

Justin H. Baumann M.Sc. Ph.D.

Visiting Assistant Professor

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Academic Positions

- 2023-Present **Visiting Assistant Professor, Statistical and Data Sciences, Smith College, Northampton, MA**
- 2022-Present **Visiting Assistant Professor, Department of Biological Sciences, Mount Holyoke College, South Hadley, MA**
- 2020-2021 **Visiting Assistant Professor, Biology Department, Bowdoin College, Brunswick, ME**
- 2019-2020 **Visiting Assistant Professor, Department of Biology, The University of North Carolina at Pembroke**
- 2018-2020 **SPIRE Postdoctoral Fellow, The University of North Carolina at Chapel Hill**
Mentors: Prof. John Bruno and Prof. Karl Castillo

Education and Training

- 2018-2020 **SPIRE Postdoctoral Fellowship program** *University of North Carolina, USA*
Purpose: Pedagogy training, teaching (50%), research (50%), and mentoring
- 2018 **Future Faculty Fellows Program** *University of North Carolina, USA*
Purpose: Training in pedagogy, course design, and instructional style
- 2013-2018 **PhD Marine Science** Prof. Karl Castillo *University of North Carolina, USA*
Dissertation: The impacts of anthropogenic global change and human activities on reef-building corals on the Belize Mesoamerican Barrier Reef System
- 2011-2013 **MSc Earth Sciences** Prof. Andréa Grottoli *Ohio State University, USA*
Thesis: The effects of elevated temperature stress on the acquisition and allocation of carbon in Hawaiian coral lipids
- 2007-2011 **Biological Sciences Scholars Program** *Ohio State University, USA*
Purpose: Living-learning community for high-achieving undergraduates
- 2007-2011 **BSc Biology, Earth Sciences cum laude** *Ohio State University, USA*
Honors Thesis: The effects of single and repeat bleaching on photosynthesis, respiration, and feeding in three species of Caribbean coral

Funded Grants and Fellowships

- 2023 **Belize Fund for a Sustainable Future:** CO-PI with Fragments of Hope Belize. Continued active restoration of critically endangered Acroporid corals and their associated biodiversity (\$400,685)
- 2023 **Mount Holyoke College Faculty Research Support Grant:** Continued buildout of aquarium research facility (\$2500 USD)
- 2022 **Scion Natural Science Association small grant:** Indirect facilitation of blue mussel growth by eelgrass under future ocean conditions (\$1900 USD)

2022	Mount Holyoke College Faculty Research Support Grant: Buildout of aquarium research facility (\$2500 USD)
2021	Bowdoin College Faculty Development Committee Research Grant: Elucidating the role of predation pressure and climate stressors on blue mussel decline in the Harpswell region (\$3964 USD)
2020	American Academy for the Advancement of Science (AAAS) Science, Technology, and Policy Fellowship Finalist -Declined
2018-2020	NIH K-12 (K12GM00067820) Institutional Research and Career Development Award (IRACDA) Seeding Postdoctoral Innovation in Research and Education (SPIRE) Fellowship: 3 year postdoctoral fellowship program including research, mentorship, pedagogy training, course design, and 2 semesters of teaching as instructor of record (\$146,727 USD)
2019	American Museum of Natural History Lerner-Gray Memorial Fund: Awarded to fund field research (\$2440 USD)
2019	The Rufford Foundation, Completion Grant: Final stage of Rufford funding (£20000) awarded for completion of field research characterizing coral community responses to climate change in Belize with Belizean NGO partner.
2017	The Rufford Foundation, Second Booster Grant: A third continuation grant (£10000) awarded for continued field research characterizing coral community response to climate change in Belize and work with Belizean NGO partners.
2016	The Rufford Foundation, Booster Grant: A second continuation grant (£10000) awarded for field research characterizing coral reef community response to climate change in Belize.
2015	The Rufford Foundation, Second Rufford Small Grant: a continuation grant of £5000 awarded for field research characterizing coral reef community response to climate change in Belize.
2014-2017	Department of Defense National Defense Science and Engineering Graduate Fellowship (NDSEG): Three year stipend awarded for academic merit and dissertation research on coral resilience in Belize (100,500 USD)
2014	The Rufford Foundation, Rufford Small Grant: £5000 awarded for field research characterizing coral acclimation in Belize.

