bay and Buttonwood Fen work will continue. In addition, data collection on new restoration projects implemented by the U.S. Fish and Wildlife Service at Salmon Creek, Buck Pond, and Long Pond will commence.

A new cadre of field assistants will be needed.

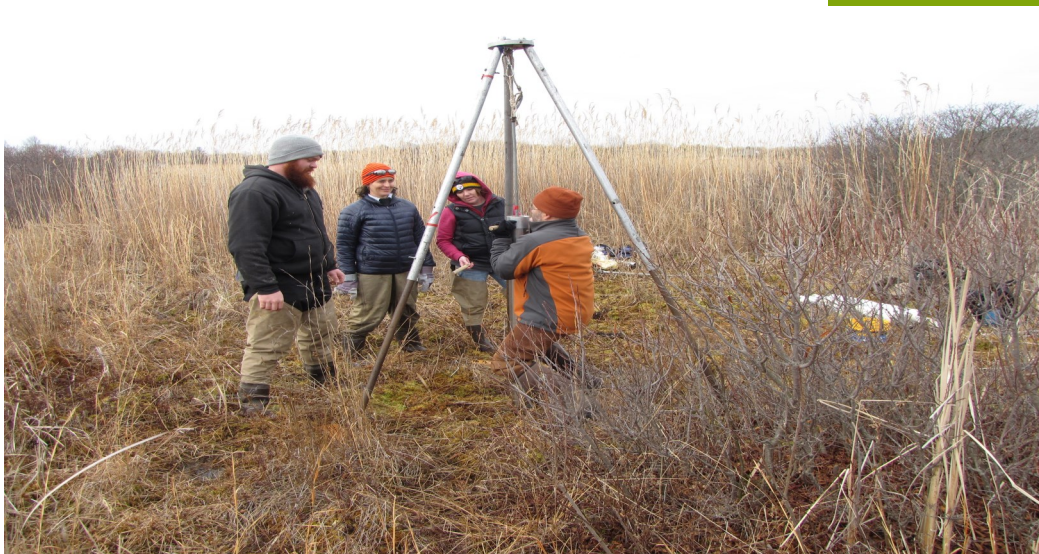


(Figure 4)

(Figure 5)



(Figure 6)



Student Updates:

Bird and Amphibian Research

Graduate student **Greg Lawrence** and undergraduate students **Megan Cassler** and **Robert Tyler** completed a second field season of research on obligate grassland breeding bird use of island and “mainland” habitats along the St. Lawrence River. The study was funded by a grant from the New York State Power Authority awarded to **Dr. Christopher Norment**.



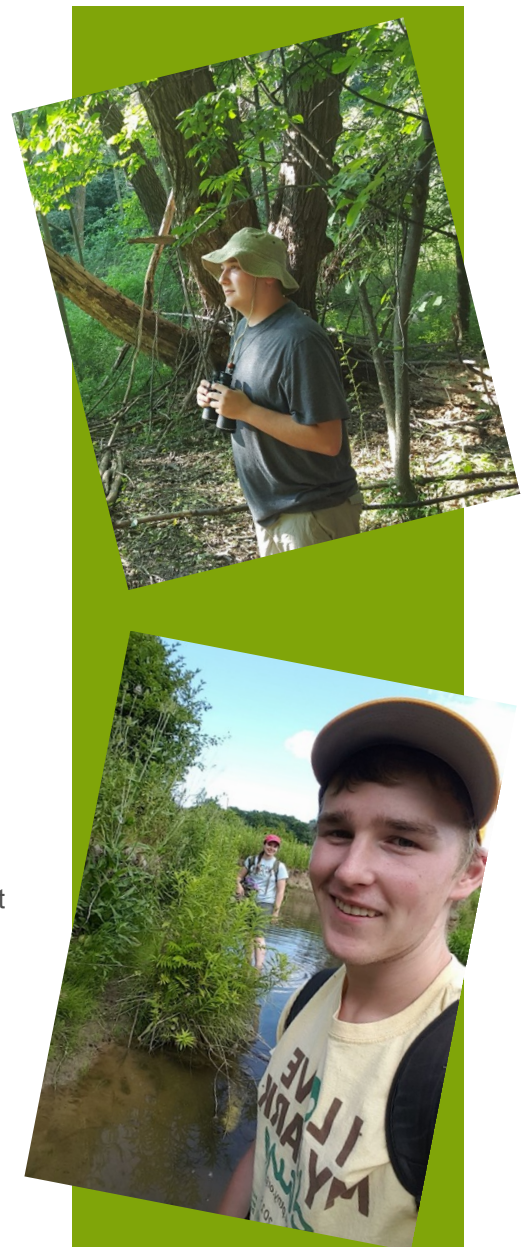
Graduate student **Jon Podoliak** and undergraduate student **Holly Jackson** assessed bird and amphibian use of coastal Lake Ontario wetlands, as part of a larger Environmental Protection Agency-funded project monitoring coastal wetlands throughout the Great Lakes Basin. The bird and amphibian work is supervised by **Dr. Norment**, while **Dr. Wilcox** – with assistance from **Brad Mudrzynski** - is in charge of the Brockport’s Great Lakes Coastal Wetland Monitoring grant.”



