

RACHEL S. SMITH

<https://rachelssmith.weebly.com/>

1819 Aston Ave., Suite 103 ◊ Carlsbad, CA 92008

(804)-310-2474 ◊ Rssmith218@gmail.com

EDUCATION

PhD in Ecology, University of Georgia	2019
Certificate in Non-Profit Management, University of Georgia	2017
B.A. in Biological Sciences, with honors, <i>magna cum laude</i> , Northwestern University	2010
Minor in Environmental Policy, Northwestern University	2010

PROFESSIONAL EXPERIENCE

Assistant Researcher, University of California, Santa Barbara	2022-Present
NatureNet Science Fellow, University of Virginia & The Nature Conservancy	2019-2022
Research Associate, Georgia Coastal Ecosystems LTER	Summer 2019
SeaGrant Fellow, EcoScapes Program, University of Georgia Marine Extension	2018-2019
AAAS Mass Media Fellow, Indianapolis Star	Summer 2018
Graduate Researcher, State Botanical Gardens of Georgia	2017-2019
Graduate Researcher, Odum School of Ecology, University of Georgia	2013-2019
Research Technician, Skidaway Institute of Oceanography, University of Georgia	2012-2013
Research Assistant, University of New South Wales	2011-2012
U.S. Fulbright Fellow, University of New South Wales	2010-2011
Marine Invasions Intern, Smithsonian Environmental Research Center	Summer 2009
REU Intern, Shannon Point Marine Center, Western Washington University	Summer 2008

PUBLICATIONS:

Peer-reviewed:

22. Halpern, B.S., C. Boettiger, [and 114 others including **Smith RS**]. Priorities for synthesis in ecology and environmental science. In press at *Ecosphere*.
21. **Smith RS**, Cheng SL, Castorani MCN. Oyster restoration enhances ecosystem services: a meta-analysis. *Conservation Biology*. e13966
20. **Smith RS**, Lusk B, Castorani MCN. Restored oyster reefs match multiple functions of natural reefs within a decade. *Conservation Letters*. 15(4): e12883
19. Aoki LR, Brisbin MM, Hounshell AG, Kincaid DW, Larson E, Samson BJ, Shogren AJ, **Smith RS**, Sullivan-Stack J. 2022. Preparing aquatic research for an extreme future: Call for improved definitions and responsive, multidisciplinary approaches. *BioScience*. 72(6): 508-520
18. Patrick CJ, Kominoski JS, [and 49 others, including **Smith RS**]. 2022. A general pattern of trade-offs between ecosystem resistance and resilience to tropical cyclones. *Science Advances*. 8(9): eabl9155
17. **Smith RS**, Hogan S, Tedford KN, Lusk B, Reidenbach MA, Castorani MCN. 2022. Long-term data reveals greater intertidal oyster biomass in predicted suitable habitat. *Marine Ecology Progress Series*. 683: 221-226

