

**State University College at Brockport**

**Department of Environmental Science and Biology**

**Fall 2014 Newsletter**

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***Dr. Christopher Norment, Professor and Chairperson***

As Chair of the Department of Environmental Science and Biology, I would like to welcome all of our students, faculty, and staff to the new academic year. In particular, I want to thank our new students for choosing to study environmental science at the College of Brockport, and I hope that each of you will have a wonderful educational experience here. I also would like to welcome two people to our department: Dr. Ely Kosnicki, the department's newest faculty member, and Ms. Andie Graham, our new Instructional Support Associate. Dr. Kosnicki comes to us from Auburn University, where he was a postdoctoral research associate. His area of expertise is aquatic invertebrate ecology, and this year he will be teaching Ecology, Aquatic Invertebrates, and Global Environmental Issues. Ms. Graham comes to us from (of all places!) the Environmental Science and Biology Department at Brockport, where she has been working on her Masters degree under the supervision of Dr. Wilcox.

As we begin this new academic year, it is worthwhile to reflect upon the importance of environmental science, a point that was brought home to me last summer during a 16-day raft trip through the Grand Canyon. The Grand Canyon is one of the most spectacular natural phenomena in the world. Although "The Canyon" has been protected by its National Park designation since 1919, its ecological and aesthetic integrity has been threatened many times, by everything from dams to mining, air pollution, and exotic species. Environmental scientists have played an important role in safeguarding the Grand Canyon by gathering the data necessary to develop wise resource management strategies and inform effective political action. Environmental scientists will continue to play a crucial role in protecting the Park as battles develop over two new threats—a rim-to-river gondola along the eastern boundary of the park and a large resort and residential development just beyond the southern entrance to the park. Although none of us—faculty, students, and staff—probably will ever become professionally involved in safeguarding Grand Canyon National Park, we **will** work on many other important issues, ranging from invasive species to pollution, endangered species protection, and managing critical habitats. So – work hard (and in your free time, play hard!) and believe, passionately, in the importance of environmental science and what you are doing at Brockport, whether as a student, teacher, or member of our vitally important support staff. And have a great year!

***Environmental Science and Biology—A picture paints a thousand words***



Marine Biology Bahamas



Biology of Organisms lab



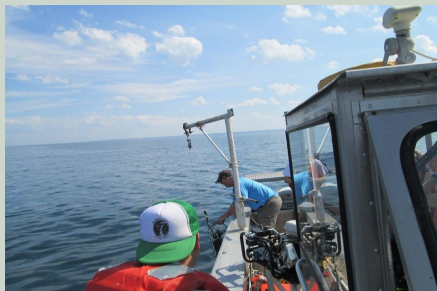
Setting fyke net, Buck Pond, Greece, NY



Scubdiving in Lake Ontario



Plant Ecology class working in the field



Limnology Lab, Lake Ontario



Electrofishing, Genesee River

## ***From the Graduate Director's Desk***

### ***Dr. Jacques Rinchard***



As the new graduate director of the Department of Environmental Science and Biology, I would like to welcome our new graduate students: Jeremy Kraus, Daniel Madziarz, Mitchell Owens, Jeremy Pike, and Jonathan Podoliak. Welcome back to our continuing students, who I am sure had a very productive summer. Our program is now composed of 25 students working on a broad range of topics - read more about their background and research project in this newsletter. If you are interested in our program, feel free to contact me. Finally, congratulations to our recent graduates: Lindsay Dressel, Coral Reina, Jennallee Holzschuh, Holly Schultz, John Bateman, and Ariel Kirk.

## ***Environmental Science and Biology Graduate Students Researching Thesis Projects that make a Difference to the Environment***

***Becca Bernacki (MS in progress)*** Ecosystem-scale impacts of emerald ash borer; specifically, examining the alterations of successional dynamics and carbon cycling.

***Robert Pattridge (MS in progress, Graduate Assistant)*** Assessing nearshore-offshore linkages and spatio-temporal differences in the Lake Ontario food web using fatty acid analysis.

***Katelyn Almeter (MS in progress)*** Facilitated leaching of lead from an urban soil. A soil-column flushing study evaluating the removal rates of lead from urban soil through treatment with different solutions. It is aimed at looking for implications for use in soil remediation to mitigate elevated lead concentrations in urban soils.

***Mike Rodgers (MS in progress)*** Sinkhole classification using oblique imagery classification in the karst regions of Genesee County

***Julia York (MS in progress)*** Effects of competition and nutrient availability on the growth of the invasive shrub common buckthorn in three habitats.

