

# Katrina Sky Munsterman

PhD Candidate

Department of Ecology and Evolutionary Biology

University of Michigan, Ann Arbor

707-567-7665

kmunster@umich.edu

[katrinaskymunsterman.com](http://katrinaskymunsterman.com)

---

## ***Education***

**Doctor of Philosophy**, Candidate, Department of Ecology and Evolutionary Biology (EEB) 2019-*present*  
University of Michigan (UM)

Dissertation: How behavior affects fisheries production in tropical coastal ecosystems

Advisor: Dr. Jacob Allgeier

Committee: Dr. John Vandermeer (UM EEB), Dr. Brian Weeks (UM SEAS),

Dr. Katie Fiorella (Cornell), Dr. Matthew Campbell (NOAA Fisheries)

**Master of Arts**, Department of Ecology, Evolution and Marine Biology (EEMB) 2017-2019

University of California, Santa Barbara (UCSB)

Dissertation: Understanding the role of herbivorous fishes in top-down and bottom-up processes on coral reefs

Advisor: Dr. Deron Burkepile

Committee: Dr. Jacob Allgeier (UM EEB), Dr. Jennifer Caselle (UCSB EEMB),

Dr. Erika Eliason (UCSB EEMB)

**Bachelor of Science**, Department of Ecology, Evolution and Marine Biology, UCSB 2009-2013

Dean's Honors, College of Letters & Sciences, Distinction in Major

Honors Thesis: The functional role of herbivorous fishes in Mo'orea, French Polynesia

Advisor: Dr. Russell Schmitt & Dr. Sally Holbrook

## ***Fellowships & Awards***

Science for the People Award, EEB UM (\$1250) 2024

Justice Equity Diversity and Inclusion Fellowship for PODS Program, EEB UM (\$500) 2023

NOAA Fisheries-Sea Grant Population and Ecosystem Dynamics Fellowship (\$162,500) 2022-2025

Lewis and Clark Fund for Exploration and Field Research (\$5000) 2022

Ichthyology Graduate Student Award, EEB UM (\$11,000 total) 2021-2024

Dr. Nancy William Walls Award for Field Research, UM (\$1655) 2020

Graduate Research Fellowship Program Honorable Mention, National Science Foundation 2019

Departmental Fellowship, EEMB, UCSB 2017-2019

Segal AmeriCorps Education Award (\$1700) 2013

Audrey Lynn Copeland Memorial Award for Excellence, UCSB (\$500) 2013

Research Experience for Undergraduates, National Science Foundation 2011

## ***Grants***

Joan B. Keller Conference Travel Grant, Rackham Graduate School UM (\$900) 2023

Justice Equity Diversity and Inclusion Small Grant, EEB UM (\$250) 2023

Ocean Tracking Network Conference Travel Grant (\$740) 2022

Graduate Research Grant, EEB UM (\$750 total) 2021-2024

Graduate Travel Grant, Rackham Graduate School UM (\$1400) 2020

Graduate Travel Grant, EEB UM (\$500) 2020, 2022

Graduate Student Association Travel Grant, EEMB UCSB (\$200) 2019

Faculty Research Assistance Grant, UCSB (\$4200) 2017-2019

Graduate Travel Grant, EEMB, UCSB (\$500) 2018

Worster Undergraduate Research Grant, UCSB (\$3000) 2012

## ***Teaching Experience***

Pre-college Ocean Discovery and Science Program (PODS) Instructor – Online Course (UM) 2024

PODS Lead Instructor – Online and Field Course (UM) 2023

|  |             |
|--|-------------|
| PODS Program Field Course Leader (UM)  | 2022        |
| Graduate Student Instructor, Biology 281 General Ecology (UM)                | Winter 2020 |
| Graduate Student Instructor, Biology 171 Intro to Ecology and Evolution (UM) | Fall 2019   |
| Teaching Assistant, EEMB 138 Behavioral Ecology (UCSB)                       | Winter 2019 |

### ***Research Experience***

|   |           |
|---|-----------|
| Graduate Student Curator Assistant, Ichthyology, Museum of Zoology, UM        | 2021      |
| Scientific Research Assistant in Haiti, Allgeier Lab, UM                      | 2018      |
| Graduate Research Assistant, Burkepile Community Ecology Lab, UCSB            | 2017-2019 |
| Scientific Research Assistant in Palmyra Atoll, Caselle Lab, UM               | 2017      |
| Assistant Specialist, Burkepile Community Ecology Lab, UCSB                   | 2015-2017 |
| Junior Specialist, Mo'orea Coral Reef Long Term Ecological Research Lab, UCSB | 2015-2016 |
| Herbarium Curator Assistant, Cal Academy & UC Berkeley                        | 2015      |
| Plant Collector & Diver, Dept of Integrative Biology, UC Berkeley             | 2014-2015 |
| Restoration Ecologist Intern, Golden Gate Park, National Parks Conservancy    | 2014      |
| Backcountry Botanist Intern, U.S. Forest Service & AmeriCorps                 | 2013      |
| Scientific Diving Assistant, Marine Science Institute, UCSB                   | 2011-2013 |
| Scientific Research Assistant, Mo'orea Coral Reef LTER, UCSB                  | 2010-2013 |

