

Heather Wander

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Education

- Aug 2019 – present **Ph.D., Biological Sciences**
Virginia Tech, VA
- Aug 2015 - Dec 2018 **B.S., Organismal/Environmental Biology**
SUNY New Paltz, NY; GPA of 3.69

Research Experience

Jun 2016 - Dec 2018 **Independent Study/Summer Research**

- Assessed environmental changes and park management strategies following recent fish introductions.
- Collaborated with the DEC to estimate fish population size through electrofishing and mark and recapture techniques.
- Worked with Mohonk Preserve and Minnewaska State Park to measure water quality and trophic state indices (dissolved oxygen, pH, temperature, conductivity, total dissolved solids, Secchi depth, chl *a*, total phosphorus and total nitrogen, and zooplankton community metrics).
- Conducted in-situ microcosm experiments to understand 1) variability in nutrient limitation and 2) differences in heterotrophic and autotrophic response to nitrogen species across a subset of northeastern lakes.
- Collected samples at different depths in the water column to calculate zooplankton density, size, and composition in three lakes with varying food webs.

Manuscripts in Review

- Spring 2019 Richardson DC, Bruno EC, Edwards HL, Green DM, Hollander AJ, McFadden SR, Reid KA, **Wander HL**. Serial introductions result in reversal of a trophic cascade and return of lake ecosystem structure. In Revision. *Freshwater Science*.
- Spring 2019 Lewis AS, Kim BS, Edwards HL, **Wander HL**, Garfield CM, Murphy HE, Poulin ND, Princiotta SD, Rose KC, Taylor AE, Weathers KC, Wigdahl-Perry CR, Yokota K, Richardson DC, Bruesewitz DA. Prevalence of phytoplankton colimitation by nitrogen and phosphorus related to nutrient stoichiometry, land use, primary producer biomass across northeastern United States. Submitted. *Inland Waters*.

Presentations

- Spring 2019 **Wander, HL**, Volponi, S, Johnson, L, Williams, CJ, Bruesewitz, DA, Richardson, DC, Yokota, K, Arnott, S, Ewing, H, Norman, B, Morales, MA, Ward, NK, Brentrup, JA, Wigdahl-Perry, CR, Holeck, KT, Weathers, KC, Edwards, HL, Kim, BS. *Phytoplankton response to nitrogen species across 27 northeastern lakes*. Northeast Global Lake Ecological Observatory Network (NE GLEON), Cary Institute of Ecosystem Studies, Millbrook, NY.
- Fall 2018 **Wander, HL**, Carter, E, Tracy, A, Katayama, T, Volponi, S, Yokota, K, Arnott, S, Ewing, H, Norman, B, Morales, MA, Williams, CJ, Ward, N, Brentrup, JA, Wigdahl-Perry, CR, Holeck, KT, Bruesewitz, DA, Richardson, DC. *Inorganic nitrogen, organic nitrogen, and phosphorus limitation of lake phytoplankton and heterotrophs across northeastern North America*. Global Ecological Observatory Network (GLEON), Rottneest Island, Australia.
- Spring 2018 **Wander HL**, Kim BS, Lewis AS, Edwards HL, Taylor AE, Poulin ND, Princiotta SD, Yokota K, Wigdahl-Perry CR, Rose KC, Richardson DC, Bruesewitz DA, Murphy HE, Garfield CM, Weathers KC. *Nitrogen or Phosphorus in Northeastern Lakes*. Northeast Global Lake Ecological Observatory Network (NE GLEON), Cary Institute of Ecosystem Studies, Millbrook, NY.
- Fall 2017 Hollander AJ, Green DM, Bruno EC, Edwards HL, Reid KA, McFadden SR, **Wander HL**, and Richardson DC. *Intermediate trophic level loss affects ecosystem structure and function in Lake Minnewaska*. Northeast Global Lake Ecological Observatory Network (NE GLEON), Cary Institute of Ecosystem Studies, Millbrook, NY.
- Fall 2017 Kim BS, Lewis AS, Edwards HL, **Wander HL**, Taylor AE, Poulin ND, Princiotta SD, Wigdahl-Perry CR, Yokota K, Rose KC, Richardson DC, Bruesewitz DA. *Patterns of Nutrient Limitation in Sixteen Northeastern United States Lakes*. Global Ecological Observatory Network (GLEON), Mohonk Mountain House, New Paltz, NY.
- Fall 2017 **Wander HL**, Bruno EC, Edwards HL, Green DM, Reid KA, Teape PW, and Richardson DC. *Cross lake differences in zooplanktivorous fish affects the spatial zooplankton density, size, and diversity*. Global Ecological Observatory Network (GLEON), Mohonk Mountain House, New Paltz, NY.
- Fall 2017 Bruno EC, Reid KA, Edwards HL, Lewis AS, Green DM, Hollander AJ, McFadden SR, **Wander HL**, Richardson DC, Weathers KC. *Co-limitation by nitrogen and phosphorus at the epilimnion, metalimnion, and hypolimnion as a bottom-up control on phytoplankton*. Global Ecological Observatory Network (GLEON), Mohonk Mountain House, New Paltz, NY.

