



## State University of New York

### The College at Brockport

#### *Department of Environmental Science & Biology*

#### *Fall 2015 Newsletter*

#### *Greetings from Department Chair, Dr. Christopher Norment*

Welcome, everyone, to the 2015-2016 academic year – particularly to our 32 incoming freshmen and 16 transfer students. Thanks for choosing the College at Brockport and the environmental science major, and I hope that your time here is rewarding. I also would like to give a warm greeting to our newest faculty member, Assistant Professor Dr. Clay Williams, who comes to us from Iowa State University (and a recent canoe trip in Minnesota’s Boundary Waters). Dr. Williams’s area of specialty is freshwater ecology, and during his first year, he will be teaching courses in Limnology, Water Quality Analysis, and Global Environmental Issues. Dr. Williams spends much of his time in Lennon 125, so drop and say “hello” to him.

As our newsletter describes, it was a busy summer for many folks in the Department. Many of our students were employed on projects funded through grants to our faculty, which were awarded by the US Environmental Protection Agency, Ducks Unlimited, the New York State Power Authority, and other organizations. Other students worked on projects funded by Brockport Foundation Summer Research Fellowships, the New York State Department of Environmental Conservation, and the Bergen Swamp Preservation Society. These types of valuable opportunities have helped generations of Brockport environmental science students gain the experience they need to find professional jobs and further educational opportunities. I believe that our ability to provide many kinds of “high impact” experiences is one of the strengths of the program, and I strongly encourage all of our students to seek out as many of these opportunities as they can – and our alumni can help, too, by notifying us of any internships and jobs for which our students might be qualified. So – best of luck in the year ahead to the entire Department of Environmental Science and Biology community. Work hard, play hard, and learn as much as you can about the environment, so that you may help to make the world a better and healthier place.

## **Welcome Dr. Clay Williams, Limnologist**

Dr. Williams grew up around the Appalachian foothills of Coshocton, Ohio (an old canal town). As a youth, Dr. Williams enjoyed water, fishing, being outdoors, and playing soccer. Dr. Williams earned his B.S. from the Ohio State University (Columbus) in 2000 with majors in Zoology and Psychology. During his last quarter of undergraduate study, Dr. Williams discovered Limnology, the study of inland waters, which led him to work as a commercial fisheries biologist observer through the National Marine Fisheries Service on the Bering Sea, Alaska. As an observer, Dr. Williams was curious how fishing operations impacted the microbial food web of the ocean but did not have the training to answer those questions. Dr. Williams went to Florida International University (Miami) to study microbial food webs and earned his Ph.D. in Biology in 2008. In addition to earning his degree, Dr. Williams met his wife in Miami. Prior to coming to Brockport, Dr. Williams completed two postdoctoral research positions: the first at Trent University and the most recent at Iowa State University. As a postdoc, Dr. Williams shifted from marine to freshwater systems, where he studies how land-use change and human disturbances impact aquatic carbon and nutrient cycles at ecosystem scales. Throughout these scientific adventures, Dr. Williams has maintained a love of soccer and is looking forward to finding a pickup game soon. At the College at Brockport, Dr. Williams' research will focus on understanding human-land-water interactions, as a way to help sustain freshwater resources and ecosystems and explore local Great Lakes water issues.



## **Featured Graduate Student, Katherine Bailey**

### ***A driven leader for the environment***

Before I came to Brockport, I didn't know what I wanted to concentrate in, since Environmental Science is such a progressive, ever-changing science. My career goals changed considerably: as a freshman at College of the Atlantic in Maine I wanted to be a marine biologist; at MCC, I took on a more liberal arts perspective; and at Nazareth College, my alma mater, I discovered the fascinating world of invertebrates. I wanted to learn more about aquatic invertebrate insects and freshwater mussels, so I decided to pursue my Master's. It was half good timing, and the other half luck, when I met with Dr. Haynes back in 2012 to talk about my interests in aquatic macroinvertebrates and then learned that Dr. Wilcox needed a bug/water research assistant for the Great Lakes Coastal Wetlands Monitoring Project. I have been a part of this research crew for 3 years.

