

MATTHEW A. KOLMANN

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EDUCATION

2016 Ph.D. in Ecology & Evolutionary Biology, University of Toronto
2012 M.Sc. in Biological Science, Florida State University
2008 B.Sc. in Marine Science & Biology, University of Tampa

PROFESSIONAL POSITIONS

2020- Post-Doctoral Scholar, University of Michigan
2018-2020 NSF Post-Doctoral Fellow (PRFB-DBI), George Washington University
2018-2020 Research Associate, Smithsonian Museum of Natural History
2018- Research Associate, Royal Ontario Museum
2016-2018 Friday Harbor Labs Post-Doctoral Fellow, University of Washington

AWARDS & HONORS

2012-2016 Ontario Trillium Graduate Fellowship
2016 American Elasmobranch Society Gruber Award (Best Student Talk)
2016 UTSC Biology Department Best Graduate Student Paper Award
2004-2008 Presidential Scholarship, University of Tampa
2004-2008 Life Sciences Scholarship, University of Tampa

FUNDING

2018 National Science Foundation (USA) Post-Doctoral Research Fellowship in Biology (PI: Kolmann): *Evolutionary morphology and cranial constraints in piranhas, pacus, and their allies* **\$138,000**. (2018-2020)
2016 Experiment.com (PI: Kolmann): Eating tough stuff with floppy jaws - how do stingrays eat insects & mollusks. **\$3900**.
2016 World Wildlife Fund (PI: Kolmann, Co-PIs: Liverpool, Lovejoy): DNA barcoding of Guyana's coastal elasmobranch species and market landings. **\$7500**.
2015 Rufford Foundation (PI: Kolmann, Co-PIs: Liverpool, Taphorn): Survey of Freshwater, Coastal, & Estuarine Fishes of the Demerara River, Guyana. **\$8500**.
2013 American Elasmobranch Research Award (PI: Kolmann): A functional examination of jaw suspension and cranial muscle physiology in batoids. **\$1000**.

- 2013 Sigma Xi Grant-in-Aid of Research (PI: Kolmann): A functional examination of jaw suspension muscle morphology in batoids. \$1300.
- 2011 Sigma Xi Grant-in-Aid of Research (PI: Kolmann): The ontogeny of durophagy in the cownose ray, *Rhinoptera bonasus*. \$1300.
- 2011 FSU Coastal & Marine Laboratory Research Grant (PI: Kolmann): Feeding ecomorphology in the cownose ray, *Rhinoptera bonasus*. \$800.

PUBLICATIONS (†mentored graduate student, ‡undergraduate)

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25. **Kolmann, M.A.**, Hughes, L., Hernandez, L.P., Arcila, D., Betancur, R., Sabaj, M., López-Fernández, H., Ortí, G. *In Press*. Phylogenomics of piranhas and pacus (Serrasalminidae) reveal how convergent diets obfuscate morphological taxonomy. *Systematic Biology*. Pre-print: doi.org/10.1101/2020.03.02.973503
24. **Kolmann, M.A.**, †Peixoto, T., Pfeiffenberger, J., Summers, A.P., Donatelli, C.M. 2020. Swimming and defense - competing needs across ontogeny in armored fishes (Agonidae). *Journal of the Royal Society Interface*. 169(17): 1-11.
23. Buser, T., Donatelli, C., Boyd, O., Cortés, A., **Kolmann, M.A.**, Luparell, J., Pfeiffenberger, J., Sidlauskas, B., Summers, A.P. 2020. The 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. *Integrative Organismal Biology*. 2: obaa009.
22. **Kolmann, M.A.**, Burns, M., †Ng, J., Lovejoy, N.R., Bloom, D.D. 2020. Habitat transitions alter the adaptive landscape and shape phenotypic evolution in needlefishes. *Ecology & Evolution*. 00: 1-15.
21. Shiffman, D.S., Ajemian, M.J., Carrier, J., Daly-Engel, T.S, Davis, M., Dulvy, N.K., Grubbs, R.D., Hinojosa, N.A., Imhoff, J., **Kolmann, M.A.**, Nash, C., Paig-Tran, E.W.M., Peele, E.E., Skubel, R.A., Wetherbee, B., Whitenack, L., Wyffels, J.T. 2020. Trends in Chondrichthyan research: An analysis of three decades of conference abstracts. *Copeia*. 108(1):122-131.
20. Bloom, D.D., **Kolmann, M.A.**, Foster, K., Watrous, H. 2020. Mode of miniaturization influences body shape evolution in New World anchovies (Engraulidae). *Journal of Fish Biology*. 96: 194– 201.
19. **Kolmann, M.A.**, †Urban, P., Summers, A.P. 2020. Structure and function of the armored keel in piranhas, pacus, and their allies (Serrasalminidae). *Anatomical Record*. 303: 30-43.
18. Buser, T., †Finnegan, D., Summers, A.P., **Kolmann, M.A.** 2019. Have niche, will travel. New means of linking diet and ecomorphology reveals niche conservatism in marine & freshwater cottoid fishes. *Integrative Organismal Biology*. 1(1): p.obz023.

