

CATHERINE LAWRENCE ALVES

EDUCATION

- 2015 – present** **University of North Carolina at Chapel Hill, Chapel Hill, NC**
PhD Candidate in the Environment, Ecology, and Energy Program
Dissertation Advisor: Dr. John F. Bruno
- 2012** **CIEE Research Station Bonaire, Dutch Caribbean**
Study Abroad Program in Tropical Marine Ecology and Conservation
Research Advisor: Dr. Rita Peachey
- 2009 – 2013** **Connecticut College, New London, CT**
Bachelor of Arts in Biological Sciences
Academic Advisor: Dr. Stephen H. Loomis

RESEARCH AND WORK EXPERIENCE

- 2015 – present** **University of North Carolina at Chapel Hill, Chapel Hill, NC**
Dissertation research in coral reef ecology and fisheries governance
- 2014 - 2015** **Williams-Mystic Maritime Studies Program, Mystic, CT**
Marine Science Teaching Assistant and Laboratory Manager
- 2013** **Reef Environmental Education Foundation (REEF), Key Largo, FL**
Intern Project Coordinator and Marine Conservation Intern
- 2012 – 2013** **Department of Chemistry, Connecticut College, New London, CT**
Laboratory Technician
- 2012** **Romberg Tiburon Center, San Francisco State University, Tiburon, CA**
NSF-Funded Research Experience for Undergraduates (REU)
- 2012** **CIEE Research Station Bonaire, Dutch Caribbean**
Independent research: Examining the effect of different grazers on algal biomass

TEACHING AND MENTORING

- 2016 – 2017** **University of North Carolina at Chapel Hill, Chapel Hill, NC**
Mentored senior Biology honors thesis student, Zachary Locklear on research titled:
Belizean coral functional group shifts from 1997 to 2016
- 2016 – 2017** **Academic Support Program for Student Athletes, UNC-CH, Chapel Hill, NC**
Tutor for student athletes in Biology, Mathematics, Marine Science
- 2016 - 2017** **University of North Carolina at Chapel Hill, Chapel Hill, NC**
Teaching Assistant for BIOL 201: Ecology and Evolution
Teaching Assistant for BIOL 252 Lab: Human Anatomy and Physiology
- 2015** Teaching Assistant for ENEC 201: Environment and Society
- 2015 – 2017** **Wyzant Tutoring, Chapel Hill, NC**
Private freelance tutor in High School Biology, Chemistry, ACT preparation
- 2014 – 2015** **Williams-Mystic Maritime Studies Program, Mystic, CT**
Mentored 2-3 undergraduate lab assistants and 8-10 independent undergraduate
research projects in marine ecology and oceanography per semester

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GRANTS AND FELLOWSHIPS

- 2019 Graduate Student Transportation Grant, The Graduate School, UNC-Chapel Hill (\$1,000)
- 2019 Rufford Small Grant, Rufford Foundation (\$6,400)
- 2018 Early Career Grant, National Geographic Society (\$5,000)
- 2018 Mingma Norbu Sherpa Memorial Fellowship, Carolina Center for Public Service, UNC-Chapel Hill (\$1,250)
- 2018 Marine Conservation Research Grant, Women Diver's Hall of Fame (\$2,000)
- 2017 Graduate Research Fellow, National Science Foundation (\$138,000 for three years)
- 2017 Pre-Dissertation Field Research Grant, Institute for the Study of the Americas, UNC-Chapel Hill (\$2,000)
- 2013 President's Sustainability Grant, Connecticut College (\$4,000)
- 2012 Travel Grant for Student Researchers, Connecticut College (\$500)

HONORS AND AWARDS

- 2019 Outstanding Student Achievement Award, 72nd Gulf and Caribbean Fisheries Institute (GCFI) Conference
- 2016 Biology Teaching Assistant of the Year, Beta-Beta-Beta Biology Honor Society, University of North Carolina at Chapel Hill
- 2016 Honorable Mention, National Science Foundation Graduate Research Fellowship
- 2013 Collaboration Award, Connecticut College Office of Student Engagement and Leadership Education
- 2013 E. Frances Botsford Prize for excellence in biology and service to department, Connecticut College Department of Biology
- 2009 Lieutenant Governor's Leadership Award, Rhode Island Lieutenant Governor E. Roberts
- 2007 Environmental Awareness Award, Narrow River Preservation Association

PUBLICATIONS

PEER-REVIEWED

Mudge, L., **C. Alves**, B. Figueroa-Zavala, and J. Bruno. 2019. Assessment of elkhorn coral populations and associated herbivores in Akumal, Mexico. *Fron. Mar. Sci.* 6:683. DOI: 10.3389/fmars.2019.00683.

