



Evan W. Barba



Curriculum Vitae

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University of Hawai'i at Mānoa, Honolulu, HI 96822

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## EDUCATION

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2015 – present **University of Hawai'i at Mānoa** – Honolulu, HI



PhD Candidate: Marine Biology

Toonen-Bowen (ToBo) Lab

*Advisor: Dr. Rob Toonen*

2010 – 2014 **University of California, Santa Barbara** – Santa Barbara, CA



Bachelor of Science in Aquatic Biology

*Distinction in the Major*

## PROFESSIONAL EXPERIENCE

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2017-present **Graduate Research Fellow** – “He'eia National Estuarine Research Reserve

System Graduate Research Fellowship (NERRS-GRF)”

Hawai'i Institute of Marine Biology | UH Mānoa

*Principle Investigator: Rob Toonen*

2015-2017 **Graduate Research Assistant** – “Ocean Acidification: Coral reef adaptation and acclimatization to global change: resilience to hotter, more acidic oceans”

Hawai'i Institute of Marine Biology | UH Mānoa

*Principle Investigators: Christopher Jury, Rob Toonen*

2014-2015 **Laboratory Technician** – Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), Hofmann Lab, and Santa Barbara Coastal Long Term

Ecological Research (SBC-LTER)

Marine Science Institute | UC Santa Barbara

*Principle Investigators: Dr. Carol Blanchette, Dr. Gretchen Hofmann, Dr. Dan Reed.*

2014-2015 **Field Operations Analyst** for ipHat deployments and seawater chemistry for the PISCO and OMEGAS groups

Marine Science Institute | UC Santa Barbara

*Principle Investigators: Dr. Carol Blanchette, Dr. Gretchen Hofmann*

2010-2014 **Undergraduate Intern and Research Diver** – SBC-LTER

Senior honors thesis: “Macronutrient variation in purple sea urchin, *Strongylocentrotus purpuratus*, gonads by sex and seasonality”

Marine Science Institute | UC Santa Barbara

*Principle Investigator: Dr. Dan Reed*

*Graduate Student Mentor: Dr. Daniel Okamoto*

2010-2014 **Undergraduate Intern and Research Diver** – Mo'orea Coral Reef-LTER

Gump Station, Mo'orea, French Polynesia | UC Berkeley

*Principle Investigators: Dr. Russ Schmitt, Dr. Sally Holbrook,*

*Direct Supervisors: Samantha Davis, Keith Seydel*

- 2013            **Field Research Assistant** — *Sargassum horneri* invasion on Catalina Island  
USC Wrigley Institute | Wrigley Marine Science Center  
*Advisor: Dr. Lindsay Marks, UC Santa Barbara*
- 2011-2012      **Laboratory Assistant** — Long term larval marine invertebrate settlement  
project  
Marine Science Institute | UC Santa Barbara  
*Principle Investigator: Dr. Stephen Schroeter*

## RESEARCH CRUISES

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- 2018\*            American Samoa Reef Assessment and Monitoring Program (ASRAMP)  
*ARMS Team Lead*  
NOAA Ecosystem Sciences Division: Ocean and Climate Change Team  
*Team Lead: Dr. Tom Oliver*  
American Samoa and Line Islands (Tutuila, Ofu & Olosega, Ta'u, Rose Atoll,  
Jarvis, Palmyra, Kingman) — 78 Days  
Vessel: NOAA R/V *Hi'ialakai*  
*Chief Scientist: Dr. Bernardo Vargas-Angel*
- 2017            Mariana Archipelago Reef Assessment and Monitoring Program (MARAMP)  
NOAA Coral Reef Ecosystem Program: Ocean and Climate Change Team.  
*Team Lead: Dr. Tom Oliver*  
Guam, CNMI (Rota, Tinian, Aguejan, Saipan) — 22 Days  
Vessel: NOAA R/V *Hi'ialakai*  
*Chief Scientist: Dr. Tom Oliver*
- 2016            Hawaiian Archipelago Reef Assessment and Monitoring Program (HARAMP)  
NOAA Coral Reef Ecosystem Program: Ocean and Climate Change  
*Team Lead: Dr. Tom Oliver*  
Papahānaumokuākea Marine National Monument, Hawai'i — 33 Days  
Vessel: NOAA R/V *Hi'ialakai*  
*Chief Scientist: Dr. Brett Schumacher*
- 2015            Channel Islands Research Cruise on Acidification Studies (CIRCAS)  
Hofmann Lab: Seawater Chemistry and Plankton Sampling Team — 3 Days  
Santa Barbara Channel Islands, California  
Vessel: NOAA R/V *Shearwater*  
*Chief Scientist: Dr. Gretchen Hofmann*

