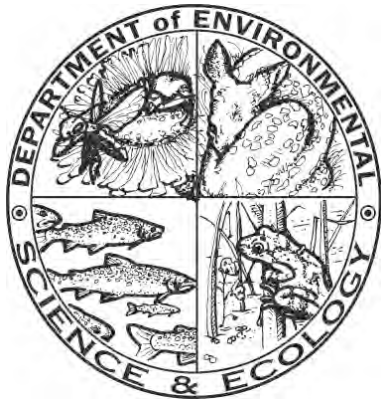


Spring 2021 Newsletter

Environmental Science & Ecology SUNY Brockport



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Message from the Chair

Greetings!

The COVID-19 pandemic has affected all of us in one way or another. You may have lost your job, you or your loved ones may have contracted the virus and experienced severe symptoms, you may have lost a relative or a friend, you may have been forced to home school your children, etc. Although it is not over yet, the rollout of the vaccination program and the new stimulus bill, recently signed by President Biden, bring us hope. To quote Thich Nhat Hanh, the Vietnamese Buddhist monk and peace activist, “Hope is important because it can make the present moment less difficult to bear. If we believe that tomorrow will be better, we can bear a hardship today”.

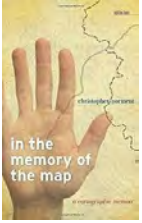
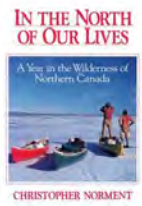
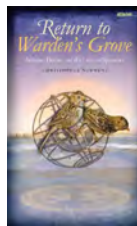
This year our Department was tasked to conduct its five-year Periodic Program Review (PPR) to assess the accomplishments and challenges of “OUR” undergraduate and graduate programs and reflect on our future. If I say “OUR”, it is because our students and alumni are a great part of our Department’s success. For example, many of our alumni have been successful at securing admission to graduate programs or positions as environmental professionals – hopefully due (at least in part) to the education that they received at Brockport, both in regular classes and through “high impact,” extracurricular activities. As highlighted in our PPR report, many of these high impact practices were supported by the ~\$2.5 million of external funding secured by our faculty and staff. These funds – and the hard work of our students – have helped us publish 66 articles in peer-reviewed media, including 22 authored or coauthored by undergraduate and graduate students and alumni. We (again all of us) have also presented more than 350 papers at scientific conferences. Although we are facing an enrollment decline, our future is bright and as the businessman Harvey Mackey said, “A great accomplishment shouldn’t be the end of the road, just the starting point for the next leap forward”.

To help our students and alumni further their careers, we have instituted a series of career panels. Following the success of our first virtual Alumni Career Panel, Rebecca Bernacki from The Nature Conservancy and Joshua Marchner from Environmental Design and Research (EDR) will be our hosts on Tuesday March 30 from 6 to 7 pm. Although this event is primarily for our current students, I hope that other alumni will be able to join us ([register here](#)) – it is always great to hear from you, and about your accomplishments.

This semester is marked by the retirement of Dr. Christopher Norment. Chris joined the College in 1993 as an Assistant Professor and provided 28 years of valuable service to our Department as a teacher and an active scholar. He received the SUNY Chancellor’s Award for Excellence in Teaching in 1998 and the SUNY Chancellor’s Award for Excellence in Scholarship/Creative Activity in 2017. Chris exemplifies hard work, commitment, and dedication to students. He is beloved by our students. If you didn’t have the opportunity yet, I recommend you dive in one of his books over the summer. We are definitely sad to see him go, but we wish him all the best in his next adventures!

In closing, I want to thank those alumni and friends who have made donations to our Department, which have helped support the research and other activities of our students and faculty.

