

Keiffer L. Williams

PhD Candidate
Department of Biological Sciences
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Education

Clemson University PhD, Biological Sciences Adviser- Dr. Samantha Price	Clemson, SC August 2020-present
University of Minnesota MS, Fisheries and Aquatic Biology Adviser- Dr. Andrew Simons Thesis: "The morphology and evolution of tooth replacement in the combtooth blennies (Ovalentaria: Blenniidae)"	St. Paul, MN July 2020
Butler University BS Biology, Chemistry minor Research Adviser- Dr. Nathanael Hauck Honors Thesis: "The Role of Ethylene in Systemic Acquired Resistance in Moss"	Indianapolis, IN May 2016

Manuscripts in Preparation, Submission, or Under Review

Williams, K.L. and Price, S.A. A comprehensive guide to applying quantitative tooth complexity metrics in fishes. (*In preparation for submission to Integrative and Comparative Biology*).

Williams, K.L., *Gross D., *Davoll M.E., *Freehill D., *Nelligan N., *Benton B., Larouche O., *Loganathan A., Weller H.I., and Price, S.A. A mouthful of fry and eggs: does mouth-brooding influence head and body shape evolution in cichlid fishes? (*In preparation*).

Hodge, J.R., Adams D.S., **Williams K.L.**, Alencar L.R.V., Camper B., Larouche O., Thurman M.A., Zapfe K., and Prices, S.A. Unravelling the effects of adaptation and history in the phenotypic convergence of fishes. (*In preparation*).

*Undergraduate co-author

Peer-Reviewed Publications

- Williams, K.L.**, Evans K.M., and Simons, A.M. 2021. Tooth replacement and attachment morphology in the Pacific Leaping Blenny, *Alticus arnoldorum* (Blenniiformes: Blenniidae: Salariaiini) with a discussion on tooth function. *The Anatomical Record*, 1–17. <https://doi.org/10.1002/ar.24819>
- Tolo, I.E., Padhi S.K, **Williams K.L.**, Singh V., Halvorson S., Mor S. K., and Phelps, N.B.D. 2021. Susceptibility of *Pimephales promelas* and *Carassius auratus* to a strain of koi herpesvirus isolated from wild *Cyprinus carpio* in North America. *Scientific Reports*, 11, 1985. <https://doi.org/10.1038/s41598-021-81477-0>
- Evans, K.M., **Williams K.L.**, and Westneat, M.W. 2019. Do coral reefs promote morphological innovation? Exploration of habitat effects on labrid pharyngeal jaw evolution in the era of big data. *Integrative and Comparative Biology*, 59(3); pp. 696-704. <https://doi.org/10.1093/icb/icz103>

Grants and Fellowships

2024	Clemson University Graduate Student Government Travel Grant	\$1,000
2023	Clemson University Graduate Student Government Travel Grant	\$1,000
2022	Society of Integrative & Comparative Biology Charlotte Mangum Student Support	\$125
2022	Clemson University Graduate Student Government Travel Grant	\$380
2022	Society of Systematic Biologists Graduate Student Research Award	\$3,000
2022	Society of Integrative and Comparative Biology Fellowship of Graduate Student Travel	\$2,000
2022	Biological Sciences Professional Development Course: Grants in Aid of Research	\$1,000
2021	Science Student Advisory Board Grants in Aid of Research	\$2,000
2021	Biological Sciences Graduate Student Association Travel Award	\$400
2020	SCIENCE Graduate Fellow, Clemson University	\$35,000
2020	Bell Museum of Natural History Award, Zoological Society Fund	\$2,500
2020	*Company of Biologists Traveling Fellowship	\$1,200
2020	Society of Integrative & Comparative Biology Charlotte Mangum Student Support	\$115
2020	University of Minnesota Conservation Sciences Travel to Present Grant	\$400
2019	American Museum of Natural History, Lerner-Gray Memorial Fund	\$3,500
2019	Bell Museum Natural History Award, McKinney Fund	\$2,500
2019	University of Washington Stephen and Ruth Wainwright Endowed Fellowship	\$400
2019	University of Minnesota CFANS Graduate Student Board Grant	\$115
2019	University of Minnesota Conservation Sciences Travel to Present Grant	\$400
2017	University of Minnesota John Dobie Memorial Fellowship	\$34,000
2015	Butler University Travel to Present Grant	\$500
2015	Butler University Summer Research Grant	\$1,200
2014	Butler University Seitz Award for conducting research abroad	\$5,000

*Funding declined due to Covid-19 pandemic.