## TEACHING EXPERIENCE

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- 2016            **Graduate Teaching Assistant**  
Biology 301L: Marine Ecology and Evolution Lab  
Department of Biology | UH Mānoa

## AWARDS AND FELLOWSHIPS

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- 2018            **Department of Biology**, UH Mānoa — 43<sup>rd</sup> Annual Albert L. Tester  
Symposium "Best Graduate Student Poster, Honorable Mention" recipient

- 2018 **The Colonel Willys E. Lord, DVM & Sandina L. Lord Endowed Scholarship**  
Hawai'i Institute of Marine Biology
- 2016 **Department of Biology, UH Mānoa** – 41<sup>st</sup> Annual Albert L. Tester Symposium “Best Graduate Student Rapid Fire Talk, Honorable Mention” recipient
- 2014 **National Science Foundation** – Research Experiences for Undergraduates (NSF-REU) recipient  
Hofmann Lab | UC Santa Barbara, California
- 2014 **Department of Ecology, Evolution, and Marine Biology, UC Santa Barbara**  
Dean Bazzi Memorial Award
- 2014 **Department of Ecology, Evolution, and Marine Biology, UC Santa Barbara**  
Distinction on the Major Award
- 2013 **National Science Foundation** – Research Experiences for Undergraduates (NSF-REU) recipient  
MCR-LTER | Mo'orea, French Polynesia
- 2012 **National Science Foundation** – Research Experiences for Undergraduates (NSF-REU) recipient  
SBC-LTER | UC Santa Barbara

## GRANTS IN SUPPORT OF RESEARCH

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- 2013 **Undergraduate Research and Creative Activities Grant (UCSB)**,  
*“Macronutrient variation in purple sea urchin (*Strongylocentrotus purpuratus*) gonads by sex and seasonality”*

## PUBLICATIONS

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- 2018\* Mora, C., Spirandelli, D., [et al. **Barba, EW.**]. The broad risk to humanity from climate change. *Nature Climate Change*. Revision in review.

## PRESENTATIONS AND MEETINGS

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- 2018 **Barba, EW.**, Conklin, E., Kraft, D., Whitney, J., Toonen, RJ. *Introducing assessPool: a flexible pipeline for population genetic analyses of pooled sequencing data*. 43rd Annual Albert L. Tester Memorial Symposium – Honolulu, HI  
*Best Graduate Student Poster - Honorable Mention*
- 2018\* **Barba, EW.**, Timmers, M, Toonen, RJ. *Cryptofaunal community responses to reefscape changes: A case study of Jarvis Island's 2015 bleaching event*. 43rd Annual Albert L. Tester Memorial Symposium – Honolulu, HI
- 2018 **Barba, EW.**, Timmers, M, Toonen, RJ. *Cryptofaunal community responses to reefscape changes: A case study of Jarvis Island's 2015 bleaching event*. HIMB Scholarship Symposium – Kāne'ohe, HI
- 2017 **Barba, EW** and Toonen, RJ. *Evolutionary and Physiological Responses of Urchins, *Triplunestres gratilla*, under changing seas*. Future Leaders in Marine Science Student Research Symposium – Kāne'ohe, HI

- 2016 **Barba, EW** and Toonen, RJ. *Physiological and Evolutionary Responses of a Keystone Coral Reef Herbivore Under Changing Seas*. 41st Annual Albert L. Tester Memorial Symposium – Honolulu, HI  
*Best Graduate Student Rapid Fire Talk - Honorable Mention*
- 2015 **Barba EW**, Bitter, MB, Casorani, MCN, Hofmann GH, Blanchette CA, and Reed, DC. *Observations of Early Life Stage Phyllospadix torreyi under elevated CO2 conditions*. Western Society of Naturalists (WSN) – Sacramento, CA
- 2014 **Barba, EW**, Okamoto, DK, Rivest, EB, and Reed, DC. *Differences in purple sea urchin mass specific protein and lipid value by sex*. UCSB Undergraduate Research Colloquium – Santa Barbara, CA

