

# Andrew A. Shantz

7/25/2020

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## New York University Abu Dhabi

Department of Biology  
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United Arab Emirates

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## EDUCATION

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Ph.D. Biology 2016

Department of Biology, Florida International University, Miami, FL.

*The individual and interactive effects of nitrogen and phosphorus enrichment on coral reefs\**

Dr. Deron Burkepile, adviser.

M.S. Marine Biology 2010

Department of Biology, Northeastern University, Boston, MA.

*Impacts of corallivorous fishes on Pacific coral reefs.*

Dr. Josh Idjadi, adviser.

B.A. Anthropology 2005

Department of Anthropology, University of Colorado, Boulder, Boulder CO.

\*Received Florida International University award for Best Dissertation

## APPOINTMENTS

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Courtesy Faculty, *Current*

*Florida State University Coastal & Marine Laboratory*

Post-Doctoral Research Associate, *Current*

*New York University Abu Dhabi, Abu Dhabi, UAE*

Eberly Research Fellow, 2017 – 2020

*Pennsylvania State University, State College, PA*

Post-Doctoral Researcher, 2016 – 2017

*University of California, Santa Barbara, CA*

Doctoral Candidate, 2010 – 2016

*Florida International University, Miami, FL*

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## PEER REVIEWED PUBLICATIONS (31; Google Scholar Citations:1122; H-index:15; i10-index:18)

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\*Denotes manuscripts on which I am senior/corresponding author

\*Shantz, A.A., M.C. Ladd and D.E. Burkepile. 2020. Overfishing and the ecological impacts of extirpating large parrotfish from Caribbean coral reefs. *Ecological Monographs* 90:e01403

\*Ladd, M.C. and A.A. Shantz. 2020. Trophic interactions in coral reef restoration: A review. *Food Webs* 24:e00149 doi.org/10.1016/j.fooweb.2020.e00149

## PEER REVIEWED PUBLICATIONS CONT.

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- Donovan, M.K., T.C. Adam, **A.A. Shantz**, K.E. Speare, K.S. Munsterman, M.M. Rice, R.J. Schmitt, S.J. Holbrook and D.E. Burkepile. 2020. Nitrogen pollution interacts with heat stress to increase coral bleaching across the seascape. *Proceedings of the National Academy of Sciences USA* 10:5351-5357.
- Rice, M.M., R.L. Maher, A.M.S. Correa, H.V. Moeller, N.P. Lemoine, **A.A. Shantz**, D.E. Burkepile, and N.J. Silbiger. 2020. Macroborer presence on corals increases with nutrient input and promotes parrotfish corallivory. *Coral Reefs* 39:409-418.
- Parkinson, J.E., A.C. Baker, I. Baums, S.W. Davies, A.G. Grottoli, S.A. Kitchen, T.C. LaJeunesse, M.V. Matz, M.W. Miller, **A.A. Shantz**, and C. Kenkel. 2020. Molecular tools for coral reef restoration: beyond biomarker discovery. *Conservation Letters* 13:e12687. [doi.org/10.1111/conl.12687](https://doi.org/10.1111/conl.12687)
- Burkepile, D.E., **A.A. Shantz**, T.C. Adam, K.S. Munsterman, K.E. Speare, M.C. Ladd, M.M. Rice, S. McIlroy, A.J. Brooks, R.J. Schmitt and S.J. Holbrook. 2019. Nitrogen source drives differential impacts of nutrients on coral bleaching prevalence, duration, and mortality. *Ecosystems*
- Baums, I.B., A.C. Baker, S.W. Davies, A.G. Grottoli, C.D. Kenkel, S.A. Kitchen, I.B. Kuffner, T.C. LaJeunesse, M.V. Matz, M.W. Miller, S.R. Palumbi, J.E. Parkinson and **A.A. Shantz**. 2019. Considerations for maximizing the adaptive potential of restored coral populations in the Western Atlantic. *Ecological Applications* 29: [doi:10.1002/eap.1978](https://doi.org/10.1002/eap.1978)
- Klinges, J.C., S.M. Rosales, R. McMinds, E.C. Shaver, **A.A. Shantz**, E.C. Peters, D.E. Burkepile, B.R. Silliman, R. Vega Thurber. 2019. Phylogenetic, genomic, and biogeographic analyses of a novel and ubiquitous marine invertebrate-associated Rickettsiales parasite, *Candidatus Marinoinvertebrata rohwerii*, gen. nov., sp. nov. *ISME J.* doi:10.1038/s41396-019-0482-0
- Ladd, M.C., **A.A. Shantz** and D.E. Burkepile. 2019. Newly dominant benthic invertebrates reshape competitive networks on contemporary Caribbean reefs. *Coral Reefs* 38:1317-1328.
- \*Ladd, M.C., D.E. Burkepile and **A.A. Shantz**. 2019. Near-term impacts of coral restoration on target species, coral reef community structure, and ecological processes. *Restoration Ecology* 27:1166-1176.
- Rodriguez-Casariago, J., M.C. Ladd, **A.A. Shantz**, C. Lopez, M.S. Cheema, B. Kim, S. Roberts, J. Fourqurean, J. Ausio, D.E. Burkepile and J. Eirin-Lopez. 2018. Epigenetic modifications in the staghorn coral *Acropora cervicornis* during exposure to nutrient stress: impaired histone H2A.X phosphorylation and changes in DNA methylation trends. *Ecology and Evolution* 23:12193-12207.
- Wang L., **A.A. Shantz**, J.P. Payet, T.J. Sharpton, A. Foster, D.E. Burkepile and R.L. Vega-Thurber. 2018. Corals and their microbiomes are differentially affected by exposure to elevated nutrients and a natural thermal anomaly. *Frontiers in Marine Science* 5:101, doi:10.3389/fmars.2018.00101

