

# Blaine D. Griffen

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## EDUCATION

Postdoc – Odum School of Ecology, University of Georgia, 2008  
PhD – University of New Hampshire, 2007  
MS – Oregon State University, 2002  
BS – Brigham Young University, 1998

## PROFESSIONAL EXPERIENCE

Associate Professor, Department of Biology, Brigham Young University, Aug 2017-current.  
Associate Professor, Department of Biological Sciences and Marine Science Program, University of South Carolina, Aug 2014-Aug 2017.  
Assistant Professor, Department of Biological Sciences and Marine Science Program, University of South Carolina. Aug 2008-July 2014.  
Postdoctoral Researcher, Odum School of Ecology, University of Georgia, Mentor: Dr. John Drake. Tested theories of population extinction using experimental zooplankton populations. Feb 2007-Aug 2008.  
Program Coordinator, Great Bay Larval Monitoring Program, New Hampshire. Worked with New Hampshire Fish and Game to develop and implement a pilot larval monitoring program to determine the feasibility of adding a biological component to the nation-wide System Wide Monitoring Program within National Estuarine Research Reserves. Project funded by New Hampshire Estuaries Project, NH Dept. of Environmental Services. January 2005-June 2006.  
Instructor for invertebrate zoology, Three Seas Program, Northeastern University. 2004-2005.

## FUNDING

Magellan grant for undergraduate research, USC 2015	\$3,000
Magellan grant for undergraduate research, USC, 2015	\$3,000
Magellan grant for undergraduate research, USC, 2015	\$765
National Science Foundation, 2011-2016 (sole PI)	\$551,226
Magellan grant for undergraduate research, USC, 2013	\$2,500
National Science Foundation, 2012 (April Blakeslee of Long Island University Co-PI)	\$24,737
Magellan grant for undergraduate research, USC, 2012	\$2,500
Magellan grant for undergraduate research, USC, 2012	\$1,000
Magellan grant for undergraduate research, USC, 2010	\$6,000
Magellan grant for undergraduate research, USC, 2010	\$2,500
Magellan grant for undergraduate research, USC, 2009	\$2,500
Magellan grant for undergraduate research, USC, 2009	\$2,500
University of Georgia Research Foundation Grant, 2007	\$7,010
Dissertation Fellowship, UNH, 2006	\$14,200
Summer TA Fellowship, UNH, 2006	\$3,000

New Hampshire Estuaries Project Research Grant, NH Dept. of Env. Services, 2005	\$29,000
Center for Marine Biology Research Grant, UNH, 2004	\$275
Center for Marine Biology Research Grant, UNH, 2003	\$477
Markham Research Grant, Markham Foundation, OSU, 2001	\$6,951
Markham Research Grant, Markham Foundation, OSU, 2000	\$9,432
National Network for Environmental Management Studies Fellowship, US EPA, 1999	\$30,000
Markham Research Grant, Markham Foundation, OSU, 1999	\$9,872

## **AWARDS**

Outstanding Faculty or Staff Volunteer Award, University of South Carolina, 2014  
University of South Carolina nominee for the 2014 (Governor's Award) Young Researcher Award for Excellence in Scientific Research  
McCausland Faculty Fellow, University of South Carolina, 2013-2017  
Breakthrough Rising Star, University of South Carolina, 2012 (designation reserved for promising faculty who are engaged in the kind of innovative research that will likely propel them to the top of their field)  
Excellence in Research Award, Zoology Department, University of New Hampshire, 2007  
2<sup>nd</sup> Place Best Talk Award, Graduate Research Seminar, University of New Hampshire, 2006  
2<sup>nd</sup> Place Best Poster Award, Benthic Ecology Meeting, Quebec, Canada, 2006  
Outstanding Research Award, Graduate Student Organization, University of New Hampshire, 2004

## **PUBLICATIONS**

\*\*coauthors are graduate students; \*coauthors are undergraduate students

### **Peer-reviewed:**

#### **In review**

- 70) \*\*Gül MR, Griffen BD (*In review*) Combined impacts of natural and anthropogenic disturbances on a bioindicator species. *Journal of Experimental Marine Biology and Ecology*
- 69) Griffen BD (*In review*) Predicted limits to mass gain in nonreproductive southern elephant seals, *Mirounga leonina*. *Polar Biology*
- 68) \*\*Cannizzo ZJ, \*Nix SK, \*Whaling IC, Griffen BD (*In review*) Individual morphology and habitat structure alter social interactions in a range-shifting species. *Diversity*
- 67) \*\*Cannizzo ZJ, Griffen BD (*In review*) An artificial habitat facilitates a climate-mediated range expansion into a suboptimal novel ecosystem. *PLOS One*
- 66) \*\*Cannizzo ZJ, Lang SQ, Benitez-Nelson B, Griffen BD (*In review*) An artificial habitat increases the reproductive fitness of a range-shifting species within a newly colonized ecosystem. *Marine Ecology Progress Series*
- 65) \*\*Gül MR, Griffen BD (*In review*) Impacts of human disturbance on ghost crab burrow morphology and distribution on sandy shores. *PLOS One*