Alves, C. N. Bood, K. Castillo, C. Cox, C. Fieseler, Z. Locklear, M. McField, L. Mudge, J. Umbanhowar, A. Valdivia, and J. Bruno. Twenty years of benthic community changes across the Belize Barrier Reef. *In prep.*

Donovan, M., **C. Alves**, C. Drury, R. Ritson-Williams, J. Burns, J. Brun, R. Dunn, I. Knapp, G. Goodbody-Gringley, L. Henderson, J. Levy, C. Logan, R. McGuinn, O. Meier, L. Mudge, C. Sullivan, J. Stewart-Lowndes and G. Asner. From polyps to pixels: Understanding coral reef resilience to local and global change across scales. *In prep.*

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PUBLIC OUTREACH AND EDUCATION

Baumann, J., L. Mudge, and **C. Alves**. North Carolina can lead the fight against climate change if we make it our priority. Op-Ed. Published December 11, 2018 in the [Herald Sun](#) and [News and Observer](#).

Alves, C. Belize's coral reefs: Fostering sustainable practices through co-management. [National Geographic Open Explorer Expedition Posts](#). Supported by the Science Exploration Education (SEE) Initiative.

Alves, C. The Offshore Adventures Continue. Blog post. [Williams-Mystic Maritime Studies Program Blog](#). Published February 11, 2015.

Alves, C. Examining the effect of different grazers on algal biomass. *Physis Journal of Marine Science*, CIEE Research Station Bonaire. [Vol. XI pg. 1-8](#).

PRESENTATIONS

ACADEMIC CONFERENCES

- 2019** **Alves, C.**, J. Bruno. *Assessing fisher perceptions of the Territorial User Rights for Fishing (TURF) Program: A Belizean case study*. Poster Presentation. Gulf and Caribbean Fisheries Conference (GCFI). November 2019. Punta Cana, Dominican Republic.
- 2017** **Alves, C.**, Z. Locklear, M. McField, J. Bruno. *MPAs did not mitigate coral reef phase shifts in Belize caused by disease and warming*. Oral Presentation. Benthic Ecology Meeting (BEM). April 2017. Myrtle Beach, SC.
- 2014** Weiner, M., L. Gilbert, **C. Alves**, P. Poole, S. Schleicher. *A salt marsh erosion model: Interplay between biotic and physical factors at the seaward edge*. Poster Presentation. American Geophysical Union (AGU) Conference. December 2014. San Francisco, CA.
- 2013** Perry, E., **C. Alves**, C. Craig, V. Miller-Sims, W. Kimmerer, and C.S. Cohen. *Genetic variability of mitochondrial COI ranges from low to dramatically high in invasive species of copepods in San Francisco Estuary*. Poster Presentation. Society for Integrative and Comparative Biology (SICB) Conference. January 2013. San Francisco, CA.
- 2012** **C. Alves**, and E. Perry. *Determining genetic diversity at cytochrome c oxidase (COI) of copepod species in the San Francisco Estuary*. Oral Presentation. San Francisco State University (SFSU)'s Summer Undergraduate Research Symposium. August 2012. San Francisco, CA.

