

Robin K. Francis, PhD

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PROFESSIONAL APPOINTMENTS

- Current** **Lecturer**, Boston University, Department of Biology and Marine Program
- 2023-2025** **Postdoctoral Associate Teaching Scholar**, Boston University, Department of Biology
Research Area: Curriculum Development and Pedagogy; Assessment of the impact and inclusion of experiential-learning that centers student learning through undergraduate research opportunities and field courses. Results from my research aim to enhance diversity and equity within the field.
Advisors: Dr. Kathryn Spilios and Dr. Kale Hartmann
- 2024-2025** **Developing Antiracist Curriculum Fellow**, Boston University Diversity & Inclusion, Center for Antiracist Research, Center for Teaching & Learning

EDUCATION

- 2016-2023** **Ph.D. in Biology**, Boston University, Ecology, Evolution and Marine Biology
Dissertation Title: “The Effect of Variation in Habitat Quality on Reproduction and Dispersal of Two Model Systems for Coral Reef Fish Metapopulation Ecology”.
Advisor: Dr. Pete Buston
- 2009-2013** **B.S. in Aquatic Biology**, University of California Santa Barbara
Undergraduate Thesis: “Fish species richness: effects of site and fishing pressure through time”.

GRANTS, FELLOWSHIPS & AWARDS

2023	Outstanding Teaching Fellow in Marine Science , Marine Program	Recipient
2022	Biology Travel Award , Boston University; Biology Department	\$500
2021	Warren McLeod Annual Fellowship , Boston University Marine Program	Year Salary
2021	Outstanding Teaching Fellow in Marine Science , Marine Program	Nomination
2020	Biology Travel Award , Boston University; Biology Department	\$500
2020	Thomas H. Kunz Award , Boston University; Biology Department	Summer Salary
2019	Warren McLeod Summer Fellowship , Boston University Marine Program	Summer Salary
2018	Dana Wright Scholarship , Boston University Marine Program	Summer Salary
2017	Graduate Research Abroad , Boston University	Summer Salary; Research
2016	Dean’s Graduate Fellowship , Boston University	Semester Salary

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PUBLICATIONS

* Denotes undergraduate mentee co-author

1. **Francis RK**, Castro K*, Thompson S*, Trumble I, Majoris JE, Buston PM (2025) Plasticity of dispersal-related larval traits in the Clown Anemonefish *Amphiprion percula*. *Ecology & Evolution*, 15:8, e71967.
2. **Francis RK**, Tostevin G *, Barbasch T, Branconi R, Srinivasan M, Jones GP, Buston PM (2024) Spatial autocorrelation in three habitat quality indicators sets the stage for evolution of adaptive dispersal plasticity in a coral reef fish. *Coral Reefs*, 43:1, 69-78.
3. **Francis RK**, Catalano KA *, Majoris JE, Rueger T, D'Aloia CC, Bogdanowicz S, Buston PM (2022) Characteristics of breeding habitat, genetic mating system, and determinants of mating success in the sponge-dwelling goby *Elacatinus lori*. *Behavioral Ecology and Sociobiology*, 76:157.
4. Barbasch TA, Branconi R, **Francis RK**, et al. (2021) Negotiations Over Parental Care: A Test of Alternative Hypotheses in the Clown Anemonefish. *Behavioral Ecology*, 32:6, 1256-1265.
5. Branconi R, Barbasch TA, **Francis RK**, et al. (2020) Ecological and social constraints combine to promote evolution of non-breeding strategies in clownfish. *Communications Biology*, 3, 649.
6. Majoris JE, D'Aloia CC, **Francis RK**, Buston PM (2018) Differential persistence favors habitat preferences that determine the distribution of a reef fish. *Behavioral Ecology*, 29: 429-439.
7. D'Aloia CC, Bogdanowicz SM, **Francis RK**, et al. (2015) Patterns, causes, and consequences of marine larval dispersal. *Proceedings of the National Academy of Sciences, USA* 112: 13940-13945.

PUBLICATIONS IN REVIEW AND IN PREP

* Denotes undergraduate mentee co-author

Goss HA *, **Francis RK**, Branconi R, Lesneski K, Scavo Lord K, Novak A, Rotjan RI (202X) Role of epibionts in mediating macrograzer herbivory dynamics in Caribbean seagrass communities. *In review*.

Francis RK, Hartmann M, Spilios K (202X) Impact and reach of experiential learning in marine science undergraduate education. *In prep*.

Beredo S *, Westwood J *, Bennet-Smith M, **Francis RK**, Buston P (202X) Anemone-Anemonefish mutualism resiliency to bleaching. *In prep*.

