Samuel R. Borstein

CONTACT INFORMATION

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Department of Biology
Texas State University
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EDUCATION

University of Tennessee, Knoxville, Tennessee USA

August 2013–May 2019
Ph.D. Ecology & Evolutionary Biology

- Dissertation Topic: "Macroevolutionary Consequences of Trophic Specialization"
- Advisor: Brian O'Meara
- Committee: Benjamin Fitzpatrick, James Fordyce, Benjamin Keck

California State University, Sacramento, Sacramento, California USA

August 2009–May 2013
B.S., Biology (Ecology, Evolution & Conservation Concentration)

PROFESSIONAL POSITIONS

Texas State University, San Marcos, Texas USA

Assistant Professor
Department of Biology
September 2023-Present

University of Michigan, Ann Arbor, Michigan USA

NSF Postdoctoral Fellow (PRFB-DBI)
March 2021-August 2023

University of Michigan, Ann Arbor, Michigan USA

Postdoctoral Research Fellow
June 2019-February 2021

- Advisor: Hernán López-Fernández

PEER REVIEWED PUBLICATIONS

Publications: 14 (6 First author); Citations: 668 (Since 2020: 543); H-index: 10; i10-index: 10 (Google Scholar) **denotes co-first author*

14. **Borstein, S. R.**, Hammer, M. H., O'Meara, B. C., & McGee, M. D. (2024) The macroevolutionary dynamics of pharyngognathy in fishes fail to support the key innovation hypothesis.*Nature Communications*15:10325. DOI: `https://doi.org/10.1038/s41467-024-53141-4`.
13. Martinez, C., Corn, K. A., Williamson, S., Satterfield, D., Roberts-Hugghis, A. S., Barley, A., **Borstein, S. R.**, McGee, M. D., & Wainwright, P. C. (2024) Replicated Functional Evolution in Cichlid Adaptive Radiations. *The American Naturalist*, 204:242-257. DOI: `https://doi.org/10.1086/731477`.
12. Blackburn, D.C., Boyer, D.M., Gray, J.A., Winchester, J., Bates, J.M., Baumgart, S.L., Braker, E., Coldren, D., Conway, K.W., Davis Rabosky, A., de la Sancha, N., Dillman, C.B., Dunnum, J.L., Early, C.M., Frable, B.W., Gage, M.W., Hanken, J., Maisano, J.A., Marks, B.D., Maslenikov, K.P., McCormack, J.E., Nagesan, R.S., Pandelis, G.G., Prestridge, H.L., Rabosky, D.L., Randall, Z.S., Robbins, M.B., Scheinberg, L.A., Spencer, C.L., Summers, A.P., Tapanila, L., Thompson, C.W., Tornabene, L., Watkins-Colwell, G.J., Welton, L.J., the oVert Project Team (including **Borstein, S. R.**) & Stanley, E.L.

(2024) Increasing the impact of vertebrate scientific collections through 3D-imaging: the openVertebrate (oVert) Thematic Collections Network. *BioScience*, 74 (3): 169-186. DOI: https://doi.org/10.1093/biosci/biad120.