Career Stats Summary

Google citation indices	All	Category	Career Total
Citations	1268	Peer-reviewed Publications	21
h-index	16	Total funding (to Baumann)	\$332501.87 (USD)
i10-index	19		
Teaching	Course Count	Mentorship	# Students
Instructor of record	10	Undergraduates	38
Course written / designed	9	Honors Theses	5
TA or lab instructor	5	Graduate Students	2
		Student co-authors	14

Publications

Peer-reviewed Publications:

*denotes mentored undergraduate/ graduate student

- Submitted DuBois K, **Baumann JH**, Ralph F*, Charles E*, Carlon DB. Harnessing eelgrass oyster interactions to enhance eelgrass restoration and increase oyster aquaculture yields. *Global Change Biology*.
- In Prep Holliman D*, Reblin J, Logan, BA, **Baumann JH**. Thermal performance of the temperate coral *Astrangia poculata* driven by endosymbiont physiology and not thermal history or location.
- 2023 Schoepf V, **Baumann JH**, Barshis DJ, Browne NK, Camp EF, Comeau S, Cornwall CE, Guzman HM, Riegl B, Rodolfo-Metalpa R, Sommer B. Corals at the edge of environmental limits: A new conceptual framework to re-define marginal and extreme coral communities. *Science of the Total Environment*. DOI: <https://doi.org/10.1016/j.scitotenv.2023.163688>
- 2022 Vega Thurber R, Schmeltzer ER, Grottoli AG, van Woesik R, Toonen R, Warner ME, Dobson KL, McLachlan RH, Barrot KL, Barshis DJ, **Baumann JH**, Chapron L, Combosch DJ, Correa AMS, DeCarlo TM, Hagedorn M, Hedoiun L, Hoadley KD, Felis T, Ferrier-Pages C, Kenkel CD, Kuffner IB, Matthews JL, Medina M, Meyer CP, Oster C, Price JT, Putnam HM, Sawall Y. Unified methods in collecting, preserving, and archiving coral bleaching specimens to increase sample utility and increase interdisciplinary collaboration. *PeerJ*. DOI: <https://doi.org/10.7717/peerj.14176>
- 2021 **Baumann JH**, *Zhao L, Stier A, Bruno JF. Remoteness does not enhance coral reef resilience. *Global Change Biology*. DOI: <https://doi.org/10.1111/gcb.15904>
- 2021 **Baumann JH**, Bove CB, Carne L, *Gutierrez I, Castillo KD. Stress-tolerant Caribbean corals native to back reef environments exhibit greater physiological plasticity in the face of environmental heterogeneity than their nearshore counterparts. *Coral Reefs*. DOI: <https://doi.org/10.1007/s00338-021-02124-8>
- 2021 Oldenburg KS*, Urban-Rich J, Castillo KD, **Baumann JH**. Microfiber abundance associated with coral tissue varies geographically on the Belize Mesoamerican Barrier Reef System. *Marine Pollution Bulletin*. DOI: <https://doi.org/10.1016/j.marpolbul.2020.111938>.
- 2020 Speare LA*, Davies SW, Balmonte JP, **Baumann JH**, Castillo KD. Patterns of environmental variability influence coral-associated bacterial and algal communities on the Mesoamerican Barrier Reef. *Molecular Ecology*. DOI: <https://doi.org/10.1111/mec.15497>.