17. **Kolmann, M.A.**, Cohen, K., Bemis, K., Summers, A.P., Irish, F., Hernandez, L.P. 2019. Tooth and consequences: heterodonty and dental replacement in piranhas and pacus (Serrasalminae). [*Evolution and Development*](#). 21(5): 278-294. Select Press: [ScienceNews](#).
16. [‡]Huie, J., Summers, A.P., **Kolmann, M.A.** 2019. Body shape separates guilds of rheophilic herbivores (Myleinae: Serrasalminae) better than feeding morphology. [*Proceedings of the Natural Academy of Sciences of Philadelphia*](#). 166(1): 1-15.
15. [‡]Pos, K., Farina, S., **Kolmann, M.A.**, Gidmark, N. 2019. Pharyngeal jaws converge by similar means, not similar ends, when minnows adapt to new diet niches. [*Integrative and Comparative Biology*](#). 59(2): 432-442.
14. [†]Rutledge, K.R., Summers, A.P., **Kolmann, M.A.** 2019. Killing them softly: ontogeny of jaw mechanics and stiffness in mollusk-feeding freshwater stingrays. [*Journal of Morphology*](#). 280(6): 796-808.
13. Evans, K.M., Bernt, M.J., **Kolmann, M.A.**, Ford, K.L., Albert, J.S. 2018. Why the long face? Static allometry in the sexually dimorphic phenotypes of Neotropical electric fishes. [*Zoological Journal of the Linnean Society*](#). 186(3): 633-49.
12. **Kolmann, M.A.**, Grubbs, R.D., Huber, D.R., Fisher, R., Lovejoy, N.R., & Erickson, G.M. 2018. Intraspecific ontogenetic feeding mechanics in two populations of durophagous stingrays. [*Journal of Zoology*](#). 304(4): 225-234. (journal cover)
11. **Kolmann, M.A.**, [‡]Huie, J., Evans, K.M., Summers, A.P. 2018. Specialized specialists and the narrow niche fallacy: a tale of scale-feeding fishes. [*Royal Society Open Science*](#). 5(1): 171581. Selected press coverage: [Newsweek](#), [AAAS](#).
10. **Kolmann, M.A.**, Elbassiouny, A.A., Liverpool, E.A., & Lovejoy, N.R. 2017. DNA barcoding reveals the diversity of sharks in Guyana coastal markets. [*Neotropical Ichthyology*](#). 15(4): e170097.
9. Fontenelle, J.P., Loboda, T., **Kolmann, M.A.**, de Carvalho, M.R. 2017. Angular cartilage variation and structure in freshwater stingrays, with comments on function and evolution. [*Zoological Journal of the Linnean Society*](#). 183(1): 121-42.
8. Underwood, C.J., **Kolmann, M.A.**, Ward, D.J. 2017. Paleogene origin of planktivory in the Batoidea. [*Journal of Vertebrate Paleontology*](#). 37(3): e1293068.
7. **Kolmann, M.A.** & Summers, A.P. 2016. Biomaterials: Sharks shift their spine into high gear. News & Views. [Nature](#). (not peer-reviewed)
6. **Kolmann, M.A.**, Welch, K.C., Summers, A.P., & Lovejoy, N.R. 2016. Always chew your food: freshwater stingrays use mastication to process tough insect prey. [*Proceedings of the Royal Society: Part B*](#). 283: 20161392. Press coverage: [NatGeo](#), [CBC](#), [Science](#).