#### **2018**

- 64) Griffen BD, \*\*Cannizzo ZJ, \*\*Gül MR (2018) Ecological and evolutionary implications of allometric growth in stomach size of brachyuran crabs. *PLOS One* 13(11):e0207416

Data deposited on Dryad: doi:10.5061/dryad.3gc7rj6

- 63) Griffen BD (2018) Reproductive skipping as an optimal life history strategy in the southern elephant seal, *Mirounga leonina*. *Ecology and Evolution* 8:9158-9170

Code for implementing model: doi:10.5061/dryad.1b8m917

- 62) Griffen BD (2018) The timing of energy allocation to reproduction in an important group of marine consumers. *PLOS One* 13(6):e0199043
- 61) \*\*Belgrad BA, Griffen BD (2018) Personality interacts with habitat quality to govern individual mortality and dispersal patterns. *Ecology and Evolution* 8:7216-7227
- 60) Griffen BD (2018) Proposed mechanism of action of tap water iontophoresis for treatment of hyperhidrosis. *Cogent Medicine* 5:1486783
- 59) Griffen BD, \*Sipos T (2018) A meta-analysis of the ecological and evolutionary drivers of metabolic rates in brachyuran crabs. *Marine and Freshwater Behaviour and Physiology* 51:109-123
- 58) \*\*Gül MR, Griffen BD (2018) A reliable bioindicator of anthropogenic impact on the coast of South Carolina. *Southeastern Naturalist* 17(2):357-364
- 57) \*\*Cannizzo Z, \*Dixon SR, Griffen BD (2018) An anthropogenic habitat within a suboptimal colonized ecosystem provides improved conditions for a range shifting species. *Ecology and Evolution* 8:1521-1533
- 56) Griffen BD (2018) Modeling the metabolic cost of swimming in polar bears (*Ursus maritimus*). *Polar Biology* 41:491-503

## 2017

- 55) \*\*Cannizzo Z, Griffen BD (2017) Habitat-specific impacts of Hurricane Matthew on a range-expanding species. *Hydrobiologia* 809:79-89
- 54) \*\*Hancock E, Griffen BD (2017) Energetic consequences of temperature and sequential autotomization for the stone crab, *Menippe* spp. *Marine Ecology Progress Series* 582:133-146
- 53) Griffen BD, \*\*Riley ME, \*\*Cannizzo ZJ, Feller IC (2017) Indirect effects of ecosystem engineering combine with consumer behavior to determine the spatial distribution of herbivory. *Journal of Animal Ecology* 86:1425-1433
- 52) \*\*Belgrad BA, Griffen BD (2017) Habitat quality mediates personality through differences in social context. *Oecologia* 184:431-440
- 51) \*\*Riley ME, Griffen BD (2017) Habitat-specific differences alter traditional biogeographic patterns of life history in a climate-change induced range expansion. *PLOS One* 12(5):e0176263
- 50) Griffen BD (2017) Metabolic cost of capital energy storage in a small-bodied ectotherm. *Ecology and Evolution* 7:2423-2431
- 49) \*\*Belgrad BA, \*Karan J, Griffen BD (2017) Individual personality associated with interactions between physiological condition and the environment. *Animal Behaviour* 123:277-284

## 2016

- 48) \*\*Cannizzo ZJ, Griffen BD (2016) Changes in spatial behaviour patterns by mangrove tree crabs following climate-induced range shift into novel habitat. *Animal Behavior* 121:79-86
- 47) \*\*Belgrad BA, Griffen BD (2016) Predator-prey interactions mediated by prey personality and predator hunting mode. *Proceedings of the Royal Society B* 283:20160408

- 46) \*\*Knotts ER, Griffen BD (2016) Individual movement rates are sufficient to determine and maintain dynamic spatial positioning within *Uca pugilator* herds. *Behavioral Ecology and Sociobiology* 70:639-646
- 45) Griffen BD (2016) Scaling the consequences of interactions between invaders from the individual to the population level. *Ecology and Evolution* 6:1769-1777
- 44) \*\*Belgrad BA, Griffen BD (2016) The influence of diet composition on the Fitness of the blue crab, *Callinectes sapidus*. *PLOS One* 11(1):e0145481
- 43) Griffen BD, \*\*Belgrad BA, \*\*Cannizzo ZJ, \*\*Knotts ER, \*Hancock E (2016) Rethinking our approach to multiple stressor studies in marine environments. *Marine Ecology Progress Series* 543:273-281

