

Lydia N. Walton

MSc. Student

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INTERESTS

Marine Ecology, Food Web Ecology, Climate Change, Ichthyology, Invertebrate Biology, Ecophysiology, Multiple Climatic Stressors

EDUCATION

University of Victoria (Jan. 2023 – current)

- **Masters of Science** (Department of Biology)
 - Supervisor: Prof. Amanda E. Bates
 - Thesis topic: The impact of asynchronous heat stress on keystone predation in the rocky intertidal zone.

University of Victoria (Sep. 2017 – Aug. 2021)

- **Bachelor of Science Honours** (Biology Major with Marine Biology Concentration).
 - Supervisor: Prof. Julia K. Baum.
 - Thesis: The impact of human-driven and natural disturbances on the isotopic niche of a generalist carnivore reef fish, *Paracirrhites arcatus*.
- **Cumulative GPA** of 8.03 (9-point scale) or 4.0 (4-point scale converted).

RELEVANT WORK EXPERIENCE

Bates Lab, **Research Assistant** (May 2023 – current)

- Worked with Prof. Amanda E. Bates and her post-doc Dr. Alfaro-Lucas on the Traitors Project, which aims to develop a species list and trait-database for the offshore Pacific bioregion near Vancouver Island, Canada.
- Led communication and assisted with the organization of the Traitors Introductory Workshop Series where researchers from various disciplines were invited to critique and contribute to the Traitors Project.

Juanes Lab, **Research Technician** (Sep. 2021 – Dec. 2022)

- Primarily involved in the Coho Otolith Project, working closely with graduate students to understand the effects of abnormal otoliths on hatchery and natural origin salmon.
- In the field, I worked with other research assistants and graduate students to collect adult Coho and Chinook salmon samples (i.e., otoliths, muscle tissue, and scales) from hatcheries on Vancouver Island and Mainland BC.
- In the lab, I dissected otoliths from adult and juvenile Coho salmon, photographed the otoliths using a stereoscope and CellSens, and determined the percent coverage of aragonite and vaterite for each otolith using Photoshop.
- Prepared salmonid and sand lance otoliths for microchemistry analyses by encasing individual otoliths in epoxy and sanding down otoliths until their core was reached.

University of Victoria, **NSERC USRA** (May 2021 – Aug. 2021)

- Working closely with Prof. Baum and her post-doc Dr. Starko, I reviewed and synthesized the literature pertaining to the potential for marine ecosystems within Canada (including kelp, seagrasses, and salt marshes) to sequester carbon, and hence serve as “natural climate change solutions”. This research helped support current research in the Baum Lab, as well as newly developed projects and grant proposals.
- Prepared stomach samples of reef fish for DNA metabarcoding by identifying prey items, sorting them taxonomically, taking subsamples for stable isotope analysis, and storing them for future processing.

University of Victoria, **Work Study** (Sep. 2020 – Dec. 2020)

- Worked in Prof. Julia Baum’s research laboratory at the University of Victoria to process samples for stable isotope analysis.
- Dried, ground, and packed samples of fish white muscle tissue for analysis in a mass spectrometer.

University of Victoria, **Research Assistant** (Jun. 2020 – Aug. 2020)

- Worked closely with researchers in Prof. Julia Baum’s research laboratory at the University of Victoria to synthesize data collected during Baum Lab expeditions to Kiritimati before, during and after the 2015-2016 marine heatwave. Assisted in studying the effects of mass coral mortality on habitat complexity.
- Assisted Prof. Baum and one graduate student to process 3D models and 2D photo-mosaics from overlapping photographs taken at permanent reef plots on the island using ArcMap. Identified and measured corals and quantified metrics of habitat complexity in each reef plot.
- Processed stable isotope samples from Kiritimati.

TEACHING EXPERIENCE

University of Victoria, **Teaching Assistant** (Jan. 2023 – Apr. 2023)

- Taught two sections (~40 students) of Biol 307 (Chordate Zoology) during the Spring 2023 semester (Senior Laboratory Instructor: Dr. Rossi Marx). Each lab period consisted of an introductory presentation, helping students answer required questions in their lab manual, and instructing students on scientific drawing. In the latter half of the course, I led dissections of different animals which included fish, frogs, birds, and mammals. I evaluated students on their in-lab assignments, two papers, one presentation, and a final laboratory exam.

RELEVANT VOLUNTEER EXPERIENCE

BC Conservation Foundation (Apr. 2022)

- I collaborated with the Juanes Lab, Goldstream Hatchery, and BCCF to pit tag 7,500 coho salmon smolts before release into the stream.