- Fall 2017 **Wander HL**, Hollander AJ, Bruno EC, Edwards HL, Green DM, Reid KA, McFadden SR, and Richardson DC. *Recovery Following Fish Introductions in Lake Minnewaska*. Student Research Symposium (SRS), New Paltz, NY.
- Summer 2017 **Wander HL**, Hollander AJ, Bruno EC, Edwards HL, Green DM, Reid KA, McFadden SR, and Richardson DC. *Loss of intermediate trophic level in mesotrophic lake resulting in increased water clarity, decreased algal biomass, and increased anoxia level*. Ecological Society of America (ESA), Portland, OR.
- Summer 2017 Edwards HL, Reid KA, Bruno EC, Green DM, Hollander AJ, McFadden SR, **Wander HL**, Richardson DC. *Co-limitation of nitrogen and phosphorus as a bottom-up control on algal biomass in a mesotrophic lake*. Ecological Society of America (ESA), Portland, OR.
- Spring 2017 **Wander HL**, Hollander AJ, Bruno EC, Edwards HL, Green DM, Reid KA, McFadden SR, and Richardson DC. *Lake Minnewaska: A Story of Recovery following the Introduction of an Intermediate Trophic Level*. Northeast Global Lake Ecological Observatory Network (NE GLEON), Cary Institute of Ecosystem Studies, Millbrook, NY.
- Fall 2016 Hollander AJ, **Wander HL**, Richardson DC, and Dinsmore J. *Largemouth Bass and Salamander Communities in Lake Minnewaska*. Student Research Symposium (SRS), New Paltz, NY.

Work Experience

- Aug 2015 - Dec 2018 **General Biology and Genetics Lab Assistant for Biology Department**
- Organize and set up labs on a daily basis.
 - Use aseptic plating techniques to amplify strains of bacteria for lab experiments.
 - Use microscopy techniques to identify plant and animal taxa.
 - Responsible for care and maintenance of plants and animals.
- Sep 2017 - Dec 2017 **Giuseppe Traverso Internship at Mohonk Preserve**
- Collected and analyzed water quality data (measurements and observations) at Mohonk Lake and various stream sites.
 - Characterized watersheds by wetland area, dominant vegetation, and soil type using GIS.
 - Worked with citizen science coordinator to analyze preliminary data from StreamWatch program at Mohonk Preserve.
 - Interviewed citizen scientists to assess program benefits for volunteers.

May 2018 - Aug 2018 **NYS Water Resources Institute Grant Intern**

- Conducted experiments in Mohonk Lake and SUNY New Paltz campus pond to understand how climate change affects nutrient limitation patterns in phytoplankton.

Professional Organizations

- Global Lakes Ecological Observatory Network (GLEON)

Scholarships, Honors, and Awards

2018	Outstanding Graduate Award
2018	Robert Kyncl STEM Scholarship Fund
2017	David Lavallee Student Travel Fund
2017	Undergraduate Research Experience Travel Award (URETA)
2017	Student Association (SA) Conference Funding

Course and Field Related Experience

- Processed and analyzed water samples to measure lake chlorophyll a and phosphorus concentrations.
- Implemented in-situ incubation experiments to examine nutrient limitation in freshwater lakes.
- Collected and analyzed zooplankton samples to calculate density, individual size, and community diversity.
- Organized preliminary experiment to assess salamander populations.
- Assessed fish populations via electrofishing and mark and recapture techniques
- Identified major tree species in northern mixed - hardwood forests.
- Performed field survey techniques to determine forest community structure and composition.
- Used field techniques to determine soil and topographic variables.
- Performed dendrochronology (tree-ring) techniques in field to determine tree ages and growth rates.
- Identified common northeastern songbirds via visual and auditory training.
- Used gel electrophoresis and PCR to amplify and visualize DNA fragments
- Applied methods of bacterial staining and isolation streaking.
- Used common biological statistics to analyze data and answer research questions.

Computer and Programming

- Proficient in MS excel, R, Powerpoint, Minitab, and data entry techniques.