Fall 2020 Newsletter

Department of Environmental Science & Ecology
SUNY Brockport

A Message from the Chair

I hope this newsletter finds you well and healthy. Things have changed so much since we sent our spring newsletter. Classes for the second half of the 2020 spring semester moved online, our Earth Day celebration events were cancelled, graduation ceremonies were postponed, and the college summer undergraduate internship program was cancelled — all in an effort to stem the spread of COVID-19. The College and our department had a busy summer developing policies, plans, and protocols to counter the virus, using guidance from the Centers for Disease Control, NYS Governor's Office, NYS Department of Health, Monroe County Public Health Department, SUNY System Administration, and other experts to "Bring Back Brockport." In late August we welcomed back undergraduate and graduate students to campus, with most of our department's instruction occurring in a "face-to-face" setting. So far, so good… The COVID-19 status on campus is being closely monitored. We practice social distancing, wear masks, disinfect commonly used surfaces/objects and are prepared to transition to all online instruction if necessary. Despite the pandemic, our faculty and staff are committed to providing students with the education they deserve, and preparing them for success once they enter the workforce.

Many other things have happened in the Department since our spring newsletter. Crystal and Jason Nutty welcomed baby girl MaKenna, their second child. Congrats to both of them! The Department is thrilled to report the successful tenure review of Dr. Rachel Schultz, as well as my promotion to Professor. This summer also was marked by the retirement of Dr. Douglas Wilcox. Dr. Wilcox joined the College in 2008 as Empire Innovative Professor of Wetland Science. Many of you will remember him as an instructor dedicated to his students. He was also one of the leaders of the Great Lakes Coastal Wetlands Monitoring Program (CWMP) that began in 2011. Over the years many of our students were trained in wetland science through the CWMP. While he will be missed, his legacy will continue. Doug, thank you for your service! This summer, we also bid farewell to Dr. Courtney McDaniel, who joined Piedmont College in Georgia as an Assistant Professor of Biology. We will miss her, and wish her all the best. Finally, as you will see in the following pages, our faculty, staff, and students are continuing their hard work in the classroom and research labs.

On November 4th, from 6pm-7pm, we will host a virtual Alumni Career Panel. Two alumni, Brad Mudrzynski (BS, 2008; MS 2010) from the Genesee County Soil and Water Conservation District, and Christina Hoh (MS 2016) from NYS Department of Environmental Conservation, will be discussing their experience and careers. As we are offering this event virtually, we hope that some of our environmental science alumni can join as well.

Lastly, I would like to thank you for your generous donations. No matter the size, your gift to the Department of Environmental Science and Ecology will join the contributions of other alumni and friends in helping to move our mission forward.

I hope that you enjoy the newsletter. Be well and stay healthy in these challenging times. And speaking of challenging times, be sure to exercise your right to vote in the coming elections.

Jacques

Inside This Issue

Department Faculty & Staff

Dr. Matthew Altenritter
Dr. Kathryn Amatangelo
Dr. Michael Chislock
Ms. Andie Graham
Dr. Christopher Norment
Mrs. Crystal Nutty
Dr. Jacques Rinchard
Dr. Rachel Schultz

Dr. Douglas Wilcox with Wetland Ecology students at Braddock Bay in September 2018

Inside Dr. Altenritter's Lab

Graduate student Kyle Morton holding a lake trout and Brown trout sampled on Lake Ontario during the department's Fisheries Science and Management course

The Altenritter lab is adapting to the changing conditions this semester and making the most of a challenging situation. Over the summer, graduate students Kylee Wilson and Kyle Morton initiated limited field work for their research. Kylee successfully captured yellow perch (*Perca flavescens*) in Long and Buck Ponds (despite the picture of her holding a pumpkinseed *Lepomis gibbosus*!) and began working with their otoliths (calcified ear stones) to assess age and growth. Kyle surveyed dissolved oxygen concentrations in the lower Genesee River and on a trip in August observed hypoxic (very low dissolved oxygen) conditions. This observation will undoubtedly inform his examination of sturgeon movements in the lower Genesee River as sturgeon tend to avoid hypoxic conditions. Kyle is also working hard in ENV 584 – Fisheries Science and Management this semester (pictured with Lake trout *Salvelinus namaycush* and Brown trout (*Salmo trutta*) caught during class!).

