Nyssa J. Silbiger

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EDUCATION

2009 - 2015	Ph.D., Zoology, Specialization in Marine Biology, University of Hawai'i Mānoa,
	Dissertation: Environmental drivers of the coral reef accretion-erosion balance
	in present and future ocean conditions.
2007 - 2009	M.S., Marine Science, University of North Carolina at Chapel Hill,
	Thesis: Impacts of sponge produced DIN on Caribbean coral reef seaweed
	communities.
2002 2006	

2003 – 2006 B.S., Biological Science, Minor in Chemistry, Certificate in Marine Resource Ecology, Florida State University, Graduated Cum Laude

POSITIONS HELD

2017 - Present Assistant Professor, California State University, Northridge

- 2015 2017 Postdoctoral Scholar, Department of Ecology and Evolutionary Biology, University of California, Irvine
- 2012 2015 NOAA Dr. Nancy Foster Scholar

PUBLICATIONS (* denotes student advisee)

- 20) Sorte CJB, Bernatchez G, Mislan, KAS, Pandori LLM, **Silbiger NJ**, Wallingford PD (2019) Thermal tolerance limits as indicators of current and future intertidal zonation patterns in a diverse mussel guild. *Marine Biology* 166:6
- 19) Edmunds PJ, Adam TC, Baker AC, Doo SS, Glynn PW, Manzello DP, Silbiger NJ, Smith TB, Fong P (2019) What can we learn from two resilient coral reef systems? *Marine Ecology Progress Series* 608:297-306
- 18) Silbiger NJ, Nelson CE, Remple K, *Sevilla JK, Quinlan Z, Putnam HM, Fox MD, and Donahue MJ (2018) Nutrient pollution disrupts key ecosystem functions on coral reefs. *Proceedings of the Royal Society: B* 285: 20172718. DOI: 10.1098/rspb.2017.2718
- 17) Bracken MES, Silbiger NJ, Bernatchez G, Sorte CJB (2018) Primary producers ameliorate impacts of CO₂ addition in a coastal marine ecosystem. *PeerJ* 6:e4739: DOI 10.7717/peerj.4739
- 16) Safaie A, Silbiger NJ, McClanahan TR, Pawlak G, Barshis DJ, Hench JL, Rogers JS, Williams GJ, and Davis KA. (2018) High frequency temperature variability mitigates coral bleaching. *Nature Communications*, 9:1671 DOI: 10.1038/s41467-018-04074-2
- 15) Quinlan, ZA, Remple K, Fox MD, Silbiger NJ, Oliver TA, Putnam HM, Kelly LW, Carlson CA, Donahue MJ and Nelson CE (2018) Fluorescent organic exudates of corals and algae in tropical reefs are compositionally distinct and increase with nutrient enrichment. *Limnology and Oceanography: Letters*. 3(4): 331-340 DOI:10.1002/lol2.10074
- 14) Lubarsky K, Silbiger NJ, and Donahue MJ (2018) Effects of submarine groundwater

discharge on coral accretion and bioerosion on two shallow reef flats. *Limnology and Oceanography*. 63(4): 1660-1676 DOI: 10.1002/lno.10799

