

# Phoebe Racine

UCSB Bren School  
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## EDUCATION

- Spring 2023 **PhD Candidate in Environmental Science and Management**  
University of California Santa Barbara (UCSB), Bren School | Santa Barbara, CA  
Dissertation Topic: Seaweed Aquaculture Co-Benefits & Seafood Market Shifts  
Advisors: Darcy Bradley & Steve Gaines
- 2014 **BA in Environmental Studies and Anthropology**  
Dartmouth College | Hanover, NH

## Overview

Seafood Systems Scientist trained at UCSB's Bren School in food systems history, causal inference, and data science with 7 years of experience managing science based projects and grant writing. Previous NGO experience working in shrimp and tilapia sustainability.

## PUBLICATIONS (\*co-first authorship)

### Peer Reviewed

**Phoebe Racine**, AnnaClaire Marley, Halley Froehlich, Steven Gaines, Ian Ladner, Ilan MacAdam-Somer, Darcy Bradley. "A case for seaweed aquaculture inclusion in US nutrient pollution management." *Marine Policy* 129 (2021): 104506.

Li Li, Claude Boyd, **Phoebe Racine**, Aaron McNevin, Benjaporn Somridhivej, Hang Ngo Minh, Huynh Quoc Tinh, Ravibabu Godumala. "Assessment of elemental profiling for distinguishing geographic origin of aquacultured shrimp from India, Thailand and Vietnam." *Food Control* 80 (2017): 162-169.

Claude Boyd, Aaron McNevin, **Phoebe Racine**, Huynh Quoc Tinh, Hang Ngo Minh, Rawee Viriyatum, Duangchai Paungkaew, Carole Engle. "Resource use assessment of shrimp, *Litopenaeus vannamei* and *Penaeus monodon*, production in Thailand and Vietnam." *Journal of the World Aquaculture Society* 48.2 (2017): 201-226.

Carole Engle, Aaron McNevin, **Phoebe Racine**, Claude Boyd, Duangchai Paungkaew, Rawee Viriyatum, Huynh Quoc Tinh, Hang Ngo Minh. "Economics of sustainable intensification of aquaculture: evidence from shrimp farms in Vietnam and Thailand." *Journal of the World Aquaculture Society* 48.2 (2017): 227-239.

### For Practitioners

**Phoebe Racine**. [Indigenous Data Sovereignty and Open Data in Environmental Sciences](#). National Center for Ecological Analysis and Synthesis. June, 2022.

**Phoebe Racine**, "Making Shrimp Sustainable in Thailand." WWF (2016)

**Phoebe Racine** and Daniel Brizuela, "[Technology for Traceability](#)." Wildlabs (2016)

### For General Audiences

**Phoebe Racine**, "California's Seafood Supply Chain Through COVID-19 – Early insights from surveys on seafood consumers, farmers and fishers" *California Fisheries & Seafood Institute* (2021)

### Publications in Progress (\*co-first authored)

\*Amanda Guthrie, **Phoebe Racine**, Nicole Barbour, Sara E. Cannon, Sara E. Marriott, Ruth Young, Ashley Bae, Sarah E. Lester, Adriane Michaelis. "Assessing socio-environmental suitability and social license of proposed offshore aquaculture development: a Florida case study." (June 17, 2022).

**Phoebe Racine**, Ashley Bae, Steve Gaines, Elliot Matthews, Matto Mildenerger. "California Seafood Consumption Shifts during the COVID-19 Pandemic"

\***Phoebe Racine** and Gabriel De La Rosa, Steven Gaines, Kristen Davis, Christina Frieder, Darcy Bradley. "Estimating Coastal Nutrient Loading in the U.S. Using Simplified Plume Models"

## FELLOWSHIPS, AWARDS & GRANTS

In sum: \$795,632 (2012-12/23)

## FELLOWSHIPS

National Socio-Ecological Synthesis Center (SESYNC) Graduate Fellow (2021) – ~\$25,000

National Science Foundation Graduate Research Fellowship Program (NSF GRFP) (2018) – \$138,000

Doctoral Scholars Fellowship, UCSB, 2017—\$113,000

## AWARDS

Grad Slam Finalist, UCSB (2019)

Best Paper in Applied Sciences 2017, World Aquaculture Society

Dean of the College Award for Service at Dartmouth 2014

Devotion to Native Americans at Dartmouth 2014, Dartmouth College

Native American Program's Emerging Leader Award 2011, Dartmouth College

## GRANTS

Class Improvement Grant, UCSB (\$8,392)– Teaching Assistant & Lead Instructor (6/22-4/23)  
Awarded to develop Environmental Studies food systems class to a larger format

Environmental Justice Research, UCSB Bren School (\$1,000) – Graduate Researcher (1/22-7/22)  
Developing a public resource and training materials on Indigenous data sovereignty