Graduate student Kylee Wilson with a pumpkinseed collected during a boat electrofishing trip on Buck Pond

Finally, the lab would like to introduce undergraduate student Hanna Buehler! Hanna is a senior working on an independent study project assessing potential changes in size structure, condition, and growth in the invasive Round goby (*Neogobius melanostomus*) along a longitudinal gradient in Sandy Creek. She successfully captured dozens of gobies across approximately 10 miles of stream and is now measuring, weighing, and dissecting her catch in the lab. Invasions of Great Lakes tributaries by this species represents a pathway for gobies to spread inland and potentially reach new waterbodies.

Undergraduate student Hanna Buehler with an invasive round goby collected in Sandy Creek

Inside Andie Graham's Lab

During the summer, undergraduate students Abby Lysiak, Grace Dowdall, Luka Koziol, and Zach Morin worked with Andie Graham in Bergen Swamp on a wetland restoration project. The goal of the project is to remove the invasive grass *Brachypodium sylvaticum* and to increase native plant abundance at impacted sites. The project is funded by the NY Dept. of Environmental Conservation.

Undergraduate students Max Mahoney, Owen Bean, Kris Yee, Aubrey Franks, and Kati Gierlinger and graduate students Megan Aubertine and Andrew Leonardi worked with Andie on the '*Brachypodium* Management Initiative,' which is a NY DEC funded project that involves soils research in *Brachypodium* invaded areas, vegetation surveys, and mapping new infestations of *Brachypodium* in western and central NY State.

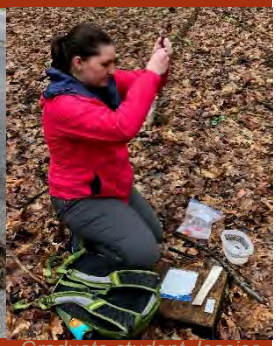
Abby, Luka, and Zach are completing independent study projects this semester based on data collected over the summer in Bergen Swamp and Owen is completing an independent study project based in data collected at Pratt Falls State Park. They will present the results of their work next spring at a regional conference.

Congratulations Crystal!

MaKenna Nutty was born on May 7th, 2020 at 11:50pm. She was 6lbs 10oz and 19.5 inches long. She is happy, healthy and a perfect addition to our family!

Inside Dr. Norment's Lab

Josh Noonan with an unfortunate fellow-mammal



Graduate student Jessica DeToy studying salamanders

In spite of all the COVID-craziness, folks associated with Lennon 112A have been working away in the field and lab. Among the graduate students, both Tiffany Clay (monarch butterflies) and Michelle Gianvecchio (migratory songbirds) hope to wrap up their theses in the coming months, while Josh Cronlund is working to finish his hoary bat study. Jess DeToy is finishing her second field season of work on woodland salamanders, with help from undergrads Christa Mickol and Emily Vanskiver—who also have been busy with their own field projects. Dawn Newman has been pursuing her study on the relationship between chytrid fungus, northern leopard frogs, and their skin microbiota, although the dry summer slowed her down. Among other undergraduates, Jarod Ruffle and Josh Noonan (highway-related wildlife mortality) and Cara Maresca (tree swallow breeding biology) finished research projects of their own, while Jacob Kearney helped Jess DeToy monitor birds and amphibians in coastal Great Lakes Wetlands. In the meantime, Dr. Norment continued trapping white-footed mice in the Brockport Woods, a project that he began in 1993.