In 2014, Dr. Haynes and I went SCUBA diving in Lake Ontario to collect benthic macroinvertebrate thesis samples. I also wanted to learn more about the agricultural aspect of environmental science, so this past summer I interned with Genesee County Soil & Water Conservation District, where I updated old farm parcels using GIS and assisted graduate student, Molly Stetz, with the 2015 Envirothon. In May, I attended the Society for Freshwater Science Annual Meeting, where I presented my thesis work. In June I gave a lecture on aquatic invertebrates at the Rochester Educational Opportunity Center and led 20 students to Corbett's Glen Nature Park to show them invertebrates up close! I was even able to get some students in the water to try sampling. I recently accepted a job as an adjunct instructor at Genesee Community College and am thrilled to begin another adventure. I will teach advanced middle school students introductory biology, and I am excited to have the opportunity to instill in young minds excitement for our environment. However, I still will be around Lennon looking at (you guessed it) macroinvertebrates for the Great Lakes Wetlands Monitoring Project. Being at Brockport, and being inspired by the supportive professors and students, has led me to seek out a Ph.D. program in aquatic ecology, which I hope to begin next year. I also have to give credit to my patient, ever-supportive fiancée, for being so willing to help with counting bugs, and for his help collecting my thesis samples. I am looking forward to whatever research opportunities lie ahead and will always remember and appreciate the many weeks of field work and longer weeks of staring into microscopes.



### **Featured Undergraduate student, Scott Ward**

#### **Performing Research for the Benefit of the Environment**

Scott is an undergraduate student in Environmental Science and Biology with a concentration in Aquatic-Terrestrial Ecology/Biology under the advisement of Dr. Kathryn Amatangelo. This past summer, Scott and other students began inventorying woody plant species in Bergen Swamp under the direction of project leader Ms. Andie Graham. Assisted by fellow undergraduates Taylor Listowski, Kristen Mooney, Tiffany Clay, Holly Jackson, and graduate students Jon Podoliak and Kira Hansen, the crew measured woody species above 3 cm, making note of smaller species and rare or invasive plant taxa. This research produced baseline data for a long-term study on succession, abiotic effects on vegetation, and encroachment from invasive insect pests, which will continue with future ENV students. Under the direction of Dr. Kathryn Amatangelo, Scott also researched landscape trends in urban suburban Rochester to determine the percentage of native landscape plants. Supported by a grant from the Department of

Environmental Conservation, he will collect data on weedy and wild plant species growing on selected properties. The research will reveal if suburban habitats favor exotic and invasive plant species and if state regulations prohibiting invasive species are effective. Scott will also analyze old-field habitats to complete his research on swallowwort, which he began in 2014.



### **2015-2015 Environmental Science and Biology Graduate Assistants**

**Jon Podoliak** – Jon (pictured with **Sara Grillo**, B.S 2015) is a second-year graduate student studying with Dr. Chris Norment. Jon's research involves disturbance in Great Lakes coastal wetlands and how this affects bird and amphibian populations. Jon is a Teaching Assistant for ENV 202 lab sections.



**Amanda Napieralski** – Amanda is the newest Graduate Assistant for ENV. Amanda earned her B.S. in Earth Sciences at Brockport and was part of the Adolescent Education and Honors programs. Amanda taught high school Earth Science and Environmental Science before returning to Brockport as a full time MS candidate. Amanda continues her research on

phosphorus and watersheds with Dr. Mark Noll. Amanda's current focus is on how phosphorus fractionations (what phosphorus is associated or bound to) changes as a creek flows over different types of bedrock.



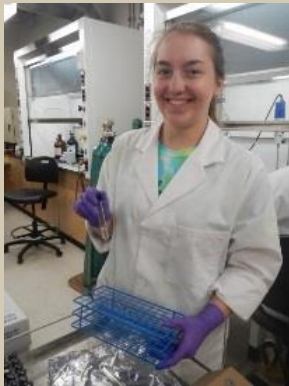
### **Current Graduate and Undergraduate Environmental Science and Biology Students**

**Ken Johnston (BS in progress)** 2015 saw Brockport's Eagle Diesel team competing at Rensselaer Polytechnic Institute to promote their biodiesel project, which has successfully converted waste vegetable oil from campus dining halls into usable diesel fuel. Eagle Diesel took first place for research and development and won \$1,000 for future support of the project, with \$1,500 split among team members. Eagle Diesel is a student-operated company that has the goal of producing biodiesel for the campus. Its goals are to encourage, develop, and implement new sustainable projects that have a broad impact and an array of engagement opportunities on campus. Currently, Eagle Diesel is working on development of the Eagle Diesel Lab. We are always looking for new students to join our team. If interested, please email: Ken Johnston ([kjohn10@brockport.edu](mailto:kjohn10@brockport.edu) or Paul LaPlante ([plapl2@brockport.edu](mailto:plapl2@brockport.edu)).

