

Elaine Wang Shen

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EDUCATION

- 2018 – March 2023 **University of Rhode Island, Kingston, RI**
PhD candidate in Biological and Environmental Sciences
Co-advisors: Dr. Austin Humphries, Dr. Chris Lane
- 2014 – 2018 **Rice University, Houston, TX**
Bachelor of Science in Ecology and Evolutionary Biology
Minor: Environmental Studies
Distinction in Research and Creative Works
- 2016 **School of International Training, Panama City, Panama**
Program: Tropical Ecology, Marine Ecosystems, and Biodiversity Conservation

RESEARCH

- 2018 – present **University of Rhode Island, Kingston, RI; Bogor Agricultural University, Bogor, Indonesia**
Dissertation research: Investigating the social and ecological outcomes of coral reef biodiversity monitoring and conservation using environmental DNA in Indonesia
Advisors: Dr. Austin Humphries, Dr. Chris Lane, Dr. Hawis Madduppa, Dr. Amelia Moore
- 2017– 2019 **Smithsonian Tropical Research Institute, Bocas del Toro, Panama**
Undergraduate thesis project: Using environmental DNA to examine patterns of fish and invertebrate diversity across a heterogeneous tropical seascape
Advisors: Dr. Matthieu Leray, Dr. Adrienne Correa
- 2016 **School of International Training, Panama City, Panama**
Independent undergraduate research: Quantifying benthic and fish diversity using visual surveys in Bocas del Toro, Panama (published in STRI repository)
Advisors: Dr. Juan Maté, Dr. Aly Dagang
- 2016 **Flower Garden Banks National Marine Sanctuary (FGBNMS), Galveston, TX**
Independent undergraduate research: Comparing the benthic diversity of an oil platform to adjacent natural reef ecosystems in the northwest Gulf of Mexico
Advisors: Dr. Adrienne Correa, John Embesi

PUBLICATIONS

IN-REVIEW AND FINAL PREPARATION

- 2022 **Shen, E.W.**, Vandenberg, J., Moore, A. We Need to Talk About Environmental DNA: Critically Examining Emergent Conservation Technologies. In prep for *Conservation and Society*.
- 2022 **Shen, E.W.**, Borbee, E., Carvalho, P.G., Setiawan, F., Subhan, B., Madduppa, H., Lane, C.E., Humphries, A.T. Recommendations for environmental DNA research in hyper-diverse and data-limited contexts: Insights from Indonesia. In prep for *Regional Studies in Marine Science*.

PEER-REVIEWED

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

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

FELLOWSHIPS, HONORS, AND AWARDS

2021 Graduate Student Excellence Award for Diversity and Inclusion, Multicultural Student Services Center, University of Rhode Island

2020 Graduate Research Fellowship Program, National Science Foundation (\$134,000)

2020 Global Marine Initiative Student Research Award Program, The Nature Conservancy & University of Rhode Island (\$18,300) - *Forfeited due to COVID-19*

2019 William H. Krueger Graduate Studies Fund, University of Rhode Island (\$1,500)

2018 Memorial College Scholarship, Texas Gulf Coast Council of Diving Clubs (\$500)

2018 Distinction in Research and Creative Works, Rice University

2018 Julian Huxley Award for Excellence, Rice University (\$250)

2016, 2018 Best Ecology and Evolutionary Biology Poster at the Rice Undergraduate Research Symposium, Rice University (\$300/each)

2017, 2018 President's Honor Roll, Rice University

2017 Rice University Scholars Program, Rice University (\$1,000)

2017 Wagoner Foreign Study Fellowship, Rice University (\$6,000)

2017 Smithsonian Tropical Research Institute Internship Award (\$2,300)

2017 Greene Prize for Environmental Writing, Rice University (\$1,000)

2016 School of International Training/Rice Merit Scholarship (\$4,000)

2016 Shell Center for Sustainability Award, Rice University (\$250)

2014 Merit Scholarship, Chinese Professional Club of Houston (\$4,000)

RESEARCH PRESENTATIONS

2022 **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.