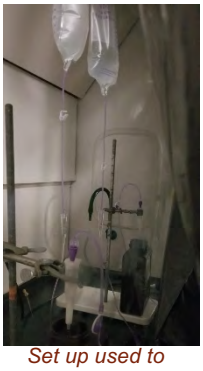
Inside Dr. Schultz's Lab

Graduate student Sarah Kirkpatrick extracting porewater at a peatland along Lake Ontario

Needless to say this past field season was one to remember! However, by following COVID-19 protocols, research projects continued safely including the first sampling seasons for graduate students Sarah Kirkpatrick (peatland restoration) and Kevin Killigrew (floating treatment wetland experiment). Courtney Scoles finished her second field season for her Master's thesis research on cattail treatment and methane emissions assisted by Riley McPherson, an ENV undergraduate student. Courtney also got a consulting job with EDR in Rochester, NY Congrats, Courtney! This fall, ENV undergraduate Luka Koziol is joining the lab as a work study student to assist with data entry and field work. Welcome, Luka! Lastly, Chris Mitchell is gearing up for his second field season this spring investigating waterfowl use of restored open water in Braddock Bay Wildlife Management Area. If you are interested in wetland research – contact Dr. Schultz (rschultz@brockport.edu).

Graduate student Kevin Killigrew showing off his floating treatment wetland mesocosm experiment

Inside Dr. Rinchard's Lab



Set up used to concentrate thiamine from water samples

Despite the COVID-19 pandemic, Dr. Rinchard's lab was very active and productive this summer. We received several new research grants; one to explore lipid contents and fatty acid signatures of native and exotic mollusks collected in the Kalamazoo watershed, one to quantify thiamine concentration in natural fresh water, and one to determine thiamine concentration in chinook salmon eggs collected in California's Central Valley hatcheries. Graduate student Aaron Heisey completed a feeding experiment to determine if a high lipid diet can cause thiamine deficiency in lake trout. He also presented his preliminary results at the 2020 Virtual Annual Meeting of the American Fisheries Society. This semester, Jarrod Ludwig is exploring the reproduction of the deepwater sculpin in Lake Ontario as part of his Honors thesis, while Hayley Brown is comparing fatty acid signatures of lake trout collected from the Finger Lakes as an independent study. All students currently in the lab are also participating in the Creel Survey in Sandy Creek and Oak Orchard Creek, as for the first time in recent years the Canal Corporation is releasing more water from the Erie Canal into these two Lake Ontario tributaries over an extended period, which will create a longer season and better angling experience. Finally, undergraduate student Desmond Barber will join the lab shortly to help with fish maintenance and sample processing.

Experimental set up for Aaron Heisey's feeding experiment

Inside Dr. Amatangelo's Lab

Graduate student Alexis Reitler measuring European dewberry

The Plant Ecology lab had a busy summer and Fall, with two continuing and two new projects focusing on terrestrial invasive plant species in our region. Graduate students Megan Aubertine and Andrew Leonardi continued their research into the effects of the invasive grass slender false-brome (*Brachypodium sylvaticum*) on plant community and ecosystem processes. Megan will be deploying a large greenhouse experiment this winter, where she will investigate slender false-brome's intra and interspecific competitive abilities in different environmental conditions. Andrew presented his work virtually at the North America Invasive Species Management Association 2020 conference.

ENV alums ('20) Jacob Kearny and Sarah Berry in front of a Japanese angelica tree

In its second year, the lab's DEC-funded work on evaluating treatments and effects of mile-a-minute (*Persicaria perfoliata*) showed that both herbicide and mechanical removal can lead to large decreases in this invasive vine. The plant is an annual and the seeds should last for only 4-5 years, so we hope to have fully eradicated known populations in three more seasons. This summer we also focused on communication and outreach. We developed mailers that were sent to >250 landowners in the hopes of finding new infestations, and Dr. Amatangelo presented information on mile-a-minute and the lab's work in the Western New York Partnership for Invasive Species Management (PRISM) Early Detection Webinar. This work is led by graduate student Erica Mackey and was assisted this summer by undergraduate Elena Greco.

Summer 2020 mile a minute team, Erica Mackey & Elena Greco

In the summer of 2020 we initiated two new projects on recently discovered populations of invasive Japanese angelica tree (*Aralia elata*) and European dewberry (*Rubus caesius*). Japanese angelica tree, an invasive tree that is closely related to devil's walking stick (*Aralia spinosa*), was found in late 2019 at Mendon Ponds County Park. With funding from the Finger Lakes PRISM, we are collaborating with the Monroe County Soil and Watershed Conservation District to survey for and control this species. Two recently graduated ENV students, Sarah Berry (BS '20) and Jacob Kearney (BS '20), surveyed for new populations and mapped populations at Mendon Ponds and Durand Eastman. Monroe County Parks has treated both populations and we will monitor for regrowth.