SeaGrant (\$220,000) – Co-Manager & Graduate Student Assistant (9/19-8/22)  
Awarded to co-manage, “Fisheries Interactions & Carbon Offsets: Assessing Existing and Potential Seaweed Markets”

H. William Kuni Bren Research Award, UCSB Bren School (\$12,200) – Co-PI (8/19-8/22)  
Project in partnership with fellow PhD student to research the potential co-benefits of seaweed farms while bringing in several guest speakers

Grantham Foundation (\$200,000) – Collaborator (1/19-12/19)  
Awarded to interdisciplinary team of researchers at UCSB to assess carbon sequestration potential of seaweed mariculture

Coastal Fund Grant, UCSB (\$9,100) – Principal Investigator (12/17-3/19)  
Developed public-facing scientific and policy review for offshore shellfish farms in California with a masters and undergraduate student

Innovation Grant, World Wildlife Fund (\$43,500) – Lead (1/16-12/16)  
Partnered with Dr. Li Li to develop elemental profiling techniques for aquaculture species to trace product back to country of origin

*Other: AISES Chapter Grant ('22), Porter Sustainability Transitions Award (Dartmouth, '14 | \$5,000); Steffanson Fellowship (Dartmouth, '14, \$1,500); Undergraduate Research Grant (Dartmouth, '13 | \$5,000); Mote Scholarship ('12, \$3,000); Pearl Family Grant (Dartmouth, 12/13 | \$5,000)*

## RECENT MEDIA

2022 [Growing in the Ocean](#) | Short Documentary by Laurel Wee et al.

Engineering and Technology Magazine. “[Tackling the oceans' dead zones.](#)” Len Williams

KCSB Schooled Radio. “[School for Fishes?](#) Mae Rennick and Phoebe Racine Talk Aquaculture”.

2021 [Seaweed Revolution](#) | Short Documentary by Gabriel de la Rosa et al.

Bloomberg | Virginia Gewin, “[Coastal 'Dead Zones' Are Multiplying. Seaweed May Be a Solution.](#)”

Anthropocene Magazine | Emma Bryce, “[The unrealized potential of seaweed farming to clean up agricultural pollution.](#)”

2020 CalMatters/ABC news | Julie Cart, “[Did sea farm debacle sink California aquaculture?](#)”

2018 Netflix, Santa Clarita Diet | Shellfish Aquaculture Consultant, Season 2

## RELEVANT PROFESSIONAL EXPERIENCE

**Sustainable Aquaculture Research Center (SARC), UCSB, Santa Barbara, CA (1/17-9/17)****Project Coordinator**

Managed seaweed aquaculture field experiments focused on ecological impacts of production

**World Wildlife Fund (WWF), Washington, D.C. (2/15-12/16)****Aquaculture Program Officer (6/16-12/16)**

- Supported uptake of ASC certification in China, India, and Thailand while managing a business case for better practices in shrimp aquaculture

**Program Associate (6/15-6/2016)**

- Managed development of a unique transparency tool, elemental profiling, for the shrimp aquaculture
- Produced videos, web content, photo series, thought and promotional pieces

**Research Intern (2/15-6/15)**

- Built environmental and social tools for farm self-assessment against the shrimp ASC standards
- Collected water quality data in Thailand and China, aided in business case survey collection

**Food and Agriculture Organization (FAO), United Nations, Rome, Italy (9/14-12/14)****Aquaculture Branch (FIRA) Intern**

Wrote and presented report focused on the role of inter-specific and intra-specific diversification of aquaculture as a tool to increase industry resilience

**Dartmouth Native American Program, Dartmouth, NH (9/11-1/14)****Peer Advising Program Coordinator (9/12-1/14)**

Designed and managed peer advising program that targeted retention of 61 freshmen Native American students

**Peer Advisor (9/11-6/12)**

Advised two sets of 20 first-year Native American students

**LEADERSHIP & MENTORSHIP****TEACHING****Co-Advisor - Traditional Ecological Knowledge Lab, UCSB (9/22-12/22)**

Advising student-designed and led course covering traditional knowledge and plant care

**Co-Lead Teacher - Food, Agriculture, and the Environment, UCSB (7/22-9/22)**

Instructed 40+ undergraduates in a survey course covering global food systems, student feedback considered "best in department" with a 91% "excellent" teaching.

**Teaching Assistant - Food, Agriculture, and the Environment, UCSB (9/21-12/21)**

Led and developed weekly materials for section and conducted the grading for 65 students, student feedback: 100% "excellent".