16. Cheng SL, Tedford KN, **Smith RS**, Hardison S, Cornish MR, Castorani MCN. 2022. Coastal vegetation and bathymetry influence blue crab abundance across spatial scales. *Estuaries and Coasts*. 45: 17011715
15. **Smith RS**, Alley H, Klement D, Haram LE. 2021. Academic-conservation partnership reveals trade-offs in treatment method and frequency needed to restore invaded floodplain. *Restoration Ecology*. e13597.
14. **Smith RS**, Beauvais J, Byers JE. 2021 Traits of resident salt marsh plants interact with tidal regime to promote retention of range-expanding mangroves. *Estuaries and Coasts*. 45: 14221433
13. **Smith RS**, Blaze JA, Byers JE. 2021. Dead litter of resident species first facilitates and then inhibits sequential life stages of range-expanding species. *Journal of Ecology*. 109(4): 1649-1664
12. Simpson LT, Cherry JA, **Smith RS**, Feller IC. 2020. Mangrove encroachment alters decomposition rate in salt marsh through changes in litter quality. *Ecosystems*. 1-15
11. Miller AW, Reynolds A, Minton MS, **Smith RS**. 2020. Evidence for stage-based larval vulnerability and resilience to acidification in *Crassostrea virginica*. *Journal of Molluscan Studies*. 86(4):342-351
10. **Smith RS**, Blaze JA, Byers JE. 2020. Negative indirect effects of hurricanes on recruitment of range-expanding mangroves. *Marine Ecology Progress Series*. 644: 65-74
9. Hogan JA, Faegin RA, [and 41 others, including **Smith RS**]. 2020. A research framework to integrate cross-ecosystem responses to tropical cyclones. *BioScience*. 70(6): 477-489
8. Chen E, Blaze JA, **Smith RS**, S Peng, Byers JE. 2020. Freeze-tolerance of poleward-spreading mangrove species weakened by soil properties of resident salt marsh competitor. *Journal of Ecology*. 108(4): 1725-1737
7. **Smith RS**, Osborne TZ, Feller IC, Byers JE. 2019. Detrital traits affect substitutability of a range-expanding foundation species across latitude. *Oikos*. 128(9): 1367-1380
6. **Smith RS**, Blaze JA, Osborne TZ, Byers JE. 2018. Facilitating your replacement? Ecosystem engineer legacy affects establishment success of an expanding competitor. *Oecologia*. 188(1): 251-262
5. Johnston CA, **Smith RS**. 2018. Vegetation structure mediates a shift in predator avoidance behavior in a range-edge population. *Behavioral Ecology*. 29(5): 1124-1131
4. Byers JE, **Smith RS**, Pringle JM, Clark GF, Gribben PE, Hewitt CL, Ingliss GJ, Johnston EL, Ruiz GM, Stachowicz JJ, Bishop MJ. 2015. Invasion expansion: time since introduction best predicts global ranges of marine invaders. *Scientific Reports*. 5, 12436; doi: 10.1038/srep12436
3. **Smith RS**, Johnston EL, Clark GF. 2014. The role of habitat complexity in community development is mediated by resource availability. *PLoS ONE*. 9(7): e102920
2. Byers JE, **Smith RS**, Weiskel HW, Robertson CY. 2014. A non-native prey mediates the effects of a shared predator on an ecosystem service. *PLoS ONE*. 9(4): e93969.
1. **Smith RS**, McDonald PS. 2010. Examining the effects of predator exclusion structures associated with geoduck aquaculture on mobile benthic macrofauna in South Puget Sound, WA. *Northwestern Undergraduate Research Journal*. 5: 11-17.

In review:

Smith RS, Castorani MCN. Meta-analysis reveals drivers of restoration success for oysters and reef community. In review, *Ecological Applications*.

Beheshti KM, Schroeter S, Deza A, Reed D, **Smith RS**, and Page HM. Large-scale field studies inform adaptive management of California wetland mitigation. In review, *Restoration Ecology*.

Technical reports:

Reed D, Behshti KM, Huang D, Page HM, Schroeter S, **Smith RS**, Steele M. 2022. Monitoring plan for the SONGS reef mitigation project.

Policy briefs:

Smith RS, Lusk B, Castorani MCN. 2021. Increased investment in oyster reef restoration and long-term monitoring will enhance climate resilience. Submitted to NOAA, Climate: Recommendations for Fisheries and Protected Resources.

Datasets:

Lusk, B., **Smith RS** and M.C.N. Castorani. 2022. Oyster and associated fauna counts and lengths from restored and reference reefs in the coastal bays of Virginia, 2005-2019 ver 7 . Environmental Data Initiative.