11. Kolmann, M. A., Nagesan, R. S., Andrews, J. V., **Borstein, S.R.**, Figueroa, T. C., Singer, R. A., Friedman, M., &. López-Fernández, H. (2023) DiceCT for Fishes: Recommendations for pairing iodine contrast agents with µCT to visualize soft tissues in fishes. *Journal of Fish Biology*, 102:893-903. DOI: http://doi.org/10.1111/jfb.15320.
10. Coronado-Franco, K. V., Tedesco, P. A., Kolmann, M., **Borstein, S. R.**, Evans, K. O., & Correa, S. B. (2022) Feeding habits influence species habitat associations at the landscape scale in a diverse clade of Neotropical fishes. *Journal of Biogeography*, 49:2181-2192. DOI: http://doi.org/10.1111/jbi.14490.
9. **Borstein, S. R.**, Lucanus, O., Gajapersad, K., Singer, R. A., Mol, J., &. López-Fernández, H. (2022) Fish Diversity of the Upper Tapanahony River, Suriname. *Miscellaneous Publications, Museum of Zoology, University of Michigan*, 210:1-19. DOI: http://doi.org/10.7302/4816.
8. **Borstein, S. R.** (2020) dietr: an R package for calculating fractional trophic levels from quantitative and qualitative diet data. *Hydrobiologia* 847:4285-4294. DOI: http://doi.org/10.1007/s10750-020-04417-5.
7. McGee, M.*****, **Borstein, S. R.***, Meier, J. I., Marques, D. A. Mwaiko, S., Taabu, A., Kishe-Machumu, M. A., O'Meara, B., Bruggmann, R., Exoffier, L. & Seehausen, O. (2020). The ecological and genomic basis of explosive adaptive radiation. *Nature*, 586:75-79. DOI: http://doi.org/10.1038/s41586-020-2652-7.
6. Mueller, L. O., **Borstein, S. R.**, Tague, E. D, Dearth, S. P., Castro, H. F., Campagna, S. R., Bailey, J. K., & Schweitzer, J. A. (2020). Populations of *Populus angustifolia* have evolved distinct metabolic profiles that influence their surrounding soil. *Plant & Soil*, 448:399-411. DOI: http://doi.org/10.1007/s11104-019-04405-2.
5. **Borstein, S. R.**, Fordyce, J. A., O'Meara, B. C., Wainwright, P. C., & McGee, M. D. (2019) Reef fish functional traits evolve fastest at trophic extremes. *Nature Ecology & Evolution*, 3(1):191-199. DOI: http://doi.org/10.1038/s41559-018-0725-x.
4. **Borstein, S. R.** & O'Meara, B. C. (2018). AnnotationBustR: An R package to extract subsequences from GenBank annotations where loci names differ among records.*PeerJ*,6:e5179. DOI: https://doi.org/10.7717/peerj.5179.
3. Martinez, C. M., McGee, M. D.,**Borstein, S. R.**, & Wainwright, P. C. (2018). Feeding ecology underlies the evolution of cichlid jaw mobility. *Evolution*, 72 (8): 1645-1655. DOI: https://doi.org/10.1111/evo.13518.
2. McGee, M. D., Faircloth, B. C., **Borstein, S. R.**, Zheng, J., Hulsey, C. D., Wainwright, P. C., & Alfaro, M. E. (2016). Replicated divergence in cichlid radiations mirrors a major vertebrate innovation. *Proceedings of the Royal Society, B.*, 2839(1822), DOI: http://doi.org/10.1098/rspb.2015.1413.
1. McGee, M. D., **Borstein, S. R.**, Neches, R. Y., Buescher, H. H., Seehausen, O. & Wainwright, P. C. (2015). A pharyngeal jaw evolutionary innovation facilitated cichlid extinction after the Nile perch invasion of Lake Victoria. *Science*, 350(6264): 1077-1079. DOI: https://doi.org/10.1126/science.aab0800.

Manuscripts in Review (Manuscripts Available Upon Request)

2. Nayak, A., Owolabi,F., Perry, A. J., Stella, F, **Borstein, S. R.**, & McGee, M. D. (In Review). An inverse relationship between PFAS levels and body size in marine fishes. *Nature Ecology & Evolution.*

1. **Borstein, S. R.**, McGee, M. D. & Hammer, M. P. (In Review). *Haplochromis cyaneus* Seehausen, Bouton & Zwennes, 1998 (currently *Haplochromis cyaneus*; Osteichthyes, Cichliformes, Cichlidae): proposed conservation of the specific name. *Bulletin of Zoological Nomenclature*.

Software

Borstein, S.R., Dominy, B.E., & O'Meara, B.C. (2025). rcatfish: An R Interface to the California Academy of Sciences Eschmeyer's Catalog of Fishes. *Submitted to CRAN*.

Borstein, S.R. (2019). dietr: Calculates trophic levels from volumetric diet and food item data. *Available at:*`https://github.com/sborstein/dietr`. *Available on CRAN At:* `https://cran.r-project.org/package=dietr`.

Borstein, S.R. & B.C. O'Meara (2018). AnnotationBustR: An R package to extract sub-sequences from GenBank annotations *Available At:* `https://github.com/sborstein/AnnotationBustR`. *Available on CRAN At:* `https://CRAN.R-project.org/package=AnnotationBustR`.