***Christopher Hays (MS in progress)*** Evaluating effect of dietary intake on reproductive performance of round goby in Lake Ontario and Sandy Creek, New York to determine reproductive performance.

***Jeremy Kraus (MS in progress)*** Study of Cayuga Lake predator-prey interaction. Evaluation of fatty acid signatures in lake trout and three prey species, round goby, rainbow smelt, and alewife.

***Jeremy Pike (MS in progress)*** Fatty acid analysis and hormonal response to stressors in juvenile lake trout.

***Kathryn Des Jardin (BS/MS in progress)*** Germination experiments and field observations on water chestnut, an invasive exotic plant, Goal is to provide management suggestions with respect to water chestnut and its invasion.

***Molly Stetz (BS' 12, MS in progress, Graduate Assistant)*** Potential effects of climate change on Wetland Restoration Program (WRP) sites in Genesee County, NY. Molly will create a water budget for each restoration site to assess the current restoration conditions and to predict the potential changes to the site under future proposed climate conditions. Flora and fauna at each site will be surveyed to assess current conditions. Variables will be compared among the sites that may influence the resiliency or susceptibility of the projects design.

***Jon Podoliak (MS in progress, Graduate Assistant)*** Marsh monitoring program with birds and amphibians. Jon will research disturbance involving wetland birds and amphibians in the Great Lakes wetlands.

***Kate Bailey (MS in progress)*** Quantifying benthic macroinvertebrate communities at two habitats in southwestern Lake Ontario-a natural cobble site and an artificial reef habitat located about 1/2 mile offshore from Olcott, NY. Kate's thesis will build on Dr. Haynes' long-term dataset on these communities and evaluate how the presence of dreissenid mussels and round goby invasion have influenced macroinvertebrate community structure at both sites.

***Christina Hoh (MS in progress)*** Stopover ecology and physiology of white-throated sparrows in western New York. Research on how migrant white-throated sparrows use Lake Ontario shoreline areas to rest. By studying bird morphology and blood chemistry, evaluation of stopover habitats can be made.

***Stacy Wais Seretto (MS in progress)*** Movements of alewife and changes in nearshore fish communities on Lake Ontario.

# ***Environmental Science and Biology Alumni***

## ***Women in Science—Achieving their Goals***



***Lynn Zicari (BS '12 Environmental Chemistry magna cum laude)*** Environmental Technician, Ravi Engineering and Land Surveying, Rochester, NY.

***Stephanie Figary (BS '08 Aquatic Biology/Ecology)*** Water Quality Program Manager, Wissahickon Valley Watershed Association, PA.

***Kristina Klees-Daugherty (BS '05 Terrestrial Ecology summa cum laude)*** Emergency Management Program Specialist, Monroe County Department of Public Safety Office of Emergency Management, Rochester, NY

***Jessica Rositano (BS '08 Terrestrial Ecology/Biology cum laude)*** GIS and Forestry Inventory Contractor Plum Creek, Maine.

***Meghan Albers (BS '13 Terrestrial-Aquatic Ecology/Biology cum laude)*** Junior Environmental Scientist, Ecology and Environment, Inc., Lancaster, NY.

***Molly Stetz (BS '12 Water Resources, MS in progress)*** Conservation District Technician, Genesee County Soil and Water District, Batavia, NY.

***Nancy Kelly (BS '06 Terrestrial Ecology/Biology)*** Public Health Sanitarian/EPA Lead Risk Assessor, Orleans County Department of Health, Albion, NY.

***Becca Bernacki (MS '11 Terrestrial Ecology/Biology MS in progress)*** Wetlands Compliance Technician, New York State Department of Environmental Conservation, Buffalo, NY.

***Jenna Lee Holzschuh (BS '10, MS '14) cum laude.*** U.S. Fish and Wildlife Service, Alaska.

***Melissa Winslow (MS '12 Aquatic Ecology/Biology)*** Associate Environmental Scientist, Groundwater and Environmental Services, Hauppauge, NY.

***Lindsay Dressel, (MS '14 Aquatic Ecology/Biology)*** Wet Chemistry Analyst, ALS Environmental, Henrietta, NY.

***Erica Burgeson (BS '13 Terrestrial-Aquatic Ecology/Biology)*** Lab Clinical Support Tech II, University of Rochester, Rochester, NY.

***Mandi Caldwell (BS '12 Terrestrial-Aquatic Ecology/Biology Magna Cum Laude)*** Research Assistant, Central Michigan University, Michigan.