PUBLIC OUTREACH, EDUCATION, AND INVITED SEMINARS

- 2019** *My PhD Journey*. Guest Lecturer. ENEC 567: Ecological Analysis and Applications. October 2019. Chapel Hill, NC.
- 2019** *Assessing fisher perceptions of the Territorial User Rights for Fishing (TURF) Program: A Belizean case study*. Invited Speaker. Environment, Ecology, and Energy Program Student Seminar Series. October 2019. Chapel Hill, NC.
- 2019** *Life as a Marine Conservation Ecologist*. Invited Panelist for Higher Edge, Inc's Summer Institute for high school seniors in College Access Program. August 2019. Stonington, CT.
- 2019** *Explorer Classroom: My path to becoming a marine conservation ecologist*. National Geographic's Explorer Classroom. April 2019. YouTube link [here](#).

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- 2019** *Searching for the win-win: Can community-based fisheries management restore ecological function and improve the livelihoods of Belizean fishers?* Invited Speaker to Dr. Gavin Fay's lab meeting, University of Massachusetts at Dartmouth School for Marine Science and Technology (SMAS). February 2019. New Bedford, MA.
- 2018** *A day in the life of a marine biologist.* Invited Speaker. Temple Beth Or Synagogue Senior Luncheon. March 2018. Raleigh, NC.
- 2017** *Life as a marine biologist: Using SCUBA to study coral reef communities.* Invited Speaker. Culbreth Science Day. April 2017. Culbreth Middle School, Chapel Hill, NC.
- 2014** *Coral Reef Ecology.* Invited Guest Lecture. Williams-Mystic Maritime Studies Program Marine Ecology Class. December 2014. Mystic, CT.
- 2014** *Citizen Science and the Reef Environmental Education Foundation (REEF).* Invited Speaker. Connecticut College's Spring Log Jam Fundraiser. June 2014. New London, CT.
- 2013** *Invasive Lionfish Ecology.* Oral Presentation. Diving Equipment and Marketing Association (DEMA) Conference. November 2013. Orlando, FL.
- 2012** *Examining the effect of different grazers on algal biomass.* Oral Presentation. CIEE Research Station Bonaire's Public Lecture Series. May 2012. Kralendijk, Bonaire.

PROFESSIONAL SERVICE

- 2017 - 2018** **The Scientific Research and Education Network (SciREN), Chapel Hill, NC**
Co-Organizer
- 2016 - 2018** **Graduate and Professional Student Federation (GPSF), UNC-CH, Chapel Hill, NC**
Senator; Representing Ecology graduate students; Serving on Joint Code Working Group, to re-write code between undergraduate and graduate students at UNC-CH
- 2016 - 2018** **Graduate Environment and Ecology Association (GEEA), UNC-CH, Chapel Hill, NC**
GPSF Senator, co-organize annual Ecology research symposium
- 2016 - 2018** **Biology Graduate Student Association (BGSA), UNC-CH, Chapel Hill, NC**
Liaison, Curriculum for the Environment and Ecology
- 2016 - 2017** **Curriculum for the Environment and Ecology (CEE), UNC-CH, Chapel Hill, NC**
Seminar Committee Member, coordinating weekly guest seminar series
- 2012 - 2013** **Forest Justice Student Organization, Connecticut College, New London, CT**
Co-President
- 2011 - 2013** **Biology Student Advisory Board, Connecticut College, New London, CT**
Co-Chair

COMMUNITY ENGAGEMENT AND OUTREACH

- 2018 - present** **National Geographic Society Open Explorer Expedition, Science Exploration Education (SEE) Initiative**
Belize's coral reefs: Fostering sustainable practices through co-management
Recipient of Sofar Trident underwater drone, write [blog posts](#) about expedition

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- 2018 – present **Skype a Scientist**
Scientist, sharing research with students in classrooms around world via video calls
- 2018 – present **Narrow River Preservation Association, Narragansett, RI**
Guide, teaching children and families about ecology of Narrow River while kayaking
- 2017 – 2018 **Inspiring Meaningful Programs and Communication through Science (IMPACTS), NC**
Science Communication Ambassador
- 2017 – 2018 **Letters to a Pre-Scientist**
Pen pal to middle school student pre-scientist
- 2016 – 2017 **The Scientific Research and Education Network (SciREN), Chapel Hill, NC**
Researcher, developed lesson plan in marine food webs for grades 8-12
- 2013 **Biscayne National Park, Homestead, FL**
National Parks Service Blue-Card Diver, contributing to management projects
- 2013 **John Pennekamp Coral Reef State Park, Key Largo, FL**
Volunteer Diver, assisted with lionfish research and seagrass restoration
- 2013 **Coral Restoration Foundation, Key Largo, FL**
Volunteer, developed off-shore coral nurseries and reef restoration programs