### ***Publications***

- Van Wert, JC, L Ezzat, **KS Munsterman**, K Landfield, NMD Schiettekatte, V Parravicini, JM Brandl, DE Burkepile, EJ Eliason. Fish feces reveal diverse nutrient sources for coral reefs. *Ecology*, e4119.
- Schiettekatte, NMD, SJ Brandl, JM Casey, AJ Graham, DR Barneche, DE Burkepile, JE Allgeier, JE Aria-Gonzalez, GJ Edgar, CEL Ferreira, SR Floeter, AM Friedlander, AL Green, M Kulbicki, Y Letourneur, OJ Luis, A Mercière, F Morat, **KS Munsterman**, EL Rezende, FA Rodríguez-Zaragoza, RD Stuart-Smith, L Vigliola, S Villéger, V Parravicini. 2022. Drivers and vulnerability of global coral reef fish functions. *Nature Ecology and Evolution* 1-8.
- Brines, E, MA Andskog, **KS Munsterman**, CA Layman, JE Allgeier. 2022. Anthropogenic nutrients mitigate importance of fish-mediated nutrient supply for seagrass beds in Haiti. *Marine Biology* 169 (3), 1-10.
- Allgeier, JE, BC Weeks, **KS Munsterman**, N Wale, S Wenger, V Parravicini, NMD Schiettekatte, S Villéger, DE Burkepile. 2022. Phylogenetic conservatism drives nutrient dynamics of coral reef fishes. *Nature Communications* (12), 5432.
- Ezzat, L, S Merolle, CS Clements, **KS Munsterman**, KM Landfield, CR Duran Stensrud, ER Schmeltzer, DE Burkepile, RV Thurber. 2021. Thermal stress interacts with surgeonfish feces to increase coral susceptibility to dysbiosis and reduce tissue regeneration. *Frontiers in Microbiology* (12), 608.
- Munsterman KS**, JE Allgeier, JR Peters, DE Burkepile. 2021. A view from both ends: shifts in herbivore assemblages impacts top-down and bottom-up processes on coral reefs. *Ecosystems*, 1-14.
- Schiettekatte, NMD, DR Barneche, S Villéger, DE Burkepile, JE Allgeier, SJ Brandl, JM Casey, A Mercière, **KS Munsterman**, F Morat, V Parravicini. 2020. Nutrient limitation, bioenergetics and stoichiometry: A new model to predict elemental fluxes mediated by fishes. *Functional Ecology* 34 (9), 1857-1869.
- Donovan, MK, TC Adam, AA Shantz, KE Speare, **KS Munsterman**, MM Rice, RJ Schmitt, SJ Holbrook, DE Burkepile. Nitrogen pollution alters coral bleaching across the seascape. *Proceedings of the National Academy of Sciences* 117 (10), 5351-5357.
- Ezzat, L, T Lamy, RL Maher, **KS Munsterman**, KM Landfield, ER Schmeltzer, CS Clements, RV Thurber, DE Burkepile. 2020. Parrotfish predation drives distinct microbial communities in reef-building corals. *Animal Microbiome*, 2, 5.
- Ezzat, L, T Lamy, **KS Munsterman**, K Landfield, DE Burkepile, RV Thurber. 2019. Herbivorous fish feces destabilize coral microbiome. *Marine Ecology Progress Series*, 81-97.
- Burkepile, DE, AA Shantz, TA Adam, **KS Munsterman**, KE Speare, MC Ladd, MM Rice, SE McIlroy, AJ Brooks, RJ Schmitt, SJ Holbrook. 2019. Nitrogen source drives differential impacts of nutrients on coral bleaching prevalence, duration, and mortality. *Ecosystems*, 1-14.
- Burkepile, DE, TC Adam, M Roycroft, MC Ladd, **KS Munsterman**, BI Ruttenberg. 2019. Size-specific patterns in corallivory and spongivory among Caribbean parrotfishes. *Coral Reefs* 38 (3), 1-7.
- Rassweiler, A, M Lauer, SE Lester, SJ Holbrook, RJ Schmitt, R Madi Moussa, **KS Munsterman**, HS Lenihan, AJ Brooks, J Wencélius, J Claudet. 2020. Perceptions and responses of Pacific Island fishers to changing coral reefs. *Ambio* 49 (1), 130-143

*Manuscripts in advanced stages*

Landfield, KM, JR Peters, **KS Munsterman**, AC Stier, JE Allgeier, DE Burkepile. Coral characteristics and the presence of micro-predatory fishes influence ammonium contributions from associated small-bodied fishes and invertebrates.