Popular science:

“ The case of the mysterious mangrove muncher: a marsh detective story.” *Journal of Ecology Blog*, April 2021

“ Using native salt tolerant plants to create resilient coastal landscapes.” *Marine Extension and Georgia Sea Grant Student Blog*, April 2019

“ Purdue professor sets world record for fastest arrangement of the periodic table of elements.” *Indy Star*, August 2018

“ Common songbird under threat from climate change.” *Indy Star*, August 2018

“ Purdue researchers take on mosquito diseases like Zika and West Nile with new device.” *Indy Star*, August 2018

“ New model developed by IU researchers helps predict landslide risks in Indiana, worldwide.” *Indy Star*, August 2018

“ Invasive plants are harming Hoosier gardens and farms. A grassroots effort wants to help.” *Indy Star*, August 2018

“ We know single-use plastics are bad. Why can't we stop using them?.” *Indy Star*, July 2018

“ Indianapolis teens learn about trauma recovery, urban farming from bees and butterflies.” *Indy Star*, July 2018

“ Saved from the brink of extinction, bald eagles face new threat.” *Indy Star*, July 2018

“ This spider is the size of a crayon tip and was just discovered in Indiana.” *Indy Star*, July 2018

“ These tiny plastics can make their way up the food chain and into your diet.” *Indy Star*, July 2018

“ Plogging? You know, when you jog and pick up litter at the same time.” *Indy Star*, July 2018

“ Play scientist for a day, study bees and butterflies during local pollinator count events.” *Indy Star*, June 2018

“ Warming up your cold call.” NextGen VOICES. *Science Online*. 2015.

FELLOWSHIPS

NatureNet Science Fellowship, University of Virginia & The Nature Conservancy <i>From oyster to estuary: Cross-scale analysis of oyster persistence to optimize restoration success</i> (\$258,000; PIs: R. Smith , M.C.N. Castorani)	2019-2021
Georgia Sea Grant Traineeship, EcoScapes Program <i>Native salt-tolerant landscaping for Georgia's coastal hazards</i> (\$20,000; PIs: R. Smith , K. Giovengo)	2018-2019
Mass Media Fellowship, American Association for the Advancement of Science <i>Indianapolis Star</i> (\$5,000; PI: R. Smith)	2018
Graduate Research Fellowship, National Science Foundation <i>Tipping the balance: a novel invader alters the equilibrium of native ecosystem engineers</i> (\$138,000; PI: R. Smith)	2015-2018
Graduate Research Internship Program, National Science Foundation <i>Structuring life on the edge: community and ecosystem effects of expanding ecosystem engineers</i> (\$5000; PIs: R. Smith , I.C. Feller)	2015-2016
Link Fellowship, Smithsonian Marine Station <i>Structuring life on the edge: community and ecosystem effects of expanding ecosystem engineers</i> (\$6500; PIs: R. Smith , I.C. Feller)	2015
U.S. Fulbright Postgraduate Scholarship, University of New South Wales, Australia <i>Assessing the invasibility of highly disturbed estuaries: complexity in multiple stressors</i> (\$20,000; PIs: R. Smith , E. Johnston)	2010

OTHER GRANTS & AWARDS

NSF Ecological Dissertations in Aquatic Sciences (Eco-DAS XIII), \$1000	2018
Savannah Presbytery M.K. Pentecost Ecology Grant (with Satilla Riverkeeper), \$2500	2018
Kings Bay Submarine Officers' Spouses' Association Grant (with Satilla Riverkeeper), \$300	2018
PADI Foundation Grant, PADI Foundation, \$1,952	2015
Best Proposed Research, Graduate Student Symposium, University of Georgia, \$300	2015
Odum Small Grant for Graduate Research, University of Georgia, \$700	2014
Excellence in Graduate Recruitment Award, University of Georgia, \$3,000	2013
Sigma Xi Travel Grant Award, Northwestern University, \$1,350	2009
Conference Travel Grant, Northwestern University, \$500	2009
Travel Grant Award, National Shellfisheries Association, \$500	2009

PRESENTATIONS:

Conference sessions organized:

“Successes and challenges in restoring marine foundation species.” Co-organized with M.C.N. Castorani. Ocean Sciences Meeting, Virtual meeting. 2022.

“Inclusive and participatory community engagement in conservation research and practice.” Co-organized with V. Venkataramanan. NatureNet Science Symposium, Charlottesville, VA. 2019.