- 13) Silbiger NJ and Sorte CJB (2018) Biophysical feedbacks mediate carbonate chemistry in coastal ecosystems across spatiotemporal gradients. *Scientific Reports*, 8 (796) doi:10.1038/s41598-017-18736-6
- 12) **Silbiger NJ,** Donahue MJ, and Brainard RE (2017) Environmental drivers of coral reef carbonate production and bioerosion: a multi-scale analysis. *Ecology*, 98(10): 2547- 2560 doi:10.1002/ecy.1946
- 11) Silbiger NJ and DeCarlo TM (2017) Comment on "Bioerosion: the other ocean acidification problem": on field studies and mechanisms. *ICES Journal of Marine Science*. fsx069, https://doi.org/10.1093/icesjms/fsx069
- Hackerot S, Valdivia A, Silbiger NJ, and Bruno, JF (2017) Invasive lionfish had no effect on fish community structure on the Belizean Barrier Reef. *PeerJ*, DOI 10.7717/peerj.3270
- 9) Silbiger NJ, Guadayol Ò, Thomas FIM, Donahue MJ. (2016) A novel μCT analysis reveals different responses of bioerosion and secondary accretion to environmental variability. *PLoS ONE*, 11(4):e0153058. DOI:10.1371/journal.pone.0153058
- 8) Vicente J, Silbiger NJ, Beckley B, Hill RT (2016) Impact of high pCO₂ and warmer temperatures on the process of silica biomineralization in the sponge *Mycale grandis*. *ICES Journal of Marine Science*, 73:704-714, DOI: 10.1093/icesjms/fsv235
- 7) **Silbiger NJ**, and Donahue MJ (2015). Secondary calcification and dissolution respond differently to future ocean conditions. *Biogeosciences*, 12: 567-578
- 6) Nelson CE, Donahue MJ, Dulaiova H, Goldberg SJ, La Valle FF, Lubarsky K,
 *Miyano J, Richardson C, Silbiger NJ, and Thomas FIM (2015) Fluorescent dissolved organic matter as a multivariate biogeochemical tracer of submarine groundwater discharge in coral reef ecosystems. *Marine Chemistry*, 177: 232-243
- 5) **Silbiger NJ,** Guadayol Ò, Donahue MJ, Thomas FIM (2014) Reefs shift from net accretion to net reef erosion along a natural environmental gradient. *Marine Ecology Progress Series*, 14: 33-44
- Guadayol Ò, Silbiger NJ, Donahue MJ, Thomas FIM (2014) Patterns in temporal variability of temperature, oxygen and pH along an environmental gradient in a coral reef. *PLoS One* 9(1): e85213
- Munguia P, Levinton J, Silbiger NJ (2013) Latitudinal differences in thermoregulatory color change in Uca pugilator. Journal of Experimental Marine Biology and Ecology, 440: 8-14
- Silbiger NJ and Munguia P (2008) Carapace color change in Uca pugliator in response to temperature. Journal of Experimental Marine Biology and Ecology 355: 41-46
- Silbiger NJ and Childress MJ (2008) Interspecific variation in anemone shrimp distribution and host selection in the Florida Keys (USA): implications for marine conservation. *Bulletin of Marine Science* 83: 329-345

In Review (manuscripts available upon request)

 Pisapia C, Stella J, Silbiger NJ, Carpenter R (*in review*) Background partial mortality drives epifaunal invertebrate assemblages associated with a branching Pocilloporid coral in Mo'orea, French Polynesia. *Coral Reefs*

- 22) Rice MM*, Maher RL, Correa AMS, Moeller HV, Lemoine NP, Shantz AA, Burkepile DE, Silbiger NJ (*in review*) Macroborer presence on corals increases with nutrient input and promotes parrotfish corallivory. *Coral Reefs*
- 23) **Silbiger NJ,** Goodbody-Gringley G, Bruno JF, Putnam HM (*in review*) Comparative thermal performance of *Orbicella franksi* at its latitudinal range limits. *Journal of Experimental Biology*

Pre-prints

- Silbiger NJ, Guadayol O, Thomas FIM, Donahue MJ. (2015) Impacts of multiple environmental stressors on coral reef erosion and secondary accretion. *PeerJ PrePrints* 3:e1451 https://dx.doi.org/10.7287/peerj.preprints.1190v1
- 2) Quinlan, ZA, Remple K, Fox MD, Silbiger NJ, Sevilla JK, Oliver TA, Putnam HM, Kelly LW, Carlson CA, Donahue MJ and Nelson CE (2017) Fluorescent organic exudates of corals and algae in tropical reefs are compositionally distinct and increase with nutrient enrichment. *PeerJ Preprints* 5:e3372v1 https://doi.org/10.7287/peerjpreprints.3372v1
- 3) Silbiger NJ, Goodbody-Gringley G, Bruno JF, Putnam HM (2019) Comparative thermal performance of Orbicella franksi at its latitudinal range limits. BioRxiv preprints doi: <u>https://doi.org/10.1101/583294</u>

Popular Press Articles

1) *How to talk to a climate change denier*. For Earth Week at UPROXX.com <u>http://uproxx.com/life/how-to-talk-to-a-climate-change-denier/</u>