PROFESSIONAL DEVELOPMENT

- 2019 **National Science Policy Network Symposium**, funded participant in upcoming event for early-career scientists interested in science policy, advocacy and diplomacy. National Science Policy Network. University of Wisconsin-Madison, Madison, WI.
- 2019 **Inclusive SciComm Symposium**, participant in three-day symposium designed to engage trainers, scholars, and practitioners in engaging audiences in conversations and activities related to STEM topics. Metcalf Institute. University of Rhode Island, Kingston, RI
- 2019 **Data Carpentry Geospatial Workshop in R**, participant in two-day training in geospatial analysis in R. University of Massachusetts Boston, Boston, MA
- 2018 **National Geographic Science Telling Boot Camp**, Video Production Course designed to teach participants how to use video to communicate science, Online
- 2018 **Nor'eastR Conference**, participant at one-day R Studio statistics conference, sponsored by the Coastal Institute at the University of Rhode Island, Providence, RI
- 2018 **Policy Engagement Workshop Training**, led by Scholars Strategy Network, UNC-Chapel Hill
- 2018 **Data Science for Coral Reefs: Data Integration and Team Science**, Coral Reef Science and Cyberinfrastructure Network (CRESCYNT) and National Center for Ecological Analysis and Synthesis (NCEAS), weeklong-training in open data science. Santa Barbara, CA
- 2017 **Inspiring Meaningful Programs and Communication through Science (IMPACTS)**, Science Communication Ambassador training, Morehead Planetarium and Science Center, UNC-CH
- 2016 **Teaching in Challenging Times Workshop**, designed to prepare faculty and teaching

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assistants to discuss gender, race, sexuality and politics in the classroom, led by The Center for Faculty Excellence, UNC-Chapel Hill

2016 **Software Carpentry Workshop**, participant in two-day training in R Studio, GitHub, and Unix Shell, UNC-Chapel Hill

2015 **Graduate Funding Workshop**, Graduate Funding Information Center, UNC-Chapel Hill

PROFESSIONAL AFFILIATIONS

2019 International Coral Reef Symposium (ICRS), Student Member
2018 Ecological Society of America (ESA), Student Member
2018 National Science Policy Network, Student Member
2017 Society for Women in Marine Science (SWMS), Member
2017 Inter-university Consortium for Political and Social Research (ICPSR), Student Member
2017 Society for Conservation Biology (SCB), Student Member
2016 American Association for the Advancement of Science (AAAS)
2013 Reef Environmental Education Foundation (REEF)
2011 Diver's Alert Network (DAN)

CERTIFICATIONS

2017 Divemaster (# 406704), Professional Association of Diving Instructors (PADI)
2016 Scientific Diver, American Academy of Underwater Sciences (AAUS)
2013 Emergency First Responder, Emergency First Response (EFR)
2013 Enriched Air Nitrox Diver & Equipment Specialty (PADI)
2012 Rescue and Advanced Open Water Diver (PADI)
2011 Open Water Diver, SCUBA Diving International (SDI)

LANGUAGES

French Intermediate written and oral proficiency
Spanish Beginner oral proficiency
Italian Beginner written and oral proficiency

SKILLS AND EXPERTISE

Field Skills • Accomplished SCUBA Diver (PADI Divemaster with >250 logged dives) • Caribbean and Northeast Atlantic marine species identification (coral, algae, invertebrates, fish) • Small boat handling and sailing skills • Marine science research methods (underwater transects, water quality testing, species identification) • Quantitative social science research methods (focus groups, interviews, content analysis)

Computer Proficiency • Microsoft Office Suite • Geospatial mapping with ESRI ArcGIS • Data management, analysis and visualization with SPSS, R Studio, SQL • Marine species analysis with Coral Point Count (CPCe) and CoralNet • Project management and collaboration with Slack, Asana, Zoom, Skype