## INVITATIONAL TALKS AND LECTURES

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- 2017 **Lecture and Open Discussion** – Union Mine High School, CA. *Discussion on evolutionary genetics, marine biology and careers in science*
- 2013 **Upper Division Courses Panel Speaker** – Society of Undergraduate Biologists (SUB), UC Santa Barbara
- 2013 **Undergraduate Research Panel Speaker** – Society of Undergraduate Biologists (SUB), UC Santa Barbara

## OUTREACH AND INFORMAL PUBLIC EDUCATION

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- 2013 **Volunteer** – Department of Biology booth, Mānoa Experience Day (Honolulu, HI)
- 2014 Mandoske, J., **Barba, E.** A Field Guide to the Invertebrates of Mo'orea, French Polynesia. *Photographer and species identification*
- 2013 **Volunteer** – MCR LTER Outreach booth, Earth Day Festival (Santa Barbara, CA)
- 2013-2014 **Research Support Committee Lead** – Society of Undergraduate Biologists (SUB), UC Santa Barbara
- 2010-2011 **Docent** – Research Experience Education Facility (REEF)

## RELEVANT COURSEWORK

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- **Introduction to Programming and Statistics in R**
- **Advanced Statistics in R**
- **Techniques in Genetics: R and Biostatistics**
- Marine Ecology
- Marine Conservation Biology
- Macroevolution
- Writing Science
- Introduction to Genetics
- Research Reviews in Aquatic Ecology
- Biology of Fishes
- Physical Oceanography
- Writing for Science and Technology
- Invertebrate Zoology: Higher Invertebrates
- Environmental Processes in Oceans and Lakes
- Applied Marine Ecology
- Field Studies in Marine Ecological Physiology
- Aquatic Communities
- Invertebrate Zoology: Lower Invertebrates
- Introduction to Ecology
- Advanced Placement Statistics

## AFFILIATED SKILLS

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<b>Field</b>	Scientific diving: American Academy of Underwater Sciences (AAUS) ( <i>100ft depth certification</i> ) NOAA Scientific Diver ( <i>130ft depth certification</i> ) <i>500+ dives, 350+ hours logged</i> NAUI: open water, advanced open water, rescue diver, dive master Extensive subtidal and intertidal survey experience First Aid, CPR, and O <sub>2</sub> Certifications Small craft and research vessel piloting and trailering Instrument deployment and retrieval Exceptional invertebrate, fish, and algal taxonomic identification
<b>Laboratory</b>	Protein, lipid, and carbohydrate extraction and assays; western blotting; agarose gel electrophoresis; DNA extractions; PCR; NanoDrop spectroscopy; Qubit fluorometric quantitation; respirometry; UV-VIS spectrophotometry; IR Spectroscopy; light, stereo, and fluorescence microscopy; aquarium care of marine organisms; equivalence point titrations for the determination of total alkalinity in seawater; maintenance, operations, and repairs to autonomous pH sensors (iphats)
<b>Software</b>	Highly proficient: R (including Rstudio/server, Shiny, Plotly), Linux (Ubuntu) and Windows OS, Command Line, Adobe Photoshop, Adobe Premiere, Geneious, Docker Proficient: Python, MacOS, Git, pandas
<b>Bioinformatics</b>	Development: assessPool ( <i>Lead dev - in prep for publication</i> ) Proficient: dDocent, iPyrad, Spades, Velvet, Mauve, Mothur, Chewbacca (in dev), Insect (in dev), vcfTools, Freebayes

## MEMBERSHIPS AND AFFILIATIONS

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- [ToBo Lab Development Team](#) (2018-present)
- American Academy of Underwater Sciences (2012-present)
- Mo'orea Coral Reef Long Term Ecological Research (MCR LTER) Project (2011-2016)
- Santa Barbara Coastal Long Term Ecological Research (SBC LTER) Project (2010-2015)
- Divers Alert Network (2010-present)
- Scuba and Freediving Club at UCSB, *2013-14 Vice President* (2010-2014)
- Society of Undergraduate Biologists, *Research Committee Lead* (2013)