GRANTS RECEIVED

Donahue MJ (PI), Thomas FIM (Co-PI), Dulaoiva H (Co-PI), Silbiger NJ (co-writer) (2014-2016) Groundwater-derived nutrient uptake in coastal ecosystems as a driver of shifts in the accretion-erosion balance. The University of Hawai'i SeaGrant Program (\$106,000)
Donahue MJ (PI), Thomas FIM (Co-PI), Toonen RJ (Co-PI), Silbiger NJ (co-writer) (2012-

- 2014) Bioeroding communities and response to climate change. The University of Hawai'i SeaGrant Program (\$69,996)
- Silbiger NJ (PI) (2012) PADI Foundation Grant (\$3,075)
- Silbiger NJ (PI) (2012) University of Hawai'i at Mānoa Graduate Student Research Grant (\$1600)
- Silbiger NJ (PI) (2010) Sigma Xi Grant-in Aid-of-Research (\$1,000)
- Silbiger NJ (PI) (2008) Lerner Gray-American Museum of Natural History Research Grant (\$2,250)

AWARDS AND FELLOWSHIPS

- Silbiger NJ (PI) (2014-2015) Dr. Charles and Sandra Guest-Van Riper Endowed Student Travel Award for Graduate Students, (\$1,800)
- Silbiger NJ (PI) (2014-2015) Jessie D Kay Memorial Fellowship, (\$10,000)
- Silbiger NJ (PI) (2012-2015) National Oceanographic and Atmospheric Administration Dr. Nancy Foster Scholarship Program, (\$188,000)
- Silbiger NJ (PI) (2012) Environmental Protection Agency Science to Achieve Results (EPA STAR) Graduate Fellowship (\$126,000) Declined due to NOAA Dr. Nancy Foster

Silbiger NJ (PI) (2012) Travel Support for Third International Symposium on High-CO₂World (\$700)

Silbiger NJ (PI) (2012) Dai Ho Chun Fund for Graduate Fellowships (\$2,000)

Silbiger NJ (PI) (2010) University of Hawai'i EPSCoR ECOGEM Fellowship (\$25,900)

Silbiger NJ (PI) (2010) The University of Hawai'i Zoology Department Charles H. and Margaret B. Edmonson Research Fund (\$750)

Silbiger NJ (PI) (2010) Kellogg Biological Station Grant for Summer Program (\$3,000)

TEACHING

Instructor

- 2018 SeminaR Coding in R, CSUN
- 2018 BIOL 429 Marine Ecology lecture, lab, field course, CSUN (Spring and Fall)
- 2017 Coding in R Seminar, UC Irvine (https://njsilbiger.github.io/)
- 2017 Cli-Fi: The Science of Climate Fiction, UC Irvine

Teaching Assistant

- 2010 Corals and Coral Reefs, UH-Mānoa
- 2008 Biogeochemical Cycling, UNC-Chapel Hill
- 2007 Marine Environment, UNC-Chapel Hill
- 2006 Biology for Non-majors Lab, Florida State University

Guest Lectures

- 2017 Intro to Marine Biology, East Carolina University
- 2017 California Local Environmental Issues, UC Irvine
- 2016 BIO SCI E186 (Population and Community Ecology), UC Irvine
- 2015 BIO SCI E186 (Population and Community Ecology), UC Irvine
- 2015 BIOL 404 (Advanced Topics in Marine Biology), UH Mānoa
- 2014 OCN 201 (Science of the Sea), UH West O'ahu
- 2014 BIOL 403 (Field Problems in Marine Biology), UH Mānoa
- 2013 BIO 171 (Biology), Kapi'olani Community College
- 2012 Best Kept Secret in Kāne'ohe Bay: Moku o Lo'e Continuing Education Course, Windward Community College

INVITED SEMINARS

- 2018 Scripps Institution of Oceanography, Ecology Seminar
- 2018 Bodega Marine Lab, Departmental Seminar
- 2018 University of Rhode Island, CELLS Departmental Seminar
- 2018 Moss Landing Marine Lab Departmental Seminar
- 2017 California State University, Northridge, Biology Departmental Seminar
- 2016 University of South Alabama, Marine Sciences Departmental Seminar
- 2015 University of Hawai'i at Mānoa, Biology Departmental Seminar
- 2014 University of Hawai'i at Mānoa, Oceanography Departmental Seminar
- 2013 Hawai'i Institute of Marine Biology, Institute Seminar
- 2013 Nerd Nite Honolulu, Honolulu, Hawai'i (public talk)
- 2012 Hawai'i Institute of Marine Biology, Institute Seminar
- 2012 Hanauma Bay Education Series, Hawai'i Kai, Hawai'i (public talk)

