

Brett Pauli, MSc

Passionate early-career aquatic ecologist with extensive field experience and over 8 years of data wrangling and statistical analysis of large ecological datasets.

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Education

Master of Science, Integrative Biology, University of Guelph, Advisors: Dr. Kevin McCann & Dr. Henri Vallès (2022- 2025)

- Thesis: *Context-dependency in environmental correlates across scales in coral reef communities*.
- Achieved 96% GPA and received Braithwaite Grant.
- Integrated large datasets and implemented advanced statistical models and geospatial analyses.
- Developed extensive knowledge in theoretical ecology, resource management and monitoring programs.

Bachelor of Science (Honours), Major in Wildlife Biology and Conservation, Minor in Ecology, University of Guelph (2017- 2022)

- Dean's Honours List (five consecutive semesters).
- Relevant courses: Marine Ecological Processes (A), Population Genetics (A), Forest Biodiversity (A+), Wildlife Conservation and Management (A), Climate Change Biology (A-), Thesis in Integrative Biology (A).
- Thesis: *Shifting trait composition in boreal freshwater fish communities across gradients of anthropogenic stressors*.
- Completed two undergraduate independent research courses (Developed life support systems for Mars missions and evaluated effectiveness of natural resource policies on protecting threatened species).

Experience

Lab and Field Aquatic Research Assistant, Harkness Laboratory of Fisheries Research, Algonquin Park, ON (2022 –2023)

- Conducted extended periods of remote fieldwork in Algonquin Park ensuring safe completion of tasks while adapting to changing conditions and ensuring team safety and invasive species prevention.
- Sampled thousands of freshwater fish (e.g., *Cyprinid*, *Salmonidae*, etc.) and using numerous sampling techniques (e.g., electrofishing, acoustic telemetry, weirs, seine, fyke, gillnets, tooth nets, zooplankton hauls, etc.).
- Operated, towed, launched various sized boats (12-21ft) under challenging weather conditions.
- Collected plant and animal tissue for stable isotope analysis for key foodweb metrics
- Extracted otoliths and collected water samples for chemistry analysis.
- Operated and maintained RBR loggers, YSI meters, GPS, trail camera, acoustic telemetry tagging equipment.
- Identified and handled dozens of freshwater fish and benthic macroinvertebrates (*Ephemeroptera*, *Trichoptera*).

Restoration Technician, Nottawasaga Valley Conservation Authority, Nottawasaga Watershed, ON (2021)

- Carried out river realignment and floodplain creation to restore key river habitat parameters
- Conducted electrofishing fish rescues including relocation of dozens of at-risk Northern Brook Lamprey.
- Implemented standardized benthic invertebrate sampling (i.e. kick net surveys).
- Monitored water quality and conducted longitudinal hydro-morphological surveys before, during and after project.
- Planted thousands of trees, installed revetments, restored native prairie grassland. Conducted acoustic and visual bird surveys. Worked instream around large machinery.

Graduate Teaching Assistant, University of Guelph, ON (2023 – 2024)

- Led weekly seminars and tutorials for three different courses relating to Ecology, Aquatic Ecosystems, Biodiversity
- Guided students in both lab and field settings. Earned "Perfect" teaching team scores and student evaluations.
- Handled reptiles and amphibians, as well as assisted in lab dissections and implemented safety protocols.

Publications & Presentations

- Gutgesell et al. (2024). *The productivity-stability trade-off in global food systems*. Nature Ecology & Evolution.
- Pauli, B., Guzzo, M., O'Connor, R., McCann, K. *Shifts in slow-fast functional trait composition in boreal freshwater fish communities across gradients of anthropogenic stressors*. (In preparation)
- Pauli, B. and Vallès, H. *Environmental drivers of coral reef benthic communities across scales*. (In preparation)
- Conference Speaker: American Fisheries Society, Honolulu (2024); Canadian Society of Ecology & Evolution, Winnipeg (2023); and "Meet the Researcher Day," Algonquin Park (2022).

Certifications & Additional Information

- Fluent in French & English (currently learning Spanish), Marathon Runner, Eligible for RPBio
- Built machine learning models (YOLOv8) for identifying coral reef imagery (CVATai).
- PADI Open Water Diver with over a dozen dives spanning Honduras, Barbados, Hawaii, and Colombia.
- Developed biological life support systems for Mars missions (Deep Space Food Challenge)