

# Emily Whitaker

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## EDUCATION

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**University of Wisconsin-Madison**, Madison, WI August 2018- 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	2019- 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

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**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

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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.)

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**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

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

## RESEARCH EXPERIENCE

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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

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- **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.)

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- **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, 31<sup>st</sup> 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

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

## OUTREACH AND INVOLVEMENT

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- 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