**Thomas Palmer (BS in progress Aquatic Ecology/Biology)** Under the advisement of Dr. Jacques Rinchar, Tom participated in the Brockport Foundation's Summer Research Fellowship Program and worked in Dr. Rinchar's research lab to determine fatty acid signatures of nearshore prey fishes in Cayuga Lake. Tom says that "It is valuable experience that I can take a lot from. I have become more proficient in using lab instruments, as well as the necessary techniques." Everything that Tom has learned will be useful for the remainder of his time at Brockport and will help him find a career in environment science.



**Ann Patterson (BS in progress Aquatic-Terrestrial)** During the summer of 2015, Ann participated in the Brockport Foundation Research Fellowship Program under the guidance of Dr. Jacques Rinchar. The focus of Ann's research was to compare fatty acid signatures of fish collected from three different locations, including Hamlin Beach and two wetlands located along the shore of Lake Ontario. Ann learned how to conduct scientific research in a professional manner and present her findings. Ann says, "From this experience, I gained knowledge in a variety of different scientific techniques and equipment, including gas chromatography. All of the knowledge and experience obtained from this internship will be useful in my future graduate studies and future professions."



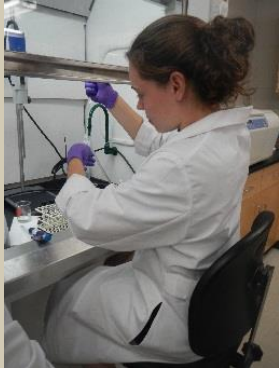
**Scott Ward (BS in progress Aquatic/Terrestrial Ecology-Biology) and Taylor Listowski (BS in progress Aquatic/Terrestrial Ecology-Biology)** Under the direction of Ms. Andie Graham and through a grant from the Bergen Swamp Preservation Society, Scott and Taylor inventoried all woody plant species in selected plots in the Bergen Swamp, in order to study succession, abiotic effects on vegetation, and encroachment from invasive insect pests.

**Jeremy Kraus (MS in progress)** In the summer of 2015, Jeremy collected samples for aquatic invertebrates in lake sediments to assess the health and status of invasive species in the smallest of the Finger Lakes (Canadice).



**Bailey Fogel (BS in progress)** In the summer of 2015, Bailey also participated in the SUNY Brockport Foundation's Research Fellowship Program, performing research in the lab of Dr. Jacques Rinchar. Bailey's project was to compare the fatty acid concentration of lake trout eggs from Lake Ontario and Cayuga Lake. Through this experience, Bailey has learned a great deal about the research side of environmental science. "I've expanded my knowledge on the use

of different equipment in the lab, as well as processes to extract and test fatty acids in fish. I have also learned more about scientific writing and presenting my findings. This internship has allowed me to meet new people and gain new skills that will prepare me for future jobs. I will carry what I learned with me to jobs I will have in the future. Overall, it was a great experience that has opened my eyes to what the field of environmental science has to offer.”



**Nick Farese (BS in progress Aquatic Ecology-Biology)** During the summer of 2015, Nick was hired by Dr. Rinchar to determine the fatty acid signatures of fish from Lake Michigan. “The valuable skills I gained include how to use scientific equipment, how to maintain quality care for fish, writing a formal scientific report and how to work effectively in a professional environment. I will use these skills in everyday life, and while working within the scientific community. This internship will also give me an advantage while applying for jobs, and the connections I have made will help me find a career, and this is something that I highly value.”



**Mitchell Owens (MS in progress)** Mitch has been performing benthic macroinvertebrate surveys on Conesus, Hemlock, Canadice, and Honeoye Lakes.”My primary goal is to determine what invasive macroinvertebrates are present in these lakes and how pervasive these species are. I also hope to determine if there is any correlation between land use in the watersheds of the four lakes and the quality of invertebrates communities in the lakes.”