Jacques



Inside Dr. Altenritter's Lab

The Altenritter Lab is gearing up for a busy spring semester with research plans that involve collecting yellow perch, otolith (i.e., ear-stone) microchemistry, and



A yellow perch otolith (ear stone) that Kylee sectioned and polished for the purpose of aging

tracking lake sturgeon movements. Graduate student Kylee Wilson is making significant progress on her thesis research aimed at describing movement behaviors in yellow perch between coastal wetlands and nearshore Lake Ontario. Kylee was awarded \$1,000 through a SUNY Brockport Distinguished Professor Grant, which helped fund the analysis of stable isotopes from Yellow Perch and macroinvertebrates collected in her study sites. She also recently presented her research at the virtual meeting of the NY Chapter American Fisheries Society (held February 24-27). In Spring 2021, Kylee will be sampling for Yellow Perch in coastal wetland habitats and measuring trace elements in perch otoliths to describe movement patterns. Graduate student Kyle Morton has begun tracking movements of juvenile Lake Sturgeon in the Genesee River and Lake Ontario. In cooperation with biologists at the US Fish and Wildlife Service and US Geological Survey, Kyle has his hands full keeping tabs on 100 lake sturgeon carrying acoustic transmitters! His work aims to improve estimates of juvenile survival by accounting for sturgeon that leave the



Kyle with a juvenile lake sturgeon sampled on the lower Genesee River in Fall 2020

Genesee River. Kyle also presented his work at the virtual meeting of the NY Chapter American Fisheries Society. This spring, Kyle will continue to track lake sturgeon movements and deploy instrumentation to monitor dissolved oxygen concentrations in the Genesee River as a potential factor limiting movements.

Inside Dr. Schultz's Lab

This past fall, Wetland Ecology students attended class in person (but masked and socially distanced) to learn about the fascinating world of marshes, swamps, and bogs. Students have continued to be busy with research while following COVID-19 protocols. Graduate student Sarah Kirkpatrick completed her first season of cattail treatments in Cranberry Pond this fall (peatland restoration) and presented her research at the Society of Wetland Scientists Virtual Meeting in December 2020 and the State of Lake Ontario (SOLO) Meeting in March 2021. Courtney Scoles, graduate student, and Dr. Schultz co-authored a plenary presentation for the Save the River Winter Environmental Conference in January 2021 and presented at SOLO on the wetland restoration at Braddock Bay. Graduate student Chris Mitchell is starting his second field season this spring investigating waterfowl use of restored open water in Braddock Bay Wildlife Management Area apprenticed by ENV undergraduate Jarod Ruffle. Madelynn Edwards, a graduate student, has started her microcosm experiment investigating

filamentous bacterial growth on stream macroinvertebrates as an indicator of nutrient enrichment. This spring, ENV undergraduate Marios Argitis is joining the lab as a work study student to assist with data entry and field work. Welcome, Marios! As we head into the summer 2021 field season, graduate student Kevin Killigrew will be working on his thesis work and the Great Lakes Coastal Wetland Monitoring Program. If you are interested in wetland research –please contact Dr. Schultz (rschultz@brockport.edu).



Wetland Ecology students at Kennedy Bog at Mendon Ponds Park south of Rochester, NY on 11/3/20



Graduate student Sarah Kirkpatrick completing cattail treatment in one of her experimental blocks at the Cranberry Pond fen



Trail cam picture of three drake wood ducks from Chris Mitchell's Master's thesis research at Braddock Bay Wildlife Management Area

INSIDE DR. AMATANGELO'S LAB

Although life is not quite 'business as usual', research projects and data analysis have continued safely on campus and in the field. Two students – BS/MS student Andrew Leonardi and MS student Erica Mackey – are analyzing their data and writing up their theses. Andrew has accepted a summer position at Trillium Invasive Species Management Inc. Graduate student Megan Aubertine has initiated two large plant growth experiments in the campus greenhouse. In the first, she is investigating whether her focus species, slender false-brome (*Brachypodium sylvaticum*), has variable effects on three different species it co-occurs with in the wild. In the second, she has slender false-brome seed sources from multiple locations growing under different environmental conditions. Our research on European dewberry (*Rubus caesius*), continues as graduate student Alexis Reitler studies the survey and plant control data she collected last summer. She is developing her thesis proposal and hopes to integrate ecology and molecular biology for her project. Alexis will also be taking over our control and survey efforts for mile-a-minute (*Persicaria perfoliata*). Dr. Amatangelo is on sabbatical and is not teaching Spring of 2021. Although she had originally planned on working from sunny Florida, instead she has been spending time with her family in Michigan. She is focusing on writing manuscripts with student co-authors and improving her skills in ArcGIS.