- 2019 **Baumann JH**, Courtney T, Rippe J, Westfield I, Ries J, Castillo K. Historical growth rates of two species of long-lived corals along the Belize Mesoamerican Barrier Reef. *Global Change Biology*. DOI: <https://doi.org/10.1111/gcb.14784>.
- 2018 Rippe JP, **Baumann JH**, DeLeener DN*, Aichelman HE*, Friedlander EB, Davies SW, Castillo KD. Corals sustain growth but not skeletal density across the Florida Keys Reef Tract despite ongoing warming. *Global Change Biology*. DOI: <https://doi.org/10.1111/gcb.14422>.
- 2018 Levas S, Schoepf V, Warner ME, Aschaffenburg M, **Baumann JH**, Grottoli AG. Long-term recovery of Caribbean corals from bleaching. *Journal of Experimental Marine Biology and Ecology*. DOI: <https://doi.org/10.1016/j.jembe.2018.06.003>.
- 2017 **Baumann JH**, Davies SW, Aichelman HE*, Castillo KD. Coral *Symbiodinium* community composition across the Belize Mesoamerican Barrier Reef System is influenced by host species and thermal variability. *Microbial Ecology*. DOI: <https://doi.org/10.1007/s00248-017-1096-6>.
- 2016 Schoepf V, Hu X, Holcomb M, Cai W, Li Q, Wang Y, Xu H, Warner ME, Melman TF, Hoadley KD, Pettay DT, Matsui Y, **Baumann JH**, Grottoli AG. Coral calcification under environmental change: A direct comparison of the alkalinity anomaly and buoyant weight technique. *Coral Reefs*. DOI: 10.1007/s00338-016-1507-z.
- 2016 **Baumann JH**, Davies SW, Courtney T, Aichelman H*, Townsend J*, Castillo KD. Temperature regimes impact coral assemblages along environmental gradients on lagoonal reefs in Belize. *PLOS ONE*. DOI: <http://dx.doi.org/10.1371/journal.pone.0162098>
- 2016 Aichelman HE*, Townsend JE*, Courtney T, **Baumann JH**, Davies SW, Castillo KD. The Temperate Coral *Oculina arbuscula* Exhibits a Heterotrophic Rescue Effect to Temperature Stress. *Ecology and Evolution*. DOI: 10.1002/ece3.2399
- 2016 Hoadley KD, Pettay DT, Grottoli AG, Cai W, Melman TF, Levas S, Schoepf V, Ding Q, Yuan X, Wang Y, Matsui Y, **Baumann JH**, Warner ME. High-temperature acclimation strategies within the thermally tolerant endosymbiont *Symbiodinium trenchii* and its coral host, *Turbinaria reniformis*, differ with changing pCO₂ and nutrients. *Marine Biology*. Vol 163, issue 6. doi:10.1007/s00227-016-2909-8.
- 2016 Cai W, Ma Y, Hopkinson B, Grottoli AG, Warner M, Ding Q, Hu X, Yuan X, Schoepf V, Xu H, Han C, Melman T, Hoadley K, Pettay DT, Matsui M, **Baumann JH**, Levas S, Ye Y, Wang Y. Microelectrode characterization of coral interior pH and carbonate chemistry. *Nature Communications*. Vol. 7. DOI: 10.1038/ncomms11144

- 2016 Levas SJ, Schoepf V, Warner ME, Aschaffenburg MD, **Baumann JH**, Bauer JE, Grottoli AG. Can heterotrophic uptake of DOC and zooplankton mitigate C budget deficit in annually bleached corals? *Coral Reefs*. 10.1007/s00338-015-1390-z
- 2015 Hoadley KD, Pettay DT, Grottoli AG, Cai W, Melman TF, Schoepf V, Hu X, Li Q, Xu Hui, Wang Y, Matsui Y, **Baumann JH**, Warner ME. Physiological response to elevated temperature and $p\text{CO}_2$ varies across four Pacific coral species: Understanding the unique host+symbiont response. *Scientific Reports*. Vol: 5. DOI: 10.1038/srep18371
- 2015 Schoepf V, Grottoli AG, Levas SJ, Aschaffenburg MD, **Baumann JH**, Matsui Y, Warner ME. Annual coral bleaching and the long-term recovery capacity of coral. *Proc. R. Soc. B*. Vol: 282 Issue: 1819. DOI: 10.1098/rspb.2015.1887
- 2015 Levas SJ, Grottoli AG, -Warner ME, Cai W, Bauer J, Schoepf V, **Baumann JH**, Matsui Y, Gearing C, Melman T, Hoadley KD, Pettay DT, Hu X, Li Q, Xu H, Wang Y. Organic carbon fluxes mediated by corals at elevated $p\text{CO}_2$ and temperature. *Marine Ecology Progress Series*. Vol. 519: 153-164, 2015. DOI: 10.3354/meps11072
- 2014 Grottoli AG, Warner ME, Levas SJ, Aschaffenburg MD, Schoepf V, McGinley M, **Baumann JH**, Matsui Y. The cumulative impact of annual coral bleaching can turn some coral species winners into losers. *Global Change Biology*. Vol 20, issue 12. DOI: <https://doi.org/10.1111/gcb.12658>.
- 2014 **Baumann JH**, Grottoli AG, Hughes A, Matsui Y. Photoautotrophic and heterotrophic carbon in bleached and non-bleached coral lipid acquisitions and storage. *Journal of Experimental Marine Biology and Ecology*. Vol. 461: 469-478, 2014. DOI: <http://dx.doi.org/10.1016/j.jembe.2014.09.017>
- 2013 Schoepf, V, Grottoli AG, Warner ME, Cai W, Melman TF, Hoadley KD, Pettay T, Hu X, Li Q, Xu H, Wang Y, Matsui Y, **Baumann JH**. Coral Energy Reserves and Calcification in a High- CO_2 World at Two Temperatures, *PLoS ONE*. DOI: 10.1371/journal.pone.0075049

Teaching Experience

Visiting Assistant Professor: Smith College – Spring 2024

Reproducible Scientific Computing with Data (Spring 2024)

- I will teach 3 sections of this course (SDS 100) in Spring 2024. SDS 100 is taken concurrently with the first lecture-based Statistical and Data Sciences course that an undergrad is enrolled in. SDS 100 is a lab-based course that is focused on building R skills from the ground up to ensure that students learn modern and reproducible data science practices in the R environment.