**Robert Tyler (BS in progress Wetland Ecology-Biology)** In the summer of 2015, Robert did an internship at Wellesley Island State Park as an environmental educator.

**Jon Podoliak (MS in progress)** In the summer of 2015, Jon performed research on Lake Ontario wetlands. Jon's work involved sampling wetlands across the entire southern and eastern lakeshore, including Canada for birds and amphibians, as part of a Great Lakes Coastal Wetland monitoring program. Jon will use these data as part of his thesis to evaluate how human disturbances affect wetland birds and amphibians.



**Eli Polzer (MS in progress)** Congratulations to Eli on her appointment to the new Student Council for the School of Science and Mathematics (SSM). This council will serve as a venue for the direct exchange of ideas and concerns between the Dean of SSM and the student representatives on the council. Eli's role is to act as the liaison between ESB graduate students and Dean Maliekal, who has always been very supportive of our department. The goal of this council is to improve the experience of current and future students in our graduate program.

### ***Great Lakes Restoration Initiative***

**Under the direction of Dr. Douglas Wilcox**, and with tremendous assistance from research scientist Brad Mudrzynski, the wetland team in Environmental Science and Biology has been very active in 2015. With \$246K from the Great Lakes Restoration Initiative (GLRI) through the U.S. Environmental Protection Agency and Ducks Unlimited, they began work on ecological assessment of wetland restoration projects at nearby Buck Pond and Buttonwood Creek in the Braddock Bay Fish and Wildlife Management Area of Lake Ontario. This is the thesis work of **Eli Polzer**, and she has been aided in the field by **Alex Silva** and **Tyler Ohle**. In addition, Brockport B.S. and M.S. grad John Bateman is studying birds and amphibians at these sites (with grant funding) to pursue a Ph.D. at SUNY ESF. Recent Brockport grad **Amy Jessmer** has served as his able field assistant.



While working in Buttonwood Creek, Eli identified a rare peatland fen that is being invaded by cattails. Dr. Wilcox, Brad, Eli, and Instructional Support Associate Andie Graham were recently awarded a \$93K grant from GLRI through the Sustain Our Great Lakes program to restore the fen using cattail control methods developed by Dr. Wilcox and grad students **Alex Czayka** and **Katie Buckler**. Those methods are being employed at Buck Pond/Buttonwood Creek sites and will be put to use in the wetland restoration portion of the recently announced \$9.5M Braddock Bay Restoration Project by the U.S. Army Corps of Engineers (under GLRI through USEPA), which has also involved the Brockport wetlands team. Under a \$25K cooperative agreement with the U.S. Fish and Wildlife Service, the wetlands team is also assisting in restoration projects at nearby Long Pond, Salmon Creek, and the eastern side of Buck Pond.

Tied to large-scale data collection to assist in wetland restoration, the wetlands team completed the fifth year of the Coastal Wetlands Monitoring Program in 2015 (\$1.25M GLRI funding through USEPA and Central Michigan University). Over five years, this basin-wide, \$10M program has involved many universities and agencies sampling nearly every wetland across all of the Great Lakes. Brockport's role was to cover the U.S. and part of the Canadian portions of Lake Ontario, as well as eastern Lake Erie. Brad Mudrzynski ran the show, with able assistance this year from grad students **Dan Madziarz**, **Katherine Bailey**, and **Jon Podoliak**, as well as undergrads **Amy Westfall**, **Kristen Brewer**, **Todd Fiel**, and **Sara Grillo**.

**The take-home message is that Environmental Science and Biology students at Brockport have great opportunities to get paid doing field work and getting experience. This critical part of an education can assist greatly when entering the job market after graduation.**

## *Environmental Science and Biology Alumni News and Updates*

### *Amazing adventures and getting paid for it!*

**Alex Czayka (MS '12)** Western Reserve Land Conservancy (WLRC), Eastern Field Director. Alex works "on the ground" with private landowners and partners to protect the natural resources of the region through conservation easements and fee title acquisitions. Alex is currently engaged in a large (>1,000 ac) conservation project that involves the protection of over 500 acres of wetlands, 300 acres of prime agricultural land with controlled drainage, and a 3 mile, 300 acre wetland restoration involving hydrology on a previously ditched peatland. Alex recently completed a project with the US Fish and Wildlife Service on WRLC property, restoring 50 acres of wetlands by restoring hydrology on previously mined areas.