Inside Dr. Chislock's Lab

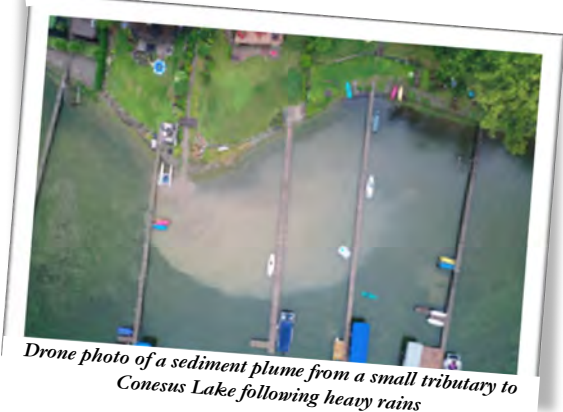
Michael Chislock's Limnology Lab is excited to welcome three new undergraduate students: Jake Bensley, Nicole Thorpe, and Sky Symonds. Jake will be studying factors mediating harmful algal blooms, using Glenwood Lake Reservoir in Medina, NY as a model system. Nicole will be working in the laboratory as a chemical analyst, in addition to assisting with a variety of projects in the field. Throughout spring semester 2021, Sky Symonds is playing a major role in taking care of the lab's plankton culture collection during the pandemic.

We have been collecting and analyzing water samples throughout the winter from Finger Lake and Lake Ontario tributaries to support implementation of agricultural best management practices and stream bank erosion control efforts. Small tributaries play a major role in affecting nearshore processes of these lake ecosystems as a result of plumes of sediments and associated nutrients, especially during peak flow conditions. Graduate student Dan Beers is exploring these processes for his thesis research.

Graduate student Tammy Bleier is currently completing a Sea Grant Knauss Fellowship. This fellowship matches highly qualified graduate students with hosts in the legislative and executive branches of government for a one-year paid fellowship. Graduate student Paige Buchholz has completed the final experiment of her MS



Summer is almost here! Michael Chislock (left) and graduate student Dan Beers (right) during a fall lake sampling trip



Drone photo of a sediment plume from a small tributary to Conesus Lake following heavy rains

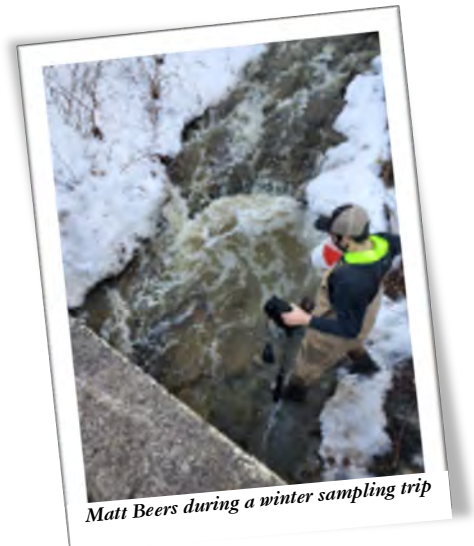
research, which has examined polycyclic aromatic hydrocarbon (PAH) sorption to microplastics, and the potential role of biofilms (e.g., *Pseudomonas* spp.) in mediating this process.