“Foundation species conservation: bridging the basic and applied research divide.” Co-organized with R. D. Harris. Coastal & Estuarine Research Federation Biennial Meeting, Mobile, AL. 2019.

Invited seminars:

Virginia Institute of Marine Sciences, Williamsburg, VA. 2020

Invited presentations:

Ecological Society of America Annual Meeting, Montreal, CAN 2022

Contributed presentations:

Benthic Ecology Meeting, Portsmouth, NH. 2022
 Ocean Sciences Meeting, Virtual Meeting. 2022
 Coastal & Estuarine Research Federation Biennial Meeting, Virtual Meeting. 2021
 NatureNet Science Symposium, Virtual Meeting. 2021
 Western Society of Naturalists, Virtual Meeting. 2020
 Coastal & Estuarine Research Federation Biennial Meeting, Mobile, AL. 2019
 NSF Ecosystem Responses to Hurricanes Data Synthesis Workshop, Corpus Christi, TX. 2019
 Georgia Water Resources Conference, Athens, GA. 2019
 Ecological Society of America Annual Meeting, New Orleans, LA. 2018
 Benthic Ecology Meeting, Corpus Christi, TX. 2018
 GTM NERR State of the Reserve Meeting, Ponte Vedra, FL. 2018
 Coastal & Estuarine Research Federation Biennial Meeting, Providence, RI. 2017
 Benthic Ecology Meeting, Myrtle Beach, SC. 2017
 Georgia DNR Climate Conference, Jekyll Island, GA. 2016
 Ecological Society of America Annual Meeting, Fort Lauderdale, FL. 2016
 Mangrove and Macrobenthos Meeting, MMM4, St. Augustine, FL. 2016
 GTM NERR State of the Reserve Meeting, Ponte Vedra, FL. 2016
 Benthic Ecology Meeting, Savannah, GA. 2015
 Australian Marine Sciences Association Annual Meeting, Perth, Australia. 2011
 Smithsonian Environmental Research Center Seminar, Edgewater, MD. 2009
 National Shellfisheries Association Annual Meeting, Savannah, GA. 2009
 Sigma Xi International Research Conference, Houston, TX. 2009

Public presentations:

San Dieguito River Park, Del Mar, CA. 2022
 Establishing Resilient Coastal Landscapes with Native Salt Tolerant Plants, Brunswick, GA. 2019

OUTREACH EXPERIENCE

Mentor, Mentoring Partnership Program, UVA, Charlottesville, VA 2021
 Language Consultant, Center for American English Language and Culture, Charlottesville, VA 2020
 Trail Guide, Sandy Creek Nature Center, Athens, GA 2017-2019
 Volunteer, EcoReach, Athens, GA 2013-2019
 Program Developer, EcoScapes Program, Brunswick, GA 2018-2019
 Congressional District Visit, American Institute of Biological Sciences 2018
 Volunteer, Athens Land Trust, Athens, GA 2016
 Program Developer, Watershed UGA, Athens, GA 2016
 Researcher & Presenter, Eastside Radio 87.9 FM, Sydney, Australia 2011-2012

MENTORING

Graduate students

Kinsey Tedford (PhD student, UVA), meta-analysis	2020-2022
Enjian Chen (PhD student, UGA), role of mycorrhizae in mangrove expansion	2017-2019

Post-baccalaureate

Julie Blaze (post-bacc, UGA), saltmarsh wrack and mangrove propagules	2016-2018
Jeffrey Beauvais (post-bacc, UGA), saltmarsh wrack and mangrove propagules	2015-2016
Tracey Schaefer (post-bacc, UF), saltmarsh-mangrove interactions	2014

