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)

- Integrated large datasets and implemented advanced statistical models and geospatial analyses.
- Thesis: *Context-dependency in environmental correlates across scales in coral reef communities*.
- Achieved 96% GPA and received Braithwaite Grant.
- 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

Research Contractor – Fisheries and Oceans Canada, Arctic Region, Arctic Fisheries and Marine Mammal Division (current)

- Conducted preliminary analysis and generated QA/QC report. Produced high quality figures and digitized Char data.

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., C*yprinid, 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 projects 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. E*nvironmental 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).