Sky Symonds collection macroinvertebrates from Sandy Creek



Daphnia pulicaria from Loon Lake



Matt Beers during a winter sampling trip

Inside Andie Graham's Lab

Students working with Andie Graham have been busy preparing for Scholars Day. Undergraduate students Luka Koziol, Abby Lysiak, Zach Morin, and Owen Bean will present the results of their slender false brome (*Brachypodium sylvaticum*) research conducted last summer in Bergen Swamp and surrounding areas. Luka, Abby, Zach, and Owen will rejoin Andie in Bergen Swamp again this summer to continue working on *B. sylvaticum* research and removal efforts. This work is funded by the NYS Department of Environmental Conservation.

In January, Andie received funding from the Great Lakes Research Consortium to study the impacts of the invasive emerald ash borer (*Agrilus planipennis*) and hemlock woolly adelgid (*Adelges tsugae*) on wetland hydrology and water chemistry in Genesee County. Dr. Michael Chislock, Dr. Paul

Richards (Earth Science), Dr. Courtney McDaniel (Piedmont College), and Brad Mudrzynski (Genesee County Soil and Water Conservation District) are partners on the project, and undergraduate student Grace Dowdall will assist with data collection.



Skunk cabbage (*Symplocarpus foetidus*) growing up out of the ice in a floodplain wetland adjacent Black Creek in Genesee County. Photo taken March 9, 2021



Andie and Paul visited the study site in March to begin taking measurements on percent cover, leaf area index, gap statistics, and solar energy fluxes within the canopy using a digital camera in conjunction with the WinSCANOPY system

Inside Dr. Rinchar's Lab

Research projects continued in Dr. Rinchar's lab. Aaron Heisey has been busy completing all fatty acid and thiamine analyses related to his Master's thesis, whereas Jarrod Ludwig has been pursuing his research on deepwater sculpin reproduction. Both presented their research at the virtual NY Chapter of the American Fisheries Society meeting and Aaron received the best oral presentation award! They also have been busy assisting with thiamine analyses in Chinook salmon and steelhead trout eggs collected in California's Central Valley Hatcheries as well as fatty acid analyses of native and exotics mollusks from the Kalamazoo watershed. This semester, Desmond Barber and Camden Stewart joined the lab to help with fish maintenance and sample processing. Finally, the lab also received a new grant to continue monitoring thiamine concentration in eggs of Atlantic salmon from Lake Champlain.



Graduate student Aaron Heisey (A) and undergraduate students Jarrod Ludwig (B), Desmond Barber (C) and Camden Stewart (D)... and yes, they like fish!

Coastal Wetlands Monitoring Program

The U.S. EPA-funded Great Lakes Coastal Wetlands Monitoring Program, led by Dr. Kathryn Amatangelo, is finishing its 10th year in Spring 2021. While most of the field work for this project happens during the summer, there is a lot of behind-the-scenes work in the winter. Graduate student Madelynn Edwards and Brockport alumnus Kate Barrett (MS '15) worked hard identifying, sorting, and preserving aquatic macroinvertebrates collected at study sites this summer. Combined BS/MS student Ben Amberger finished laboratory water quality analyses and data entry under the direction of Dr. Michael Chislock. Lastly, Dr. Katie Amatangelo, Dr. Matthew Altenritter, Dr. Rachel Schultz, Dr. Michael Chislock, Dr. Douglas Wilcox, crew chief Gregory Lawrence, and graduate students Kylee Wilson, Ben Amberger, and Kevin Killigrew attended the virtual annual program meeting mid-February. The crew is eager for nice weather and 2021 field work in the upcoming the eleventh season of the program.

