

# Elaine Wang Shen

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## EDUCATION

**University of Rhode Island (URI) | Kingston, RI** **August 2018 – May 2023 (Expected)**

*Doctor of Philosophy:* Biological and Environmental Sciences (Ecology and Ecosystem Sciences)

*Dissertation:* The social and ecological dimensions of coral reef biomonitoring. *Co-advisors:* Dr. Austin Humphries, Dr. Chris Lane

**Rice University | Houston, TX** **August 2014 – May 2018**

*Bachelor of Science:* Ecology and Evolutionary Biology, *Minor:* Environmental Studies

*Thesis:* Using environmental DNA to examine patterns of fish and invertebrate diversity across a heterogeneous tropical seascape. *Co-advisors:* Dr. Matthieu Leray, Dr. Adrienne Correa

**School of International Training (SIT) | Panama City, Panama** **Fall 2016**

*Program:* Tropical Ecology, Marine Ecosystems, and Biodiversity Conservation

## PROFESSIONAL EXPERIENCE & RESEARCH

**University of Rhode Island | Kingston, RI** **August 2018 – Present**

*Graduate Researcher & Teaching Assistant*

- Evaluate coral reef fisheries ecology and management outcomes in Indonesia using structural equation modeling, environmental DNA metabarcoding, and critical discourse analysis.
- Assist in course instruction & field excursions of four introductory and upper-level undergraduate courses (20 hours/week for three semesters, 15 - 200 students per class).
- Served as the graduate assistant for the Office of Diversity, Retention and Student Success Initiatives.

**Smithsonian Tropical Research Institute | Bocas del Toro, Panama** **May – August 2017**

*Research Intern & Wagoner Fellow*

- Spearheaded undergraduate thesis project to enumerate biodiversity in nearshore tropical ecosystems using environmental DNA, which resulted in a first-authored peer-reviewed publication. Assisted on field collections of cryptic biodiversity in mangrove stands.

**School of International Training | Panama City, Panama** **August – December 2016**

*Student Researcher & Rice/SIT Merit Scholar*

- Led independent research project quantifying benthic and fish diversity across a gradient of human use using visual surveys in Bocas del Toro, Panama.

**Flower Garden Banks National Marine Sanctuary (FGBNMS) | Galveston, TX** **January – May 2016**

*Undergraduate Researcher*

- Executed independent research project using image analysis to compare the benthic diversity of an oil platform to adjacent federally-protected natural reef ecosystems in the northwest Gulf of Mexico.

## PUBLICATIONS

### IN REVIEW AND FINAL PREPARATION

**Shen, E.W.**, Vandenberg, J., Moore, A. Sensing Inequity: Technological Solutionism, Biodiversity Conservation, and Environmental DNA. (*in review at Biosocieties*)

**Shen, E.W.**, Borbee, E., Carvalho, P.G., Setiawan, F., Subhan, B., Madduppa, H., Lane, C.E., Humphries, A.T. Preliminary characterization of coral reef diversity using environmental DNA in a hyperdiverse context. (*in prep for Regional Studies in Marine Science*)

**Shen, E.W.**, Carvalho, P.G., Setiawan, F., Subhan, B., Humphries, A.T. Examining the varied effects of

human-mediated and habitat pathways on coral reef assemblages in Indonesia. (*in prep* for *Coral Reefs*)

#### PEER-REVIEWED

Nguyen, B.N.<sup>^</sup>, **Shen, E.W.\*<sup>^</sup>**, et al. Environmental DNA survey captures patterns of fish and invertebrate diversity across a tropical seascape. (2020) [Scientific Reports](#) 10, 6729. (\*corresponding author, <sup>1</sup>co-first authors). In: Top 100 in Ecology Collection (2020). Press: [en](#), [es](#)

Reviewer for: *Environmental DNA*, *Ecology and Evolution*, *Scientific Reports* and *Biological Journal of the Linnean Society*

#### FELLOWSHIPS, HONORS, AND AWARDS

<sup>^</sup> Forfeited due to COVID-19

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URI Graduate Student Excellence Award for Diversity and Inclusion	2021
National Science Foundation Graduate Research Fellowship Program ( <b>\$134,000</b> )	2020
URI/The Nature Conservancy Global Marine Initiative Student Research Award Program ( <b>\$18,300</b> ) <sup>^</sup>	2020
URI William H. Krueger Graduate Studies Fund ( <b>\$1,500</b> )	2019
Texas Gulf Coast Council of Diving Clubs Merit College Scholarship ( <b>\$500</b> )	2018
Rice University Distinction in Research and Creative Works	2018
Rice University Julian Huxley Award for Excellence ( <b>\$250</b> )	2018
Rice University President's Honor Roll	2017, 2018
Best Eco/Evo Biology Poster at the Rice Undergraduate Research Symposium ( <b>\$300/each</b> )	2016, 2018
Rice University Scholars Program ( <b>\$1,000</b> )	2017
Smithsonian Tropical Research Institute Internship Award ( <b>\$2,300</b> )	2017
Wagoner Foreign Study Fellowship ( <b>\$6,000</b> )	2017
Rice University Greene Prize for Environmental Writing ( <b>\$1,000</b> )	2017
School of International Training/Rice Merit Scholarship ( <b>\$4,000</b> )	2016
Rice University Shell Center for Sustainability Award ( <b>\$250</b> )	2016
Chinese Professional Club of Houston Merit Scholarship ( <b>\$4,000</b> )	2014

