

Michael P. Back

Phone: (330)-515-6441 Email: mback@kent.edu

Employment

2024-Present	NOAA Margaret A. Davidson Fellow	Old Woman Creek-NEER
2021-Present	Graduate Research Assistant	Dept. of Biological Sciences, Kent State University
2020	Natural Resources Intern	Medina County Park District
2019	Undergraduate Researcher	Dept. of Biological Sciences, Kent State University

Education

Doctor of Philosophy	Kent State University, Ecology and Evolutionary Biology, <i>Expected August 2026</i>
Baccalaureate of Science	Kent State University, Biology, May 2021

Peer-Reviewed Publications

5. **Back, M. P.**, Watson, G. A., Campbell, E. B., Esber, H. C., Myers, J., Kohart, C., Midden, W. R., Newell, S. E., Kinsman-Costello, L. E. (2025). Sediment-water nutrient exchange across a diked Lake Erie coastal wetland, Ohio, USA. *Journal of Great Lakes Research*.
<https://doi.org/10.1016/j.jglr.2025.102658>
4. Anderson, K. J., Adhikari, B., Schloegel, O. F., Marques Mendonca, R., **Back, M. P.**, Brocato, N., Cianci-Gaskill, J. A., McMurray, S.E., Bahlai, C., Costello, D. M., Kinsman-Costello, L. (2024). We know less about phosphorus retention in constructed wetlands than we think we do: A quantitative literature synthesis. *Ecological Indicators*, 169.
<https://doi.org/10.1016/j.ecolind.2024.112969>
3. **Back, M. P.**, Jefferson, A. J., Ruhm, C. T., & Blackwood, C. B. (2024). Effects of reclamation and deep ripping on soil bulk density and hydraulic conductivity at legacy surface mines in northeast Ohio, USA. *Geoderma*, 442, 116788. <https://doi.org/10.1016/j.geoderma.2024.116788>
2. Myers-Pigg, A. N., Pennington, S. C., Homolka, K. K., Lewis, A. M., Otenburg, O., Patel, K. F., Ward, N. D., ... & **Exchange Consortium** (2023). Biogeochemistry of upland to wetland soils, sediments, and surface waters across Mid-Atlantic and Great Lakes coastal interfaces. *Scientific Data*, 10(1), 822. <https://doi.org/10.1038/s41597-023-02548-7>
1. Arnold, M. B., **Back, M.**, Crowell, M. D., Farooq, N., Ghimire, P., Obarein, O. A., Smart, K. E., Taucher, T., VanderJeugd, E., Perry, K. I., Landis, D. A., & Bahlai, C. A. (2023). Coexistence between similar invaders: The case of two cosmopolitan exotic insects. *Ecology*, 104(4), e3979. <https://doi.org/10.1002/ecy.3979>

Other Published Works

4. Eberhard, Erin, Pope, Talia, Morin, Timothy, Senko, John, Monty-Bromer, Chelsea, Bohrer, Gil, Kinsman-Costello, Lauren, Smith, Chelsea, **Back, Michael**, Hassett, Erin, Haddon, Nora, Cooper, Adriana, Sopher, Hunter, McMurray, Steven, Esber, Hana, Watson, Grace, Ebner, Claire, & Látimer, Félix (2025). Porewater and Surface Water Chemistry of Wetland, Old Woman Creek

- National Estuarine Research Reserve, Huron, OH, 2022-07-06 to 2023-12-15.
<https://doi.org/10.15485/2526684>
3. McMurray, S.E., J.A. Cianci-Gaskill, K.J. Anderson, B. Adhikari, O.F. Schloegel, R. Marques Mendonca, **M.P. Back**, N. Brocato, C. Bahlai, D.M. Costello, and L. Kinsman-Costello. 2024. Phosphorus concentrations and flow data, Old Woman Creek, Ohio, 2015-2023 ver 1. Environmental Data Initiative.
<https://doi.org/10.6073/pasta/3f251395d82eafb33a93a9f3ebfb858c>.
 2. Pennington, Stephanie C., Alford, Silver, **Back, Michael P.**, Bailey, Vanessa, Baldwin, Andy, Bolinger, Jade, Bowe, Madison, Boyanov, Maxim I., Cianci-Gaskill, Jacob A., Conroy, Nathan A., Cooper, Matthew J., Day, Donnie, Demeo, Alex, Derby, Kyle, Detweiler, Derek, Devres-Zimmerman, Suzanne, Eberhard, Erin, Gedan, Keryn, ... Myers-Pigg, Allison N. (2023). EXCHANGE Campaign 1: A Community-Driven Baseline Characterization of Soils, Sediments, and Water Across Coastal Gradients. <https://doi.org/10.15485/1960313>
 1. **Back, M.** Working backwards: Enhancing forest restoration by reversing the effects of surface mine reclamation on soil bulk density and soil chemistry. (2021). Senior Honors Thesis. Kent State University Honors College.