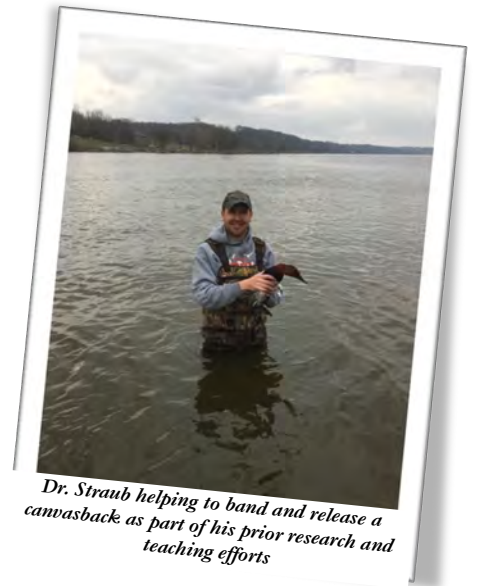
Dr. Straub's Teaching & Research

Dr. Straub serves the department as an adjunct lecturer and holds a research appointment through the SUNY Research Foundation.

In spring of 2020 Dr. Straub began working with a group of students and Drs. Norment and Rinchar in an effort toward understanding if thiamine limitations are influencing Great Lakes waterbirds. He worked with Jess Detoy (MS Students) on an independent study that evaluated diet and thiamine in a few diving duck species collected on the Niagara River in western, NY. Preliminary results suggested these birds exhibited reduced thiamine levels. Dr. Straub has secured additional funding from the Great Lakes Research Consortium to expand the spatial and temporal extent of this work and will partner with NYS DEC to collect additional samples in fall and winter of 2021. Dr. Straub has also received funding from the Sea Duck Joint Venture (US Fish and Wildlife) to develop a monitoring network for non-breeding sea ducks on the Great Lakes. He published peer-reviewed papers in *Northeastern Naturalist*, *Wetlands* and *Scholarship and Practice of Undergraduate Research* in 2020.



Dr. Straub helping to band and release a canvasback as part of his prior research and teaching efforts



Dr. Straub helping to band and release a canvasback as part of his prior research and teaching efforts

He has taught Ecology (Bio/ENV 303) lectures and labs and was invited to guest-lecture in Wetlands, Ornithology and Great Lakes Issues.

Inside Dr. Norment's Lab

It's winter right now, so everyone associated with Lennon 112A has been living a life of quiet desperation, waiting for spring to arrive. (Okay, just kidding about the quiet desperation part, although folks are ready for spring!) 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. Dawn Newman has been pursuing her study on the relationship between chytrid fungus and the skin microflora on the skin of northern leopard frogs. Jess DeToy finished her second field season of research on woodland salamanders and is now working on writing her thesis. Jess was helped by undergrads Christa Mickol and Emily Vanskiver. Emily finished an independent

study project on the relationship between soil moisture and salamander habitat use, while Christa completed a neat video of the project (and the value of the Environmental Science program at Brockport!), which can be watched [here](#). Among other undergraduates, Jen Beideck, Noah DiLorenzo, Jake Bensley, Eric Olsen, and Allison Morrow have started an independent study project looking at the peregrine falcons that have taken up residence on the SUNY Brockport campus. In the meantime, Dr. Norment continues to clean out his professional library, and think about life post-SUNY Brockport.



A mouse from the Brockport Woodlot



From left to right: Noah DiLorenzo, Eric Olsen, Jen Beideck, Jake Bensley and Allison Morrow

Jacob Kearney, BS 2020

My name is Jacob Kearney and I graduated in May 2020. I was fortunate enough to still be a part of the Great Lakes Coastal Wetland Monitoring Program despite it being relatively early in the Covid-era. Once that ended, I started working with SUNY Brockport and Monroe County Soil and Water Conservation District to survey and, if found, sample for the recently discovered invasive Japanese Angelica tree in Mendon Ponds Park (shoutout to Dr. Amatangelo for asking me to be a part of the project). We found several other populations of the tree at Mendon Ponds, and one population at Durand Eastman Park. We sampled these populations, gathering data on infestation sizes, DBH, reproductive status, and more. I collected specimens from the

populations for our herbarium and even sent some to the New York State Museum in Albany! Working with the Parks Department, we treated the populations by cutting large trees and applying foliar herbicide to smaller trees and individuals. Since that project ended, I have stayed with The District as a conservation intern, helping with site visits, report writing, and their annual tree and shrub program, in which we broke a record this year with over 370 pre-sale orders totaling over 10,000 trees! My experiences at Brockport, whether independent research projects or in-depth labs, helped prepare me for my current position and gave me opportunities I will never forget. I'm excited for spring, which means I will be able to do more site visits and get out of the office more, and come April I will be able to see our tree and shrub distribution through!