MENTORING

Graduate Students: Danielle Becker (MS, CSUN) Jenn Fields (MS, CSUN)

Undergraduate Students:

Julio Rosales (CSUN), Jose Mata-lopez (CSUN), Ritika Singh (UCI), Savannah Todd (UCI) Jessica Sevilla (UHM), Justin Miyano (UHM), Anthony Sagapolutele (Undergraduate Research Mentor program, *Environmental Biology in the Pacific* from American Samoa), Jessica Faith (UHM), Rebecca Maguire (UHM), Kaleonani Hurley (UHM), Nick Griffith (UHM), Kelsie DiPerna (UHM,)

Graduate Student Committees:

Kathryn Scafidi (MS, CSUN), Chelsea Brisson (MS, CSUN), Jayslen Serrano (MS, CSUN) Ashtyn Isaak (MS, CSUN), Megan Williams (MS, CSUN), Demetra Panos (MS, CSUN) Brian Cohn (MS, CSUN), Kathrine Hannibal (MS, CSUN), Jennica Moffit (MS, CSUN) Jessica Glanz (MS, CSUN)

External Committee member: Jamie Canepa (MS, CSUN, Graduated 2017)

CONTRIBUTED PAPERS (* denotes poster presentations)

- 2018 **Silbiger, NJ,** MJ Donahue, M Fox, C Nelson, H Putnam, K Remple, J Sevilla, and Z Quinlan, Ocean Sciences Meeting
- 2017 **Silbiger, NJ,** MJ Donahue, M Fox, C Lager, C Nelson, H Putnam, K Remple, J Sevilla, and Z Quinlan, Western Society of Naturalists
- 2017 *Silbiger, NJ and CJB Sorte, Ecological Society of America
- 2017 Silbiger, NJ and CJB Sorte, Aquatic Sciences Meeting, ASLO
- 2016 Silbiger, NJ and CJB Sorte, Western Society of Naturalists
- 2016 **Silbiger, NJ,** MJ Donahue, M Fox, C Lager, C Nelson, H Putnam, K Remple, J Sevilla, and Z Quinlan, 13th International Coral Reef Symposium
- 2016 *Silbiger, NJ and MJ Donahue, Ocean Sciences Meeting
- 2015 Silbiger, NJ and MJ Donahue, Western Society of Naturalists
- 2015 Silbiger, NJ and MJ Donahue, 100th Ecological Society of America
- 2015 Silbiger, NJ, and MJ Donahue, Aquatic Sciences Meeting, ASLO
- 2014 Silbiger, NJ, O Guadayol, F Thomas, MJ Donahue, Western Society of Naturalists, *Runner up for Best Student Presentation in Community and Ecosystem Ecology*
- 2014 Silbiger, NJ, O Guadayol, F Thomas, MJ Donahue, Ocean Sciences Meeting
- 2013 Silbiger, NJ Hawai'i EPSCoR Statewide Conference
- 2013 **Silbiger, NJ**, O Guadayol, F Thomas, MJ Donahue, 38th Annual Albert L. Tester memorial Symposium, *Best Paper including a \$1000 prize*
- 2013 Silbiger, NJ, O Guadayol, F Thomas, MJ Donahue, Benthic Ecology Meeting
- 2012 **Silbiger, NJ**, MJ Donahue, O Guadayol, F Thomas, 3rd International Conference on a High CO₂ World
- 2012 **Silbiger, NJ**, MJ Donahue, O Guadayol, F Thomas, Hawai'i EPSCoR Statewide Conference

- 2012 **Silbiger, NJ**, MJ Donahue, O Guadayol, F Thomas, 12th International Coral Reef Symposium
- 2012 **Silbiger, NJ**, MJ Donahue, O Guadayol, F Thomas, 5th Annual Hawaiian Islands Symposium, *Runner up for Best Student Presentation*
- 2009 Silbiger, NJ, N Lindquist and CM Martens, Benthic Ecology Meeting
- 2007 Silbiger, NJ and MJ Childress, Benthic Ecology Meeting
- 2007 *Silbiger, NJ and P Munguia, Benthic Ecology Meeting
- 2007 *Silbiger, NJ and P Munguia, Western Society of Naturalists
- 2006 Silbiger, NJ and MJ Childress, Western Society of Naturalists

