

Katrina Sky Munsterman

PhD Candidate

Department of Ecology and Evolutionary Biology
University of Michigan, Ann Arbor

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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

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 Support, UM (\$3000) 2021, 2022

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

Graduate Research Grant, EEB UM (\$250) 2021, 2022

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 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
Graduate Research Assistant, Burkepile Community Ecology Lab, UCSB	2017-2019
Scientific Research Assistant in Haiti, Allgeier Lab, UM	2018
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

- 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

- Allgeier, JE, NMD Schiettekatte, S Villéger, DE Burkepile, **KS Munsterman**, V Parravicini. The nutrient niche of coral reef fishes.

Munsterman, KS, MHK Hesselbarth, JE Allgeier. Estimating the effects of inter and intraspecific variation in behavior on ecosystem function: an individual based modeling approach.
 Van Wert, JC, L Ezzat, **KS Munsterman**, K Landfield, NMD Schiettekatte, V Parravicini, JM Brandl, DE Burkepile, EJ Eliason. Nutrient niches of coral reef fish: egestion as a nutrient source in reef ecosystems.

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. 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 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), *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

Lab Research

Nutrient chemistry analyses (12 students), Video analyses (8 students) 2016-2019

Field Research

Scientific diving interns (3 students) 2016-2018

Social Science intern (1 student) 2022

Early Career Advising

Women In Science and Engineering Mentorship (1 student) 2017-2018

EEB Graduate Dept. Sibling Program (6 graduate students) 2020-2022

Outreach & Public Education

EEB Community Organizer, UM 2021-present

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-present

Twitter Account Manager, Coastal Ecology and Conservation Lab 2019-present

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

Michigan Sea Grant. [Michigan doctoral student selected for prestigious national fisheries fellowship](#) 2022

Blog Post. Regular Contributor to EEblog, UM EEB. [The future is science communication](#) 2021-present

Scientist Spotlight. UM Museum of Natural History. [Fish pee to farm the sea](#) 2021

Blog Post. ReefBites, ICRS Student Blog. [Changing impacts of herbivorous fishes through time](#) 2021

Interview. The Bottom-Line Newspaper, UCSB. [Scientific Diving Program at UCSB](#) 2018

Research Poster. Kirsten Carlson's SciComm Blog. [This Tahitian fish eats more than turf](#) 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)