***Kari Shaw (BS '13, Terrestrial Ecology/Biology Summa cum laude)*** Watershed Agricultural Council, Walton, NY.

***Bonnie Gambrel (BS '13, Terrestrial-Aquatic Ecology/Biology Summa cum laude)*** Technical Assistant, University of Buffalo, Buffalo, NY. Major: Evolution, Ecology and Behavior. Research on soft corals

***Logan Stratton (BS '14 Aquatic Ecology/Biology)*** Fish and Wildlife Biological Technician, Iroquois National Wildlife Refuge, Basom, NY.

***Julia York (MS in progress Terrestrial Ecology/Biology)*** Lab Technician, Puget Sound Blood Center, Seattle, WA.

***Miranda Papp ( BS '14 Aquatic Ecology/Biology)*** Boat Steward, NYS Parks, Recreation and Historic Preservation, North Tonawanda, NY. Inspection of boat trailers for any invasive aquatic species and organisms.

## ***Welcome to our newest faculty member - Dr. Ely Kosnicki***

Ely Kosnicki received a PhD in Entomology from the University of Missouri in 2008 and has been working in freshwater ecosystems for 17 years with private, government, and academic affiliations across the contiguous United States. Dr. Kosnicki's research is based primarily on understanding how environmental drivers shape freshwater invertebrate communities and how this information can be used for monitoring the effects of human disturbance. His teaching duties include Ecology, Freshwater Invertebrates, General Entomology, Stream Ecology, and Global Environmental Issues. His Brockport-based research will focus on streams of the Allegheny National Forest, wetlands of Lake Ontario, and the Finger Lakes, among other studies.

Dr. Kosnicki joins us after spending five years as a postdoctoral associate at Auburn University, coordinating a large-scale reference modeling project funded by the Department of Defense and teaching an Aquatic Insects course. In addition to his PhD in Entomology from the University of Missouri – Columbia, he also has MS and BS degrees in Natural Resources from the University of Connecticut. He is an avid insect collector and welcomes anyone to stop by with an insect they would like identified, or just to have a stimulating conversation about insects in general.



***Andie Graham***

### ***Environmental Science and Biology Instructional Support Assistant***

I first came to The College at Brockport in August 2011 as a graduate student working for Dr. Douglas Wilcox in his wetland science lab. For the past three years I have researched the impact of a Marcellus Shale gas drilling accident on a fen in PA. I anticipate graduating with my M.S. in Environmental Science and Biology with a concentration on wetland science in spring 2015. In addition to my studies, I worked as a teaching assistant for the Department of Environmental Science and Biology, where I taught Environmental Science lab (ENV 202) and provided instructional support for Science and Society (GEP 115) lecture.

Prior to moving to New York, I attended Penn State University, where I earned degrees in Earth and Mineral Science (B.S. 11'), Letters, Arts, and Sciences with concentrations in biology, natural resources, and English (B.A. 09'), and Wildlife Management (A.S. 08'). I also worked at Penn State as a laboratory and teaching assistant for the Department of Wildlife and Fisheries Science, where I taught Animal Identification lab (WILDL 103), Dendrology lab (FORT 150), and Wetlands and Fisheries lab (WILDL 213).

I've worked on a variety of projects ranging from wetland restorations to electrofishing for endangered species to assessing the effectiveness of treatment systems to improve wetland and stream water quality. I've also had the opportunity to design and conduct several research projects on the impact of acid mine drainage on wetland ecosystems. I have experience working with and handling several wildlife taxa, such as birds of prey and songbirds, reptiles, amphibians, and small mammals. I even have experience working with porcupines! My main research interests include peatlands, wetland biogeochemistry, hydrogeology, and human impacts to wetland ecosystems.

I am very excited to begin my career as the Instructional Support Associate for the Department of Environmental Science and Biology. In this position, I manage all aspects of the ENV 202 lab, as well as assist with teaching and prep work for several other labs in the department. I also assist with faculty and graduate student research, maintain field and laboratory equipment, act as the hazardous waste liaison for the department, advise the ECOS Club, and participate in community outreach. I especially look forward to working with the students, and I plan on implementing many programs and developing student internships to aid in student learning and experience.



