

# SARAH T. FRIEDMAN

## CONTACT

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Address: Yale University  
Department of Ecology and Evolution  
165 Prospect Street  
New Haven, CT 06511

Phone: 916-218-5187  
Email: sarahfried@gmail.com  
Website: stfriedman.github.io

## PROFESSIONAL POSITIONS

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2020 – Present     Hutchinson Environmental Postdoctoral Fellow  
Department of Ecology and Evolutionary Biology  
Yale University

## EDUCATION

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2015 – 2020     Ph.D. in Ecology  
University of California, Davis  
Thesis: The Evolution of Morphological Diversity in Teleost Fishes  
Advisor: Dr. Peter C. Wainwright

2010 – 2014     B.S. in Aquatic and Fishery Sciences  
Minor in Marine Biology  
University of Washington  
Advisor: Dr. Ted W. Pietsch

## PUBLICATIONS

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- 9) Larouche, O., Adams, D.S., Alencar, L.R.V., Camper, B., Hodge, J.R., Zapfe, K., **Friedman, S.T.**, Wainwright, P.C., and Price, S.A., (2020). Do key innovations unlock diversification? A case-study on the morphological and ecological impact of pharyngognathly in acanthomorph fishes. *Current Zoology*. doi:10.1093/cz/zoaa048.
- 8) Larouche, O., Benton, B., Corn, K.A., **Friedman, S.T.**, Gross, D., Iwan, M., Kessler, B., Martinez, C.M., Rodriguez, S., Whelpley, H., Wainwright, P.C., and Price, S. A. (2020). Reef-associated fishes have more maneuverable body shapes at a macroevolutionary scale. *Coral Reefs*. doi:10.1007/s00338-020-01976-w.
- 7) **Friedman S.T.**, Price S.A., Corn, K.A., Larouche O., Martinez C.M., Wainwright P.C. (2020). Body shape diversification along the benthic–pelagic axis in marine fishes. *Proc. R. Soc. B* 287: 20201053. doi:10.1098/rspb.2020.1053.
- 6) Price, S.A., Larouche, O., **Friedman, S.T.** , Corn, K.A., Wainwright, P.C. and Martinez, C.M. (2020). A CURE for a major challenge in phenomics: a practical guide to

implementing a quantitative specimen-based undergraduate research experience.  
*Integrative Organismal Biology*. doi:10.1093/iob/obaa004

- 5) Price, S.A., **Friedman, S.T.**, Corn, K.A., Martinez, C.M., Larouche, O., and Wainwright, P.C. (2019). Building a body shape morphospace of teleostean fishes. *Integrative and Comparative Biology*. doi:10.1093/icb/icz115/5523207.
- 4) **Friedman, S.T.**, Martinez, C.M., Price, S.A., and Wainwright, P.C. (2019) The influence of size on body shape diversification across Indo-Pacific shore fishes. *Evolution*. doi:10.1111/evo.13755.
- 3) Minicozzi, M., Kimball, D., Finden, A., **Friedman, S.**, and Gibb, A.C. (2019). Are extreme anatomical modifications required for fish to move effectively on land? Comparative anatomy of the posterior axial skeleton in the Cyprinodontiformes. *The Anatomical Record*. <https://doi.org/10.1002/ar.24117>.
- 2) **Friedman, S.T.**, Price, S.A., Hoey, A.S., and Wainwright, P.C. (2016). Ecomorphological convergence in planktivorous surgeonfishes. *Journal of Evolutionary Biology*. doi: 10.1111/jeb.12837.
- 1) Price, S.A., **Friedman, S.T.**, and Wainwright, P.C. (2015). How predation shaped fish: the impact of fin spines on body form evolution across teleosts. *Proceedings of the Royal Society of London B: Biological Sciences*. 282:20151428.

## MANUSCRIPTS IN PROGRESS

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Vaz, D., Martinez, C., **Friedman, S.T.**, and Rizzato, P. (In Press). Taxonomy and Morphology. Chapter 6 in *Methods for Fish Biology*. American Fisheries Society, Bethesda, Maryland.

**Friedman, S.T.**, Collyer, M.L., Price, S.A., and Wainwright, P.C. (In Review). Divergent processes drive parallel evolution in marine and freshwater fishes. *Systematic Biology*.

**Friedman, S.T.**, Price, S.A., and Wainwright, P.C. (In Review). The effect of locomotion mode on body shape evolution in teleost fishes. *American Naturalist*.