5. Elbassiouny, A., Schott, R., Waddell, J., **Kolmann, M.**, Lehmberg, E., Van Nynatten, A., Crampton, W., Chang, B., Lovejoy, N. 2016. Mitochondrial genomes of the South American electric knifefishes (Order Gymnotiformes). [*Mitochondrial DNA Part B: Resources*](#). 1(1): 401-403
4. **Kolmann, M.A.**, Crofts, S.B., Dean, M.N., Summers, A.P., & Lovejoy, N.R. 2015b. Morphology does not predict performance: jaw curvature and prey crushing in durophagous stingrays. [*Journal of Experimental Biology*](#). 218(24): 3941-3949. (Best student paper)
3. **Kolmann, M.A.**, Huber, D.R., Motta, P.J., & Grubbs, R.D. 2015a. Feeding biomechanics of the cownose ray, *Rhinoptera bonasus*, over ontogeny. [*Journal of Anatomy*](#). 227(3):341-351
2. **Kolmann, M.A.**, Huber, D.R., Dean, M.N., & Grubbs, R.D. 2014. Myological variability in a decoupled skeletal system: batoid cranial anatomy. [*Journal of Morphology*](#). 275(8):862-881
1. **Kolmann, M.A.**, Huber, D.R. 2009. Scaling of feeding biomechanics in the horn shark *Heterodontus francisci*: ontogenetic constraints on durophagy. [*Zoology*](#). 112(5):351-361.

PUBLICATIONS IN REVIEW & IN PREPARATION

- Kolmann, M.A.**, Marques, F.M., Weaver, J., Dean, M.N., & Lovejoy, N.R. *In revision*. An adaptive ray-diation? Evolution of feeding specialization in Neotropical freshwater stingrays. *Journal of Evolutionary Biology*.
- Kolmann, M.A.** & Kalacska, M., Lucanus, O., Sousa, L., Wainwright, D., Arroyo-Mora, P., Andrade, M. *In review*. Hyperspectral data can distinguish among Neotropical fishes: a new method for screening biodiversity. *Methods in Ecology & Evolution*.
- Kolmann, M.A.**, *MacLeod, L., Racy, J.M., Summers, A.P. *In prep*. Functional equivalency within the feeding mechanisms of ectoparasitic (fin- and scale-feeding) and piscivorous piranhas (Serrasalminae).
- Kolmann, M.A.**, Hernandez, L.P., Correa, S.B., Hughes, L., Ortí, G., López-Fernández, H. *In prep*. Trophic and phenotypic diversification among seed-feeders, fruit-crushers, and flesh-eaters: the evolutionary ecology of piranhas, pacus, and their allies (Serrasalminae).

SCIENCE COMMUNICATION & REPORTS

8. **Kolmann, M.A.** 2020. Known unknowns and undescribed... [*Integrative Organismal Biology*](#) (journal blog).
7. **Kolmann, M.A.** 2019. A tall tail about sharks & ichthyosaurs. [*Integrative Organismal Biology*](#) (journal blog).
6. **Kolmann, M.A.** 2019. Feisty feeding for flowers foments fighting: a tale of the hummingbird bill. [*Integrative Organismal Biology*](#) (journal blog).

5. **Kolmann, M.A.**, Liverpool, E., Taphorn, D. Final Report on Lower Demerara Survey of Freshwater, Coastal, and Estuarine Fishes. Submitted to Rufford Foundation. September 2015.
4. Lovejoy, N.R., **Kolmann, M.A.** Report on coastal freshwater fishes from Tortuguero, Limon Province. Submitted to Ministerio de Ambiente, Energía y Telecomunicaciones (MINAET) of Costa Rica. April 2015.
3. Taphorn, D., Armbruster, J., **Kolmann, M.A.**, Liverpool, E., López-Fernández, H., & Werneke, D. Final Report on Upper Potaro Fish Biodiversity. Submitted to World Wildlife Fund. March 2014.
2. Taphorn, D., **Kolmann, M.A.** Final Report on Lower Rupununi Fish Biodiversity Assessment Team. Submitted to World Wildlife Fund. November 2013.
1. Lovejoy, N.R., **Kolmann, M.A.** Report on fishes of Barro de Colorado Wildlife Refuge, Limon Province. Submitted to Ministerio de Ambiente, Energía y Telecomunicaciones (MINAET) of Costa Rica. April 2013.

