

Emily Whitaker

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EDUCATION

University of Wisconsin-Madison, Madison, WI December 2020

Master of Science: Freshwater and Marine Sciences

Thesis: “Manipulating Snow Cover Throughout a Winter to Assess Shifts in Biotic and Abiotic Factors on a Northern Temperate Dystrophic Lake”, Advisor: Dr. Hilary Dugan

Fellowships, Grants, and Awards

Northeast Climate Adaptation Science Center Fellow	Spring 2019- Winter 2020
Anna Grant Birge Award (\$1,695)	Spring 2020
Kenneth Malueg Scholarship Award (\$1,000)	Spring 2019
Anna Grant Birge Award (\$1,500)	Spring 2019
John Jefferson Davis Fund Travel Grant (\$800)	Spring 2019

Mentees:

Sydney Widell, independent project coordinator	2020
Sam Ahler	2019- 2020
Alaina Eckert, independent project coordinator	2018- 2019

Teaching Appointments

Teaching Assistant (of record): Biology 152 “Introduction to Biology”	Fall 2020
Teaching Assistant (of record): Zoology 316 “Limnology”	Fall 2018, Head TA Fall 2019

Dickinson College, Carlisle, PA May 2017

Bachelor of Science: Physics, Certificate: Social Innovation and Entrepreneurship

Honors:

Rush Citizen of the Year	Spring 2017
Recognized for active citizenship, leadership, being a leader and a role model, enacting positive changes, positively contributing to the community, peer accountability, and self-governance	
1902 Award	Spring 2016
Awarded to a Junior student who has contributed the most to the good of the college	
Poster Honors	Spring 2016

PREVIOUS EMPLOYMENT EXPERIENCE

Lab Manager and Researcher, Contextual Dynamics Lab, Dartmouth College July 2017- June 2018

- Directed research in an adaptive memory experiment
- Updated lab code (Python2 to Python3)
- Wrote and revised grants, lab papers, and IRB protocols
- Trained, coordinated, and mentored 14 undergraduate research assistants

Cabin Counselor, Camp Speers-Eljabar, Dingmans Ferry, PA Summers 2012-2014

PEER-REVIEWED PAPERS

Sharma, S., Meyer, M.F., Culpepper, J., Yang, X., Hampton, S., [...], **Whitaker, E.C.**, et al. (2020), *Integrating perspectives to understand lake ice dynamics in a changing world*. Journal of Geophysical Research-Biogeosciences. doi: 10.1029/2020JG005799

Reed, D.E, Desai, A.R., **Whitaker, E.C.**, and Nuckles, H. (2019), *Evaluation of low-cost, automated lake ice thickness measurements*. Atmospheric and Oceanic Technology. doi : 10.1175/JTECH-D-18-0214.1

PEER-REVIEWED PAPERS (CONT.)

Whitaker, E. C., Reed, D. E., and Desai, A. R. (2016), *Lake ice measurements from soil water content reflectometer sensors*. *Limnol. Oceanogr. Methods*, 14: 224–230.
doi:10.1002/lom3.10083

SKILLS

- **Computer:** Python, Jupyter Notebooks, GitHub, Docker, Overleaf, R, Vernier software, Campbell sensors, HOBOWare, LabVIEW, Environmental Chambers, ExpressScribe
- **Licenses:** Small boat, ATV, and Snowmobile (certified by Wisconsin DNR)
- **Other:** Research and development, dry and wet lab experience, sensor development, PID, Arduino, soldering, qualitative research

RESEARCH EXPERIENCE

Thesis: *Where do contaminants accumulate on gravity-capillary waves?* Fall 2016-Spring 2017

Dickinson College, Carlisle, PA, Advisor: Dr. Stephen Strickland

- Examined size discrepancy of where particles fall on induced Faraday waves using Matlab imaging
- Created nanoparticles and small-scale plasma chamber

Thesis: *Exploring the Feasibility of a Colocation Project in Carlisle, PA*

Spring 2017

Dickinson College, Carlisle, PA, Advisor: Dr. Helen Takacs

- Created an interview protocol used to interview service providers, clients, and local leaders
- Synthesized data to better understand the need of colocation in the region

Anthropogenic Beach Manipulation: The Impact of Groins on Sand Distribution

Fall 2016

Dickinson College, Carlisle, PA, Advisor: Dr. Jorden Hayes

- Developed and executed experiment including field work and data collection
- Performed wet-lab data analysis using a Laser Scattering Particle Size and Distribution Analyzer

Interfacing a Solar Air Heater with a Methane Producing Biogas Digester

Spring-Fall 2016

Dickinson College, Carlisle, PA, Advisors: Dr. Hans Pfister and Mr. Mathew Steiman

- Designed and implemented a solar air heater to sustain a biogas digester during winter months
- Collaborated with Bucknell University to measure biogas quality and system efficiency
- Awarded \$12,000 for supplies and cost of living for the summer

National Science Foundation REU LTER *Fellow*

Summer 2015

University of Wisconsin-Madison, Madison, WI, Advisors: Dr. Ankur Desai and Dr. David Reed

- Synthesized data from multiple lakes in multiple seasons and years to create a dynamic model of how heat moves through a lake and how lakes freeze and thaw
- Determined that CS616 soil water content sensors could measure ice thickness

