

## Elizabeth A. Karan

PhD student, Department of Ecology and Evolutionary Biology  
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### Education

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- 9/2017 - present      **PhD student in Ecology and Evolutionary Biology**  
University of California Los Angeles, Los Angeles, CA USA  
Courses in evolution, ecology, mathematical and statistical phylogenetics, ecological modeling
- 9/2012 - 5/2016      **A.B. in Organismic and Evolutionary Biology**  
Harvard University, Cambridge, MA USA  
Courses in comparative biomechanics, genetics and genomics, invertebrate zoology, herpetology, computer science, statistics, chemistry, animal behavior, vertebrate reproductive biology, systematics
- Undergraduate thesis title: “The scales of cnidarian associated fishes and their functional implications”

### Research Experience

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- 9/2017 - present      **Alfaro Lab**, University of California, Los Angeles; Los Angeles, CA USA  
PhD student  
PhD Advisor/Principal investigator: Prof. Michael Alfaro
- 5/2015 - 5/2016      **Lauder Lab**, Harvard University, Cambridge, MA USA  
Undergraduate senior thesis research project  
Project: The relationship between scale morphology and ecology across species  
Principal investigator: Prof. George V. Lauder
- 1/2015 - 5/2015      **Radcliffe Research Partnership**, Harvard University, Cambridge, MA USA  
Research assistant  
Project: Nacre as a paleothermometer  
Principal investigator: Prof. Pupa Gilbert
- 10/2014 – 5/2016      **Harvard Museum of Comparative Zoology Ichthyology Department**  
Volunteer  
Worked under the supervision of the collection manager, Karsten E. Hartel  
Duties: identifying and sorting larval specimens, measuring specimens, updating the online database
- Summer 2014      **Operation Wallacea**, Wakatobi N.P., Indonesia  
Research assistant  
Projects: Anemonefish cohabitation; sponge photosynthesis; mangrove fiddler crab ecology; reef diversity surveillance; impacts of burrowing sponges

## Publications

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ME Alfaro, **EA Karan**, ST Schwartz, AJ Schultz. The Evolution of Color Pattern in Butterflyfishes (Chaetodontidae). *Integrative and Comparative Biology*. 11 July 2019.

PUPA Gilbert, KD Bergmann, CE Myers, MA Marcus, RT DeVol, C-Y Sun, AZ Blonsky, J Zhao, **EA Karan**, E Tamre, N Tamura, AJ Giuffre, S Lemer, G Giribet, JM Eiler, AH Knoll. Nacre tablet thickness records formation temperature in modern and fossil shells. *Earth and Planetary Sciences Letters*. 15 February 2017.

## Presentations

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EA Karan, ME Alfaro. Evolution of False Eyespots in Butterflyfishes: Testing Eye Camouflage and Mimicry as Anti-predator Adaptations. *Society of Integrative and Comparative Biology*. Tampa, FL. January 2019.

EA Karan, DK Wainwright, GV Lauder. The scales of cnidarian associated fishes and their functional implications. *Organismic and Evolutionary Biology Senior Thesis Writers' Poster Session*. Harvard Univ. April 2016.

EA Karan, DK Wainwright, DC Collar. A comparative study of damselfish scale morphology. *Society of Integrative and Comparative Biology*. Portland, OR. January 2016.

## Awards and Grants

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2019 NSF Graduate Research Fellowship  
2017 Irving and Jean Stone Fellowship  
2016 Donald and Kathleen Pfister Prize  
2015 Dean's Summer Research Award  
2015 Museum of Comparative Zoology Grant for Undergraduate Research  
2015 Harvard College Research Prize  
2014 David Rockefeller International Experience Grant

## Skills and Certifications

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Computer languages	C, Python, R, HTML, JavaScript
Software	TensorFlow, Adobe Suite, RevBayes, BEAST, Astral, POY, phyutility, SequenceMatrix, Geneious, MountainsMap, Igor, ImageJ
Imaging	Image adjacency and boundary strength analysis, SEM image processing in Photoshop, SEM analysis in wave metrics software, underwater video transects, underwater behavior videography, 3D topography reconstruction of fish scales using GelSight
Lab techniques	Dissection, sediment composition gradation, water salinity measurements, water pH measurements, PCR, fish husbandry

Field techniques	Species identification, species collection, underwater reef transects, fish stereo video surveys, invertebrate surveys, benthic surveys, reef rugosity measurements, recording behavioral observations
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Certifications	Open Water Diver – PADI
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## Teaching

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4/2019 - 6/2019	<b>GE Cluster 70CW: Evolution of Intelligence</b> Instructor Construction of course material, lead a small seminar of 22 students
9/2018 - 3/2019	<b>GE Cluster 70A-B: Evolution of the Cosmos and Life</b> Teaching Assistant Leading discussion sections, first-year student advising
4/2018 - 6/2018	<b>Ecology and Evolutionary Biology 116: Conservation Biology</b> Teaching Assistant Lead discussion sections, created quiz material and learning activities
9/2014 - 5/2015	<b>Harvard College Bureau of Study Counsel</b> Tutor Course tutor for Organismic and Evolutionary Biology 10: Foundations of Biological Diversity

## Leadership & Outreach

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9/2018 - present	<b>EEB Committee: Seminar and Eco Evo Pub</b> Coordinator Scheduling and organizing biweekly student presentations
3/29/2019	<b>Los Angeles County Science Fair</b> Judge Evaluated middle and high school projects in Animal Physiology
7/2015 - 5/2016	<b>Harvard Boxing Club</b> Captain Teaching technique, teammate support, gear management, 40+ member club
3/2015 - 5/2016	<b>Harvard College Ocean Sciences Club</b> Officer K-12 education and outreach, raising awareness of ocean-related issues on campus

## Languages

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English	Native speaker
German	Intermediate proficiency (speaking, reading, and writing)
Spanish	Basic (speaking, reading, and writing)
Indonesian	Basic (speaking)