TEACHING EXPERIENCE

Instructor of Record

- 2016-2020 University of Washington, Friday Harbor, WA
 Biology of Fishes (FHL 305) – Fall 2016, 2017
 Research in Marine Biology (FHL 470) – Spring 2017, 2020
 Functional Morphology & Ecology of Marine Fishes – Summer, 2020
- 2016-2017 University of Toronto Scarborough (Dept. of Biological Science), Toronto ON
 Tropical Biodiversity & Conservation (BIO C51)
 Comparative Biomechanics and Ecomorphology Seminar (BIO C99)

Guest Lecturer

- 2019 George Washington University, Washington, DC
 Methods of Evolutionary Studies – Homology & Homoplasy lecture

Teaching Assistant

- 2012-2016 University of Toronto Scarborough (Dept. of Biological Science), Toronto ON
 Human Anatomy (BIO B33) – 10 semesters, 20 labs
 Tropical Biodiversity & Conservation (BIO C51) – 3 semesters
- 2009-2012 Florida State University (Dept. of Biological Science), Tallahassee FL
 Comparative Vertebrate Anatomy (ZOO 3713C)
 Biology of Fishes (BSC 4933)
 Animal Diversity (BSC 2011L)
 Biological Science I (BIO 2010L)

CURATORIAL EXPERIENCE

I have deposited 9000+ specimens and 1500+ genomic samples at the Royal Ontario Museum and elsewhere (e.g. University of Washington Burke Museum, Museum of Comparative Zoology at Harvard University), CT scanned 1000+ museum specimens, and participated in 10+ field expeditions.

Curatorial commentary: Importance of specimens for museum-based research. [Audubon News](#).
Digital anatomical libraries for museum research. [Science](#). [Live Science](#).

- 2018 *co-PI* - Exploration of the ichthyofauna from the Rio Vaupés (Colombia)
Royal Ontario Museum, Toronto, ON
- 2015 *Visiting Researcher* - Wyss Institute for Biologically Inspired Engineering
Harvard University, Cambridge, MA
- 2015 *Principal Investigator* - Freshwater & Coastal Fishes of the Demerara River
Royal Ontario Museum, Toronto, Ontario
- 2014 *Ichthyological Consultant* - Rapid Biodiversity Assessment Team (BAT) of the
Potaro-Siparuni Rivers, Guyana
World Wildlife Fund (Guyana) & Royal Ontario Museum, Toronto, ON
- 2013 *Ichthyological Consultant* - Rapid Biodiversity Assessment Team (BAT) of the
south Rupununi Region, Guyana
World Wildlife Fund (Guyana) & Royal Ontario Museum, Toronto, ON

STUDENT MENTORING (†mentored graduate student, ‡undergraduate, **research award winner)

- 2020 ‡Leo MacLeod: *Morphological & diet specialization within piscivorous piranhas*.
Directed research project. Sophomore, Univ. of Washington.
- 2020 ‡Emily Poulin: *The versatile skulls of herbivorous fishes: functional morphology of pacu jaws and teeth*. Directed research project. Junior, Univ. of Washington.
- 2019 †Kelsi Rutledge, MSc: *Structure and function of the jaws of a durophagous freshwater river ray (Potamotrygon leopoldi) through ontogeny*. FHL Fish Functional Morphology Course thesis. Now PhD student at UCLA.
- 2018 †Elska Kaczmarek: *Form, function, and evolution of defensive weaponry in doradid catfishes*. FHL Fish Functional Morphology Course thesis. Now PhD student at Brown Univ.
- 2018 †Jules Chabain, MSc: *Use of stingray barbs as a taxonomic character for fossil-dating phylogenies*. Steven & Ruth Wainwright Fellowship student. Now PhD student at Univ. of Illinois, Urbana-Champaign.