**Munsterman, KS**, MHK Hesselbarth, JE Allgeier. Smaller and bolder fish enhance ecosystem-scale primary production around artificial reefs in seagrass beds.

**Munsterman, KS**, KJ Fiorella, D Mitchell, JE Allgeier. Internal and external resilience both hinder and help small-scale fishing communities following multiple disturbances in The Bahamas.

*Technical Literature*

**Munsterman, KS**. Determination of nutrient hotspots on coral reefs using a common macroalga. Precellys Homogenizer Application Note. 2017. <https://www.bertin-instruments.com>.

**Contributed Presentations**

\* student mentee

**Munsterman, KS**, MHK Hesselbarth, JE Allgeier. Optimal foraging theory from the bottom-up? Implications for primary production in a seagrass ecosystem. Ecological Society of America, Portland, OR, August 2023.

**Munsterman, KS**. Reef fish functional diversity and small-scale fisheries. Guest Lecture, Biology 108 Animal Diversity, University of Michigan, November 2022.

**Munsterman, KS** and Mitchell, D\*. Field Research in The Bahamas. Whale Camp, Bahamas Marine Mammal Research Organization, July 2022.

**Munsterman, KS**. Experiences in Field Research. Small Island Sustainability Capstone Class, University of The Bahamas, January 2021.

**Munsterman, KS**. Understanding drivers of fish production and post-disturbance recovery of fishing communities in a tropical coastal ecosystem, PhD Candidacy Evaluation Seminar, University of Michigan, October 2020.

Donovan, MK, TC Adam, AA Shantz, KE Speare, **KS Munsterman**, MM Rice, RJ Schmitt, SJ Holbrook, DE Burkepile. Nitrogen pollution alters coral bleaching across the seascape. Ocean Sciences Meeting, San Diego, CA, February 2020.

Landfield, KL\*, **KS Munsterman**, JE Allgeier, DE Burkepile. Community composition and nutrient contributions of coral exosymbionts in Mo'orea, French Polynesia. Ocean Sciences Meeting, San Diego, CA, February 2020.

**Munsterman, KS**. Understanding the role of herbivorous fishes in top-down and bottom-up processes on coral reefs. Master's Degree Exit Seminar, UCSB, June 2019.

**Munsterman, KS**. An Introduction to Fish Pee and Me. Graduate Student Symposium, UCSB, Feb 2018.

**Munsterman, KS** & DE Burkepile. Ecosystem processes and the herbivore guild. Mo'orea Coral Reef LTER All Investigator's Meeting, UCSB, November 2017.

Burkepile, DE, AA Shantz, JE Allgeier, V Parravicini, S Villéger, **KS Munsterman**, RJ Schmitt, SJ Holbrook. Fish-derived nutrients and their roles in Indo-Pacific coral reef systems. Indo-Pacific Fish Conference, Papeete, French Polynesia, October 2017.

**Munsterman, KS**, JE Allgeier, DE Burkepile. Fish also pee in Mo'orea and it probably matters. Mo'orea Coral Reef LTER All Investigator's Meeting, UCSB, October 2016.

**Munsterman, KS**, SL Davis, SJ Holbrook, RJ Schmitt. Exploring the functional role of a common herbivore in Mo'orea. Mo'orea Coral Reef LTER All Investigator's Meeting, UCSB, November 2015.

*Posters*

**Munsterman, KS**, MD Campbell, JE Allgeier. Preparing for category 6: How fishers in tropical coastal ecosystem respond to large storm events. *First Place Poster Presentation*. NMFS-Sea Grant Population Dynamics Symposium, NOAA Silver Spring, MD, August 2023.

**Munsterman, KS** and JE Allgeier. Preparing for category 6: How fishers in tropical coastal ecosystem respond to large storm events. Michigan University-Wide Sustainability & Environment Conference, UM, February 2020.

**Munsterman, KS**, DE Burkepile, JE Allgeier. Size-mediated role of herbivores in ecosystem processes on coral reefs. Best Student Poster, *Honorable Mention*. Western Society of Naturalists, Tacoma WA, November 2018.

**Munsterman, KS**, SL Davis, SJ Holbrook, RJ Schmitt. The functional role of a common herbivore in

Mo'orea, French Polynesia. Western Society of Naturalists, Monterey CA, November 2016.  
**Munsterman, KS**, SL Davis, SJ Holbrook, RJ Schmitt. The functional role of a common herbivore in Mo'orea, French Polynesia. International Coral Reef Symposium (ICRS), Honolulu HI, June 2016.  
**Munsterman, KS**, SL Davis, SJ Holbrook, RJ Schmitt. The functional role herbivorous fishes in Mo'orea, French Polynesia. Undergraduate Research Colloquium, UCSB, May 2013.