European dewberry is a non-native dewberry that has been present in our region for decades, but has only recently seemed to become invasive. In collaboration with NYS-Parks and funding from Finger Lakes PRISM we are evaluating the impacts of dewberry on riparian and forest communities atGanondagan State Historic Site. New graduate student Alexis Reitler mapped dewberry at the site, collected plant community data, and surveyed for additional populations in the region. You can find this plant on the edges of Parking lot D on campus! We also initiated an experiment to evaluate the effectiveness of mechanical versus herbicide control of this species.

Inside Dr. Chislock's Lab

Lots of exciting news from the SUNY Brockport Limnology Laboratory!

- MS student Paige Buchholz (now Corcoran!) was recently married to Sean Corcoran. In addition, she is working on her final experiment examining the role of the bacterium *Pseudomonas spp.* in sorption of polycyclic aromatic hydrocarbons (PAHs) by microplastics.
- MS student Tammy Bleier was selected for the 2021 Knauss Marine Policy Fellowship Program, and she will spend the next year (starting February 2021) in Washington, D.C.! Tammy has processed her sediment samples from Lake Ontario and tributaries for microplastics and is busily writing her thesis to submit for publication to a peer-reviewed journal.
- MS student Dan Beers is finishing his first field season of research in the Conesus Lake watershed, where he is working with Livingston County and the Conesus Lake Association to monitor and assess several sub-watersheds to the lake. He is excited to begin the in-lake portion of his thesis next spring!
- BS/MS student Ben Amberger has been busy assisting the Loon Lake Association in choosing potential sites for an aeration study to be conducted in 2021. In addition, he has also been studying internal phosphorus loading within the lake.
- BS student Jen Beideck has been working with Andie Graham and Michael Chislock to characterize water quality in small streams within Bergen Swamp to understand future implications of emerald ash borer ("EAB") and hemlock wooly adelgid ("HWA") invasions.
- The lab completed its first summer field season certified by the New York State Department of Health Environmental Laboratory Approval Program, which has allowed it to collaborate with diverse groups across the state in water quality management and remediation efforts. Matt Beers (brother of Dan) has played a key role in keeping the lab running day-to-day!

Top-left photo: Jen Beideck and Dan Beers measuring discharge in a tributary; middle-left photo: water quality student Kevin Killigrew filling mesocosms for his MS research; middle-right photo: limnology student Riley Lindberg collecting a water sample from the department research vessel ("Madtom") on the Erie Canal; top-right photo: Kate Brown and Dan Beers sampling a turbid tributary during a high flow event.

Inside Dr. Wilcox's Lab

Bowfin fish

Despite logistical changes and travel restrictions due to COVID-19, Brockport crews were able to complete most field work this summer. This marked SUNY Brockport's tenth season of sampling under the U.S. Environmental Protection Agency (USEPA) Great Lakes Coastal Wetland Monitoring Program. This also marked the final sampling season led by Dr. Douglas Wilcox, as he retires after many years fighting for wetlands protection and restoration in the Great Lakes and mentoring countless students- congratulations Doug! Dr. Katie Amatangelo will take over as this program's principal investigator as we go into the eleventh season of sampling in 2021. Field studies were led by crew chief Greg Lawrence. Graduate student Jess DeToy led the bird and amphibian monitoring team along with undergraduate Jacob Kearney, and sampled sites from Presque Isle State Park in Erie, Pennsylvania to the source of the St. Lawrence River in Cape Vincent, New York. They had a plethora of focal species this year including great looks at least bittern (*Ixobrychus exilis*) and common gallinules (*Gallinula galeata*). Graduate students Chris Mitchell and Kevin Killigrew sampled wetland vegetation, graduate student Ben Amberger and undergraduate Jake Bensley sampled aquatic invertebrates and water quality, and graduate students Kylee Wilson and Aaron Heisey sampled wetland fish communities. Vegetation crews sampled a unique coastal fen on the south shore of Lake Ontario and found a carnivorous sundew (*Drosera rotundifolia*), and fish crews caught some huge common carp (*Cyprinus carpio*) and bowfin (*Amia calva*) at sites along the eastern shore of Lake Ontario. With no record high lake levels this year, the crew had a successful season monitoring coastal wetlands on Lake Ontario but was unable to sample sites in Canada and Ohio and Pennsylvania due to travel restrictions.