Grants & Funding

To date: $533,555 in funding ($508,620 External)

2025	Texas State University Research Enhancement Program (PI)	$12,000
2025	Texas Comptroller of Public Accounts: Texas Endangered Species Research Management (PI)	$269,652
2022	University of Michigan Undergraduate Research Opportunity Program Research Mentor Grant	$1,000
2021	University of Michigan Undergraduate Research Opportunity Program Research Mentor Grant	$1,000
2021	National Science Foundation Post-Doctoral Fellow – Div. Biological Infrastructure (PI)	$207,000
2018	Travel Award, College of Arts & Science, University of Tennessee	$860
2017	Summer Research Grant, EEB Department, University of Tennessee	$1,500
2017	American Museum of Natural History Theodore Roosevelt Memorial Grant	$1,955
2017	National Science Foundation Doctoral Dissertation Improvement Grant (co-PI)	$19,630
2017	Society for Integrative & Comparative Biology Grant-in-Aid of Research	$1,000
2016	Travel Award, College of Arts & Science, University of Tennessee	$450
2016	American Cichlid Association Guy Jordan Fellowship	$1,200
2016	Summer Research Grant, EEB Department, University of Tennessee	$1,050
2016	Friday Harbor Laboratories Stephen and Ruth Wainwright Endowed Fellowship	$1,800
2015	Society of Systematic Biologists (SSB) Graduate Student Research Award	$1,500
2015	Ohio Cichlid Association Jim Smith Fund	$2,000
2015	Summer Research Grant, EEB Department, University of Tennessee	$1,125
2014	Summer Research Grant, EEB Department, University of Tennessee	$450
2013	American Cichlid Association Guy Jordan Fellowship	$1,200
2013	Sigma Xi Grant in Aid of Research	$500
2011	Sacramento State University Summer Undergraduate Research Experience	$5,500
2010	American Cichlid Association Guy Jordan Fellowship	$1,183

Honors & Awards

2017 University of Tennessee, Knoxville Chancellor's Fellowship

2017 University of Tennessee Department of Ecology & Evolutionary Biology Best Progress Toward Dissertation Research Award

2017 University of Tennessee Graduate Student Senate Outstanding Research Award

2015 Selected Finalist for the Society for Integrative and Comparative Biology Wake Award for best student presentation in the division of phylogenetics and comparative biology for the 2015 SICB annual meeting

2013 2nd Place Best Seminar Presentation, California State System Wide Research Competition

2013 Best Seminar in Marine & Aquatic Biology, West Coast Biological Sciences Undergraduate Research Conference (WCBSURC)

2009 Greater Chicago Cichlid Association Master Cichlid Breeder

2009 Selected for the John G. Shedd Aquarium High School Marine Biology Mentorship

2008 Greater Chicago Cichlid Association Aquarist of the Year

2008 Selected for the John G. Shedd Aquarium High School Lake Ecology Mentorship

Teaching

Texas State University, San Marcos, Texas USA
- BIO 7332 Introduction to R Programming for Biologists, Spring 2025, Fall 2025
- BIO 3332 (previously 4351K) R for Biologists, Spring 2024, Fall 2025
- BIO 7333 Phylogenetic Comparative Methods, Fall 2024

University of Michigan, Ann Arbor, Michigan USA
- EEB 440 Biology of Fishes, Guest Lecturer, Fall 2021 & 2022
- EEB 441 Biology of Fishes Lab, Guest Lecturer, Fall 2019

University of Tennessee, Knoxville, Tennessee USA
- EEB 470 Aquatic Ecology, Spring 2017
- EEB 474 Ichthyology Laboratory and occasional lecturer, Falls 2014-2018
- BIO 102 Biodiversity Laboratory for Non-Majors, Springs 2015-2017
- BIO 130 Biodiversity Laboratory for Majors, Fall 2013-Spring 2014

Graduate Students

2025-Present Brandon Dominy (MSc.), Department of Biology, Texas State University.

2023-Present Shannon Whitney (PhD), Department of Biology, Texas State University.

Graduate Student Committees

2025-Present Matthew Bushell (PhD, Advisor: Leila Siciliano-Martina), Department of Biology, Texas State University.

2025-2025 Michael Maxfield (MSc., Advisor: Hong-Gu Kang), Department of Biology, Texas State University.

2024-Present Alyssa Arguijo (MSc., Advisor: Leila Siciliano-Martina), Department of Biology, Texas State University.

2024-Present Bailey Ellis (MSc., Advisor: Noland Martin), Department of Biology, Texas State University.

2024-Present Alex Zalmat (PhD, Co-advisors: Tim Bonner & Noland Martin), Department of Biology, Texas State University.

2023-Present Isabella Changsut (PhD, Advisor: Lauren Fuess), Department of Biology, Texas State University.