### *Workshops*

Hesselbarth, MHK and **KS Munsterman**. *Organizer*. [Advanced R Workshop](#). EEB Graduate Students, University of Michigan, October 2022.  
 Sadowsky, N, E Bastien, **KS Munsterman**, and S Shaffer-Morrison. *Panelist*. Preparing for Preliminary Exams. EEB Graduate Students, University of Michigan, October 2022.  
 Joque, J, J Meyers, **KS Munsterman**. *Organizer*. Creating Quality Images. EEB Grad, Faculty, and Staff, University of Michigan, April 2022.  
 Jacob, A, **KS Munsterman**, A Dirks. *Organizer*. Return to U-M: Pause, Reflect, Redefine and Recover. EEB Graduate Students, University of Michigan, October 2021.

### *Journal Reviews*

*Australia Journal of Zoology* (1), *Coral Reefs* (1), *Diversity* (1), *Ecology and Evolution* (1), *Ecological Engineering* (1), *Estuarine Coastal and Shelf Science* (1), *Limnology and Oceanography* (1), *Marine and Freshwater Behavior and Physiology* (1), *Marine Environmental Research* (2), *Oikos* (1), *People and Nature* (1), *PLOS One* (1), *Scientific Reports* (1), *Sustainability* (1)

### *Professional Societies*

#### *Current*

Society of Comparative and Integrative Biology (2017); International Society for Reef Studies (2016); Western Society of Naturalists (2013); NSF Long Term Ecological Research Network (2011)

### *Mentoring Experience*

|  |           |
|--|-----------|
| PODS Program assistant instructors (2 students)                        | 2022-2023 |
| University of The Bahamas research assistant (1 student)               | 2022      |
| EEB Graduate Dept. Sibling Program (6 graduate students)               | 2020-2022 |
| Women In Science and Engineering Mentorship (1 student)                | 2017-2018 |
| Nutrient chemistry analyses (12 students), Video analyses (8 students) | 2016-2019 |
| Scientific diving interns (3 students)                                 | 2016-2018 |

### *Outreach & Public Education*

|   |           |
|---|-----------|
| EEB Community Organizer, UM   | 2021-2023 |
| Science Communication Fellowship, UM Natural History Museum                       | 2021      |
| EEB Lunch Seminar Co-Coordinator, UM  | 2020-2021 |
| Twitter Account Co-Manager, International Coral Reef Society Student Chapter      | 2020-2023 |
| Twitter Account Manager, Coastal Ecology and Conservation Lab                     | 2019-2023 |
| Invited Panelist, NSF Ocean Change Biology REU, UCSB                              | 2019      |
| Invited Panelist, Scuba Club, UCSB  | 2019      |
| Invited Panelist, Nature Track Film Festival, Los Olivos, CA                      | 2018      |
| Mo'orea Coral Reef LTER Tent, Santa Barbara Earth Day Festival, Santa Barbara, CA | 2011-2019 |
| Invited Speaker, Washington Elementary Extended Learning, UCSB                    | 2013,2016 |
| Exhibit Coordinator, Dept of Integrative Biology, Cal Day UC Berkeley             | 2015      |

### *Popular Press*

|  |           |
|--|-----------|
| UM EEB. <a href="#">Katrina Munsterman, EEB PhD student, receives JEDI award</a>                                     | 2023      |
| Michigan Sea Grant. <a href="#">Michigan doctoral student selected for prestigious national fisheries fellowship</a> | 2022      |
| Blog Post. Regular Contributor to EEBlog, UM EEB. <a href="#">The future is science communication</a>                | 2021-2023 |
| Scientist Spotlight. UM Museum of Natural History. <a href="#">Fish pee to farm the sea</a>                          | 2021      |
| Blog Post. ReefBites, ICRS Student Blog. <a href="#">Changing impacts of herbivorous fishes through time</a>         | 2021      |
| Interview. The Bottom-Line Newspaper, UCSB. <a href="#">Scientific Diving Program at UCSB</a>                        | 2018      |
| Research Poster. Kirsten Carlson's SciComm Blog. <a href="#">This Tahitian fish eats more than turf</a>              | 2016      |

Interview. Career Services Blog, UCSB. [Internship Scuba Diving in Mo'orea](#)

2012

***Certifications***

NAUI Enriched Air Nitrox Diver (2018); Scientific Motorboat Operator (2015); SCUBA Visual Cylinder Inspector (2015); NAUI Divemaster (2011); Scientific Diver, American Association of Underwater Scientists (2011)