Madelynn Edwards, Graduate Student, Presents at ESA

The Ecological Society of America Conference was supposed to be held in Salt Lake City, Utah this year but it ended up being completely virtual from August 3-6. I made a poster presentation on my thesis "Use of filamentous bacterial growth on stream macroinvertebrates as an indicator of nutrient enrichment" and talked about the results I had gotten from my field sampling. Even though I was really looking forward to the in-person experience of a huge, diverse conference like ESA, virtually attending was still a neat experience to be part of. I was easily able to access posters from all different topics that I found interesting and there were pre-recorded and live talks going on all throughout the day. It was nice that I didn't feel rushed and I could take my time reading all the details in the posters. Even though it wasn't a typical conference experience, I was still so happy I was able to attend ESA and I'm definitely looking forward to attending it again in the future!

Matt Penberthy – BS 2018

I graduated in Spring 2018 with a B.S. in Environmental Science (Terrestrial Ecology) and minors in International Studies and Environmental Studies. I am currently a Research Intern for Collaborating for Resilience (CoRe), a small D.C.-based non-profit that works to address resource competition, and strengthen governance and livelihood resilience, in interconnected resource domains and landscapes in Asia, Latin America, and Africa. We achieve this by analyzing the barriers to institutional change and establishing multi-stakeholder dialogues to amplify community voices, especially marginalized voices, in natural resource governance. This experience is very rewarding as I play a role in much of our program implementation given the small size of CoRe (around 10 people) and it directly applies to my interests in political ecology. Working remotely during COVID-19 has provided unique opportunities. For example, alongside an NGO partner, I've conducted interviews with civil society leaders, government officials, and NGO representatives in India to analyze the political economy of forest and pastureland ecosystems - something I would not have been able to do in person. I'm also a second-year MA student studying Global Environmental Policy at American University. I highly credit my experiences at Brockport for where I am today. Having a solid foundation in environmental science and issues has been advantageous in many classroom and work settings. The professors were always supportive in my pursuit of a more interdisciplinary lens both during and after Brockport, helping me secure previous internships, scholarships, and apply to grad schools. Anticipating graduation in Spring 2021, I hope to incorporate more of my science background by working on conservation and/or on nature-based solutions that address climate change, in conjunction with the social justice and political lenses of my current education.

Kevin Berend BS 2014, MS 2018

I transferred into the Department of Environmental Science and Ecology at Brockport in 2012, and the coursework and lab experiences quickly made an impact, helping me to learn quickly and see that it was the right program for me. I made many connections with students and faculty and returned to complete a Master's degree in 2018, in which I studied alpine snowbank plants on Mt. Washington, New Hampshire - one of the most difficult things I have ever done, that will always be something I can look back on proudly. Faculty have remained supportive in helping to publish the results of my research even after I left Brockport. Becoming involved with people and organizations through my thesis helped me expand my professional circle and has led to other opportunities, including volunteering and writing. I now work as an Environmental Scientist with Tetra Tech in Buffalo, NY, handling environmental permitting and compliance for energy clients around the country. My job is a mix of field and office work, involving wetland delineations, habitat assessments, rare plant surveys, invasive species surveys, resource monitoring, report writing, and coordination with federal and state agencies. I love being able to spend my days outside and am grateful to the ESE department for all the valuable knowledge and skills that I apply every day.

