Emily Whitaker

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EDUCATION

University of Wisconsin-Madison, Madison, Wisconsin — August 2018- Present

Master's of Science: Freshwater and Marine Sciences

Advisor: Dr. Hilary Dugan

- Exploring productivity under lake ice in response to changing climate and light conditions
- Northeast Climate Adaptation Science Center Fellow — Spring 2019-Present
- Teaching Assistant: Zoology 316, Limnology — Fall 2018, Head TA Fall 2019

Awards:

- 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:

- Sam Ahler — Winter 2019-
- Alaina Eckert, independent project coordinator — Winter 2019- Spring 2019

Dickinson College, Carlisle, PA — May 2017

Bachelor of Sciences: 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: *Increasing the Potential of a Biogas Digester through the use of a Solar Air Heater* — 2016

PEER-REVIEWED PAPERS

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

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 undergraduate research assistants

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

SKILLS

- **Computer**: Vernier software, Campbell sensors, HOBOware, LabVIEW, Environmental Chambers, ExpressScribe, Python, Jupyter Notebooks, GitHub, Docker, Overleaf, R
- **Certifications**: Small boat operation, Snowmobile, ATV
- **Other**: Research and development, Field work, Sensor development, PID, Arduino, Soldering

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 collected data and historical 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

Relevant Conferences Attended

- AGU Chapman Conference (Winter Limnology in a Changing World) 2019, poster: *Phytoplankton Dynamics and Primary Production Under Lake Ice*
- Science in the Northwoods 2019, talk: *Winter Limnology in the Northwoods*
- Society for Freshwater Sciences 2019, poster: High Chlorophyll Concentrations & Phytoplankton Composition Under Lake Ice
- Association for the Advancement of Sustainability in Higher Education 2016, talk: *Small Scale Biogas for Energy Sustainability and Education*
- American Geophysical Union's Fall 2015 Meeting, poster: *Soil Water Content Sensors as a Method of Measuring Lake Ice Depth*

Invited Talks

- Integrative Biology Graduate Student Organization, *Community Dynamics Under Lake Ice*
- NTL LTER Science Meeting, *Productivity Under Ice in Northern Temperate Lakes*
- NCAS Fellowship, *SnowMan(ipulaton)*

Relevant Dickinson College Physics Colloquium Presentations

- *Where do Different Sized Particles Accumulate on Gravity-Capillary Waves*
- *Exploring the Effects of Frequency on the Dynamics of Gravity-Capillary Waves*
- *A Holistic Look at a Lake*