#### RESEARCH PRESENTATIONS

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- Shen, E.W.**, Borbee, E., Carvalho, P.G., Setiawan, F., Subhan, B., Madduppa, H., Lane, C.E., Humphries, A.T. (2022). *Utilizing environmental DNA with visual surveys of marine biodiversity in a hyper-diverse and data-poor tropical context*. Talk presented at the Ecological Society of America Conference, Montreal, QC.
- Shen, E.W.**, Nguyen, B., Seemann, J., Altieri, A., Egan, S., Leray, M., Correa, A. (2018). *Fishing for Genes: Surveying fish biodiversity in nearshore caribbean marine ecosystems using environmental DNA*. Poster presented at the **Houston Regional Ecology and Evolution Student Symposium** (April) & **Rice Undergraduate Research Symposium** (May), Houston, TX. (Awarded *Best Ecology and Evolutionary Biology Poster at RURS*)
- Shen, E.W.**, Knochel, A., Saucedo M., Embesi, J., Nuttall, M., Correa, A.M.S. (2016). *Comparing benthic diversity on oil platforms and natural reefs in the northwest Gulf of Mexico*. Poster presented at the **Rice Undergraduate Research Symposium**, Houston, TX. (Awarded *2016 Best Ecology and Evolutionary Biology Poster at RURS & 2nd place for the Shell Center for Sustainability Award*)

#### PUBLIC ENGAGEMENT AND ACADEMIC SERVICE

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URI Voices Of Inclusion in Communities of Education and Science, <i>Founding member</i>	2018 – present
URI CELS Diversity Committee, <i>Graduate student representative</i>	2018 – 2022
URI CELS Seeds of Success & Office of Recruitment and Retention, <i>Graduate student advisor</i>	2020-2021
URI Office of Student Affairs, <i>Student advisory board member</i>	2021
Inclusive SciComm Symposium, <i>Planning committee member</i>	2021
75th Phycological Society of America Conference, <i>Lead on <a href="#">bioinformatics workshop</a></i>	2021
EEB Mentor Match, <i>Peer mentor</i>	2020, 2021
IPB Department of Marine Science & Technology, <i>Lead on metabarcoding workshop</i>	2019
Letters to a Pre-Scientist, <i>Scientist pen pal</i>	2019
Rice Oceans Club, <i>Founding member, President</i>	2014 – 2018
Rice University, <i>Student lecturer</i>	2017

**Invited speaker for:** The Coastal Society and National Center for Atmospheric Research, URI Board of Trustees, the NSF-OCE REU program, Metcalf Institute Annual Science Immersion Workshop for Journalists, Skype a Scientist, AAAS Classroom Science Days, Society for Women in Marine Science, and various K-12 schools across the country.

## SCIENCE COMMUNICATION

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- Shen, E.W. (2022). *Meander Belt: Native Houstonian reflects on water*. In Lacy M. Johnson & Cheryl Beckett (Eds.), [More City Than Water: A Houston Flood Atlas](#). University of Texas Press.
- Shen, E. W. (2019). *Advancing InclusiveSciComm*. [University of Rhode Island Metcalf Institute](#). Web.
- Shen, E. W. (2019). *Crypt-keeper Wasp Manipulates the Behavior of its Parasite Host*. [Enquiry Magazine](#), Vol. (III), 22-25.
- Shen, E.W. (2018). *Seagulls can be annoying. But so can we*. [The Houston Chronicle](#). Web.
- Shen, E. W. (2018). *Biodiversity in a Drop of Water: A Glance into Marine Forensics*. [Rice Catalyst](#), Vol. (XI), 40-43.
- Shen, E.W. (2018). *Will the Gulf of Mexico protect its coral? [Opinion.]* [The Houston Chronicle](#). Web.
- Shen, E.W. (2016). *A Cautionary Tale: Protecting the world's tropical wildlife*. [Enquiry Magazine](#), Vol. (I), 12-15.
- Shen, E.W. (2016). *Not Many Other Fish in the Sea: Our Current Overfishing Crises*. [Rice Catalyst](#) (cover story), Vol. (IX), 13-14.

## PRESS AND MEDIA FEATURES

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- MacDonald, H. (2021). *CELS PhD Student at the Forefront of Biodiversity Research and International Collaboration*. Nominated Profile for the [College of Environment and Life Sciences](#). Web.
- Nguyen, C. (2019) *For the Love of our Oceans*. Profile for the [Ocean Conservancy](#). Web.
- Costanzo, J. (2018) *Elaine Shen '18: A Whole Different World*. Profile for [Rice Magazine](#). Web & Print.
- Bennett, L. (2018) *On the Trail of DNA in the Ocean*. Research Spotlight for [Smithsonian Ocean](#). Web.
- Lin, M. (2017). *Students teach students*. Teaching Feature for [Rice Thresher](#). Print.

## PROFESSIONAL DEVELOPMENT & SKILLS

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**MARINE ECOLOGY:** AAUS Scientific Diver; coral reef monitoring methods; Caribbean and Indo-Pacific fish and coral identification; CPR/First Aid/Oxygen Administration (certified); Institutional Animal Care and Use Committee (IACUC) certification

**MOLECULAR BIOLOGY:** DNA extraction; PCR; Gel-electrophoresis; Illumina Mi-seq library preparation

**COMPUTER SKILLS:** R; Github; shell scripting in BASH; ImageJ; Qiime2; CPCe; Adobe Suite; Microsoft Office Suite

**DIVERSITY, EQUITY, INCLUSION:** Diversity and Inclusion Badge (URI micro-credential); co-creating community norms and brave spaces in virtual and in-person settings

**OTHER SELECTED SKILLS:** English (native); Conversational fluency in Chinese; basic proficiency in Spanish and French; strong public speaking and performance skills (Principal Dancer in Hocus Pocus 2 and Season 8 of America's Got Talent); photography & videography