

# Anthony Lapsansky

Salish Sea Research Center  
Northwest Indian College  
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## EDUCATION & RESEARCH

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- 2024-present Senior Researcher, Northwest Indian College, Bellingham, WA  
**Research Topics:** carryover effects of biotoxins on aquatic insects, fluid determinants of spawning behavior in anadromous fish, locomotion and guidance for dual-medium invertebrates
- 2021-2024 Postdoctoral Fellow, University of British Columbia, Vancouver, BC  
Advisors: Douglas Altshuler, Douglas Wylie  
**Research Topic:** Visual guidance and neural control of avian flight
- Developed a head-mounted, high-speed camera and motion-sensing system for use on free-ranging birds using microelectronics and Python.
  - Leveraged custom equipment to investigate how free-flying pigeons use visual motion for guidance through eye, head, and body movements.
  - Used high-speed videography and programming in Python, MATLAB, and R to analyze the oculomotor behavior of Anna's hummingbirds (*Calypte anna*).
- 2016-2021 Ph.D., University of Montana, Missoula, MT  
Advisor: Bret Tobalske  
**Dissertation Title:** Aquatic locomotion in birds – biomechanics, morphometrics, and evolution
- Applied 3D kinematic analysis to test the prediction that seabirds like alcids (e.g., puffins, murres) are inefficient when moving in air and water relative to single fluid specialists.
  - Compiled an unparalleled database of avian wing shape (over 2,400 wings & 900 species) and used these data to test long-held hypotheses about the functional morphology of diving birds. I also made these data freely available (<https://bit.ly/diveBirdData>).
  - Collaborated with the public to describe previously unknown or poorly documented details surrounding aquatic habits in birds.
  - Utilized expertise in biomechanics to assist in studying performance of endangered *Lednia* stoneflies reared at thermal conditions predicted under climate change.
- 2012-2016 Bachelor of Science, Gonzaga University, Spokane, WA  
Advisors: Joseph Haydock, Peter Pauw  
Biology with Research Concentration, *magna cum laude*
- Utilized PCR amplification of microsatellites to study parentage in cooperative breeding acorn woodpeckers (*Melanerpes formicivorus*), with Joseph Haydock.
  - Worked towards a method for culturing Hydra using cell culture techniques, with Peter Pauw.

## TEACHING EXPERIENCE

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- 2023 Volunteer Instructor, Northwest Indian College: Salish Sea Research Center Summer Internship
- 2021 Teaching Assistant, University of Montana, Ornithology
- 2021 Guest Lecturer, University of Montana, Ornithology

2017-2020 Teaching Assistant, University of Montana, Freshwater Ecology  
2018-2020 Teaching Assistant, University of Montana, Comparative Anatomy  
2017 Teaching Assistant, University of Montana, Principles of Living Systems  
2017 Teaching Assistant, University of Montana, Discover Biology  
2015-2016 Teaching Assistant, Gonzaga University, Organic Chemistry  
2013-2015 Academic Tutor, Gonzaga University, Athletic Department

## OTHER RELEVANT EXPERIENCE

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2013-2016 Professional Falconer, Airstrike Bird Control

- Utilized trained falcons to protect blueberry crops in Whatcom County from damage by invasive pests (European starling, *Sturnus vulgaris*).

2013 Biological Field Technician, Trinity Western University

- Quantified crop damage in Washington State cherry farms to assess potential benefits of habitat enrichment for native predators, the American kestrel (*Falco sparverius*).

2008-2012 Volunteer Fire Fighter, Sandy Point Fire Department

- Assisted with trainings and emergency responses by the Sandy Point Fire Department across the Sandy Point and Sandy Point Heights neighborhoods.

## PUBLICATIONS

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\* denotes undergraduate mentee co-author

**Lapsansky, A. B.**, Kreyenmeier, P., Spering, M. and Altshuler, D. L. (2024). Hummingbirds use compensatory eye movements to stabilize both rotational and translational visual motion. *Proceedings of the Royal Society B: Biological Sciences* 291, 1–12.

Dash, S., Baliga, V. B., **Lapsansky, A. B.**, Wylie, D. R. and Altshuler, D. L. (2024). Encoding of global visual motion in the avian pretectum shifts from a bias for temporal-to-nasal selectivity to omnidirectional excitation across speeds. *eNeuro*.

Shah A, Hotaling S, **Lapsansky AB**, Malison R, Birrell J, Keeley T\*, Giersch J, Tronstad L, Woods A. Warming undermines emergence success in a threatened alpine stonefly: A multi-trait perspective on vulnerability to climate change. *Functional Ecology*. 37, 1033-1043 (2023).

**Lapsansky AB**, Armstrong RH. Common Mergansers (*Mergus merganser*) use wings to pursue a fish underwater. *Marine Ornithology*. 50, 111–114 (2022).