## ***Environmental Science and Biology Accomplishments***

- ⇒ ***Blake Snyder (MS '11)*** Blake is employed by the Environmental Protection Agency in Athens, Georgia in the Ecosystems Research Division. Blake's research deals with understanding the transport and fate of fecal indicator bacteria from terrestrial to freshwater environments. He is particularly interested in the impact of different land uses on the presence of *E. coli*, *Enterococcus* and *Salmonella* in streams, and stream sediments and subsequent resuspension during rainstorm events.
- ⇒ ***Ryan Walter (BS '00, MS '02 )*** Ryan was under the advisement of Dr. James Haynes while at Brockport. Ryan recently obtained a tenure track Assistant Professor position at Cal State Fullerton. Ryan gives special thanks to Dr. Haynes "***I could have never done this without your support, your time on the phone, the countless ref letters you wrote for me, and your mentorship through my BS and MS at Brockport.***"
- ⇒ ***John Bateman (BS '10 Terrestrial Ecology/Biology, MS '14)*** Doctoral candidate Fish and Wildlife Management and Biology, Department of Environmental Forestry and Biology, SUNY College of Environmental Science and Forestry, Syracuse, NY.
- ⇒ ***Joshua Perry (BS '13 Aquatic Ecology/Biology)*** Josh is employed by the Great Atlantic Shellfish Farms, LLC as a Shellfish Hatchery Technician/Marine Biologist. Josh is responsible for broodstock maintenance and conditioning, spawning, larval and juvenile culturing of hardshell clams and oysters, algal production, land-based nursery culturing and maintenance.
- ⇒ ***Julie Boerner (BS '11 Terrestrial Ecology/Biology, MS '14 Buffalo State College)*** Julie has been collaborating with the NYS DEC and the Buffalo Zoo on their hellbender salamander headstarting project. Julie's thesis title is "Comparison of Movement Patterns in Captive-Released Eastern Hellbenders Using Three Different Release Methods." Julie gives her thanks to Drs. Norment and Haynes and "***all of the wonderful faculty and staff at Brockport for pointing me in the right direction. It is because of you that I am now doing such awesome work!***"
- ⇒ ***Nathan Gross (BS '08 Terrestrial Ecology/Biology cum laude. MS '11)*** Environmental Scientist/Biologist for Tetra Tech, Inc., Buffalo, NY. Nate's work focuses on military and energy projects that have plant and/or wildlife components. Wetland delineations, invasive plant species monitoring and treatment, T & E species surveys, avian surveys, stream and wetland restorations.
- ⇒ ***Matt Piche (MS in progress)*** Natural Resource Coordinator, Native Village of Eyak DENR, Cordova, Alaska. Matt oversees department fisheries, marine mammals, wildlife and alternative energy programs, and tribal fisheries biologist. Matt's field work is located in the Copper River Watershed, Chugach National Forest and Prince William Sound.
- ⇒ ***David Greer (MS '13)*** David is an elementary STEM enrichment teacher for the Syracuse city school district.

# ***Environmental Science and Biology Faculty—Recent Grants and Publications***

## **Dr. Kathryn Amatangelo**

### **Grant:**

Finger Lakes Partnership for Invasive Species Management (FL-PRISM). This project will fund two undergraduate students to map the extent of non-native vine infestations (Swallowwort, Oriental Bittersweet, and Chinese Wisteria) in Monroe County Parks. This work will take place in Fall 2014 and Spring 2015. (\$4'137)

### **Peer Reviewed Publications**

Amatangelo, K.L., Johnson, S., Rogers, D., Waller, D. 2014. Trait-environment relationships remain strong despite fifty years of trait compositional change in temperate forests. *To appear in Ecology* 95:1780-1791

Blois, J., Gotelli, N., Behrensmeier, A., Faith, T., Lyons, S., Williams, J., Amatangelo, K.L., Bercovici, A., Du, A., Eronen, J., Graves, G., Jud, N., Labandeira, C., Looy, C., McGill, B., Patterson, D., Potts, R., Riddle, B., Terry, R., Toth, A., Villasenor, A., Wing, S. 2014. A framework for evaluating the influence of climate, dispersal limitation, and biotic interactions using fossil pollen associations across the late Quaternary. *Ecography*  
DOI: 10.1111/ecog.00779

Sonnier, G., Johnson, S., Amatangelo, K.L., Rogers, D., Waller, D. 2014. Is taxonomic homogenization linked to functional homogenization in temperate forests? *Global Ecology and Biogeography* 23(8):894-902.

## **Dr. James Haynes**

### **Peer Reviewed Publication**

Wells, S. M. and J. M. Haynes. 2013. Fish-habitat relationships in the Tonawanda and Johnson Creek watersheds of Western New York State, USA. *Journal of Ecology and the Natural Environment* 5: 396-406.

### **Grants**

Haynes, J. M. (principal): Research needed to delist BUIs in the three NYS AOCs. Sponsored by USEP/NYSDEC, Federal, \$261,375. July 15, 2013-December 31, 2015)

Haynes, J. M. (principal): Status of longear sunfish (*Lepomis megalotis*) in lower Tonawanda Creek, Niagara Basin. Sponsored by NY Power Authority Habitat Enhancement and Restoration Fund, \$43,390. April 1, 2013—Decemembr 31-2014.