assistance from **Brad Mudrzynski** - is in charge of the Brockport’s Great Lakes Coastal Wetland Monitoring grant.”

“The will to win, the desire to succeed, the urge to reach your full potential...these are the keys that will unlock the door to personal excellence.”

- Confucius



Student Updates:

Graduate Student, **Matt Futia**: My thesis project investigates a vitamin (thiamine) deficiency that has been hindering salmonid survival in Lake



Ontario for nearly 50 years. This deficiency results in high offspring mortality and, in severe cases, has been known to cause adult mortality as well. Salmonids are a vital component of Lake Ontario as a top predator, and they support a world-class recreational fishery that pro-

vides economic benefits for the State of New York and a portion of the Province of Ontario. Thiamine deficiencies are also impacting fish and other animals across the world, yet causes of the deficiency have yet to be determined.

In an effort to study the seed dispersal ability of white-tailed deer (*Odocoileus virginianus*) in Monroe County, **Kira Broz**, graduate student with **Dr. Amatangelo**, constructed two fecal pellet germination areas on The College at Brockport's campus; one in an open area at the aquaculture ponds and one in a shaded area in the Brockport woodlot. The study areas had to be free from interference from mice and deer and thus shallow enclosures were made out of wood and topped with hardware cloth attached to a hinged frame. Kira is collecting pellet piles from three different locations in Monroe County- the Brockport woods, Northampton Park, and Mendon Ponds Park- and then separating them into sun or shade pots containing potting soil. Subsamples of the pellet piles are also being preserved for seed extraction and visual identification. Pellet groups will be collected monthly to determine germination potentials from species encountered across different seasons.



Graduate Student, **Kinsey Irvin**: The river continuum concept predicts biological community responses to physical changes from headwaters to the mouth of any river. The objective of my research is to evaluate if fish fatty acid signatures (FAS) can be used to assess this concept in Sandy Creek and the Genesee River. Assessing FAS in fish could show differences in feeding habits throughout a river, reflecting the change in physical gradients.

STUDENT AWARDS

Kinsey Irvin received \$1,000 from the Great Lakes Research Consortium to support her thesis research.

Matt Futia: 2016 Department Scholar.

Matt Futia received a student travel grant from the Great Lakes Research Consortium (\$250) and from the College at Brockport (\$300) to attend the 2016 IAGLR meeting.

Matt Futia: Best student oral presentation at the 72nd Annual Northeast Fish and Wildlife Conference (Annapolis, Maryland).

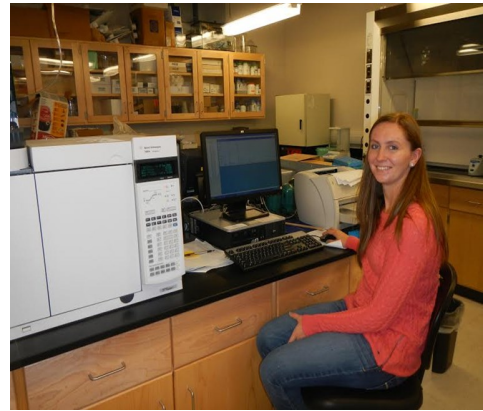
Jon Podoliak received \$500 from the Eaton Birding Society to support his research on coastal Lake Ontario wetland birds.