## PEER REVIEWED PUBLICATIONS CONT.

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- Duran, A., **A.A. Shantz**, D.E. Burkepile, L. Collado-Vides, V.M. Ferrer, L. Palma, A. Ramos and S.P. Gonzalez-Diaz. 2018. Fishing, pollution, climate change, and the long-term decline of coral reefs off Havana, Cuba. *Bulletin of Marine Science* 94:213-228.
- \***Shantz, A.A.**, M.C. Ladd and D.E. Burkepile. 2017. Algal nitrogen and phosphorus content drive inter- and intraspecific differences in herbivore grazing on a Caribbean reef. *Journal of Experimental Marine Biology and Ecology* 497:164-171.
- Collado-Vides, L., A. Duran, E. Armenis, L. Palma, V. Cassano, **A.A. Shantz**, J. Diaz-Larrea, A. Senties and M.T. Fujii. 2017. Seasonal recruitment and survival strategies of *Palisada cervicornis* comb. nov. (Ceramiales, Rhodophyta) in coral reefs. *Journal of Phycology* 53:1087-1096.
- Shaver, E.C., **A.A. Shantz**, R. McMinds, D.E. Burkepile, R.L. Vega Thurber and B.R. Silliman. 2017. Effects of predation and nutrient enrichment on the success and microbiome of a foundational coral. *Ecology* 98:830-839.
- Ladd, M.C., **A.A. Shantz**, E. Bartels and D.E. Burkepile. 2017. Thermal stress reveals a genotype-specific tradeoff between growth and tissue loss in restored *Acropora cervicornis*. *Marine Ecology Progress Series* 572:129-139.
- \***Shantz, A.A.**, N.P. Lemoine and D.E. Burkepile. 2016. Nutrient loading alters the performance of key nutrient exchange mutualisms. *Ecology Letters* 19:20-28. \*Reviewed in *Science*.
- Ladd, M.C., **A.A. Shantz**, K. Nedimyer and D.E. Burkepile. 2016. Density dependence determines success of *Acropora cervicornis* restoration on a Caribbean coral reef. *Frontiers in Marine Science* 3:261, doi:10.3389/fmars.2016.00261
- \*Lemoine, N.P. and **A.A. Shantz**. 2016. Warming induces nitrogen limitation of a generalist insect herbivore by increasing metabolic nitrogen demand. *Physiological Entomology* 41:143-151.
- Zaneveld, J., D.E. Burkepile, **A.A. Shantz**, C.E. Pritchard, R. McMinds, J.P. Payet, R. Welsh, A.M.S. Correa, N.P. Lemoine, S. Rosales, C. Fuchs, and R.L. Vega Thurber. 2016. Overfishing, pollution, and thermal stress interact to disrupt coral reefs down to a microbial scale. *Nature Communications* 7, 11833, doi:10.1038/ncomms11833
- \*Ladd, M.C. and **A.A. Shantz**. 2016. Novel enemies - previously unknown predators of the bearded fireworm. *Frontiers in Ecology and Evolution* 14:342-343.
- \***Shantz, A.A.**, M. Ladd, E. Schrack and D.E. Burkepile. 2015. Fish-derived nutrient hotspots shape coral reef benthic communities. *Ecological Applications* 25:2142-2152.
- Stroud J.T., M.R. Bush, M.C. Ladd, R.J. Nowicki, **A.A. Shantz**, and J. Sweatman. 2015. Is a community still a community? Reviewing definitions of key terms in community ecology. *Ecology and Evolution* 5:4757-4765.