SDS 3XX – Data analysis for experimental and field biology and ecology (Spring 2024)

- I am designing an upper level course for SDS undergraduates focused on applications of data science skills to experimental biology and ecology. Students will collect data in the lab or field, generate datasets via data mining and meta-analysis, and utilize their data science skills to write analysis pipelines, generate meaningful results, and test hypotheses. Students will learn current practices in experimental biology statistics and data analysis and practice communicating results to an audience from this subfield.

Visiting Assistant Professor: Mount Holyoke College – Spring 2022- Present

Marine Invertebrate Ecophysiology (Fall 2022, Fall '23)

- Wrote and taught a 300 level undergraduate seminar on marine ecophysiology with a focus on invertebrates including tropical corals, temperate corals, mussels, limpets, and more. Students read and interpret primary literature, learn experimental design and hypothesis testing, complete a semester long Course Based Undergraduate Research Experience (CURE) project, and present a poster on their work.

Biology of Marine Organisms (Fall 2022, Fall '23)

- Wrote and taught a unique introductory biology course (100 level) on marine organisms with a lab component. Students learn organismal biology and tenants of ecology through a marine ecosystems lens.

Coral Reefs in a Changing Climate (Spring 2022, Spring '23)

- Wrote and taught a 300 level undergraduate seminar on coral reef ecology with a focus on the changing structure and function of reefs in this era of anthropogenic climate change. Students read, discussed, and synthesized primary literature and wrote their own science communication projects and review papers on topics within the field.

Biostatistics (Spring 2022, Spring '23)

- Wrote and taught a 200 level undergraduate biostatistics course with labs. Including statistical theory (*t*-test, ANOVA, linear regression, PCA, linear models). The course focuses on building practical skills in experimental design and statistical and graphical applications in R.

Visiting Assistant Professor: Bowdoin College – Summer 2020- Fall 2021

Bowdoin Marine Science Semester (Fall 2021)

- Team taught the intensive marine science semester, a term-long series of 4 courses including: benthic ecology, ocean change ecology, current topics in marine science, and an independent research project. Mentored undergraduate research students, developed curricula, planned and led field trips and research projects.

Research Methods in Ecology, Evolution, and Marine Biology (Spring 2021)

- Developed course in research methods and careers course for upper-level majors. Features grant writing, career development plans, practice drafting application documents, reading and interpreting scientific papers

Perspectives in Ecology (Spring 2021)

- Developed an introductory biological sciences course designed for non-majors. The course is focused on how climate change and ecological restoration are perceived, framed, and solved in the modern world. Features scientific, fiction, and non-fiction readings, discussion, project work, and hands-on explorations of climate and ecosystem restoration data and case studies.

Biology of Marine Organisms (Fall 2020)

- Designed and taught an entirely remote course focused on principles of marine ecology and the organisms that inhabit North Atlantic and tropical coastal ecosystems. The course featured programming, writing, oral presentations, and data analysis. Our unique approach to online learning was featured in the Bowdoin Magazine in Winter 2020.

Visiting Professor: The University of North Carolina at Pembroke – Spring 2020

Human Impacts on Coastal Ecosystems

- Designed and taught a Course Based Undergraduate Research (CURE) course for undergraduate majors. Students explored species invasions, climate change, and marine and aquatic pollutants via projects.

Teaching Assistant: The University of North Carolina at Chapel Hill (2017-2018)

Teaching assistant and instructor of record: Marine Physiological Ecology (Spring 2018)

- Led lecture sections on marine invertebrate respiration and coral reef ecology

Marine Symbiosis (Fall 2017)

- Graded student assignments, assessed and encouraged active participation, lectured and led discussion on coral symbiosis.