Undergraduate students

Selina Cheng (undergrad, UVA), oyster restoration meta-analysis	2020-2021
Diane Klements (undergrad, UGA), CURO fellowship, floodplain restoration	2016-2019
Emma Dickinson (undergrad, UGA) GIS drone imagery processing	2018
Jared Bennett (undergrad, UGA) GIS drone imagery processing	2018
Katie O'Shields (undergrad, UGA), floodplain restoration, sci-comm	2017-2018
Claire Sammons (undergrad, UGA), saltmarsh wrack and mangrove propagules	2016-2018
Meghan Tait (undergrad, UGA), CURO fellowship, mangrove tree crab behavior	2016
Katie Maddox (undergrad, UGA), litterbag experiments	2015
Jessica Story (undergrad, UGA), CURO fellowship, litterbag experiments	2014-2015
Rachel Usher (undergrad, UGA), saltmarsh-mangrove interactions	2014

TEACHING

Guest Lecture, UVA, Department of Environmental Sciences , <i>Lessons in Conservation Success</i>	2022
Guest Lecture, GWU, Department of Biological Sciences , <i>Restoration Ecology</i>	2022
Guest Lecture, UVA Department of Environmental Sciences, <i>Spatial Ecology</i>	2022
Guest Lecture, UVA Department of Environmental Sciences, <i>Estuarine Ecology</i>	2020
Guest Lecture, UGA Odum School of Ecology, <i>Science Communication</i>	2018
Guest Lecture, UGA Marine Institute, <i>Ecosystems of Georgia Maymester</i>	2018
CIRTL Teaching Institute, Johns Hopkins University	2018
Lab Demonstrator, UNSW Evolution & Ecology Centre, <i>Evolutionary & Functional Biology</i>	2011

EDITORIAL SERVICE

Reviewer, *Ecology*, *Global Change Biology*, *Hydrobiologia*, *Marine Ecology Progress Series*, *Marine and Freshwater Research*, *PLoS ONE*, *Limnology and Oceanography*, *Southeastern Naturalist*

DEPARTMENT SERVICE

Diversity, Equity and Inclusion Committee, Environmental Sciences Department, UVA	2020-2022
Judging/Moderating Committee Member, Graduate Student Symposium, UGA	2018
Graduate Student Symposium Co-Coordinator, Odum School of Ecology, UGA	2016
New Student Orientation Co-Coordinator, Odum School of Ecology, UGA	2015
Program Committee Member, Graduate Student Symposium, UGA	2014

TRAINING

Ecosystem Restoration, Massive Open Online Course, United Nations	2022
Catalyzing Advocacy in Science and Engineering Workshop, AAAS	2021
Values-based Communication Workshop, The Nature Conservancy	2021
Building Cultural Competance Training, The Nature Conservancy	2021
Future of Synthesis in Science Virtual Workshop, NCEAS	2021
Bystander Intervention Training, ADVANCEGeo Partnership	2020
Decision Science for Conservation and Spatial Mapping, The Nature Conservancy Global Science	2020
Project Management for Conservation Training, WildTeam UK	2020
Science Communications Training, Virginia Tech Center for Communicating Science	2019
Cross-Disciplinary Problem-Solving Training, Virginia Sea Grant	2018-2019
Emerging Leaders Program Training, University of Georgia	2018
North America's Great Lakes, Institute for Journalism and Natural Resources	2018
ComSciCon-Atlanta, Graduate Student Communicating Science Workshop	2018

ADDITIONAL SKILLS

Software: R, LaTeX, MS Office, ArcGIS, QGIS, Adobe Illustrator, Image J, WordPress, EndNote, Zotero, ERDAS, ENVI, Slack

Certifications: PADI Open Water certified, IACUC Safety Training, Chemical Disposal Training, CPR-AED First Aid, Wilderness First Aid

Data Collection: Boat operation, handling, and maintenance; RTK-GPS; UAV/Drone operation; Sediment chlorophyll-a analysis (UA Fluorometer and Spectrophotometer); Beach and marsh seining; Porewater sampling and filtration; Sediment coring; Organic matter content (%); Sediment particle size; YSI meter; HOBO/iButton data loggers; Marine invertebrate preservation and identification