Awarded Grants

- | | |
|-----------|--|
| 2024-2026 | NOAA Office for Coastal Management Margaret A. Davidson Fellowship. The role of hydrologic connection and seasonality on sediment nutrient dynamics in a coastal freshwater wetland (\$120,000). |
| 2024 | Society of Ecological Restoration Midwest-Great Lakes Chapter Research Grant. Awarded to support the research of nutrient retention potential of hydrologically variable restored wetlands (\$4,000). |

Honors, Awards, and Scholarships

- | | |
|------|--|
| 2025 | Domestic Travel Award. Awarded to fund travel to the Society for Ecological Restoration Annual Conference in Denver (\$300). |
| 2025 | International Association for Great Lakes Research Scholarship. “The role of sediment and surface water nutrient cycling across spatial and temporal scales in hydrologically dynamic freshwater wetlands.” Awarded annually by IAGLR to two students for assistance in graduate studies (\$2,000). |
| 2024 | Graduate Student Senate Research Award. Awarded by the Kent State GSS to support nutrient budgeting research in restored wetlands on campus (\$2,000). |
| 2024 | Art and Margaret Herrick Aquatic Ecology Research Award. Awarded to support research on nutrient budgeting of experimental wetlands with varying hydrologic regimes (\$1,800). |
| 2024 | Graduate Student Leadership Award. Awarded by the Kent State Department of Biological Sciences. |
| 2024 | Domestic Travel Award. Awarded to fund travel to the International Association for Great Lakes Research annual conference in Windsor (\$300). |
| 2023 | Art and Margaret Herrick Aquatic Ecology Research Award. Awarded to support research conducted in Magee Marsh Wildlife Area aimed at understanding nutrient flux in the sediment (\$1,800). |

- 2023 **International Travel Award.** Competitive award reviewed by the Kent State Graduate Student Senate to support the presentation of research at an international conference (\$2,000)
- 2023 **Best Poster Presentation.** Kent State Graduate Research Symposium, April 2023.
- 2020 Best Poster Presentation. Kent State Undergraduate Research Symposium, April 2020.
- 2020 **Second Place Poster Presentation.** Environmental Science and Design Research Initiative Symposium, April 2020.
- 2020 **Goldwater Scholarship Nominee.** One of two students nominated by Kent State University Honors College to apply to the scholarship.
- 2019 **First Place Three Minute Thesis.** Kent State University Student Undergraduate Research Experience (SURE) Three Minute Thesis Competition, October 2019.

Invited Seminars and Presentations

- June 2024 Science Friday Seminar Series at Old Woman Creek National Estuary Research Reserve, Ohio. Seminar on wetland nutrient biogeochemistry and the methods for measuring sediment-surface water nutrient exchange within restored wetlands.
- April 2024 Guest lecture for Environmental Geochemistry (EEES 4220) at University of Toledo, Ohio. Lectured on nutrient biogeochemistry and wetland nutrient retention. Developed lecture and in-class activity for a 90-minute class.

Presentations (*undergraduate mentees)

- Back, M. P.**, S. McMurray, J. Cianci-Gaskill, J. Kerns, L. Kinsman-Costello. June 2025. Sediment nutrient retention across varying hydrologic conditions at Old Woman Creek-NERR. International Association for Great Lakes Research Annual Conference, Milwaukee, Wisconsin, USA.
- Back, M. P.**, N. Brocato*, K. Anderson, L. Kinsman-Costello. April 2025. Assessing nutrient removal function of constructed wetlands after a decade without management. Society for Ecological Restoration-Midwest Great Lakes Chapter Annual Meeting, Moline, Illinois, USA.
- Back, M. P.**, G. Watson*, H. Esber*, E. Campbell*, E. Horton*, L. Kinsman-Costello. October 2024. Sediment-surface water nutrient exchange across vegetation patches in a diked Lake Erie wetland. Great Lakes Coastal Symposium, Rochester, New York, USA. (Poster)
- Back, M. P.**, G. Watson*, H. Esber*, E. Campbell*, E. Horton*, L. Kinsman-Costello. May 2024. Sediment-surface water nutrient exchange across vegetation patches in a diked Lake Erie wetland. International Association for Great Lakes Research Annual Conference, Windsor, Ontario, Canada.
- Esber, H. *, **Back, M. P.**, L. Kinsman-Costello, L. Wetland surface water extent at St. Joseph's River Restoration Project using PyGEE- SWToolbox. May 2024 International Association for Great Lakes Research Annual Conference, Windsor, Ontario, Canada.
- Watson, G. *, **Back, M. P.**, and L. Kinsman-Costello. May 2024. Phosphorus Dynamics in the Sediment of a Lake Erie Coastal Wetland. International Association for Great Lakes Research Annual Conference, Windsor, Ontario, Canada.
- Back, M. P.**, G. Watson*, H. Esber*, E. Campbell*, E. Horton*, L. Kinsman-Costello. April 2024. Sediment-surface water phosphorus exchange across a diked Lake Erie wetland. Kent State University Graduate Student Research Symposium, Kent, Ohio, USA.