**Lapsansky AB**, Warrick DR, Tobalske BW. High wing-loading correlates with dive performance in birds, suggesting a strategy to reduce buoyancy. *Integrative and Comparative Biology*. 62, 878–889 (2022).

**Lapsansky AB**, Zatz D, Tobalske BW. Alcids ‘fly’ at efficient Strouhal numbers in both air and water but vary stroke velocity and angle. *eLife*. 9, e55774 (2020).

**Lapsansky AB** & Tobalske BW. Upstroke-based acceleration and head stabilization are the norm for the wing-propelled swimming of alcid seabirds. *J Exp Biol*. 222, jeb201285 (2019).

**Lapsansky AB**, Igoe JA\*, Tobalske BW. Zebra finch (*Taeniopygia guttata*) shift toward aerodynamically efficient flight kinematics in response to an artificial load. *Biology Open*. 8, bio042572 (2019).

## INVITED PRESENTATIONS

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2023	University of British Columbia, Evening Comparative Physiology Seminar, Vancouver, BC
2022	University of British Columbia, Biodiversity Research Seminar, Vancouver, BC
2022	Society for Integrative and Comparative Biology (SICB) Symposium, <i>Lesser known transitions: organismal form and function across abiotic gradients</i> , Phoenix, AZ
2019	Gonzaga University, Biology Seminar Series, Spokane, WA

## GRANTS AND FELLOWSHIPS

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Total (USD): \$299,550

2023	Michael Smith Health Research BC, Postdoctoral Fellowship	\$145,000
2021	National Science Foundation, Postdoctoral Fellowship	\$138,000
2021	University of Montana, Bertha Morton Fellowship	\$3,000
2019	Drollinger-Dial Foundation, Travel Award	\$1,500
2018	University of Washington, Stephen and Ruth Wainwright Endowed Fellowship	\$900
2018	Drollinger-Dial Foundation, Travel Award	\$1,500
2017	Montana Space Grant Consortium, Research Fellowship	\$9,650

## HONORS AND AWARDS

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2021	Society for Integrative and Comparative Biology (SICB) Division of Biomechanics, Best Student Presentation
2021	SICB Division of Phylogenetics and Comparative Biology, David and Marvalee Wake Award for Best Student Presentation
2017	National Science Foundation, GRFP Honorable Mention
2016	Gonzaga University, McDonald Award for Academic Distinction

## STUDENT MENTORSHIP

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\* denotes co-authored publication

2022	Alonso Daboub, spatial position of optic flow and visual guidance of flight in zebra finches
2022	Emily Saysanasy, Minda Zhang, Janice Wong, and Dhivya Thiagarajan, <i>BRC Biodiversity Undergraduates in Research Program</i>
2018	Tylor Keeley*, surface skimming performance of stoneflies reared at variable temperatures
2016	Jennifer Igoe*, kinematic responses of zebra finches to artificial loading

## COMMUNITY OUTREACH

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2023	Volunteer Instructor, Northwest Indian College: Salish Sea Research Center Summer Internship (8-weeks, 1-2 days per week of instruction and mentorship)
2019-2017	Lab Docent, Montana Natural History Center: Wings Over Water Program
2016	Presentation, Vista Middle School, <i>Raptor Biology and Falconry</i> , Ferndale, WA

- 2016 Volunteer Instructor, Gonzaga University, *Science in Action* with Holmes Elementary School (8 hands-on lessons in science)
- 2015 Presentation, Ferndale High School, *Raptors, Falconry and Bird Abatement: Turning a Passion into a Career*. Ferndale, WA
- 2015 Presentation, Vista Middle School. *Raptors, Falconry and Bird Abatement*. Ferndale, WA
- 2014 Presentation, Barnyard Kids 4H group, *Falcons and other natural predators: the importance of wildlife to healthy agriculture*. Lynden, WA

## **PROFESSIONAL DEVELOPMENT**

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- 2024 University of British Columbia, Equity, Diversity and Inclusion Learning Journey (online course)
- 2020 University of Washington, 3D Morphometrics and Image Analysis Intense Winter Workshop
- 2019 University of Montana, Professional Scientist Skills (semester-long course)
- 2018 University of Montana, Evidence-Based Teaching in Science (semester-long course)
- 2017 University of Montana, Diane Ebert-May Scientific Teaching Workshop
- 2016 University of Montana, Grant Proposal Writing (semester-long course)

## **SERVICE**

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**Reviewer:** *Proceedings of the Royal Society B* (1), *Nature Scientific Reports* (1), *Animal Behavior* (1), *Polar Biology* (1), *Journal of Experimental Biology*, *Journal of Avian Biology* (1), *Biological Journal of the Linnean Society* (2)

University of Montana, Co-President of Graduate Students in Ecology and Evolution (2020-2021)

Society for Integrative and Comparative Biology, Session chairperson (2017-2021)

University of Montana, Seminar Series Organizer (2018-2020)