PROFESSIONAL DEVELOPMENT

2015	Bayesian Modeling for Socio-Environmental Data
	Selected to attend workshop hosted by the National Socio-environmental Synthesis
	Center (SESYNC) on Bayesian data analysis (Drs. Tom Hobbs and Mary Collins)
2015	Community Data Analysis Using the Vegan Package in R
	Attended 2-day workshop on using the Vegan package in R
2014	C-MORE Mentoring Workshop
	Attended a professional development workshop on how to be a successful mentor to
	young scientists
2014	Capitol Hill Oceans Week (CHOW)
	Assisted with the CHOW online broadcast at OceansLive.org.
2014	Program Collaboration: Monterey Bay National Marine Sanctuary
	6-week collaboration with MBNMS. Developed long-term monitoring protocol on effect
	of sea star wasting syndrome on Watersipora subtorquata distribution in Monterey
	Harbor. Assisted with various outreach activities and attended workshops including a
	citizen science workshop and California MPA initiative meeting.
2013	Seminar in Bayesian Statistics
	Semester-long seminar on theory and application of Bayesian statistics (Dr. Megan
	Donahue).
2013	American Statistical Association Applied Mixed Models Workshop
	Two-day workshop on theory and application of linear and generalized linear mixed
	models (Dr. Linda J. Young)

- 2012 Software Carpentry Boot Camp Two-day intensive computing course. Topics included programming in Python and Git Bash, version control, and program testing (Drs Erik Bray and Fernando Perez).
 2010 Enhancing Linkages between Mathematics and Feeleen Summer Program.
- 2010 Enhancing Linkages between Mathematics and Ecology Summer Program Kellogg Biological Research Station, Michigan State University: Three, week-long intense summer courses focusing on math and ecology. Theoretical Population Ecology (Dr. Robin Snyder), Theoretical Community and Ecosystem Ecology (Dr. Christopher Klausmeier) and Maximum Likelihood Analysis in Ecology (Dr. Don Schoolmaster)

PROFESSIONAL SERVICE

Reviewer: Grants: Graduate Women in Science Fellowships, NOAA Dr. Nancy Foster Scholarship program, University of Hawai'i Sea Grant, AAAS, COAST Publications: Internal review for USGS, Coral Reefs, Ecosystems, Conservation Biology, ICES Journal of Marine Science, Global Ecology and Biogeography, PeerJ, African Journal of Marine Science, Scientific Reports, PLoS One, Biogeosciences, Ecology, Nature Communications, Limnology and Oceanography, Journal of Experimental Marine Biology and Ecology

Faculty Mentor for the Marine Biology Graduate Student Association at CSUN 2018 - 2019Chair of the CSUN undergraduate awards committee 2018 Session organizer for 13th International Coral Reef Symposium; *Coral Reef* 2016 Structural Dynamics and Complexity: Accretion versus Bioerosion and Dissolution Organizer for 39th Albert L Tester Memorial Symposium 2013-2014 SeaHarmony Focus Group 2012 Zoology Graduate Student Representative (UH Mānoa) 2010-2011 2010-2011 Graduate Student Representative on Search Advisory Committee for Dean of the College of Natural Sciences (UH Mānoa)

OUTREACH ACTIVITES

K-12 programs on marine biology, climate change, and "life as a scientist" (letters from school principals available upon request)

Coral Springs Charter School (Coral Spring, FL, 4 classroom visits) Winthrop Elementary School (Riverview FL, 10 classroom visits) Winthrop Middle School (Riverview FL, 1 classroom visit) St. Joseph's Academy (St. Paul MN, 1 classroom visit) Annalise Elementary School (Laguna Beach, CA, 3 classroom visits) Thompson Island Outward Bound Education Program (Thompson Island, MA, 1 visit) Created *Adopt-a-Scientist* pen-pal program for 5th grade students (23 students) Mentored high school students on independent projects (2 students)