**Ben Sleeper (BS '12 Terrestrial)** USGS Missouri Water Science Center, Hydrologic Technician. Ben works on flow measurements from the Mississippi in downtown St. Louis.



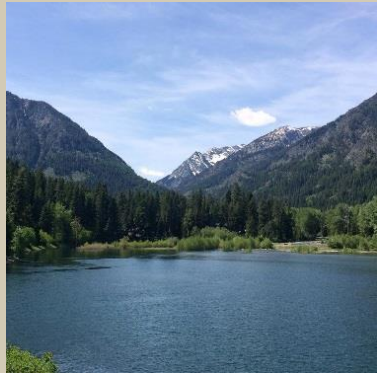
**Kristen Brewster (BS '15 Terrestrial)** Kristen has been awarded a Department of Energy Science Undergraduate Laboratory Internship through the Long Island Brookhaven National Lab. Kristen will be evaluating the historical data for air temperatures, soil temperatures, relative humidity, and calibration of the pyranometers in LISF areas.

**Lynn Zicari (BS '12 Earth Sciences Ravoli Engineering, Environmental Technician.** Lynn performs groundwater testing.



**Kaitlyn Wauhkonen (BS '11 Aquatic/Terrestrial)** Willowa Lake State Park, Oregon Parks and Recreation Department, Visitor Experience Program Assistant. Kaitlyn is responsible for implementing programs on interpretation, outdoor skills, instruction, outdoor recreation, environmental education, and other special events. Kaitlyn has created Junior Ranger booklets

and is currently recruiting for Let's Go Hiking and Let's Go Star Gazing programs.



**Emily McCall (BS '14 Terrestrial)** Audubon Corkscrew Swamp Sanctuary, Southwest, Florida, Intern. Emily has been doing a combined hydrology and wildlife/aquatic monitoring research and land management (invasive plant control and prescribed fire) as a project/internship. Emily is creating an illustrated ID guide of fish, amphibians, and aquatic invertebrates for the Corkscrew research lab. This fall, Emily is in Montana to intern at the Northwest Connections program, working on carnivore surveys, and tracking and collection of hair samples and game cam footage of fishers, lynx, and wolverines.

**Logan Stratton (BS 14 Aquatic)** North Pacific Ground Fish Observer Program, Alaska. Logan is responsible for collecting scientific, management, and compliance data, biological samples of catch, fishing effort, location, and retained catch for each gear deployment occurring aboard vessels. Logan also collects data on marine mammals and protected species interactions.

**Danielle Barbiero-Turk (MS '12)** Under the Sea, Outreach Instructor. Danielle's position at Under the Seas involved bringing live animals (crabs, fish, snails, a small shark), along with animal-related artifacts, to schools, camps, libraries, and birthday parties in the Washington, DC area to teach kids about the ocean. Under the Sea is opening a non-profit public aquarium in Glen Echo Park, MD that will display exhibits pertaining to the Chesapeake Bay, its animals, and habitats. "This is a good fit for me, having a background in environmental science and performing shark research in Fiji."

**Aubrey Galusha (BS '11)** Congratulations to Aubrey on defending her Ph.D. thesis, "Investigation of Alkaline Earth and Rare Earth Elements in Human Bone following Long-Term Parenteral Nutrition," from the University of Albany. Audrey will stay with the NYS Department of Health while pursuing an academic career. Aubrey's advisor at Brockport, Dr. Joseph Makarewicz, writes "Congratulations to Aubrey, who recently received her Ph.D. from SUNY Albany. At Brockport, she received her BS in Environmental Science with a concentration in chemistry. Aubrey and her father visited Brockport and met with Dr. Makarewicz one summer and were concerned about whether Brockport could provide her with undergraduate research opportunities. Dr. Makarewicz became her advisor, where she worked in his lab and did a well-received independent study on the influence of a nearby quarry on stream chemistry of Oak Orchard Creek. Her work at Brockport involved the use of the atomic absorption, which she eventually used in her Ph.D. study. Aubrey will teach chemistry at the

College of Nanoscience and Engineering at SUNY Polytechnic Institute this fall and publish her Ph.D. work. She is presenting her work at the Winter Conference on Plasma Spectrochemistry.