Teaching Assistant and Lab Coordinator: The Ohio State University (Fall 2012-Summer 2013)

Lab coordinator and instructor of record: Introductory Earth Science (Fall 2012-Summer 2013)

- Taught introductory Earth Science labs to non-science majors
- Trained other Teaching Assistants (18) to teach labs
- Independently designed a lab on climate change and sustainability

Teaching assistant: Stable Isotope Biogeochemistry (Spring 2012)

- Instructed a lab section of 10 graduate students

Lab instructor of record: Introductory Earth Science (Fall 2011-Spring 2012)

- Instructed labs, led discussions, proctored exams, and graded assignments

Students Mentored *indicates lead author of a publication, † indicates co-author of a publication

Callie Hundley – Amherst College class of 2024. Summer Research '23: Indirect effects of seagrass on blue mussel growth (amelioration of impacts of warming and ocean acidification). Honors research: Ecophysiology of stress tolerant corals in restoration scenarios. *Honors in progress*

Autumn Marley – Mount Holyoke College. Research: Population differentiation and thermal stress physiology in blue mussels.

Noa Sharabi – Mount Holyoke College. Research: Effects of sunscreen additive exposure on temperate coral physiology

Hanako Ricci – Mount Holyoke College. Research: Effects of microplastics on feeding behavior of the temperate coral *Astrangia poculata*.

Haley Shaw – BS (2022) Mount Holyoke College. Research: Differential spine regrowth under temperature stress in Atlantic sea urchins.

Anna Karapin-Springorum – Mount Holyoke College class of 2023. Research: Phenotypic plasticity in barnacle feeding appendages.

Adji Diouf – Mount Holyoke College class of 2024. Research: Effects of sunscreen additive exposure on temperate coral physiology.

Julia Wolf – Mount Holyoke College class of 2023. Research: oyster growth methods for aquaculture. *Honors Thesis – 2023*. Currently an MS student in a multi-university aquaculture program.

Emma Rawson – Mount Holyoke College class of 2023. Research: ecological niche of temperate corals through competition assays. *Honors Thesis – 2023*. Currently a graduate student at Umass Amherst

Liam Healy – BA (2022) Bowdoin College. Research: green crab behavioral feeding ecology. Currently a research technician at Rutgers.

Sam Neirink – BA (2022) Bowdoin College. Research: green crab / blue mussel interactions. Currently an MS student at University of St. Andrews, UK.

Fiona Ralph[†] - BA (2022) Bowdoin College. Research: eelgrass OA amelioration for oyster aquaculture. *Honors Thesis- 2022*

Deva Holliman[†] - Bowdoin College class of 2023. Research: coral thermal performance. *Honors Thesis - 2023*. Currently a PhD student at UC Davis.

Catherine Patti - Bowdoin College class of 2023. Research: sea star wasting syndrome.

Eliza Rhee - Bowdoin College class of 2023. Research: UV effects on cnidarian physiology.

Bridget Patterson - Bowdoin College class of 2023. Currently a Fulbright Scholar at Bangor University, Wales.

Kellie Navarro - Bowdoin College class of 2023. Goldwater Scholar (2022). Currently a Fulbright Fellow at the Australian Institute of Marine Sciences.

Clara Benadon - Bowdoin College class of 2023. NOAA Hollings Scholar. Goldwater Scholar (2022). Currently (2023-'24) a Watson Scholar.

Eban Charles[†] - Bowdoin College class of 2023. Research: Indirect effects of eelgrass on oyster growth (amelioration of impacts of warming and ocean acidification)

Coleman Komishane – BA (2022) Bowdoin College. Currently a researcher at Evelo Bioscience.

Luke Porter - Bowdoin College class of 2023.

Abby Bennitt - Bowdoin College class of 2023.

Natalie Patetta – BS (2021) UNC Chapel Hill. Research: microplastic ingestion and entrainment in tropical corals.