## PEER REVIEWED PUBLICATIONS CONT.

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- \***Shantz, A.A.**, and D.E. Burkepile. 2014. Context-dependent effects of nutrient loading on the coral-algal mutualism. *Ecology* 95:1995-2005. \*Recipient of Florida International University Provost Award for Best Student Manuscript in the STEM field.
- Catano, L.B., **A.A. Shantz** and D.E. Burkepile. 2014. Predation risk, competition, and territorial damselfishes as drivers of herbivore foraging on Caribbean coral reefs. *Marine Ecology Progress Series* 511:193-207.
- Staaterman, E.R., A.A. Bhandiwad, P.M. Gravinese, P.M. Moeller, Z.C. Reichenbach, **A.A. Shantz**, D.S. Shiffman, L.T. Toth, A.M. Warneke and A.J. Gallagher. 2014. Lights, camera, science: The utility and growing popularity of film festivals at scientific meetings. *Ideas in Ecology and Evolution* 7:11-16.
- Vega-Thurber, R., D.E. Burkepile, C. Fuchs, **A.A. Shantz**, R. McMinds and J.R. Zaneveld. 2014. Chronic nutrient enrichment increases prevalence and severity of coral disease and bleaching. *Global Change Biology* 20:544-554.
- Burkepile, D.E., J.E. Allgeier, **A.A. Shantz**, C. Pritchard, N. Lemoine, L. Bhatti, and C.A. Layman. 2013. Nutrient supply from fishes facilitates macroalgae and suppresses corals in a Caribbean coral reef ecosystem. *Scientific Reports*, 3:1493, doi:10.1038/srep01493.
- Vega-Thurber, R., D.E. Burkepile, A.M.S. Correa, **A.A. Shantz**, R.M. Welsh, C. Pritchard, and S. Rosales. 2012. Macroalgae decrease growth and alter microbial community structure of the reef-building coral *Porites astreoides*. *PLoS ONE* 7: doi:10.1371/journal.pone.0044246.
- \***Shantz, A.A.**, A.C. Stier and J.A. Idjadi. 2011. Coral density and predation affect growth of a reef-building coral. *Coral Reefs* 30:363-367.

## PUBLICATIONS IN REVIEW (2)

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- Maher R.L., E. Schmeltzer, S. Meiling, R. McMinds, L. Ezzat, **A.A. Shantz**, T.C. Adam, R.J. Schmitt, S.J. Holbrook, D.E. Burkepile and R Vega Thurber. *In review*. Coral microbiomes demonstrate flexibility and resilience through a reduction in community diversity following a thermal stress event. *PLoS ONE*

## PUBLICATIONS IN PREPERATION (Partial list)

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- Shantz, A.A.**, M.C. Ladd, R.J. Schmitt, S.J. Holbrook, L. Ezzat, R.V. Thurber and D. E. Burkepile. Fishes increase coral resistance to thermal stress. *In prep for Proc. Royal Society: Biology*.
- Shantz, A.A.**, T.L. Lopez, K.G. Campo, R. Iglesias-Prieto and M. Medina. Biotic versus abiotic control of a highly impacted yet resilient coral reef. *In prep for Frontiers in Marine Science*.
- Shantz, A.A.**, M.C. Ladd and D.E. Burkepile. Species-specific differences in the growth and photobiology of Caribbean corals subjected to nutrient enrichment. *In prep for Marine Biology*.

