# Emily Whitaker

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## EDUCATION

**University of Wisconsin-Madison**, Madison, WI — August 2018- Present
Master of Science: Freshwater and Marine Sciences

Advisor: Dr. Hilary Dugan

Exploring productivity under lake ice in response to changing climate
- Northeast Climate Adaptation Science Center Fellow — Spring 2019-Present
- Teaching Assistant: Biology 152 — Fall 2020
- Teaching Assistant (of record): Zoology 316 "Limnology" — Fall 2018, Head TA Fall 2019

Awards:
- 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 — Winter 2020-Spring 2020
- Sam Ahler — Winter 2019-Present
- Alaina Eckert, independent project coordinator — Winter 2019- Spring 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
- Awarded: $11,000 + in applied grants

## 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

**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**: Vernier software, Campbell sensors, HOBOware, LabVIEW, Environmental Chambers, ExpressScribe, Python, Jupyter Notebooks, GitHub, Docker, Overleaf, R

- **Licenses**: small boat, ATV, and snowmobile
- **Other**: Research and development, dry and wet lab experience, sensor development, PID, Arduino, soldering, qualitative research

## RESEARCH EXPERIENCE

Thesis: *Where do contaminates 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

NSF 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

* Indicates invited talk

- **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, Wisconsin.
- **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, Wisconsin.
- 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, Montana.
- **Whitaker, E**, T Shannon, H Dugan, (2019). Phytoplankton Dynamics and Primary Production Under Lake Ice. AGU Chapman Conference on Winter Limnology. Polson, Montana
- **Whitaker, E**., P Schramm, N Lottig, H Dugan, (2019). Winter limnology in the Northwoods. Science in the Northwoods. Woodruff, Wisconsin
- *** Whitaker, E** (2019). Community Dynamics Under Lake Ice, Integrative Biology Graduate Organization. Madison, Wisconsin

- **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, Utah.
- * **Whitaker, E,** T Shannon, H Dugan, (2019). Productivity Under Ice in Northern Temperate Lakes, NTL LTER Science Meeting. Madison, Wisconsin.
- * **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, Pennsylvania
- **Whitaker, E**, J Goodwin, M Singer, J Band (2017) Co-location opportunities in Carlisle, PA. Carlisle, Pennsylvania
- **Whitaker, E**, A Ratajczak, S Strickland, (2016). Exploring the Effects of Frequency on the Dynamics of Gravity-Capillary Waves, Dickinson College Physics Colloquium. Carlisle, Pennsylvania
- **Whitaker E,** S Jones, H Pfister, M Steiman, (2016). Solar air heater enhanced biogas digester, 31st Annual Science Student Research Symposium. Carlisle, Pennsylvania
- **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, Maryland
- **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, California
- **Whitaker, E**, D Reed, (2015) Kinetic Energy Study of Wisconsin Lake Ecosystems. Dickinson College Physics Colloquium. Carlisle, Pennsylvania

## SELECTED COMMITTEE WORK

*Member,* **Trout Lake use Committee,** UW-Madison Center for Limnology 2018-Present
Co-Chair, **Diversity and Inclusion Committee**, UW-Madison Center for Limnology 2020-Present
*Member*, **Diversity and Inclusion Committee**, UW-Madison Center for Limnology 2019-2020
*Co-Chair*, **Limnology Seminar Committee**, UW-Madison Center for Limnology 2019-2020
*Board Member* **Dickinson Sustainable Investment Group** 2016-2017

- Met with the Board of Trustees to discuss the college's investment portfolio, provided input, and shared policies, practices and goals to diversify the portfolio and expand environmentally-oriented holdings

*Interviewer,* **Committee to find New College President** 2016
*Interviewer,* **Committee to find Director of New Student Programs** 2016
*Interviewer*, **Committee to find Director of Experiential and Outdoor Education** 2016
*Panelist* **Student Hearing Panelist** 2014-2017
*Member* **Devil's Advocates Student Philanthropy and Alumni Engagement Group** 2015-2017

- Provided a student voice at meetings and dinners with the Board of Trustees and the Alumni Council

## 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

## OUTREACH AND INVOLVEMENT

- Frozen Assets 2019, Madison, 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
- Frozen Assets 2020, Madison, WI
- Badger Herald Interview 2020, Madison, WI
- Schoolyard LTER 2020, Boulder Junction, WI
- Alpha Phi Omega National Service Fraternity, 2015-2017, Carlisle, PA
- Mentor, New Student Programs, 2015-2017, Carlisle, PA