Isabel Gutierrez[†] - BS (2020) North Carolina Central University. Research:
Meg Van Horn - BS (2020) UNC Chapel Hill. Research: GIS analysis of sea level rise and island geomorphology in Belize. Now an MS student at UNC Wilmington
Kirsi Oldenburg*- BS (2020) UNC Chapel Hill. Research: Microplastic entrainment and ingestion in tropical corals. Now a medical student at the University of Minnesota
Jared Richards - BS (2020) UNC Chapel Hill
Samir Patel - BS (2018) UNC Chapel Hill. Officer, US Navy
Joseph Townsend[†] - BS (2017) UNC Chapel Hill. MS University of the Virgin Islands (2020). Currently a PhD student at the University of Puerto Rico Mayaguez
Alyssa Knowlton - BS (2017) UNC Chapel Hill.
Jessica Boulton - BS (2017) UNC Chapel Hill. PhD Student at UNC Chapel Hill
Daphne De Leener[†]- BS (2017) UNC Chapel Hill. MS (2018) University College London
Joyah Watkins - BS (2016) UNC Charlotte. PhD Student at Duke University
Brooke Benson - BS (2017) UNC Chapel Hill. PhD student at UC Davis.
Kathryn Cobleigh - BS (2017) UNC Chapel Hill. MS University of the Virgin Islands (2020). Currently working on the Stony Coral Tissue Loss Disease task force in the USVI
Logan Buie - BS (2016) UNC Chapel Hill. Small business owner
Lauren Speare* - BS (2016) UNC Chapel Hill. PhD (2020) UNC Chapel Hill. Postdoc (2022-'23) Oregon State University. Currently an Assistant Professor at Georgia Tech
Hannah Aichelman*- BS (2015) UNC Chapel Hill. *Honors Thesis - 2015*. MS (2018) Old Dominion University. PhD (2023) Boston University. Currently a Postdoctoral Scholar at Boston University

Selected Honors and Awards

2019	ASLO Early Career Scientist Travel Award: \$500 (USD) travel award to attend the 2019 ASLO Aquatic Sciences Meeting in San Juan, Puerto Rico
2017	Best Poster: UNC Chapel Hill Academic Research Conference
2016	UNC Graduate School Transportation Grant: \$1000 for conference travel
2014	GPSF Travel Award: \$800 awarded for travel to the Benthic Ecology Meeting in Quebec City, Canada.
2013	Distinguished Teaching Award: The Ohio State University School of Earth Sciences

Broader Impacts and Outreach

2013-2020	SciREN Triangle Organizing Committee: 1 of 6-8 graduate students (annually) from UNC, Duke, and NC State working on the organizing committee for this statewide workshop that allows K-12 teachers and scientists in STEM fields to share lesson plan ideas and develop connections. The program is designed to stimulate growth and interest in STEM fields and raise awareness of important research projects. Our annual networking workshops began in 2014 and serve approximately 300 researchers and education professionals in North Carolina each year.
2013-2020	Scientific Research and Education Network (SciREN) Coast Workshop Participant: K-12 teachers and marine scientists lesson planning workshop (February 2014, February 2015)

- 2013-2020 **North Carolina Science Festival:** Setup and run a marine science related booth for UNC Science Day. Give public lab tours.
- 2019 **Marine Ecology Guest Speaker:** Leesville Road High School, Raleigh NC
- 2013-2018 **UNdertheCblog:** Co-founder and blogger for graduate student run science blog (undertheblog.org, @undertheblog)
- 2018 **Featured in Carolina Arts and Sciences Magazine, Spring 2018**
- 2018 **North Carolina SciFest SciMatch classroom outreach program:** Holly Ridge Middle School, Holly Spring NC
- 2018 **Morehead Planetarium Science Café speaker series,** Chapel Hill NC
- 2013-2018 **K-12 Classroom Guest Speaker:** In 11 K-12 classrooms around the Raleigh-Durham area.
- 2018 **NC SciFest SciMatch Program:** Spent a day teaching middle school students about marine science and coral reef ecology (Farmville Middle School, Farmville NC).
- 2018 **Organizer and speaker for screening of “Chasing Coral”** featuring Dr. Mark Eakin from NOAA and a diverse expert panel- UNC Chapel Hill
- 2018 **Judge, Morehead Planetarium IMPACTS program annual meeting:** Gave feedback to science communication trainees who were developing their own outreach demonstrations and activities.
- 2017 **Panelist and Invited Speaker: North Carolina Association for Biomedical Research “Bridging the Gap” conference.** Served as a panelist during a plenary session (500+ education professionals and researchers) focused on identifying reliable sources of information on scientific topics that are divisive (e.g.: climate change). Gave an invited hour long interactive talk about my coral research guided by audience questions and interest.
- 2015-2020 **Morehead Planetarium and Science Center Science Communication Ambassador:** Attend science communication seminar courses, design and implement a hands-on science activity at the Planetarium. Participate in any of the numerous outreach opportunities provided through Morehead Planetarium.
- 2015 **Morehead Planetarium Middle School Science Camp:** Designed and led a hands-on food web lesson focused on coral reefs, overfishing, and other human impacts. December 2015.
- 2012 **Ohio State Biological Science Scholars “How to get into grad school” panel member**
- 2011-2012 **Ohio State Biological Science Scholars lab tours for undergraduates**
- 2011 **Presented at URO sponsored “Research Across Continents, OSU Undergrads in Latin America”**
- 2011 **Peer Research Contact for the Undergraduate Research Office (URO)**
- 2010 **Featured in 2010 “Highlights of Undergraduate Research at The Ohio State University”**