STEM community events for children and families

Girls in Ocean Sciences Program (Dana Point, California) Children's Water Education Festival (Irvine, California) Bishop Museum Science Alive (Honolulu, HI) Waikiki Aquarium Family Night (Honolulu, HI) The Beauty of Mathematics and Science Day (Honolulu, HI) School of Ocean and Earth Science and Technology Open house (Honolulu, HI) Ocean Expo (Honolulu, HI) Capitol Hill Ocean Week (Washington D.C.) Assisted with PSA on invasive species on southern California (Catalina Island, CA)

PRESS

- 2019 Science News for Students "Shell shocked: emerging impacts of acidifying seas" https://www.sciencenewsforstudents.org/article/shell-shocked-emerging-impacts-oceanacidification
- 2018 Hawaii Public Radio interview (June 11)

- 2018 *Discover Magazine* "Marine life can buffer ocean acidification, study find" <u>http://blogs.discovermagazine.com/science-sushi/2018/01/16/marine-life-can-buffer-ocean-acidity-study-finds/#.WoHtW6hKv-g</u>
- 2018 Sierra Magazine "Save the seaweed" https://www.sierraclub.org/sierra/save-seaweed
- 2016 Office of National Marine Sanctuaries "Your Earth is Blue: The Bio Bus" http://sanctuaries.noaa.gov/earthisblue/wk105-biology-bus.html
- 2016 Office of National Marine Sanctuaries "The Biology Bus: Q&A with Nancy Foster Alumna Dr. Nyssa Silbiger http://sanctuaries.noaa.gov/news/sep16/biology-bus-ga-silbiger.html
- 2016 *Uproxx.com*, "Meet the scientists behind the wheel of 'The Biology Bus'" http://uproxx.com/life/biology-bus-women/
- 2016 All Things Marine Radio show (August) <u>http://www.cosee-ie.net/files/islandearth/All%20Things%20Marine%208-16%2050th.mp3</u>
- 2016 *Discover Magazine*, "Reef CAT scans reveal another way acidification speeds erosion" <u>http://blogs.discovermagazine.com/science-sushi/2016/04/30/cat-scans-coral-reef-</u> erosion-climate-change/#.V0h865ErKUk
- 2016 *Mānoa News*, "New imaging technique reveals vulnerability of coral reefs" <u>https://manoa.hawaii.edu/news/article.php?aId=7820</u>
- 2015 Frontiers in Ecology and the Environment, "Erosion threatens reef resilience"
- 2015 *Financial Times*, "Marine biology: acidic oceans mean grief for the coral reef" http://www.ft.com/cms/s/0/be85b2ea-9b79-11e4-950f-00144feabdc0.html
- 2014 Star Advertiser, "Increased ocean acidity breaks down coral reefs, UH study finds"
- 2014 Sanctuary Shorts Podcast– "Sea Stars and Scholars" http://sanctuaries.noaa.gov/news/jul14/nf-podcast.html
- 2014 Capitol Hill Oceans Talk @ Capitol Hill Oceans Week, "Youth and Education" Live Broadcast in Washington D.C. http://oceanslive.org/oceanslive/video-gallery/item/212-youth-and-education
- 2012 Honolulu Advertiser, "Thriving Isles"
- 2012 Radio interview on Hawai'i's Tomorrow Talk Radio (August)
- 2012 Radio interview on Hawai'i's Tomorrow Talk Radio (May)

SCIENTIFIC SPONSORSHIPS

- 2016 GoWesty (donated a camper van for a two-month research expedition assessing intertidal communities along a latitudinal gradient; \$30,000)
- 2013 GoPro (donated two GoPro cameras to monitor parrotfish bioerosion; \$500)
- 2012 BlendTech (donated two high power blenders to blend coral rubble for metabarcoding project; \$700)

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Academy of University Women, Graduate Women in Science, American Academy of Underwater Sciences, International Society for Reef Studies, Western Society of Naturalists, Benthic Ecology Meeting Society, Association for the Sciences of Limnology and Oceanography, Sigma Xi, SACNAS

SKILLS AND CERTIFICATIONS

Proficient in MATLAB, Bash for Git, R, LaTeX Basic understanding of Python, Unix, and Mathematica

SCUBA YMCA Open Water, NAUI Advanced, Nitrox, Dry Suit, and Rescue, AAUS Scientific diver. >780 logged scientific dive