Hayley Brown, BS 2020

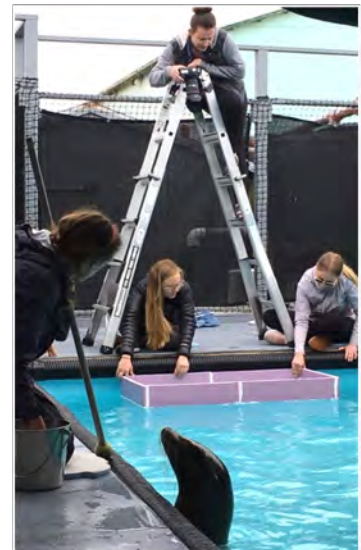
I transferred into the Department of Environmental Science and Ecology in the Fall of 2018 and completed my B.S. in the aquatic ecology/biology track in December of 2020. Since then, I have been hired on as a Fisheries Field Technician with Cornell University as part of the DEC's Hudson River Fisheries Unit, performing river herring stock assessments on the Hudson River in New Paltz, NY. The field and lab experience offered at Brockport exceeds expectations and immensely prepares for entering the

fisheries field. A large portion of this job includes skills gained at Brockport including using gill nets and haul seines, otolith extraction and preparation, fish identification, and comfortability of working aboard a boat. Above all, each professor at Brockport plays a tremendous role in students' lives by providing insight, offering advice, or being helpful in college program or job searches.

Arial Leahy, BS 2017

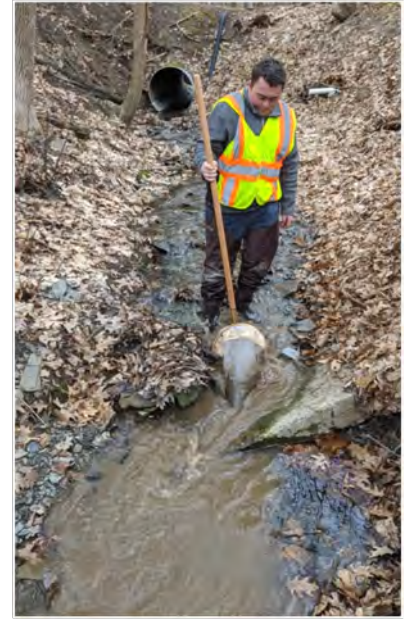
My name is Ari and I graduated in 2017 with a B.S. on the aquatic side of things. I took a gap year to find the right M.S. program and then moved to Pennsylvania to attend West Chester University in the fall of 2018. My Master's research was funded by the Office of Naval Research and I completed my project on California sea lion aquatic locomotor biomechanics, with focus on the comparative anatomy and use of the hindflippers during maneuvering. During my time at West Chester, I was lucky enough to have had the opportunity to travel for both research and for national/international conferences. The most impactful presenting and networking opportunities I experienced were with the Society of Integrative and Comparative Biology (SICB), an international science society that hosts an annual conference. I

presented at SICB twice, pre-COVID in 2020 and then virtually in 2021, where I was placed in consideration for a best student presentation award. I have since graduated with my M.S in biology, have my first two journal articles under review, and I have just recently been admitted to Baylor University for a Ph.D. program in biology. At Baylor, I will be combining my experience in biomechanics, anatomy, morphology, ecology, and physiology for research regarding the ecophysiology of Antarctic ice seals. I have grown immensely as a scientist in the past few years, but I fully recognize I would not be where I am today without the Environmental Science Department at Brockport. Keep working hard, form your base, trust your professors, and take every opportunity you are presented with. You will be amazed where Brockport may lead you!