2018 **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 2018 Best Ecology and Evolutionary Biology Poster at RURS, Julian Huxley Award, and a Distinction in Research and Creative Works)

- 2016 **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 the RURS & 2nd place for the Shell Center for Sustainability Award)

TEACHING AND MENTORING

- July 2021 **75th Phycological Society of America Conference**
Workshop lead: *An Introduction to Metabarcoding Data Analysis Using Qiime2*. Virtual three-hour presentation and [interactive coding session](#) for 65 attendees.
- Fall 2020 – Sp. 2021 **University of Rhode Island, Kingston, RI**
Graduate Assistant
Graduate student advisor for Seeds of Success, an undergraduate organization for undergraduates with diverse identities in the College of Environment and Life Sciences (CELS) and assistant to Michelle Fontes, Assistant Dean of Recruitment and Retention for other diversity initiatives for graduate students.
- June 2020 **Invited Scientist:** Metcalf Institute Annual Science Immersion Workshop for Journalists
- 2018 – 2020 **Graduate Teaching Assistant**
Spring 2020: Conservation Biology (NRS 223)
Spring 2019: Natural Resources Conservation (NRS 100), Herpetology (NRS 417)
Fall 2018: Introductory Ecology (BIO 262)
- May – Dec 2019 **Research Mentor, Coastal and Environmental Fellows**
Malachy McCaffrey: Clarifying species identities in a Caribbean goby-copepod parasite system
- May 2019 **Bogor Agricultural University, Bogor, Indonesia**
Co-lead: "Amplicon Sequencing and Environmental DNA Workshop" (2-days)
- Fall 2017 **Rice University**
Student Lecturer
COLL 127: "(Sea)Food for Thought: A Fishy Investigation for Marine Resource Use"

OUTREACH & ACADEMIC SERVICE

ORGANIZATIONS AND COMMITTEES

- Fall 2019 – present **College of Environment and Life Sciences Diversity Committee**
Graduate student representative
- 2018 – present **Voices Of Inclusion in Communities of Education and Science (VOICES)**
Steering Committee and Founding Member
Professional learning community covering diversity, equity, inclusion, and justice topics in the College of Environment and Life Sciences at URI
Organizer: Book club on *Race, Equity, and the Learning Environment*
Co-moderator: "Conversations with URI Faculty: Social Responsibility and Equity in

STEM Research” for department seminar

- March – Oct 2021 **2021 InclusiveSciComm Conference**
Platform Working Group lead, Planning Committee member
Designed and provided logistical support for a virtual conference of 500+ attendees
- Spring 2021 **Student Advisory Board to the Office of Student Affairs, URI**
Graduate student representative
- 2014 – 2018 **Rice Oceans Club**
Founding member, President
Diving: Attained \$5,000 award for a student-led citizen science diving trip, selected to advocate to university leadership for a scientific diving program (V2C2)
Mentorship: Mentored seven undergraduates through internship and graduate school applications
Outreach: Worked annually with Houston Museum of Natural Science, Houston Zoo, Flower Garden Banks National Marine Sanctuary on outreach events (e.g., World Oceans Day, aquarium tours). Cumulatively spoke to over 300 elementary to high school students in the Houston Independent School District over four years of involvement

SPEAKING EVENTS

- 2022 *Building a Support Network as a Student of Color in the Ocean and Coastal Sciences.* Virtual panel for 40 graduate students and faculty with The Coastal Society and National Center for Atmospheric Research. January 2022.
- 2022 *Woods High School Career Panel.* Virtual career panel for 75+ students at Woods High School in Houston, TX. January 2022.
- 2021 *Justice, Equity, and Inclusion Panel.* Panel of faculty and students on justice, equity, and inclusion issues in academia at the University of Rhode Island Board of Trustees Annual Retreat. June 2021. Kingston, RI.
- 2020 *Ocean Science REU Grad Student Panel.* Virtual panel on applying to graduate school for 60 NSF-OCE REU undergraduate students. June 2020.
- 2020 *Skype a Scientist.* Virtual informal talk on coral reefs presented to 40 third and fourth graders in Hillside, New Jersey for **Skype a Scientist** program. May 2020.
- 2018 *Fishing for Genes: Sampling marine biodiversity using environmental DNA.* Lightning talk presented at the Wiess School of Natural Sciences’ [Science in a Flash](#) event. May 2018. Houston, TX.
- 2018 *Diving into marine science.* Presentation given to 80+ Lanier Middle School students as part of [AAAS Classroom Science Days](#). February 2018. Houston, TX
- 2016 *The marine biodiversity of the Texas Gulf.* Presentation and college Q&A given to 145 Aquatic Science students at **Clements High School**. May 2016. Houston, TX
- 2015 *Sea Food Differently: The Consequences of Overfishing.* Presentation given at **TedXRiceU** Student Speaker Salon. November 2015. Houston, TX.