Undergraduate Mentorship

2025-Present Abhiraame Karuppasamy, independent undergraduate research, Texas State University.
2025-Present Zoe Tormollen, independent undergraduate research, Texas State University.
2025-2025 Avery Huff, IDEA Center Research Experience, Texas State University.
2024-2025 Titan Ferguson, independent undergraduate research, Texas State University.
2024-2025 Brandon Dominy, independent undergraduate research, Texas State University.
2024-Present Mikalah Hegefeld, independent undergraduate research, Texas State University.
2022-2023 Sophia Putman, independent undergraduate research, University of Michigan.
2022-2023 Maya Hillegonds, University of Michigan Undergraduate Research Opportunity Program.
2022-2023 Geo Johnson, University of Michigan Undergraduate Research Opportunity Program.
2022-2023 Kellen Kennedy, University of Michigan Undergraduate Research Opportunity Program.
2021-2023 Mariana Fernández Correa, University of Michigan Undergraduate Research Opportunity Program.
2021-2022 Lauren Schaeffer, University of Michigan Undergraduate Research Opportunity Program.
2021-2022 Milo Neirink, University of Michigan Undergraduate Research Opportunity Program.
2021-2022 Yongxin Zheng, University of Michigan Undergraduate Research Opportunity Program.
2020-2022 Paul Fedorowicz, independent undergraduate research, University of Michigan. Currently MS student at New Mexico State University.
2020-2021 Ethan Bernstein, independent undergraduate research, University of Michigan Museum of Zoology.
2019-2021 Coen Long, University of Michigan Undergraduate Research Opportunity Program.
2020-2020 Bronya Sandorffy, University of Michigan Undergraduate Research Opportunity Program.
2019-2020 Katherine Baxter, independent undergraduate research, University of Michigan Museum of Zoology.
2019-2020 Katherine Quinlan, University of Michigan Undergraduate Research Opportunity Program.
2019-2020 Luke McGill, independent Undergraduate Research, University of Michigan Museum of Zoology.
2018-2019 Jeffery Stevens, independent undergraduate research, University of Tennessee. *Currently* PhD. student at Auburn University.
2013-2015 Jasmine Vazin, independent undergraduate research, University of Tennessee. *Completed* MSc. University of California, Santa Barbara. *Currently* Senior Campaign Representative for the Sierra Club.

Field Expeditions

Fall 2025: Texas, Red River
Fall 2025: Texas, Rio Grande
Fall 2025: Texas, Pecos River
Spring 2023: Suriname, Coppename River
Spring 2020: Suriname, Upper Tapanahony River
Summer 2019: West Virginia, Monongahela & Greenbrier Rivers
Fall 2017: Tennessee, Conasauga River
Summer 2017: West Virginia, Monongahela River
Summer 2016: North Carolina, Roanoke River Basin
Summer 2015: Tennessee, Clinch/Tennessee River
Winter 2013: Costa Rica
Winter 2011: Costa Rica
Winter 2010: Costa Rica

Service

National Science Found Panelist-Division of Earth Sciences **2025**

Hill Country Cichlid Club Board of Directors **2024-Present**

Texas State University Biology Colloquium Presentation Judge **2024-2025**

University of Michigan Museum of Natural History ID Day Participant, Co-organized Division of Fishes Outreach Activities **2022**

University of Michigan Department of Ecology and Evolutionary Biology Graduate Publication Award Committee **2019–2019**

University of Tennessee Biological Collections Committee Graduate Representative **2016–2019**

Instructor for the University of Tennessee vertebrate zoology KidsU educational summer camp program, presenting on fish diversity **2018**

Board of Trustees: American Cichlid Association **2013–2015**

Secretary: Federation of American Aquarium Societies **2010–2015**

Secretary: California State University, Sacramento Field Biology Group **2012–2013**

Web Master: California State University, Sacramento Field Biology Group **2012–2013**

Workshop Assistant: Expanding Your Horizons "Fun With Fishes" class **2012–2013**

Volunteer Aquarist , Rivers Gallery: John G. Shedd Aquarium, Chicago, IL **Summer 2009/2010**

Reviewer for: *American Journal of Undergraduate Research*, *Bioinformatics*, *Biological Invasions*, *Evolution*, *Fishes*,*Hydrobiologia*, *Journal of Animal Ecology*, *Molecular Biology & Evolution*, *Methods in Ecology and Evolution*, *Neotropical Ichthyology*, *PeerJ*, *PLOS One*, *Royal Society Open Science*, *Southeastern Naturalist*, *Systematic Biology*, & *Tissue & Cell*.