Dan Beers, Grad Student

The overall goal of my work is to compare water quality and aquatic invertebrate communities of agricultural BMP streams to agricultural non-BMP streams and reference streams in the Conesus Lake watershed. Water samples are collected during baseflow conditions and during storm events. Data collected will also be compared to prior work conducted in the watershed to determine if water quality in the streams has changed over time. This summer I am also going to sample sediments in Conesus Lake at stream mouths and their associated macrophyte beds to determine if there are differences in phosphorus concentrations in the sediments between a subset of my agricultural streams and my reference stream.



Aaron Heisey, Grad Student

My work focuses on understanding if a diet rich in lipids causes thiamine deficiency in lake trout. Thiamine (Vitamin B₁) acts in various metabolic pathways making it essential to sustain life. In lake trout, thiamine deficiency causes a recruitment bottleneck, impeding the rehabilitation of a wild population in Lake Ontario. This research is twofold. First, we used a controlled feeding experiment to determine

whether dietary lipid amount influences thiamine. Second, we examined lake trout collected from 2019 and 2020 from across Lake Ontario. With this, we measured egg thiamine concentrations and used fatty acid signatures to infer diet. While this work is still ongoing, we observed some interesting trends in both the laboratory experiment and in lake trout from Lake Ontario.

Sarah Kirkpatrick, Grad Student

We are researching how various restoration techniques may improve the floristic quality of a fen on Lake Ontario. Peatlands are undergoing ecosystem change by shrub encroachment and *Typha x glauca* invasion. Several techniques were implemented to

understand their mechanisms of success. Vegetation communities and porewater nutrient concentrations were sampled to assess the effect of these restoration techniques on nutrient availability and vegetation community metrics. The results of this study can be applied to management decisions for peatlands degraded by *Typha x glauca* and shrub encroachment.



Christopher Mitchell, Grad Student

My research evaluates the effect that dredging various size and shape ponds within a cattail marsh has on the abundance, diversity, and composition of spring-migrating waterfowl, vegetation, and aquatic invertebrates within Braddock Bay WMA. Waterfowl use of varying habitat types will be assessed using a combination of point-count surveys and trail camera surveys. My research will be useful in determining the quality and importance of Braddock Bay WMA as a spring-migrating waterfowl stopover as well as improving the wetland restoration technique of dredging ponds and channels within cattail marshes that have limited open-water.

Awards

2020-2021 Department Awards

Department Scholar: Aubrey Franks
Kenneth Damann Award: Ben Amberger

2019-2020 O'Reilly Scholarship

Camden Stewart Kamea Thomas

SUNY Brockport Distinguished Professor Graduate Student Award

Kevin Killigrew Kyle Morton
Kylee Wilson Alexis Reitler

Best Oral Presentation Award from NY Chapter of the American Fisheries Society

Aaron Heisey

2021 NY American Fisheries Society Klumb Spinder Travel Award

Aaron Heisey Jarrod Ludwig

Great Lakes Research Consortium Student Grants to Support Research

Christopher Mitchell Madelynn Edwards

John A. Knauss Marine Policy Fellowship

Tammy Bleier

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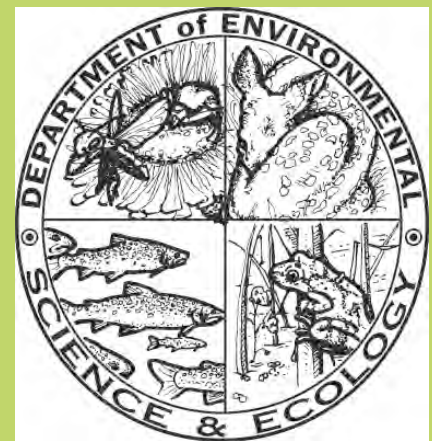


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