Honors and Awards

2023	Alfred “Hap” Wheeler Distinguished Biological Sciences Graduate Student Association member, Clemson University
2023	Division of Phylogenetic and Comparative Biology Dave and Marvalee Wake Best Student Talk Award, Society of Integrative and Comparative Biology
2022	Commitment to graduate student life award, Biological Sciences Graduate Student Association, Clemson University
2020	Outstanding Conservation Sciences MS student award, University of Minnesota
2016	Butler University Top 100 Outstanding Student Recognition

Fieldwork and Museum Collection Experience

- **Australian Museum, Sydney, Australia (June 26-July 25, 2023):** Measured functional traits and photographed museum specimens in the ichthyology collections of the Australian Museum.
 - **US Army Corps of Engineers Survey, Minnesota, USA (August 26-27, 2019):** Sampled Minnesota fishes at US Army dam sites at several lakes in Northern Minnesota.
 - **Guam (July 5-30, 2019):** I conducted collections and recorded videos of feeding behavior in intertidal fishes for my MS research.
 - **Root River, Minnesota, USA (August 21, 2018):** Collected Minnesota fishes for teaching and outreach purposes.
- PADI Advanced Open Water Certified (July 8, 2016)

Museum Curatorial Experience

2019 **Curatorial Assistant:** Fish Collection, Bell Museum, University of Minnesota
2018 **Curatorial Assistant:** Fish Collection, Bell Museum, University of Minnesota
2017-2020 **Bell Museum Fish Identification Specialist:** Minnesota Department of Natural Resources;
Minnesota Pollution Control Agency

Courses Taught as Instructor of Record

2024-present **Lecturer: Biological Science I:** Tri-County Technical College

Graduate Teaching Experience

2024-present **Teaching Assistant: Functional Human Anatomy Lab:** Clemson University Department of Biological Sciences
2024 **Teaching Assistant: Principles of Biology Lab:** Clemson University Department of Biological Sciences
2023 **Teaching Assistant: Vertebrate Biology Lab:** Clemson University Department of Biological Sciences
2023 **Teaching Assistant: Principles of Biology Lab:** Clemson University Department of Biological Sciences
2022 **Teaching Assistant: Vertebrate Biology Lab:** Clemson University Department of Biological Sciences
2021 **Teaching Assistant: Vertebrate Biology Lab:** Clemson University Department of Biological Sciences
2021 **Lead Teaching Assistant: Principles of Biology Lab:** Clemson University Department of Biological Sciences
2020 **Teaching Assistant: Principles of Biology Lab:** Clemson University Department of Biological Sciences
2020 **Teaching Assistant: Conservation Genetics:** University of Minnesota Department of Fisheries, Wildlife, and Conservation Biology
2019 **Teaching Assistant: Herpetology Lab:** University of Minnesota Department of Fisheries, Wildlife, and Conservation Biology
2018 **Teaching Assistant: Conservation Genetics:** University of Minnesota Department of Fisheries, Wildlife, and Conservation Biology

Invited Lectures and Seminars

Guest lecturer at Rhoades College (September 29, 2023)

- Co-led a paper discussion on comparative biology research methods in Dr. Kelly Diamond's Comparative Vertebrate Morphology course.

Butler University Biological Sciences Department Seminar (April 13, 2022)

- Title: "Fish dentistry: a pre-med alternative"

Guest lecturer at University of Minnesota (Spring 2018, Spring 2020)

- Gave guest lectures on methods in conservation genetics in Dr. Kenneth Kozak's Conservation Genetics course.

Research Student Mentoring

Clemson University

Josh Reid (January 2024-present)

Project: Tracking the association between tooth complexity and diet in reef-associated fishes

Presentations:

- Nelson, L., Tran, P., Reid, J., Williams, K., Price, S. (2024, April). Finding Nemo's Dentist: Exploring the Relationship Between Diet, Tooth Complexity and Jaw Dimensions in Coral Reef Fishes. Poster presentation at Clemson University 19th Annual Focus on Creative Inquiry Forum, Clemson, SC.

Lanier Nelson (January 2023-May 2024)

Project: Tracking the association between tooth complexity and diet in reef-associated fishes

Presentations:

- Nelson, L., Tran, P., Reid, J., Williams, K., Price, S. (2024, April). Finding Nemo's Dentist: Exploring the Relationship Between Diet, Tooth Complexity and Jaw Dimensions in Coral Reef Fishes . Poster presentation at Clemson University 19th Annual Focus on Creative Inquiry Forum, Clemson, SC.
- Nelson, L., Tran, P., Williams, K., Price, S. (2023, April). The Relationship Between Tooth Complexity and Diet in Coral Reef Fishes. Poster presentation at Clemson University 18th Annual Focus on Creative Inquiry Forum, Clemson, SC.

Phong Tran (September 2022-May 2024)

Project: Tracking the association between tooth complexity and diet in reef-associated fishes

Presentations:

- Nelson, L., Tran, P., Reid, J., Williams, K., Price, S. (2024, April). Finding Nemo's Dentist: Exploring the Relationship Between Diet, Tooth Complexity and Jaw Dimensions in Coral Reef Fishes. Poster presentation at Clemson University 19th Annual Focus on Creative Inquiry Forum, Clemson, SC.
- Nelson, L., Tran, P., Williams, K., Price, S. (2023, April). The Relationship Between Tooth Complexity and Diet in Coral Reef Fishes. Poster presentation at Clemson University 18th Annual Focus on Creative Inquiry Forum, Clemson, SC.