**MENTORSHIP****Mentor | Graduate Scholars Program**

*Deanna Cervantez, Olivia Isbell, Jose Valero (21 - 6/22)*

Mentored minoritized PhD students by holding monthly meals & targeted, specific support

**Advisor | Undergraduate Thesis**

*Sierra Emrick (9/18 - 6/19)*

Guided Environmental Studies student researching seaweed aquaculture in California & its potential to become part of carbon-offsetting

**Advisor | Independent Study**

*Sutara Nitenson (1/18 - 3/18)*

Guided undergraduate student in two unit class on California aquaculture policy

**MANAGEMENT****Manager | Masters' Student Advising**

*AnnaClaire Marley (1/19-8/19), Elliot Matthews (5/20-8/20), Gabriel de la Rosa (5/20-8/21)*

Hired and supervised Bren masters' students across several projects in spatial analysis & consumer surveys

**Client | Bren Masters' Class Project**

*Laurel Abowd, Sydney Rilum, Jaleise Hall (3/21-6/21)*

Partnered with Bren masters' class to create an interactive application (Shiny) to explore seaweed aquaculture remediation potential

**Client | Bren Master's Group Project**

*Ian Ladner, Shelby Oliver, Iwen Su (1/17 - 6/18)*

Provided guidance for California seaweed aquaculture project while ensuring skillset development of students

## COMMUNITY WORK

**Co-President** – American Indians in Sciences and Engineering Society (AISES), UCSB (9/21–Cont.)

Rechartered UCSB's chapter after community request and held quarterly events serving STEM students.

**PhD Representative– Dean's Advisory Council**, UCSB Bren School (9/20–6/22)

*Shared successes:* development of Bren Leadership Collective; initiated student representation at Faculty Meetings; developed Bren PhD Town Hall; developed standards for faculty PhD mentorship

**Board Member** – UCSB Coastal Fund, UCSB, (6/19– 12/20)

Allocated approximately \$350,000 in funds each year to projects that conserve and increase access to the watershed associated with UCSB.

**Media Coordinator** – Amigos Marineros (2/18 – 9/19)

Produced content to promote Amigos Marineros, a non-profit focused on providing dive fishermen with tools to conserve and protect their environment and livelihoods.

**President & Co-President** – Native Americans at Dartmouth (6/12–9/12, 5/13–4/14)

Led and represented interests for a community of 4–5% of Dartmouth's campus.

## SPEAKING (29 presentations, panels, and lectures during PhD)

### SELECT GUEST LECTURES

- 2022      **“Aquaculture Industry Panel: Seaweed Aquaculture”** – Undergraduate Aquaculture Course, Virginia Institute of Marine Science | William & Mary College
- “Indigenous Environmental Science and Data Sovereignty”** – Traditional Ecological Knowledge Studies, UCSB Environmental Studies Department | 20 Students
- 2021      **“Seafood Revolution”** – Food, Agriculture and the Environment, UCSB Environmental Studies Department | 162 Students
- “Indigenous Environmental Science and Data Sovereignty”** Environmental Research Design, UCSB Environmental Science and Management | PhD Course, 10 Students
- “Seaweed Aquaculture Nutrient Pollution Remediation,”** Marine Pollution, Science, Policy and Public Perception, Moss Landing Marine Lab | Grad Course, 12 Students
- 2019      **“Aquaculture & The Blue Revolution”** Blue Horizons Summer Program for Environmental Media, UCSB | 25 Undergraduate Film Students

### SELECT PRESENTATIONS (\*invited)

- 2022      \*Santa Barbara City College, Public Event, **“Growing in the Ocean” Seaweed Panel**
- 2021      \*UCLA Institute of the Environment & Sustainability (IoES), **“Motivating your PhD”**
- 2020      Bren PhD Dean's Advisory Council, **“Hidden Curriculum in the Bren PhD”**  
Aquaculture America, World Aquaculture Society, **“Revisiting Seaweed Aquaculture for Pollution Remediation”**
- 2019      \*Surfrider Santa Barbara, **Creative Writing Workshop, Guest Scientist**  
UCSB Grad Slam, **“Big Mussel: will they eat us out of the water?”**  
\*California Fish & Wildlife Public Meeting, **“Best Management Practices for Shellfish Aquaculture”**  
\*Bren Women's Caucus, Co-presented with Timnit Kefela: **“Having a Seat at the Table: The importance of intersectionality in your feminism”**
- 2018      \*UCSB Bren School Aquaculture Night, **“Making Sense of Aquaculture Certification”**

## SKILLS

**Methods:** synthesis, panel surveys, semi-formal interviews, literature review, marine spatial analysis (intermediate), perception analysis, network analysis

**Data Science:** R: Tidyverse, RMarkdown (Bookdown), Shiny, spatial analysis (e.g. Leaflet), other data visualization (e.g. Sankey diagrams in networkD3)

**Collaboration:** GitHub, Google Suite, Task Managers (Trello), Zoom