- 2018 †Tessa Peixoto: *Structure and function of poacher (Agonidae) armor*. Steven & Ruth Wainwright Fellowship student.
- 2017 †Justin Ng**: *Processes & mechanisms driving miniaturization in freshwater needlefishes*. UW Undergraduate Thesis. Now a fisheries observer with NOAA.
- 2017 †Darby Finnegan: *Morphological diversification in temperate freshwater sculpins*. NSF Blinks-Scholar. Accepted Fulbright Scholarship, University of Stockholm.
- 2017 †Benjamin Nicholas: *Morphological diversification upon transitions from marine to freshwater in pufferfishes*. NSF REU. Now PhD student at Univ. of Michigan.
- 2017 †Abby von Hagel**: *Skeletal adaptations in abyssal snailfishes*. Undergraduate project.
- 2017 †Jonathan Huie**: *Convergent evolution in scale-feeding fishes*. Undergraduate project. Starting PhD program at George Washington Univ. Fall 2020.
- 2017 †Camara Harris-Weaver: *Morphological diversification across a habitat transition in tropical needlefishes*. Undergraduate project. Now a Wash. State Forester.
- 2016 †Amy Botross & †Ereny Botross: *Redundancy of form and function in the feeding apparatus of dasyatoid stingrays*. Undergraduate group project.
- 2015 †Swara Shah** & †Henil Patel: *Ontogeny of feeding biomechanics & muscle physiology in durophagous stingrays*. Undergraduate thesis. Ms. Shah is completing medical school in New York City.
- 2014 †Michael Dobrovetsky: *Body shape disparity and character displacement in Caribbean anchovies*. Undergraduate thesis. Now a Toronto Zoo employee.

ACADEMIC SERVICE

Reviewer for: *Journal of Morphology, Anatomical Record, Evolution, Journal of Experimental Biology, Journal of Fish Biology, Zoology, Current Biology, Proceedings of the Royal Society: Part B, Environmental Biology of Fishes, Journal of Vertebrate Paleontology, Molecular Phylogenetics & Evolution, Behavioral Ecology, Scientific Reports, Conservation Biology*

- 2018- Reviewer for NSF-DBI PRFB and Early Career award applications
- 2018- Outreach Associate, Integrative Organismal Biology Journal (SICB)
- 2017-2019 Friday Harbor Labs Advancement Board
- 2016-2018 Friday Harbor Labs Safety Committee
- 2016-2017 Friday Harbor Labs Open House Committee Chair
- 2013-2015 American Elasmobranch Society Student Affairs Committee Chair
- 2013 American Elasmobranch Society Student Affairs Committee Newsletter Editor

PUBLIC SERVICE & OUTREACH

2017	Scientists in the Classroom; Spring Street School, San Juan Island, WA
2013-2016	Canadian Organization for Tropical Education, Research & Conservation
2016	Durham Region Aquarium Society Invited speaker
2013-2014	Ontario BioBlitz, Fish Biologist
2011-2012	Scientists in the Classroom; Corkscrew Elementary School, Naples FL
2010	Saturday at the Sea (SATS) Instructor, St. Teresa, FL
2011-2012	Florida Capitol Region Science Fair, Project Judge, Tallahassee, FL

INVITED PRESENTATIONS

Kolmann, M.A. The biomechanics of ray-diations: the evolution of feeding & diet in fishes. Southeastern Louisiana University. May 2019. Hammond, LA

Kolmann, M.A. Creatures of habitat: how marine fishes become freshwater fishes. New Jersey Institute of Technology. April 2019. Newark, NJ

Kolmann, M.A. Form, function, & biomechanics: how predators are shaped by prey. University of North Florida. February 2019. Jacksonville, FL

Kolmann, M.A. Stingray feeding evolution revealed through biomechanical modeling. New York Institute of Technology. January 2019. Old Westbury, NY

Kolmann, M.A. Creatures of habitat: how freshwater shaped marine-invading fishes. California State University, Bakersfield. December 2018. Bakersfield, CA

Kolmann, M.A. They came from the sea: how marine fishes become freshwater fishes. Loyola Marymount University. November 2018. Los Angeles, CA

Kolmann, M.A. Invasions from the sea: does freshwater lead to diversification? California State University, Sacramento. February 2018. Sacramento, CA