## **Dr. Jacques Rinchard**

### **Grants**

2014-2016: Can early feeding in lake trout fry ameliorate thiamine deficiency? Project submitted to the Great Lakes Fishery Commission (\$139,501 with \$37,905 for Dr. Rinchard). PI: E. Marsden (University of Vermont), A. Evans (Oregon State University), and J. Rinchard (Department of Environmental Science and Biology, The College at Brockport - SUNY).

2014: Thiamine Deficiency Complex. Project financed by the USGS Great Lakes Science Center (\$41,409). PI: Dr. Jacques Rinchard (Department of Environmental Science and Biology, The College at Brockport - SUNY).

2014-2015: Growth and survival of nearshore fishes in Lake Michigan. Project submitted to ILDNR through the Illinois History Survey (\$5,000). PI: Dr. Jacques Rinchard (Department of Environmental Science and Biology, The College at Brockport - SUNY).

# ***Environmental Science and Biology Faculty Presentations, Grants, Publications***

## **Dr. Douglas Wilcox**

### **Peer-reviewed publications**

Johnston, J.W., T.A. Thompson, and D.A. Wilcox. 2014. Paleohydrographic reconstructions from strandplains of beach ridges in the Laurentian Great Lakes. In I.P. Martini and H.R. Wanless (eds.) *Sedimentary Coastal Zones from High to Low Latitudes: Similarities and Differences*. Geological Society, London, UK. Special Publication 388.

Kowalski, K.P., M.J. Wiley, and D.A. Wilcox. 2014. Fish assemblages, connectivity, and habitat relationships in a diked Great Lakes coastal wetland complex. *Transactions of the American Fisheries Society* 143:1130-1142.

### **Grants**

Pre-construction monitoring at Long Pond, Buck Pond East, and Salmon/West Creek wetland restoration sites. U.S. Fish and Wildlife Service. Total Award: \$22,121.

Invasive species control and wetland restoration at Braddock Bay FWMA. Great Lakes Restoration Initiative through U.S. Environmental Protection Agency and Ducks Unlimited. Total Award: \$245,932

Pre-construction monitoring at Braddock Bay and lower Salmon Creek wetland restoration sites. U.S. Fish and Wildlife Service. Total Award: \$6,432.

Collaborative research on wetland management and invasive species control in the Great Lakes. U.S. Geological Survey. Total Award: \$10,713.

## **Dr. Christopher Norment**

### **Peer-reviewed publications**

Mudrzyński, B. M. and C. J. Norment. 2013. Influence of habitat structure and fruit availability on use of a north-eastern stopover site by fall songbirds. *Wilson Journal of Ornithology* 125: 744-754.

### **Grant**

Norment, C. J. A comparison of obligate breeding abundance and breeding biology on mainland and island sites along the St. Lawrence River Corridor. New York State Power Authority, \$32, 972. (May 1, 2014—April 30, 2017).

### **Book**

Norment, C. J. 2014. *Relicts of a Beautiful Sea: Survival, Extinction, and Conservation in a Desert World*. University of North Carolina Press, Chapel Hill, NC.



# ***Environmental Science and Biology Faculty Presentations, Grants, Publications***

## **Dr. Joseph Makarewicz, Professor Emeritus**

### **Publications**

Makarewicz, J. C., Rea, E., Winslow, M. J., Pettenski, D., and Lewis, T. W. IN Press. A case study: Comparison and limitations of biological and chemical assessments of trophic state in four streams of the Genesee River watershed. *J. Great Lakes Res.*

Makarewicz, J. C., and Lewis, T. W. In review. Changes in Lake Ontario rotifer abundance and composition:1984-2013. *J. Great Lakes Res.*

Makarewicz, J. C., Rea, E., Winslow, M. J., Pettenski, D., and Lewis, T. W. In revision. Using SWAT to determine reference nutrient conditions for small and large streams. *J. Great Lakes Res.*

### **Grants**

Makarewicz, J. C. (Principal), "Nearshore nutrient analysis of Lake Ontario," Sponsored by United States Geological Survey, Federal, \$189,000.00. (January 2013 - December 2014).

Makarewicz, J. C., "Conesus Lake Environmental Health," State, \$18,000.00. (March 2014 - December 2014).

Makarewicz, J. C., "Genesee River Project," Sponsored by USDA, Federal, \$500,000.00. (January 2010 - December 2013).

Makarewicz, J. C., "Conesus Lake Environmental Health," State, \$18,000.00. (March 2014 - December 2014).