Taylor Listowski received an undergraduate student research award to study the relationship between organic matter composition and vegetation communities in coastal Great Lakes wetlands. As part of this project, Taylor received water samples from across the Great Lakes for analysis. Taylor's study will help us understand how wetland plants influence water quality and carbon cycling in the Great Lakes.

Research / Projects:

Undergraduate student, **Erica Kingdollar** (pictured to the right):

This summer I was funded by the Brockport Foundation to research the fatty acid signatures of nearshore fish from Lake Michigan in Dr. Rinchard's lab. This was valuable research because it could be further used in assessing the trophic systems of Lake Michigan.



Dr. Jacques Rinchard's research projects included:

- Thiamine and lipid status in forage fish of salmonids. Project financed by the US Fish and Wildlife Service (\$19,856).
- Assessing causes and impacts of thiamine deficiency in salmonid fish from Lake Ontario. Project financed by the Great Lakes Protection Funds (\$14,981).
- The new Lake Michigan food web: Establishing links between nearshore food sources and pelagic piscivores. Project financed by the Great Lakes Fishery Trust (\$264,772.30 with \$48,366 for Dr. Rinchard).

Below: Students from **Dr. Clay Williams's** class conducting research on Lake Ontario for Limnology (ENV 419)



PUBLICATIONS:

- Happel, A., Stratton, L., Pattridge, R., Rinchard, J. and Czesny, S., 2016. Dietary influence on lake trout fatty acid profiles: a first step towards quantifying freshwater predators' diets. *Freshwater Biology*, 61, 1466-1476.
- Happel, A., Stratton, L., Kolb, C., Hays, C., Rinchard, J. and Czesny, S., 2016. Evaluating quantitative fatty acid signature analysis (QFASA) in fish using controlled feeding experiments. *Canadian Journal of Fisheries and Aquatic Sciences*, 73, 1222-1229.

Summer Internship Students

- ⇒ Erica Kingdollar, Nick Farese, Christopher Plummer, Mckenzie Wybron and Holly Jackson were all funded by the Brockport Foundation.
- ⇒ Nathan Barker and Chris Maier, funded by Dr. Rinchard's research grants.

Faculty and Staff Highlights:

Dr. Clay Williams is collaborating with Dr. John Kessler (University of Rochester) to map methane concentration and organic matter composition across Lake Ontario and Lake Superior. They hope to determine the impact the Great Lakes have on global methane emissions. In addition, we are trying to understand if methane hot spots in the Great Lakes correspond with areas of the lakes with high levels of human-modified organic matter signatures. This research should advance our understanding of how freshwater ecosystems contribute to global greenhouse gas emissions.

Andie Graham was awarded \$2,200 by the Bergen Swamp Preservation Survey in April 2016: to study the invasive *Brachypodium sylvaticum* (false-brome) in Bergen Swamp. This grant supported graduate student Tiffany Clay and undergraduate students Zac Falconer and Wyatt Jackson during the 2016 field season. The students conducted vegetation surveys and collected soil moisture and pH data in an attempt to determine what facilitates the spread of the plant in Bergen Swamp and to find the areas that are at high risk of invasion by the plant. They anticipate presenting results of their research at Scholars Day and NY State Wetlands Forum meeting in 2017.

Tammy Jo Manz has joined the Environmental Science & Biology Department as the new secretary.



Tammy Jo comes to the college with 20 years of secretarial experience in the civil service and private sector. She looks forward to sharing her skills and enthusiasm to assist the department staff, students, and guests wherever she can to make things more efficient and enjoyable. If you haven't met her yet, please stop by and introduce yourself!

Contact Us

Please feel free to email Tammy Jo Manz, Environmental Science & Biology Secretary at tmanz@brockport.edu if you would like to submit any interesting news about your accomplishments: such as awards, research, projects or field work. If you have a photo please include that as well.

Thank you for your interest in participating in the ES & B Newsletter.

ENVIRONMENTAL SCIENCE & BIOLOGY ALUMNI UPDATE

We want to hear from you!

Please take a moment to fill out the information below and send to us (via email to: tmanz@brockport.edu or fax to: 585-395-5969):

Name _____ Graduation Year _____

Address: _____

City _____ State _____ Zip Code _____ Phone _____

Email address _____

Employment _____ Title _____

Recent promotion, honor, award, family activity? _____