Invited Seminars

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- 2022 **University of Glasgow:** School of Biodiversity, One Health, and Veterinary Medicine
Climate Change Ecophysiology Across Spatial Scales

- 2022 **Ursinus College:** Biology Department
Climate Change Ecophysiology Across Spatial Scales
- 2021 **University of Portsmouth, UK:** School of Biological Sciences
Coral resilience, recovery, restoration, and acclimatization across multiple spatial scales
- 2020 **Bowdoin College:** Biology Department
Coral resilience, recovery, restoration, and acclimatization across multiple spatial scales
- 2020 **University of New Hampshire:** Department of Biological Sciences
Coral resilience, recovery, restoration, and acclimatization across multiple spatial scales
- 2019 **Amherst College:** Environmental Studies Department
Coral resilience, recovery, restoration, and acclimatization across multiple spatial scales
- 2019 **San Francisco State University:** Biology Department
Coral resilience, recovery, restoration, and acclimatization across multiple spatial scales
- 2019 **The University of Aberdeen, UK:** School of Biological Sciences
Assessing acclimatization capacity in two species of Caribbean reef building corals
- 2018 **North Carolina State University:** Marine, Earth, and Atmospheric Sciences
Impacts of climate change and human activity on coral growth and community structure along the Mesoamerican Barrier Reef System.
- 2018 **The University of North Carolina at Chapel Hill:** Department of Marine Sciences
The influence of anthropogenic global change and local human activities on reef-building corals across multiple spatial-scales

Conferences and Presentations (first author only)

Co-authored Presentations: 32

Mentored Student Presentations: 25

* Denotes mentored undergraduate/ graduate student

- 2022 **Baumann JH, *Zhao L, Stier A, Bruno JF.** Remoteness does not enhance coral reef resilience. Benthic Ecology Meeting. Portsmouth, NH. March/April 2022.
- 2019 **Baumann JH, Bove CB, Carne L, Castillo KD.** Local adaptation limits acclimatization ability of nearshore corals on the Mesoamerican Barrier Reef System. NIH Institutional Research and Career Development Award (IRACDA) annual meeting. July 2019.
- 2019 **Baumann JH, Bove CB, Carne L, Castillo KD.** Acclimatization potential of nearshore and offshore stress-tolerant coral species on the Mesoamerican Barrier Reef System. Association of the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, San Juan, Puerto Rico. February 2019.

- 2018 **Baumann JH**, Ries JB, Rippe JP, Courtney TA, Aichelman HE, Westfield I, Castillo KD. Declining extension rates in nearshore corals on the Belize Mesoamerican Barrier Reef System. Benthic Ecology Meeting. Myrtle Beach, South Carolina. March 2018.
- 2017 **Baumann JH**. How to talk about climate change in the classroom- myths and mysteries. Invited session. NCABR Bridging the Gap conference. October 2017.
- 2017 **Baumann JH**. Influence of climate change on coral communities in Belize. Winner, poster competition. UNC Graduate Research Symposium
- 2017 **Baumann JH**. Influence of climate change on coral communities in Belize. Second Place, poster competition. UNC Climate Change Symposium. April, 2017.
- 2016 **Baumann JH**, Townsend JE*, Watkins J*, Davies SW, Castillo KD. Influence of thermal history and nutrient enrichment on coral and symbiont community structure on lagoonal reefs on the Belize Mesoamerican Barrier Reef. Oral presentation. 13th International Coral Reef Symposium. Honolulu, Hawaii. June, 2016.
- 2016 **Baumann JH**, Townsend JE*, Courtney T, Aichelman HE*, Lima FP, Castillo KD. Influence of thermal history and nutrient enrichment on coral community structure on lagoonal reefs in Belize. Oral Presentation. 2016 Ocean Science Meeting. New Orleans, Louisiana. Feb. 2016
- 2015 **Baumann JH**, Courtney T, Davies SW, Aichelman HE*, Townsend J*, Lima FP, Castillo KD. Influence of thermal history and nutrients on lagoonal reef composition on the Belize Barrier Reef System. Oral presentation. 44th Annual Benthic Ecology Meeting, Quebec City, Canada. March, 2015
- 2014 **Baumann JH**, Grottoli AG, Levas S, Matsui Y, Hughes A. Acquisition and allocation of carbon to lipids of bleached and healthy Hawaiian corals. Oral Presentation. 2014 Benthic Ecology Meeting, Jacksonville Florida. March, 2013
- 2012 **Baumann JH**, Grottoli AG, Levas S, Matsui Y, Hughes A. Acquisition and Allocation of Carbon to Lipids of Bleached and Nonbleached Hawaiian Corals. 12th International Coral Reef Symposium (ICRS), Cairns, Australia. Oral Presentation. July, 2012.
- 2011 **Baumann JH**, Grottoli AG, Levas S, Schoepf V, Warner ME. The effects of single and repeat bleaching on photosynthesis and metabolism of three species of Caribbean coral. 2011 Natural and Mathematical Science (NMS), and 2011 Denman Undergraduate Research Forums, Ohio State University, Columbus, Ohio. Poster. April, 2011