Other Professional Training

2016 Fish Functional Morphology: Friday Harbor Laboratories. Organizers: Adam Summers and Alice Gibb.
2015 Bodega Bay Phylogenetics Workshop. Organizers: Brian Moore and Peter Wainwright.
2014 Phylogenomics Symposium and Software School. Organizer: Tandy Warnow.

Conference Presentations

Denotes presentation by mentored undergraduate student

Dominy, B.E.*, O'Meara, B.C., &**S.R. Borstein** (2025). rcatfish: An R Interface to the California Academy of Sciences Eschmeyer's Catalog of Fishes. Poster presented at the Texas State University Biology Department Student Colloquium.

Kennedy, K.*, **S.R. Borstein**, & Nicholas, B. (2023). Biting Into Fish Pharyngeal Jaw Tooth Diversity with MicroCT Scanning. Poster presented at the University of Michigan Undergraduate Research Opportunity Program Symposium.

Johnson, G.*, **S.R. Borstein**, & Nicholas, B. (2023). Investigating the Morphological Diversity of the Upper Pharyngeal Jaw in Fishes. Poster presented at the University of Michigan Research and Development Scholars Symposium.

Fernandez Correa, M.* & **S.R. Borstein** (2022). Does life history affect swimming functional morphology in Neotropical killifish? Poster presented at the University of Michigan Summer Engineering Undergraduate Research Opportunity Program Symposium.

Zheng, Y.* & **S.R. Borstein** (2022). Swimming Morphology in the Most Diverse Catfish Family. Poster presented at the University of Michigan Undergraduate Research Opportunity Program Symposium.

Sheffer, L.*, López-Fernández, H., & **S.R. Borstein** (2022). Phenotypic Disparity in Detritivorous Neotropical Fishes. Poster presented at the University of Michigan Undergraduate Research Opportunity Program Symposium.

Fernandez Correa, M.* & **S.R. Borstein** (2022). Does life history affect swimming functional morphology in Neotropical killifish? Talk presented at the University of Michigan Research and Development Scholars Symposium.

Neirink, M.* & **S.R. Borstein** (2022). Evolutionary Patterns of Phenotypic Disparity in a family of Neotropical catfishes. Poster presented at the University of Michigan Research and Development Scholars Symposium.

Fernandez Correa, M.* & **S.R. Borstein** (2022). Does life history affect swimming functional morphology in Neotropical killifish? Talk presented at the National Conference on Undergraduate Research.

Borstein, S., M.D McGee, & B.C. O'Meara (2019). A classic evolutionary innovation does not lead to increased diversification. Talk presented at the Society for Integrative and Comparative Biology (SICB) Meeting.

Stevens, J.* & **S.R. Borstein** (2022). Nemo's home: macroevolutionary patterns of sea anemone use in clownfish. Poster presented at the 4th Annual University of Tennessee EEB Undergraduate Research Poster Symposium.

Borstein, S., M.D McGee, & J. Fordyce (2017). Diet breadth evolution effects morphology in coral reef fishes. Talk presented at the Society for Integrative and Comparative Biology (SICB) Meeting.

Borstein, S., P. C. Wainwright, & M. D. McGee (2016). Trophic level transitions drive morphological diversity on coral reefs. Talk presented at the Society for Integrative and Comparative Biology (SICB) Meeting.

Borstein, S., M.D. McGee, & P.C. Wainwright (2015). Mouthbrooding does not constrain craniofacial diversity in Lake Tanganyikan cichlids. Talk presented at the Society for Integrative and Comparative Biology (SICB) Meeting.

Borstein, S., M.D. McGee, & P.C. Wainwright (2014). Mouthbrooding does not constrain craniofacial diversity in Lake Tanganyikan cichlids. Talk presented at the Joint Meeting of Ichthyologists and Herpetologists (JMIH).

Borstein, S., M.D. McGee, & P.C. Wainwright (2013). Mouthbrooding does not constrain craniofacial diversity in Lake Tanganyikan cichlids. Talk presented at the California State University System Wide Research Conference.

Borstein, S., M.D. McGee, & P.C. Wainwright (2013). Mouthbrooding does not constrain craniofacial diversity in Lake Tanganyikan cichlids. Talk presented at the West Coast Biological Sciences Undergraduate Research Conference.

Borstein, S., M.D. McGee, & P.C. Wainwright (2013). Mouthbrooding does not constrain craniofacial diversity in Lake Tanganyikan cichlids. Poster presented at the Society for Integrative and Comparative Biology (SICB) Meeting.