Kolmann, M.A. Caño Palma, Field Stations, & Biodiversity in the Anthropocene. Canadian Organization for Tropical Education, Research & Conservation Annual Gala. November 2016. Toronto, ON

Whitenack, L.B. & **Kolmann, M.A.** Integrative chondrichthyan paleobiology: The present is the key to the past. American Elasmobranch Society Symposium on Integrative Biology. July 2015. Reno, NV

Kolmann, M.A., Huber, D.R., Dean, M.N., & Grubbs, R.D. Feeding ecomorphology of durophagous stingrays. American Elasmobranch Society symposium on durophagous stingrays July 2013. Albuquerque, NM

Kolmann, M.A., Huber, D.R., Dean, M.N., & Grubbs, R.D. Scaling of bite force generation in the cownose ray, *Rhinoptera bonasus*. American Fisheries Society: Symposium on Elasmobranch Fisheries. September 2011. Seattle, WA

SELECT PRESENTATIONS (of 55+) (†mentored student)

Kolmann, M.A., Evans, K., Huie, J.M., Ortí, G., Hernandez, L.P. Carnivorous grazers? How to build scale-feeding and fin-feeding fishes from less egregious relatives. Society for Integrative & Comparative Biology. January 2020. Austin, TX.

Kolmann, M.A., Ortí, G., López-Fernández, H., Hernandez, L.P. Evolution of function in the feeding mechanism of piranhas & pacus. International Congress of Vertebrate Morphology. July 2019. Prague, CZ

Kolmann, M.A., Hughes, L., Hernandez, L.P., Lopez-Fernandez, H., Ortí, G. Evolution of diet and feeding in Neotropical freshwater fishes. Evolution. June 2019. Providence, RI

Fontenelle, J.P., **Kolmann, M.A.**, Lovejoy, N.R., Marques, F.P. Another Kettle of Fish: Molecular Phylogeny of the Neotropical Freshwater Stingrays Reveals Recent Diversification and Geographically Determined Paraphyletic Lineages. Evolution. June 2019. Providence, RI

Kolmann, M.A., Cohen, K.E., Bemis, K., Summers, A.P., Irish, F., Hernandez, L.P. The whole tooth and nothing but: tooth replacement in piranhas and pacus. Society for Integrative & Comparative Biology. January 2019. Tampa, FL

†Rutledge, K.M., Summers, A.P., **Kolmann, M.A.** Killing them softly: the structure and function of the jaws of a durophagous freshwater river ray (*Potamotrygon leopoldi*) through ontogeny. Society for Integrative & Comparative Biology. January 2019. Tampa, FL

Kolmann, M.A., Irish, F., Hernandez, L.P. Muscled up and sutured down: cranial musculature & feeding mechanics in piranhas and pacus. Society for Integrative & Comparative Biology. January 2019. Tampa, FL

Kolmann, M.A., Cohen, K., Bemis, K., Hernandez, L.P., Summers, A.P. Tooth and Consequences: heterodonty and tooth replacement in piranhas and pacus. Joint Meeting of Ichthyologists and Herpetologists. July 2018. Rochester, NY

Whitenack, L.B. & **Kolmann, M.A.** Leveraging Extant Shark Tooth Shape to Examine Paleozoic Selachian Morphospace. Society for Integrative & Comparative Biology. January 2018. San Francisco, CA

†Finnegan, D., Summers, A.P., Buser, T., **Kolmann, M.A.** Convergence in diet and morphology in marine and freshwater cottoid fishes. Society for Integrative & Comparative Biology. January 2018. San Francisco, CA

†Nicholas, B., Summers, A.P., **Kolmann, M.A.** Diversification of feeding morphology in marine and freshwater pufferfishes. Society for Integrative & Comparative Biology. January 2018. San Francisco, CA

†Ng, J., †Harris-Weaver, C., Bloom, D., Lovejoy, N.R., Buser, T.J., Summers, A.P., **Kolmann, M.A.** Processes & mechanisms driving miniaturization in freshwater needlefishes. Society for Integrative & Comparative Biology. January 2018. San Francisco, CA

Kolmann, M.A., †Huie, J., Evans, K.M., Summers, A.P. View to a keel: aggression, armor, and scale-feeding in piranhas. Society for Integrative & Comparative Biology. January 2018. San Francisco, CA