WRITTEN WORKS FOR GENERAL AUDIENCES

- 2022 **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.
- 2019 "Advancing InclusiveSciComm." Conference summary for the [Metcalf Institute](#).
- 2019 "Crypt-keeper Wasp Manipulates the Behavior of its Parasite Host." [Enquiry Magazine](#). Winter 2019 (Vol. 3).
- 2018 "Seagulls can be annoying. But so can we." [The Houston Chronicle](#). 16 July 2018. Web.
- 2018 "Will the Gulf of Mexico protect its coral? [Opinion]" [The Houston Chronicle](#). 29 May 2018. Web.
- 2018 "Biodiversity in a Drop of Water: A Glance into Marine Forensics." [Rice Catalyst](#). 2018 issue (Vol. 11).
- 2016 "A Cautionary Tale: Protecting the world's tropical wildlife." [Enquiry Magazine](#). Fall 2016 (Vol. 1). (*Winner of 2016 Greene Prize for Environmental Writing*)
- 2016 "Not Many Other Fish in the Sea: Our Current Overfishing Crises." [Rice Catalyst](#). Cover story for 2016 issue (Vol. 9).
- 2015 "Belize: High Biodiversity, High Anthropocentrism." Blog post for [Rice Catalyst](#). 7 August 2015.
- 2015 "Honey, where's my supersuit?" [Rice Catalyst](#). 2015 issue (Vol. 8)

OTHER OUTREACH

- 2020, 2021 **EEB Mentor Match**
Mentor matched to marine ecology undergraduate and graduate students to discuss graduate school admissions, fellowships, and other advice
- 2019 **Letters to a Pre-Scientist**
Pen pal to a middle school student from Moreno Valley, CA
- 2019 **Synergist Vol. II**
Co-organizer of intersectional arts and science event featuring 9 performers and exhibitionists (artists, scientists, speakers) to 150 audience members at Columbus Theatre in Providence, RI.
- 2018 **Society for Women in Marine Science (URI Chapter)**
Mentor to sophomore undergraduate student in the sciences
- 2015 **Rice Alternative Spring Break**
Funded participant on service trip to the Florida Keys working with John Pennekamp Coral Reef Park and Reef Relief on coral reef restoration and environmental justice.
- Social Media**
- 2017 [Blog](#) about abroad research experiences
- 2016 – 2017 [Youtube channel](#) with research and study abroad videos

PRESS AND MEDIA FEATURES

- 2021 MacDonald, H. "CELS PhD Student at the Forefront of Biodiversity Research and

International Collaboration." **Nominated Profile** for the [College of Environment and Life Sciences](#) at the URI. 9 February 2021.

- 2020 Raza, F. "Student Highlight." **Profile** for the [Rice Center for Civic Leadership](#). 30 June 2020.
- 2019 Nguyen, C. "For the Love of our Oceans." **Profile** for the [Ocean Conservancy](#). 16 August 2019.
- 2018 Costanzo, J. "Elaine Shen '18: A Whole Different World." **Profile** for [Rice Magazine](#). 1 May 2018.
- 2018 Bennett, L. "On the Trail of DNA in the Ocean." **Research Spotlight** for [Smithsonian Ocean](#). July 2018.
- 2017 Lin, M. "Students teach students." **Teaching Feature** for [Rice Thresher](#). 27 September 2017.

PROFESSIONAL DEVELOPMENT

- June 2020 **Diversity and Inclusion Badge**
Participant in micro-credential program given after attending 5+ professional development workshops on diversity, equity, social justice, and inclusion at the University of Rhode Island
- 2018, 2019 **InclusiveSciComm Symposium**
Funded participant (2018) and **volunteer (2019)** for an annual 3-day symposium dedicated to facilitating critical dialogue on inclusive science communication at the University of Rhode Island
- 2017 **Benthic Invertebrate Taxonomy, Metagenomics and Bioinformatics (BITMaB) Workshop**
Funded participant for a 5-day workshop on the sampling techniques and workflows necessary for metagenomic studies at the Harte Institute for Gulf of Mexico Studies. [Final Report](#)

SKILLS

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