Borstein, S., & R.M. Coleman (2013). Can Patterns of Melanophore Development in New World Cichlids be used as Phylogenetic Character. Poster presented at the California State University, Sacramento Natural Science and Mathematics Annual Undergraduate Research reception.

Invited Scientific Presentations

Borstein, S. (2025). Macroevolutionary Perspectives on Speciation and Innovation in Fishes. University of Texas, San Antonio.

Borstein, S. (2025). Macroevolutionary Perspectives on Speciation and Innovation in Fishes. Kennesaw State University.

Borstein, S. (2024). Macroevolutionary Perspectives on Speciation and Innovation in Fishes. Our Lady of the Lake University.

Borstein, S. (2024). Macroevolutionary Perspectives on Speciation and Innovation in Fishes. Illinois Natural History Survey.

Borstein, S. (2023). Macroevolutionary Perspectives on Speciation and Innovation in Fishes. Texas A&M University, Kingsville.

Borstein, S. (2023). Macroevolutionary Perspectives on Speciation and Innovation in Fishes. Texas State University.

Borstein, S. (2023). Macroevolutionary Perspectives on Speciation and Innovation in Fishes. Swedish Museum of Natural History.

Borstein, S. (2022). Macroevolutionary Perspectives on Speciation and Innovation in Fishes. Oklahoma State University, Department of Integrative Biology.

Invited Popular Presentations

2025 "Fishes of the Tapanahony River, Suriname", Presented to the Hill Country Cichlid Club in May 2025

2024 "Science of Cichlids", Presented at the 2024 American Cichlid Association Annual Convention, Cincinnati, Ohio

2024 "Speaker Panel", Presented at the 2024 American Cichlid Association Annual Convention, Cincinnati, Ohio

2024 "Fishes of the Tapanahony River, Suriname", Presented to the Pacific Coast Cichlid Association, San Jose, California

2024 "Current Cichlid Research", Presented to the Greater Chicago Cichlid Association

2023 "Fishes of the Tapanahony River, Suriname", Presented to the Circle City Aquarium Club, Indianapolis, Indiana

2022 "Fishes of the Tapanahony River, Suriname", Presented to the Ohio Cichlid Association

2021 "Fishes of the Tapanahony River, Suriname", Presented to the Greater Chicago Cichlid Association

2016 "The Lake Victoria Extinction Revisited", Presented at the Raleigh Aquarium Society's Carolina Aquarium Workshop XXXI.

2016 "Keeping Smaller Heroine Cichlids", Presented at the Raleigh Aquarium Society's Carolina Aquarium Workshop XXXI.

2016 "The Lake Victoria Extinction Revisited", Presented to the Ohio Cichlid Association.

2014 "The Cichlid Fishes of Costa Rica", Presented to the Capitol Cichlid Association .

2014 "The Lake Victoria Extinction Revisited", Presented at the Greater Chicago Cichlid Association's 2014 Cichlid Classic.

2014 "Current Cichlid Research", Presented at the Greater Chicago Cichlid Association's 2014 Cichlid Classic.

2013 "The Cichlid Fishes of Costa Rica", Presented to the Atlanta Area Aquarium Association.

2013 "The Cichlid Fishes of Costa Rica", Presented to the Greater Chicago Cichlid Association.

2013 "Keeping Smaller Heroine Cichlids", Presented to the Sacramento Aquarium Society.

2012 "Keeping Smaller Heroine Cichlids", Presented at the American Cichlid Association's 2012 Annual Convention, Indianapolis, Indiana.

2011 "Keeping Smaller Heroine Cichlids", Presented to the Ohio Cichlid Association.

2011 "Tropical Fish Research in the Lab and In the Field", Presented to the San Francisco Aquarium Society.

2011 "Tropical Fish Research in the Lab and In the Field", Presented to the Pacific Coast Cichlid Association, San Jose, California.

2010 "Keeping Smaller Heroine Cichlids", Presented to the Pacific Coast Cichlid Association.

2010 "Keeping Smaller Heroine Cichlids", Presented to the Greater Chicago Cichlid Association.

CERTIFICATIONS

National Association of Underwater Instructors (NAUI) Certified Nitrox Diver.
National Association of Underwater Instructors (NAUI) Certified Diver.

PROFESSIONAL SOCIETIES

American Society of Ichthyologists & Herpetologists (ASIH)
Society for Integrative and Comparative Biology (SICB)
Society of Systematic Biologists (SSB)