Kolmann, M.A., Marques, F.M., Dean, M.N., Weaver, J., & Lovejoy, N.R. An adaptive radiation? Feeding and dietary diversification in freshwater stingrays. American Elasmobranch Society. July 2017. Austin, TX

Fontenelle, J.P., Marques, F.M. **Kolmann, M.A.**, Lovejoy, N.R. Molecular Phylogeny of the Neotropical Freshwater Stingrays, with Biogeographical Inferences. Joint Meeting of Ichthyologists and Herpetologists. July 2017. Austin, TX (*Best Student Talk - Neotropical Ichthyology Association*)

Newton, K., **Kolmann, M.A.**, Summers, A.P. Diffusible Iodine Contrast Enhanced micro-CT scanning as a method to visualize soft tissue anatomy in elasmobranch fishes. American Elasmobranch Society. July 2017. Austin, TX

Kolmann, M.A. & Summers, A.P. It's a hard-knock life - lepidophagy, armor, and injury in piranhas and their allies. Joint Meeting of Ichthyologists and Herpetologists. July 2017. Austin, TX

Kolmann, M.A., Welch, K. Summers, A.P., & Lovejoy, N.R. Goats of the sea - bilaterally asymmetric chewing in an elasmobranch. American Elasmobranch Society. July 2016. New Orleans, LA (*Best Student Talk - AES Gruber Award*)

Kolmann, M.A., Welch, K.C., Summers, A.P., Lovejoy, N.R. The evolution of insectivory in freshwater stingrays. International Congress of Vertebrate Morphology. June 2016. Washington D.C.

†Shah, S., †Patel, H., **Kolmann, M.A.**, Lovejoy, N.R. Comparative ontogeny of feeding performance in durophagous stingrays. Society for Integrative & Comparative Biology. January 2016. Portland, OR

Kolmann, M.A., Summers, A.P., & Lovejoy, N.R. Prey material properties and the evolution of the stingray feeding apparatus. Society for Integrative & Comparative Biology. January 2016. Portland, OR

Huber, D.R., **Kolmann, M.A.**, Herrel, A., and Claes, J. Chondrichthyan feeding biomechanics: Intra- and inter-specific scaling patterns. American Elasmobranch Society. July 2008. Montreal, QC

SELECT PUBLISHED DATASETS (of 1000+)

Kolmann, M.A., Bemis, K., & Summers, A.P. 2017. *Serrasalmus manueli*. CT scan
<http://doi.org/10.17605/OSF.IO/64GNE>

Kolmann, M.A., Lovejoy, N., & Summers, A.P. 2017. *Himantura signifier* CT scan
<http://doi.org/10.17605/OSF.IO/WM3NP>

Kolmann, M.A., Newton, K., & Summers, A. P. 2017. *Narcine bancroftii* CT scan
<http://doi.org/10.17605/OSF.IO/EBPA3>

Kolmann, M.A., Jackson, K. E., & Summers, A.P. 2017. *Sternarchorhynchus cramptoni* CT scan
<http://doi.org/10.17605/OSF.IO/GJ93D>

TECHNICAL EXPERIENCE

Environmental Protection Commission of Hillsborough County; Tampa FL 2008 – 2009
Environmental Technician Benthic invertebrate taxonomy & field collection.

TERRA Environmental Services Inc.; Tampa FL 2007 – 2009
Environmental Technician Benthic invertebrate taxonomy & field collection.

REFERENCES (*can attest to teaching experience)

L. Patricia Hernandez, PhD
(Postdoc advisor)
Associate Professor
Dept. of Biological Sciences
George Washington University
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Nathan R. Lovejoy, PhD*
(Ph.D. advisor)
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Dept. of Ecology & Evolutionary Biology
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Adam P. Summers, PhD*
(Postdoc advisor)
Professor
School of Aquatic & Fishery Sciences
Friday Harbor Marine Labs
University of Washington
fishguy@uw.edu
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Megan Dethier, PhD*
(Instructional Supervisor)
FHL Interim Director & Professor
Friday Harbor Marine Labs
University of Washington
mdethier@uw.edu
206-616-0764