Conferences, Presentations and Workshops

3rd Joint Congress on Evolutionary Biology (July 2024)

- Oral Presentation: "Herbivory as a driver of tooth complexity in reef-associated fishes"

Clemson 3D Slicer Workshop (May 9, 2024)

- Workshop organizer: I organized and led a workshop on how to use 3D Slicer software.

Slicermorph: Train the trainers workshop (October 2023)

- Workshop participant: Learned skills to train future Slicermorph and 3D Slicer software users.

International Congress of Vertebrate Morphology (July-August 2023)

- Oral Presentation: "The influence of diet on dental complexity in damselfishes (Pomacentridae)"
- Co-author (oral symposium presentation): "Effects of history on ecomorphological convergence across planktivorous fishes"

Society for Integrative and Comparative Biology (January 2023)

- Best student presentation contestant: "Resolving a dental dilemma: quantifying tooth variation along the jaws in polyphyodont vertebrates"
- Co-author (oral presentation): "Effects of history on ecomorphological convergence across marine acanthomorph fishes"

Society for Integrative and Comparative Biology (January 2022-March 2022)

- Oral Presentation: "Does Herbivory correlate with higher tooth complexity in Damselfishes (Pomacentridae)?"

Society for Integrative and Comparative Biology (January 2021-March 2021)

- Poster Presentation: "Re-thinking modes of teleost tooth replacement using the dentally diverse combtooth blennies (Blenniidae)"
- Co-author (oral presentation presented by undergraduate researchers): "A mouthful of fry and eggs: does mouth-brooding influence head and body shape evolution in cichlid fishes?"
- Workshop attendee: "A Natural Historian's Guide to the CT Galaxy: Step-by-Step Instructions for Preparing and Analyzing Computed Tomographic (CT) Data Using Cross-Platform, Open Access Software"

Society for Integrative and Comparative Biology (January 2020)

- Oral Presentation: "The morphology of tooth replacement in Salariin Combtooth Blennies (Blenniiformes: Blenniidae: Salariini)"

Histology Workshop at Friday Harbor Laboratories (August 2019)

- Workshop participant: Learned skills including SEM, JB4 plastic histology, micro-CT scanning

Society for Integrative and Comparative Biology (January 2019)

- Poster Presentation: “A model for tooth replacement and tooth attachment in a terrestrial fish, *Alticus arnoldorum* (Blenniidae)”
- Co-author (oral symposium presentation): “Do coral reefs act as a crucible for morphological innovation? A critical reappraisal of the effect of coral reef habitats on the evolution of morphological diversity in wrasses in the era of big data”

Butler University Biological Sciences Department Seminar (March 22, 2017)

- Seminar Presentation: “Smithsonian Tropical Research Institute Internship”

Honors Thesis (Submitted April 20, 2016)

- Title: “The Role of Ethylene in Systemic Acquired Resistance in Moss”

Butler University Undergraduate Research Conference (April 2016)

- Seminar Presentation: “The Role of Ethylene in Systemic Acquired Resistance in Moss”

American Society of Plant Biologists (July 2015)

- Poster Presentation: “The Role of Ethylene in Systemic Acquired Resistance in Moss”

Butler Summer Institute (July 2015)

- Poster Presentation: “The Role of Ethylene in Systemic Acquired Resistance in Moss”

Butler University Biological Sciences Department Seminar (November 2014)

- Seminar Presentation: “Oceans Research Internship”

Outreach and University Service

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| • Diversity, Equity, and Inclusion working group for Department of Biological Sciences | August 2020-current |
| • Biological Sciences Graduate Student Association- President | May 2022-May 2023 |
| • Something Very Fishy STEAM volunteer | November 14-15, 2022 |
| • Integrative Organismal Biology Outreach Associate | February 2022-current |
| • Graduate Student Government Senate | September 2021-May 2022 |
| • Clemson Elementary School science fair judge | February 23-24, 2021-22 |
| • Inver Hills Community College’s Student Success Day | February 25, 2020 |
| • CSAGS peer mentor program | Fall 2019-Spring 2020 |
| • Conservation Corps College and Career Day Bell Museum Tour | May 4, 2019 |
| • Bell Museum Food Fest | October 6, 2018 |
| • Prospective student sneak preview of Bell Museum collections | August 17, 2018 |
| • Bell Museum Science Sunday | July 15, 2018 |
| • Cedar Creek EcoExtravaganza outreach | May 29, 2018 |
| • Fisheries, Wildlife, and Conservation Biology departmental voting staff representative for graduate students | Fall 2017-Spring 2018 |
| • Conservation Sciences “Welcome Weekend” planning committee | Spring 2018 |

Science Communication Articles

Integrative Organismal Biology (February 2, 2022)

[Locomotion in the Ocean: How does swimming mode affect body shape evolution in marine fishes?](#)

Journal Reviewer

2023 Proceedings of the National Academy of Sciences

2021 Canadian Journal of Zoology

Society and Organization Memberships

2021-present Phi Kappa Phi (student member of Clemson University chapter)

2021-present The Society of Systematic Biologists (student member)

2018-present The Society of Integrative and Comparative Biology (student member)