PROFESSIONAL PRESENTATIONS

- 2024** **3rd Joint Congress on Evolutionary Biology (Evolution)**, Montreal, Canada. Talk contributor, talk entitled: "Plasticity of larval fish dispersal-related traits in the orange anemonefish".
- 2022** **Larval Fish Conference (LFC)** San Diego. Talk contributor, talk entitled: "Plasticity of marine larval dispersal-related traits in response to parental environment".
- 2021** **Society of Integrative and Comparative Biology Meeting (SICB)** Talk contributor, talk entitled: "Breeding habitat, mating system, and mating success in the sponge-dwelling goby *Elacatinus lori*".

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TEACHING EXPERIENCE

Introduction to Biology (Boston University) <i>Instructor of Record</i>	Sum 2024
Marine GIS (Boston University; Marine Semester) <i>Instructor of Record</i>	Fall 2021- 2024
Marine Biology (Boston University) <i>Instructor of Record</i>	Spring 2023-2025
Evolutionary Ecology (Boston University) <i>Instructor of Record</i> , upcoming	Spring 2025
Tropical Seagrass Ecology (Boston University; Marine Semester) Field Instructor	Fall 2024
Introduction to Biology Lab (Boston University) Lab Instructor	Spring 2024
Coral Reef Restoration and Resiliency (Boston University) Field Instructor	Fall 2023
Introduction to Biology Lab: Ecology & Evolution Lab Instructor	Sum 2023
Ecology of Coral Reef Fishes (Boston University) Field Instructor	Fall 2022
Introduction to Evolution (Boston University) Discussion Leader	Sum 2020
Scientific Research Diving (Boston University; Marine Semester) Field Instructor	Fall 2019
Marine GIS (Boston University; Marine Semester) Computer Lab Instructor	Fall 2018- 2020
Marine Megafauna (Boston University; Marine Semester) Lab Instructor	Fall 2018
Ichthyology (Boston University; Marine Semester) Lab Instructor	Fall 2017
Marine Biology (Boston University) Discussion Leader	Spring 2017, 2018, 2021

MENTORSHIP

Undergraduate Research Opportunity Program, Boston University, (2019-present)

Mentor undergraduate independent researchers through the scientific process, starting with project development through to completed written scientific paper and professional presentation.

Prospective Students Program Mentor, Boston University, Biology Department (2021- 2023)

Mentor prospective graduate students through the application process by providing feedback on application materials and offering personal correspondence to help combat potential barriers and de-mystify the process.

Summer Undergraduate Research Fellowship (SURF) Mentor, Boston University (Summer 2021)

Mentor an undergraduate during their first work experience in a lab. This program is designed to promote access to research experience to students from minority groups, traditionally underrepresented in the sciences.

Undergraduate Mentees:

Dawn Kaufmann, Research Intern, *Honor's Thesis in Marine Biology*, Boston University (2024-2025)

Sophia Beredo, *Undergraduate Research Opportunity Program*, Boston University (Summer 2024)

Julia Westwood, *Undergraduate Research Opportunity Program*, Boston University (Summer 2024)

Genevieve Tostevin, Research Intern, *Honor's Thesis in Marine Biology*, Boston University (2021-2022)

Douglas Alvarado, SURF Intern, *Undergraduate Research Poster Symposium*, Boston University (2021)

Kurt Castro, Research Intern, *Honor's Thesis in Marine Biology*, Boston University (2019- 2021)

Mikaela Schniedweind, Scientific Diver Intern, Boston University (Summer 2018)

Katrina Catalano, Scientific Diver Intern, Boston University (Summer 2015)

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RESEARCH EXPERIENCE & ACKNOWLEDGMENTS

PhD Candidate, 2020-2022, Wet-lab research in the Buston Lab (Boston University)

Animal husbandry, larval rearing and various experimental methods measuring larval traits.

- Schlatter et al. (2022). Heritability of dispersal-related larval traits in the clown anemonefish *Amphiprion percula*. *Ecology and Evolution*, 12(11), e9541.
- Rueger et al. (2022). Vertebrate growth plasticity in response to variation in a mutualistic interaction. *Scientific Reports*, 12(1), 1-8.

PhD Student, Summer 2018 Field Season, Papua New Guinea (Boston University)

Collaborated on a field expedition with two PhD students and undergraduate intern in Kimbe Bay. Performed surveys and experiments addressing parental care and social networks.

