CHRISTINE M. KITCHENS CURRICULUM VITAE

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RESEARCH INTERESTS

I am an experienced aquatic ecology technician who specializes in freshwater hydrogeochemistry and harmful algal bloom ecology. My research interests include understanding seasonal patterns in algal bloom development, mechanistic processes underlying nutrient cycling in freshwater environments, and factors impacting trace metal release from sediment.

EDUCATION

- 2017 **MS**, Natural Resources and Environment: Conservation Ecology, specializing in aquatics, University of Michigan, completed thesis titled "Establishing Spatial And Temporal Patterns In Microcystis Sediment Seed Stock Viability And Their Relationship To Subsequent Bloom Development In Western Lake Erie"
- 2014 **BS**, Environmental Sciences, North Carolina State University Academic Honors: *Magna Cum Laude*, Completed the University Honors Program

RESEARCH EXPERIENCE

- 2018- Cooperative Institute for Great Lakes Research, University of Michigan Aquatic Ecology Research Technician (Ann Arbor, MI)
 - Participate in weekly vessel-based harmful algal bloom monitoring efforts in Western Lake Erie and Saginaw Bay to provide data for public forecasting and modeling products
 - Develop methods for extraction and analysis of manganese using spectrophotometry to assess manganese cycling in hypoxic waters
 - Train summer fellows and students in both proper lab etiquette and methodologies to assess freshwater aquatic environments

2014-2017 Cooperative Institute for Great Lakes Research, University of Michigan Graduate Research Assistant (Ann Arbor, MI)

- Conducted vessel-based field sampling program for thesis work including collection of sediment and overlying water samples from locations throughout Western Lake Erie
- Conducted *Microcystis spp.* viability and culture experiments to evaluate the potential contribution of overwintering resting cells to bloom initiation
- Extracted DNA from freshwater and sediment samples to quantify abundance of overwinter survival of resting cells of *Microcystis spp*.

2013-2014 Soil Science Department, North Carolina State University

Undergraduate Research Assistant (Raleigh, NC)

- Conducted isotherm experiments to predict the adsorptive capabilities of a household arsenic removal device and subsequently developed an undergraduate research thesis
- Presented results of isotherm experiments at the NCSU Spring Undergraduate Research Symposium 2014
- Collected well water and soil core samples around the North Carolina Piedmont and assessed samples for total manganese content

2012 Marine, Earth, and Atmospheric Sciences Department, North Carolina State University Summer Undergraduate Research Assistant (Raleigh, NC)

- Collected storm water samples from various points around the Neuse River Basin
- Analyzed water samples for absorption and fluorescence via spectrophotometer and fluorospectrophotometer to determine sources of chromophoric dissolved organic matter

HONORS AND AWARDS

- 2016 Big Splash Award from Huron River Watershed Council
- 2015 Shapiro/Malik/Forrest Award (US \$1500)
- 2014 Completed Undergraduate Thesis at North Carolina State University
- 2014 Completed North Carolina University Honors Program
- 2014 Graduated Magna Cum Laude from North Carolina State University

TECHNICAL COMPETENCIES

- Software: R, ArcGIS, Python, SigmaPlot, UV Winlab
- Laboratory: spectrophotometry, fluorometry, segmented flow analysis, sediment DNA extraction, quantitative polymerase chain reaction, water filtration, gravimetric analysis, turbidity determination, pigment extraction
- Field: Surface and bottom water collection, CTD deployment, ponar deployment, sediment core collection

PROFESSIONAL EXPERIENCE

2015-2017 Ann Arbor Downtown Development Authority, Intern (Ann Arbor, MI)

- Integrated data from numerous sources to assess trends in social and economic activity in downtown Ann Arbor
- Generated thematic and economic maps of downtown Ann Arbor using ArcMap
- Collaborated with board members to establish potential projects and policy changes for the downtown area

2013 NCSU Housing, Community Assistant Coordinator (Raleigh, NC)

- Trained and managed summer community assistant staff for North Carolina State University, including developing weekly schedules and leading weekly meetings
- Organized records for summer student residents and performed weekly key audits
- Reviewed and corrected time sheets for summer community assistant staff