- 2010 **Baumann JH**, Grottoli AG, Levas S, Schoepf V, Warner ME. The effects of repeat bleaching on P/R and feeding rates of three species of Caribbean coral. 2010 American Society of Limnology and Oceanography (ASLO) Ocean Science Meeting, San Juan, Puerto Rico. Poster. February, 2010.
- 2010 **Baumann JH**, Grottoli AG, Levas S. The effects of bleaching on photosynthesis, metabolism, and feeding rates of three species of Caribbean Coral. 2010 Biological, Math, and Physical Science (BMAPS) and 2010 Denman Undergraduate Research Forums, Ohio State University, Columbus, Ohio. Poster. February, 2010.

Media Engagement and Advocacy

- 2018 “How to protect coral reefs from the ravages of climate change.” **Policy brief written for Scholars Strategy Network.**
- 2018 “North Carolina can lead the fight against climate change if we make it our priority.” **Op-ed in Durham Herald Sun.** Co-authored with Catie Alves and Laura Mudge.
- 2018 “Why sharks are thriving near the NC coast.” **Op-ed in Raleigh News & Observer.** Co-authored with Dr. Chuck Bangley, Melissa Malkin-Weber, Jen Arnold.
- 2018 “What’s going on with the Earth’s climate?” **Op-ed in Raleigh News & Observer.** Co-authored with Dr. Walter Robinson and Dr. Lisa Falk.
- 2018 “NC representatives should join bi-partisan effort on climate change.” **Op-ed in Raleigh News & Observer.** Co-authored with Doug Nichols.

Professional Society Memberships

International Society for Reef Studies (ISRS)
 Association for the Sciences of Limnology and Oceanography (ASLO)
 Divers Alert Network (DAN)
 Professional Association of Diving Instructors (PADI)
 American Association for the Advancement of Science (AAAS)
 Scholars Strategy Network (SSN)

Editorial Positions

Review Editor – Frontiers in Marine Science

Scientific Meeting Session Chair/ co-Chair:

Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting (2018):
 Session 033- Coral Reef Ecosystems, Benthic Ecology Meeting (2022): Reef Ecosystems
 Session Chair

Reviewer For

PNAS, Global Change Biology, Coral Reefs, Diversity, Ecology, Limnology and Oceanography, Marine Ecology Progress Series, PLOS ONE, Frontiers in Marine Science, Oceanography, Journal of Experimental Biology, Nature Communications Earth and Environment, National Defense Science and Engineering Graduate Fellowship Applications (NDSEG), Marine Ecology Progress Series, National Science Foundation BIO-OCE grants

Technical Skills

- Coding proficiency: R, R Shiny, Bash, GitHub
- PADI Open Water Diving Certification
- AAUS Science Diver
- Biological field sampling techniques: coral coring, AGRRA and video reef surveys, coral identification, specimen collection: nets, seines, trawling, measuring depth, wind speed, light penetration, manipulative field experiments, reciprocal transplant, coral husbandry, sample collection and preservation for DNA and RNA.
- Molecular Techniques: DNA extraction, PCR, gel electrophoresis, nanodrop, Next Generation Sequencing, bioinformatics, and data analysis.
- Knowledge of, and experience running and maintaining SIRMS (Stable Isotope Ratio Mass Spectrometer)
- Wet chemistry laboratory techniques: organic separation (lipid, protein, carbohydrate extraction), Shimadzu TOC, fluorescence (NH₄, NO_x), Raman spectroscopy, X-Ray Diffraction
- Experience planning, building, and running manipulative tank experiments including experience with pH, temperature, and DO modulation and Neptune Systems Apex controllers.
- 3D printing, laser cutting for fabrication, tinkercad

Professional References | Justin H. Baumann

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