Martinez, C.M., **Friedman, S.T.**, Corn, K.A., Larouche, O., Price, S.A., and Wainwright, P.C. (In Review). The deep sea is a hot spot of fish body shape evolution. *Ecology Letters*.

## AWARDS AND FELLOWSHIPS

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2020	NSF Postdoctoral Research Fellowship in Biology (\$138,000; declined)
2020	Wake Award for Best Student Presentation, SICB Conference
2019	W.D. Hamilton Award finalist, awarded Honorable Mention (\$500)
2019	UC Davis Outstanding Graduate Student Teaching Award (\$500)
2019	UC Davis Center for Population Biology Travel Award (\$1,500)

2017	Ecology Student Endowment (\$2,475)
2017	Elizabeth P. Wood Fellowship (\$2,072)
2017	Graduate Group in Ecology Fellowship (\$11,864)
2016	Center for Population Biology Research Award (\$1,385)
2016	Ecology Student Endowment (\$2,310)
2016	Stephen and Ruth Wainwright Endowed Fellowship (\$2,500)
2016	Ted and Silvia Hillyer Fellowship (\$1,000)
2016	James P. Michelletti Research Fellowship (\$7,319)
2016	Graduate Group in Ecology Fellowship (\$18,876)
2014	Wake Award for Best Student Poster, SICB Conference

## TEACHING EXPERIENCE

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2018 – 2020	Teaching Assistant, Evolution and Ecology (BIS 2B), UC Davis
2019	Teaching Assistant, Life in the Sea (EVE 12), UC Davis
2019	Teaching Assistant, Data Carpentry in R, UC Davis
2015 – 2018	Instructor, Biodiversity of Fishes, UC Davis
2013 – 2014	Teaching Assistant, Biology of Fishes (FISH 311), Univ. of Washington

## INVITED SEMINARS

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2021	Yale University, Yale Institute of Biospheric Sciences
2020	University of Minnesota, Mankato, Ecology and Evolutionary Biology

## RECENT CONFERENCE PRESENTATIONS

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**Friedman, S.** Collyer, M., Price, S., and P. Wainwright. Divergent processes drive parallel evolution in marine and freshwater fishes. Oral presentation delivered at SICB, Austin, TX. Jan 2020.

**Friedman, S.,** Price, S., and P. Wainwright. Morphological diversification along the benthic-pelagic axis in marine teleosts. Oral presentation delivered at Gilbert Ichthyological Society, Eatonville, WA. Sept 2019.

**Friedman, S.,** Price, S., and P. Wainwright. Getting to the bottom of it: Morphological diversification in benthic teleosts. Oral presentation delivered at Evolution, Providence, RI. June 2019.

**Friedman, S.,** Price, S., and P. Wainwright. Getting to the bottom of it: Morphological diversification in benthic teleosts. Oral presentation delivered at the Society for Integrative and Comparative Biology, Tampa, FL. January 2019.

**Friedman, S.**, Price, S., and P. Wainwright. The influence of body size on morphological diversification across fishes. Oral presentation delivered at the Society for Integrative and Comparative Biology, San Francisco, CA. January 2018.

**Friedman, S.**, Price, S., Hoey, A. and P. Wainwright. Ecomorphological convergence in planktivorous surgeonfishes. Oral presentation delivered at the Society for Integrative and Comparative Biology, New Orleans, LA. January 2017.

## PROFESSIONAL SOCIETIES

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Evolution

Gilbert Ichthyological Society

Society for Integrative and Comparative Biology (SICB)

American Society of Ichthyologists and Herpetologists (ASIH).

## SERVICE AND OUTREACH

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### REVIEWER

*Integrative and Comparative Biology (1), Systematic Biology (1), Journal of Anatomy (1), Journal of Fish Biology (1), The American Naturalist (1), Proceeding of the Royal Society B: Biological Sciences (2), Evolution (2), BMC Evolutionary Biology (1), Copeia (1), Scientific Reports (1), Nature Climate Change (1)*

### ACADEMIC SERVICE

2016            Organizer & co-founder, Graduate Group in Ecology Open Lab Meetings  
 2016            Reviewer, UC Davis Graduate Group in Ecology Admissions Committee

### RECENT COMMUNITY OUTREACH

2021            Presenter, STEM Career Workshop for Girl Scouts  
 2019 - 2020    Scientist Educator, Skype A Scientist program  
 2016 - 2020    Presenter, Biodiversity Day, Bohart Museum, Davis, CA  
 2016 - 2018    Exhibitor, Picnic Day, University of California, Davis, CA