Scott Ward – BS 2015, MS 2019

Since August of 2019, I have been working as a research assistant in the Plant Ecology Lab at Archbold Biological Station. Archbold is located in south-central Florida at the southern tip of the Lake Wales Ridge, a prominent geological feature with the largest remaining tracts of Florida Scrub in the world. As a consequence of stressful growing conditions, many scrub plants have evolved interesting adaptations to hot wet summers, “cooler” dry winters and frequent wildfire in a nutrient-poor habitat. Due to the high occurrence of globally rare plants in the scrub, the Plant Ecology Lab has for decades performed demographic research on various rare plant populations. At least once a year, we travel to certain populations where we check individual plants over time for annual survival rates, reproductive output, overall growth, and other vital rates. Although this work can be quite intense when summer temperatures often exceed heat indices of 100 degrees (Fahrenheit), these data provide us with crucial information regarding population viability and conservation statuses over extended periods of time. In fact, some species (e.g. *Eryngium cuneifolium*), have been studied for over three decades. In addition to this intensive demography work, we are also directly involved with conservation measures that protect the rarest scrub plants from extinction by performing introductions, augmentations, and other various out-plantings across local conservation areas. We even recently performed a temporary removal and re-release of an endemic ground lichen, *Cladonia perforata*, uniquely sensitive to fire in an otherwise pyrogenic ecosystem, in a scrub unit slated for prescribed burn (pictured). Of course, in my time away from demography analyses, I have been able to channel my inner-botanist through various floristic inventories in Central Florida and elsewhere, supplementing collections in our herbarium. There is not a day that goes by at work where I do not use some bit of knowledge or skill I acquired while at Brockport. So if you’re currently a student at Brockport, learn as much as possible! For those interested in post-baccalaureate internship opportunities at Archbold, visit https://www.archbold-station.org/html/research/internship/internship.html.

James Ianni – BS 2018

My name is James Ianni, I graduated from Brockport in December of 2018 with a B.S. in Environmental Science and Ecology: combined Aquatic and Terrestrial Track. Since then I have worked in Grand Canyon National Park as a Natural Resource Interpreter for the National Park Service, where I lived at the bottom of the Grand Canyon for 3 months. While down there my duty was to create educational programs and give interpretive hikes throughout the lower half of the canyon to overnight, backcountry visitors. In addition to being a backcountry educational resource, I also performed daily patrols through the canyon, assisting with preventive search and rescue measures of Grand Canyon National Park. Now, I'm currently the Lead Field Ecologist for the U.S. Forest Service, stationed in Chugach National Forest, Alaska. Chugach is the second largest National Forest in America, at 6.9 million acres. The Chugach includes extensive shorelines, glaciers, forests and rivers, much of which is untouched by roads or trails. It hosts numerous bird, mammal and marine species, including extensive shorebird habitat and a bald eagle population larger than the contiguous 48 states combined. My job is to lead all field operations related to our numerous plant ecology research projects within the district. We do ground-truthing of remote vegetation plots, to create a large-scale forest-wide vegetation map. We also do plant phenology research on arctic plant species, regarding our rapidly changing climate. The glaciers here are changing rapidly, and a few have been poster-child examples of the most rapidly altered, via anthropogenic climate change, glaciers in the world. My work has allowed me to conduct rare and sensitive plant surveys in these freshly unearthed chunks of land, where we have identified rare *Botrychium* (moonwort) species and more. In addition to fieldwork, I'm responsible for reporting our findings through scientific publications and community articles and outreach programs. The work is divine, and it’s the most challenging environment that I have ever worked and lived in. The landscape is unforgiving and seems to always be trying to force us, scientists, out in all ways possible. But that's where the growth happens. I'd love to thank Brockport for giving me the foundation to have this life, more importantly, a career that conforms to my life, and not a life that conforms to my career. I am forever indebted. Feel free to reach out for more or if you simply have questions, I'd be happy to have a conversation with any undergraduate about schooling or work interests. You may email me at james.ianni@usda.gov or jtiann2@gmail.com.

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Attention, Environmental Science & Ecology Alumni! We want to hear from you!

You can email your news to Crystal Nutty at cnutty@brockport.edu, or fill out the online form at https://forms.brockport.edu/view.php?id=3286246

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