Adult Salmon Diet Project, Juanes Lab (Mar. 2022)

- Alongside members of ASDP in the Juanes Lab at UVic, I collected stomach samples from adult chinook and coho salmon during the Sidney Angler Derby. I also explained details of ASDP and other research done in the Juanes Lab to anglers and the general public.

Baum Lab, University of Victoria (Sep. 2019 – Jan. 2020)

- Used Image J software to measure length, width, and area of coral recruits from photographs.
- Transcribed and organized fish dissection data sheets and Chondrichthyes survey spreadsheets in Excel.
- Used Agisoft Metashape Professional software to measure coral growth from photographs (e.g. masked corals, edited markers, created 3D models of coral).
- Transcribed protocols for packing dried samples of macroalgae and turf. Prepped macroalgae samples for drying and subsequent stable isotope analysis.

FUNDING AND AWARDS

- 2023 University of Victoria Graduate Student Travel Award (\$600)
- 2023 University of Victoria Graduate Award (\$4,465)
- 2021 Provost's Advocacy and Activism Award (\$1,150)
- 2021 NSERC USRA Award (\$6000)
- 2020 Venture for Canada Internship Program (\$6300)
- 2017 University of Victoria Entrance Scholarship (\$2000)
- 2017 Alexander Rutherford Scholarships (\$2500)

RECOGNITIONS

- 2023 Best student oral presentation. 7th International Otolith Symposium, Viña del Mar, Chile.

PRESENTATIONS

- Oct. 2023 Cataloguing otoliths of mesopelagic and bathypelagic fishes: a tool for species identification – **Oral presentation**, 7th International Otolith Symposium, Viña del Mar, Chile
- Mar. 2022 The impact of global and local disturbances on the isotopic niche of a generalist carnivore reef fish, *Paracirrhites arcatus* – **Poster presentation**, Pacific Ecology and Evolution Conference (PEEC), Victoria, British Columbia
- Jul. 2021 Do disturbances impact the isotopic niche of a generalist carnivore reef fish, *Paracirrhites arcatus*? – **Poster presentation**, 14th International Coral Reef Symposium (ICRS) 2021, Virtual

PUBLICATIONS

Walton, L., Watts, V., Schuster, J., & Bates, A.E. (In Prep). The impact of asymmetrical warming on the feeding activity and metabolism of the keystone predator *Pisaster ochraceus*.

Walton, L., Quindazzi, M., Gauthier, S., & Stevens, C. (In Review). Fish ID face-off: A comparison of genetic barcoding and otolith shape analysis for streamlining species identification of mesopelagic fishes.

OUTREACH

- 2022 River Never Sleeps Festival (Rosewall Creek Hatchery) – I worked with other members of the Juanes Lab to present the Coho Otolith Project and Adult Salmon Diet Program (ASDP) to the general public. We created an educational game for children, teaching them to properly weigh and length fish, fill out data cards, and identify prey bones under the microscope. We also communicated our research goals to community members and other scientists.

TRAINING

- 2021 Indigenous Cultural Acumen Training (ICAT) – Indigenous Academic and Community Engagement at the University of Victoria
- 2020 Anti-racism Awareness training - Equity and Human Rights at the University of Victoria

MEMBERSHIPS

- **UVic Sci EDI** (May 2020 – Apr. 2021) – A group of upper-year undergraduate students in the UVic Faculty of Science, dedicated to bringing about systemic change within the faculty. As a group, we collaborated on action items for improving equity, diversity and inclusion within the faculty of science and presented our findings to each department. We worked in collaboration with EQHR to develop an EDI course for all science students.

PROFESSIONAL CERTIFICATIONS

- DELE Level B2 Spanish Diploma (Ministry of Education, Spain)
- Small Domestic Vessel Basic Safety (SDVBS)
- Restricted Operator's Certificate – Maritime (ROC-M)
- Small Vessel Operator Proficiency Certificate (SVOP)
- Pleasure Craft Operator (PCOC)
- PADI Rescue Diver and Dry Suit Diver
- PADI Emergency Oxygen provider
- Standard First Aid & CPR/AED level C
- Emergency First Response Primary and Secondary Care (CPR and First Aid)
- UVic Aquatic Care: Ethical Use of and Care of Aquatic Animals in Science
- UVic Fish Euthanasia
- OHSE | WHMIS
- OHSE | Biosafety for Lab Workers