## TEACHING EXPERIENCE

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Instructor of Record, Environmental Science - BISC 003 <i>Pennsylvania State University, University Park, PA</i>	2018
Instructor, Tropical Coastal Ecology Field Course <i>Organization for Tropical Studies, Bocas del Drago, Panama</i>	2015 – 2016
Teaching Assistant, General Biology II - BIO1021L <i>Florida International University, Miami, FL</i>	2011, 2015
Teaching Assistant, General Biology I - BIO1011L <i>Florida International University, Miami, FL</i>	2011, 2015

## TEACHING EXPERIENCE CONT.

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Teaching Assistant, Ecology - BIO3043L <i>Florida International University, Miami, FL</i>	2011
Teaching Assistant, Invertebrate Zoology - BIO3203C <i>Florida International University, Miami, FL</i>	2010
Teaching Assistant, Marine Birds & Mammals - BIO5510 <i>Northeastern University, taught at Friday Harbor Labs, Friday Harbor, WA</i>	2010

## GRANTS & FELLOWSHIPS (\$544,095 Awarded to date)

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2020	Atlantis Dubai Research Award ( <b>\$50,000</b> ) ( <i>pending</i> )
2019	New York University Abu Dhabi Postdoctoral Research Award ( <b>\$200,000</b> )
2019	Penn State Huck Institute for Life Sciences FLOWER Grant for Ecological Research ( <b>\$3,000</b> )
2017	Pennsylvania State University Eberly Scholars Fellowship ( <b>\$210,000</b> )
2015	Paul M. Angell Foundation ( <b>\$44,445</b> ) <i>Impacts of sharks on coral reef ecosystems: Immersive research complemented by innovative educational outreach</i> w/ M. Heithaus, K. Boswell & T. Potts*
2015	Florida International University Dissertation Year Fellowship ( <b>\$16,600</b> )
2015	Explorers Club Exploration Fund ( <b>\$1,000</b> )
2015	Tinker Field Research Grant ( <b>\$2,500</b> )
2014	Great Lakes Graduate Scholarship ( <b>\$2,500</b> )
2014	Perry Graduate Scholarship ( <b>\$2,500</b> )
2014	PADI Foundation Research Grant ( <b>\$3,700</b> )
2014	UGS DEA Fellowship ( <b>\$8,600</b> )
2014	Latin American & Caribbean Center Award ( <b>\$500</b> )
2013	Sigma Xi GIAR ( <b>\$1,000</b> )
2012	Florida International University Student Travel Grant ( <b>\$750</b> )

## AWARDS & RECOGNITIONS

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- 2017 Eberly Research Fellowship, *Penn State University*
- 2016 Best Dissertation, *Florida International University*
- 2016 Outstanding Scholar in the College of Arts and Sciences, *Florida International University*
- 2015 Outstanding Student Paper, *Benthic Ecology Meeting Society*
- 2015 Best Student Presentation, *Association of Marine Labs of the Caribbean*
- 2015 Best Student Presentation, *Florida International University Graduate Symposium*
- 2014 Best Student Manuscript in the STEM Fields, *Florida International University*
- 2014 Best Student Presentation, *Western Society of Naturalists*