Back, M. P., G. Watson*, E. Horton*, and L. Kinsman-Costello. November 2023. Sediment-surface water nutrient exchange in vegetation patches of a managed freshwater coastal wetland. Lake Erie and Aquatic Research Network Annual Meeting, Tiffin, Ohio, USA. (Poster)

Back, M. P., G. Watson*, E. Horton*, and L. Kinsman-Costello. June 2023. Sediment-surface water nutrient exchange in vegetation patches of a managed freshwater coastal wetland. Society for Freshwater Science Annual Conference, Brisbane, Queensland, Australia. (Poster)

Back, M., A. J. Jefferson, C. T. Ruhm, C. Blackwood. Working Backwards: Enhancing forest restoration by reversing effects of reclamation on soil bulk density. (August 2020). Ecological Society of America Annual Meeting, virtual. (Poster)

Academic Involvement

2023-2024 **Lake Erie and Aquatic Research Network Board Member.** Student board member. Co-chair of Undergraduate and Graduate Student Committee.

2021-2024 **Great Lakes Young Professionals Network Steering Committee.** A member of the steering committee for a new network aimed at creating a space for early career individuals in Great Lakes associated professions to connect. Create and host networking and skill building events for other members.

Mentorship Experience

Undergraduate Mentees

Nick Brocato (May 2024-*present*). Participated in KSU Student Undergraduate Research Experience (SURE, 2025). Presented poster at KSU Undergraduate Research Symposium (2025).

Nora Haddon (May 2024-*present*). Participated in KSU SURE (2024). Presented poster at KSU Undergraduate Research Symposium (2025).

Katie DeChant (May 2024-August 2025). Participated in KSU SURE (2024). Awarded best poster at 2025 Kent State University Undergraduate Research Symposium.

Hana Esber (May 2023-May 2025). Conducted individual investigation on the use of Google Earth Engine to map hydrological changes in restored wetlands. Presented talks at International Association for Great Lakes Research Conferences (2024, 2025).

Emily Cambell (January 2023-December 2024). Participated in KSU SURE (2023 and 2024). Collected and analyzed soil samples at a recently restored wetland. Participated in 3 Minute Thesis competition (2023). Presented posters at Undergraduate Research Symposium (2024, 2025).

Grace Watson (January 2022- May 2024). Participated in KSU SURE (2022). Conducted field work at a coastal wetland on Lake Erie. 1st at SURE Three Minute Thesis Competition (2022). 2nd at ESDRI poster conference (2023). Presented poster at Undergraduate Research Symposium (2023) and International Association for Great Lakes Research Conference (2024).

Professional Trainings

October 2024	“Science Collaborative Training”. NOAA Office for Coastal Management. One day training at 2024 NERR Annual Meeting.
October 2024	“Connecting the Dots with Your Project Plan”. NOAA Office for Coastal Management 6-hour workshop.

Service

LEARN Panel	Sat on a panel of researchers at the 2024 Lake Erie and Aquatic Research Network (LEARN) annual meeting. Described the influence of LEARN and the H2Ohio Wetland Monitoring Program on my research experiences and networking.
Kent State Bio Blitz	Assisted in the coordination of the 2023 annual Bio Blitz among faculty, staff, and outside organizations. Helped lead the water and soil sampling and analysis across the campus. Instructed visiting students on sediment sampling procedures.

Society Memberships

2022 – <i>present</i>	International Association for Great Lakes Research
2024 – <i>present</i>	Society for Ecological Restoration
2023 – 2024	Society for Freshwater Sciences

Technical Skills

Lab: Experienced with general chemistry lab techniques and lab equipment mainly involved in soil and water physical and chemical analyses. Intermediate skills in analytical machines including segmented flow auto analyzer (SKALAR San ++), Membrane Inlet Mass Spectrometer (MIMS), and inductivity coupled plasma – optical emission spectrometry (ICP-OES).

Field: Experienced with soil, water, and plant field sampling and GPS sample point recording. Expert skills with YSI water probes (use and maintenance) for general water physicochemical measurements. Experienced in installing and/or maintaining field equipment for monitoring including staff gauges, sensors, and water level control structures.

Data: Experienced user of excel and R. Intermediate skills in GitHub, QGIS and ArcGIS.