PRESENTATIONS

- **Whitaker, E.,** P. Schramm, N. Lottig, H. Dugan, (2020). Snow manipulation on under-ice ecosystem dynamics in a northern Wisconsin bog lake. ASLO-SFS Joint Conference (cancelled). Madison, WI.
- **Whitaker, E.** and A. Gorsky, (2020). The Role of Decreased Snow Cover in Under-Ice Production in Bogs in Vilas County, WI. Wisconsin Lakes (cancelled). Stevens-Point, WI.
- Dugan, H., **E. Whitaker**, Q. Gavin, and E. Stanley (2019). Ice and Light: A tale of two winters on Lake Mendota. AGU Chapman Conference on Winter Limnology. Polson, MT.

PRESENTATIONS (CONT.)

- **Whitaker, E.**, T. Shannon, H. Dugan, (2019). Phytoplankton Dynamics and Primary Production Under Lake Ice. AGU Chapman Conference on Winter Limnology. Polson, MT.
- **Whitaker, E.**, P. Schramm, N. Lottig, H. Dugan, (2019). Winter limnology in the Northwoods. Science in the Northwoods. Woodruff, WI.
- * **Whitaker, E.**, (2019). Community Dynamics Under Lake Ice, Integrative Biology Graduate Organization. Madison, WI.
- **Whitaker, E.**, T. Shannon, H. Dugan, (2019). The Relationship between High Chlorophyll Concentration and Phytoplankton Biomass Under Lake Ice. Society for Freshwater Sciences. Salt Lake City, UT.
- * **Whitaker, E.**, T. Shannon, H. Dugan, (2019). Productivity Under Ice in Northern Temperate Lakes, NTL LTER Science Meeting. Madison, WI.
- * **Whitaker, E.**, (2019). SnowMan(ipulaton), Northeast Climate Adaptation Science Center Meeting. Virtual.
- **Whitaker, E.**, A. Ratajczak, S. Strickland, (2017). Where do Different Sized Particles Accumulate on Gravity-Capillary Waves, Dickinson College Physics Colloquium. Carlisle, PA.
- **Whitaker, E.**, J. Goodwin, M. Singer, J. Band (2017) Co-location opportunities in Carlisle, PA. Carlisle, PA.
- **Whitaker, E.**, A. Ratajczak, S. Strickland, (2016). Exploring the Effects of Frequency on the Dynamics of Gravity-Capillary Waves, Dickinson College Physics Colloquium. Carlisle, PA.
- **Whitaker E.**, S. Jones, H. Pfister, M. Steiman, (2016). Solar air heater enhanced biogas digester, 31st Annual Science Student Research Symposium. Carlisle, PA.
- **Whitaker E.**, S. Jones, H. Pfister, M. Steiman, (2016). Small Scale Biogas for Energy Sustainability and Education, Association for the Advancement of Sustainability in Higher Education. Baltimore, MD.
- **Whitaker, E.**, D. Reed, A. Desai, (2015) Soil Water Content Sensors as a Method of Measuring Lake Ice Depth, American Geophysical Union Fall Meeting. San Francisco, CA.
- **Whitaker, E.**, D. Reed, (2015) Kinetic Energy Study of Wisconsin Lake Ecosystems. Dickinson College Physics Colloquium. Carlisle, PA.

* Invited talk

SELECTED COMMITTEE WORK

<i>Member, Trout Lake Use Committee</i> , UW-Madison Center for Limnology	2018-2020
<i>Member, Diversity and Inclusion Committee</i> , UW-Madison Center for Limnology	2019-2020
<i>Co-Chair, Limnology Seminar Committee</i> , UW-Madison Center for Limnology	2019-2020
<i>Co-Chair, Diversity and Inclusion Committee</i> , UW-Madison Center for Limnology	Fall 2020
<i>Board Member, Dickinson Sustainable Investment Group</i> , Dickinson College	2016-2017
<i>Interviewer, Committee to find New College President</i> , Dickinson College	2016
<i>Interviewer, Committee to find Director of New Student Programs</i> , Dickinson College	2016
<i>Interviewer, Committee to find Director of Experiential and Outdoor Education</i> , Dickinson College	2016
<i>Panelist, Student Hearing Panelist</i> , Dickinson College	2014-2017
<i>Member, Devil's Advocates Student Philanthropy and Alumni Engagement Group</i> , Dickinson College	2015-2017

OUTREACH AND INVOLVEMENT

- Frozen Assets 2019& 2020, Madison, WI
- *Badger Herald* Interview 2020, Madison, WI
- Schoolyard LTER 2020, Boulder Junction, WI
- Hasler Laboratory Annual Open House 2019, Madison, WI
- UW-Madison CIMMS Summer Camp 2019, Madison, WI
- Wisconsin Center for Academically Talented Youth 2019, Madison, WI
- Yahara Watershed Academy 2019, Madison, WI
- Actual Living Scientist, 2019, Malcolm High School Madison, WI
- Alpha Phi Omega National Service Fraternity, 2014-2017, Carlisle, PA
- Mentor, New Student Programs, 2015-2017, Dickinson College, Carlisle, PA