PhD Student, Summer 2017 Field Season, Belize (Boston University)

Led an expedition for PhD. students from University of Florida and University of Colorado.

- Majoris et al. (2021) An integrative investigation of sensory organ development and orientation behavior throughout the larval phase of a coral reef fish. *Scientific Reports* 11:12377.
- Chaput et al. (2019) Environmental conditions and paternal care determine hatching synchronicity of coral reef fish larvae. *Marine Biology* 118.

Junior Research Specialist, Summer 2016 Field Season, Belize (Boston University)

Led dives and collected data on SCUBA for long-term, multi-institutional project. Collected egg clutches and tissue samples, and recorded reproductive behavior data.

- Majoris et al. (2019) Ontogeny of larval swimming abilities in three species of coral reef fishes and a hypothesis for their impact on the spatial scale of dispersal. *Marine Biology* 159.

Junior Research Specialist, Summer 2015 Field Season, Belize (Boston University)

Collected data on SCUBA for a project on fish reproductive and larval behavior. This study is part of a long-term, multi-institutional project. Collected larval fish and spent over 300 hours underwater on SCUBA observing goby behavior. Led dives and mentored undergraduate intern.

- Majoris et al. (2018) Reproduction, early development, and larval rearing strategies for two sponge-dwelling neon gobies, *Elacatinus lori* and *E. colini*. *Aquaculture* 483.

Research SCUBA Intern, Summer 2014 Field Season, Palmyra (UC Santa Barbara)

Collected data on SCUBA for studies on how herbivory affects benthic communities in Pacific coral reefs. Collected data on time-location-specific parrotfish behaviors with GPS and telemetry.

- Davis K, Carlson PM, Lowe CG, Warner RR, Caselle JE (2017) Parrotfish movement patterns vary with spatiotemporal scale. *MEPS* 577, 149-164.
- Carlson PM, Davis K, Warner RR, Caselle JE (2017) Fine-scale spatial patterns of parrotfish herbivory are shaped by resource availability. *MEPS* 577, 165-176.

Junior Lab Technician, Sept. 2013- May 2014, PISCO Lab (UC Santa Barbara)

Dissections and analysis of otoliths from over 120 juvenile fish; Image-Pro Plus software.

Research SCUBA Intern, Summer 2013 Field Season, Belize (Boston University)

Collected data on SCUBA for a PhD student's project on larval dispersal and marine population connectivity. Collected larval and adult fish tissue samples during 100 hours underwater.

- D'Aloia et al. (2021) Population assignment tests uncover rare long-distance marine larval dispersal events. *Ecology* 103:1.
- D'Aloia et al. (2018) Limited dispersal explains the spatial distribution of siblings in a reef fish population. *Marine Ecology Progress Series* 607: 143-154.

Research SCUBA Intern, Summer 2012 Field Season, Channel Islands (UC Santa Barbara)

Internship with PISCO, a long-term, large-scale ecological monitoring program of Marine Protected Areas. Conducted surveys on SCUBA and processed samples of invertebrate recruits.

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PROFESSIONAL SERVICE AND OUTREACH

2024	Master's Thesis Reader , Molly Frank, Boston University, Biology Department
2024	Invited Speaker , Early Career Talk, Scientific SCUBA Diving
2024	Presenter , Boston Leadership Institute, Marine Science Program
2022	Evolutionary Biology Faculty Search, Graduate Student Committee , Boston University
2022, 2023	Lab Tours , GirlsGetMath@BU Program
2019	Volunteer Poster Judge , Reproductive Diversity Poster Symposium, Gender and Sexuality
2019	Presenter , Bio Grad Student Happy Hour Talks, Biology Graduate Student Association
2018	Invited Speaker , Graduate School Panel, BU's Undergraduate Marine Science Association
2017	Presenter , Graduate Student Research Talks, B1 260: Introduction to Marine Biology

CERTIFICATIONS

Certified NAUI Open Water SCUBA; Certified NAUI Master Diver
AAUS Scientific Research SCUBA Diver/ Rescue Diver/ Nitrox
- Over 1,000 scientific dives (150+ cold water)

REFERENCES

Dr. Pete Buston

PhD Advisor

Associate Professor of Biology

Director of the BU Marine Program

Boston University

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Dr. Kale Hartmann

Postdoctoral Research/Teaching Advisor

Lecturer in Biology

Director of Postdoctoral Associate Teaching Scholar Program in Biology

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Dr. Kathryn Spilios

Postdoctoral Research/Teaching Advisor

Master Lecturer in Biology

Director of Instructional Labs

Director of the Learning Assistant Program

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