## SCIENTIFIC PRESENTATIONS (Presenting author only)

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- 2019 The effects of nutrients on reef-building corals: How changing nutrient regimes can erode or enhance the resilience of tropical coastal ecosystems. **Invited Speaker, Florida State University, Tallahassee FL. USA**
- 2019 Impacts of Artisanal fisheries on Caribbean coral reef communities. **Invited Speaker, University of Aberdeen, Aberdeen Scotland.**
- 2018 Incorporating phenotypic traits in coral restoration. **Reef Futures 2018, Key Largo, FL. USA**
- 2017 Methods in scientific diving. **Pennsylvania State University, University Park PA. USA**
- 2016 Too much of a good thing: How changing nutrient regimes affect coral reefs. **Invited speaker, Mote Marine Lab & Aquarium, Sarasota, FL. USA**
- 2016 Fish-derived nutrient hotspots shape coral reef communities. **International Coral Reef Symposium, Honolulu, HI. USA**
- 2016 A preliminary assessment of overfishing and nutrient pollution across the reefs of Havana. **Invited speaker, University of Havana, Havana, Cuba**
- 2016 Methods in marine ecology. Invited speaker, **University of Havana, Havana, Cuba**
- 2015 Impacts of fish-derived nutrients on coral reef communities. **2015 Association of Marine labs of the Caribbean, Willemstad, CW. \*Winner of Best Student Presentation**
- 2015 The effects of nutrient loading on foundational mutualisms. **2015 Benthic Ecology Conference, Quebec City, QC, CA. \*Winner of Outstanding Student Presentation**
- 2015 Nutrient pollution impairs nutritional-mutualisms. **2015 Florida International Biosymposium, Miami, FL, USA. \*Winner of Best Student Presentation**
- 2014 Global nutrient loading jeopardizes the performance of key nutrient-sharing mutualisms. **2014 Western Society of Naturalists, Tacoma, WA, USA.\* Winner of Best Student Presentation Award.**

## SCIENTIFIC PRESENTATIONS CONT.

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- 2014 Marine biology, coral reefs, and careers in science. Invited speaker, **Treasure Village Montessori School, Islamorada, FL, USA.**
- 2014 Fish-derived nutrients shape coral reef communities. **2014 Benthic Ecology Conference, Jacksonville, FL, USA.**
- 2013 When the sh\*t hits the (sea)fan: The impact of fish derived nutrients on coral reef benthic communities. **Western Society of Naturalists 2013 Annual Meeting, Oxnard, CA, USA.**
- 2013 Impact of nutrients on the growth and physiology of reef building corals. **42<sup>nd</sup> Benthic Ecology Conference, Savannah, GA, USA.**
- 2012 Macronutrients influence foraging in an herbivorous fish community. **2012 International Coral Reef Symposium, Cairns, Queensland, AU.**
- 2011 Foraging decisions of an herbivorous fish community and their potential impacts on a Pacific coral reef. **40<sup>th</sup> Annual Benthic Ecology Conference, Mobile, AL. USA.**
- 2010 Impacts of corallivorous fishes on the growth and survival of juvenile *Porites* corals. Invited speaker, **UC Berkley Gump Research Station, Moorea, PF.**
- 2009 Coral density affects optimal foraging behavior in a corallivorous butterfly fish. Invited speaker, **Northeastern University, Boston, MA. USA.**

## OUTREACH, PROFESSIONAL & COMMUNITY SERVICES

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- **Editor:** *Caribbean Naturalist*; *PeerJ*
- **Reviewer:** *Aquatic Ecology*; *Coral Reefs*; *Ecology*; *Ecology Letters*; *Food Webs*; *Frontiers in Marine Science*; *Functional Ecology*; *Global Change Biology*; *iScience*; *J. of Experimental Marine Biology and Ecology*; *Marine Biology*; *Marine Ecology Progress Series*; *Marine Environmental Research*; *Oecologia*; *J. of Oceanology and Limnology*; *Proceedings of the Royal Society, B.*; *Restoration Ecology*; *Scientific Reports*
- **Memberships:** International Coral Reef Society; Ecological Society of America; Western Society of Naturalists; Middle East Coral Reef Society; New York Academy of Sciences
- **Science Advisor** and core member of the [Coral Restoration Consortium](#) working group on restoration genetics.
- **Graduate & Undergraduate mentoring:** actively advised and trained 16 undergraduate and 4 PhD students from FIU, Duke, UCSB, and Penn State

## OUTREACH, PROFESSIONAL & COMMUNITY SERVICES

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- **Skype in the Classroom Science Educator** conducted over 60 live science talks from the field with K-12 classrooms
- **AAUS Certified Diver** with >4,000 research dives

## **OUTREACH, PROFESSIONAL & COMMUNITY SERVICES**

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- **Dive Safety Coordinator & Dive Control Board member** for Northeastern University *Three Seas Marine Biology Program*, Moorea, French Polynesia 2010.
- **RYA Powerboat accreditation** and international boating license.
- **Former Scientific Meetings Coordinator** for the *Beneath the Waves Inc.* 501(c)(3) non-profit organization (2010-2015).