PUBLICATIONS

Kitchens CM, Johengen TH, Davis TW. (2018). Establishing spatial and temporal patterns in Microcystis sediment seed stock viability and their relationship to subsequent bloom development in Western Lake Erie. PLoS ONE 13(11): e0206821. <u>https://doi.org/10.1371/journal.pone.0206821</u>

Knight, CM. (2017). Establishing Spatial and Temporal Patterns in Microcystis Sediment Seed Stock Viability and Their Relationship to Subsequent Bloom Development in Western Lake Erie. (Master's thesis, University of Michigan). <u>https://deepblue.lib.umich.edu/handle/2027.42/136577</u>

PRESENTATIONS

2020	Poster. "Timing and Rates of Hypoxic Manganese Flux from Lake Erie Sediments." International Association for Great Lakes Research Conference 2020. Online.
2019	Presentation. "A Tale of Two Lakes: Eutrophy in Western Lake Erie and Oligotrophy in Lake Michigan." Nerd Nite. Ann Arbor, MI, USA.
2016	Presentation. "Patterns in Space and Time of Microcystis Sediment Seed Stock Viability in Western Lake Erie." International Association for Great Lakes Research Conference 2016. Guelph, ON, CA
2016	Invited Panelist. "HABs State of Science Webinar Series- HABs Blooms Monitoring & Forecasting." Ann Arbor, MI, USA
2016	Poster. "Evaluating Spatial and Temporal Patterns in Microcystis Sediment Seed Stock Viability and Their Relationship to Bloom Development in Western Lake Erie." 2016 Stewardship Network Conference: The Science, Practice, and Art of Restoring Native Ecosystems. East Lansing, MI, USA
2014	Poster. "Quantifying the Arsenic Adsorption Capacity of Alcan AAFS50 for Its Use in Household Treatment of Well Water." NCSU Spring Undergraduate Research Symposium 2014. Raleigh, NC, USA

COMMUNITY SERVICE

2015- Volunteer leader for Huron River Watershed Council Chemistry and Flow Monitoring program, which includes biweekly collection of stream quality parameters around Washtenaw Co. (Ann Arbor, MI, USA)

2018-	Certified member of MSU Extension Conservation Stewards Program (Ann Arbor, MI, USA)
2016-2019	Volunteer timekeeper and moderator for National Ocean Science Bowl (Ann Arbor, MI, USA)
2016	Invasive removal and controlled burn volunteer with Restoration Team at Nichols Arboretum (Ann Arbor, MI, USA)
2015	Member of Rackham Volunteer Corps (Ann Arbor, MI, USA)
2013-2014	Child tutor at Raleigh Rescue Mission (Raleigh, NC, USA)
2013-2014	Child tutor at Daniels Center for Math and Science (Raleigh, NC, USA)
2011-2012	Local project member with Engineers Without Borders (Raleigh, NC, USA)

MEDIA COVERAGE

- 2018 "Some cyanobacteria survive the winter in western Lake Erie" Michigan Radio https://www.michiganradio.org/post/some-cyanobacteria-survive-winter-western-lake-erie
- 2018 "Study: toxic algae develops faster" Great Lakes Echo http://greatlakesecho.org/2018/11/21/study-toxic-algae-develops-faster/
- 2018 "Lingering live algae cells on Lake Erie floor jumpstart harmful algal blooms" Great Lakes Now https://www.greatlakesnow.org/2018/12/lingering-live-algae-cells-on-lake-erie-floor-jumpstartharmful-algal-blooms/
- 2018 "Lake Erie algal blooms 'seeded' internally by overwintering cells in lake-bottom sediments." Michigan News. <u>https://news.umich.edu/lake-erie-algal-blooms-seeded-internally-by-overwintering-cells-in-lake-bottom-sediments/</u>
- 2018 "Toxic cells survive winter and trigger algal blooms in Lake Erie." Earth.com News <u>https://www.earth.com/news/algal-blooms-lake-eerie/</u>