## 2015

- 42) Griffin JN, \*\*Toscano BJ, Griffen BD, Silliman BR (2015) Does relative abundance modify multiple predator effects? *Basic and Applied Ecology* DOI: 10.1016/j.baae.2015.05.003
- 41) Blakeslee AMH, Keogh CL, Fowler AE, Griffen BD (2015) Assessing the effects of trematode infection on invasive green crabs in eastern North America. *PLOS One* 10(6): e0128674
- 40) Griffen BD, \*\*Riley ME (2015) Potential impacts of invasive crabs on one life history strategy of native rock crabs in the Gulf of Maine. *Biological Invasions* 17:2533-2544
- 39) Griffen BD, \*Norelli AP (2015) Spatially variable habitat quality contributes to within-population variation in reproductive success. *Ecology and Evolution* 5:1474-1483  
Data deposited on Dryad: <http://dx.doi.org/10.5061/dryad.hg505>
- 38) Griffen BD, \*Vogel M, \*Goulding L, \*Hartman R (2015) Energetic effects of diet choice by invasive Asian shore crabs: implications for persistence when prey are scarce. *Marine Ecology Progress Series* 522:181-192
- 37) \*\*Belgrad BA, Griffen BD (2015) Rhizocephalan infection modifies host food consumption by reducing host activity levels. *Journal of Experimental Marine Biology and Ecology* 466:70-75

## 2014

- 36) \*\*Riley ME, \*\*Johnston CA, Feller IC, Griffen BD (2014) Mismatched rates of climate change-induced range expansion enable species to establish in novel habitat types. *Southeastern Naturalist* 13:N43-N48
- 35) \*\*Hogan JM, Griffen BD (2014) The dietary and reproductive consequences of fishery-related claw removal for the stone crab *Menippe* spp. *Journal of Shellfish Research* 33:795-804
- 34) \*\*Toscano BJ, Griffen BD (2014) Trait-mediated functional responses: predator behavioral type mediates prey consumption. *Journal of Animal Ecology* 83:1469-1477
- 33) \*\*Toscano BJ, \*Newsome WB, Griffen BD (2014) Parasite effects on predator functional response. *Oecologia* 175:345-352
- 32) \*\*Toscano BJ, \*Gato J, Griffen BD (2014) Effects of predation threat on repeatability of individual crab behavior revealed by mark recapture. *Behavioral Ecology and Sociobiology* 68:519-527
- 31) \*\*Riley ME, \*Vogel M, Griffen BD (2014) Fitness-associated consequences of an omnivorous diet for the mangrove tree crab *Aratus pisonii*. *Aquatic Biology* 20:35-43

- 30) Griffen BD (2014) Linking individual diet and fecundity in an omnivorous marine consumer. *Oecologia* 174:121-130

### 2013

- 29) Drake JM, Griffen BD (2013) Experimental demonstration of accelerated extinction in source-sink metapopulations. *Ecology and Evolution* 3:3369-3378
- 28) \*\*Toscano BJ, Griffen BD (2013) Predator size interacts with habitat structure to determine the allometric scaling of the functional response. *Oikos* 122:454-462

### 2012

- 27) \*\*Decker RA, Griffen BD (2012) Correlating context-specific boldness and physiological condition of female sand fiddler crabs (*Uca pugnator*). *Journal of Ethology* 30:403-412
- 26) Griffen BD, Altman I, \*Bess BM, \*Hurley J, \*\*Penfield A (2012) The role of foraging in the success of invasive species. *Biological Invasions*. 14:2545-2558
- 25) Griffen BD, \*\*Toscano B, \*Gatto J (2012) The role of intraspecific trait variation in mediating indirect interactions. *Ecology* 93:1935-1943
- 24) \*Repetto M, Griffen BD (2012) Physiological consequences of parasite infection in the burrowing mud shrimp *Upogebia pugettensis*, a widespread ecosystem engineer. *Marine and Freshwater Research*. 63:60-67
- 23) \*\*Toscano BJ, Griffen BD (2012) Predatory crab size diversity and bivalve consumption in oyster reefs. *Marine Ecology Progress Series*. 445:65-74

### 2011

- 22) Griffen BD, Altman I, \*Hurley J, \*Mosblack H (2011) Reduced fecundity by one invader in the presence of another: a potential mechanism leading to species replacement. *Journal of Experimental Marine Biology and Ecology* 406:6-13
- 21) Delaney DG, Griffen BD, Leung B (2011) Injury as a moderator of impacts of invasive Species. *Biological Invasions*. 13:2935-2945
- 20) Drake JM, \*Shapiro J, Griffen BD (2011) Experimental demonstration of a two-phase population extinction hazard. *Proceedings of the Royal Society Interface*. 8:1472-1479
- 19) Griffen BD, \*Mosblack H (2011) Predicting diet and consumption rate differences between and within species using gut ecomorphology. *Journal of Animal Ecology*. 80:854-863
- 18) Griffen BD (2011) Ecological impacts of replacing one invasive species with another in rocky intertidal areas. In: *In the Wrong Place: Alien Marine Crustaceans – Distribution, Biology and Impacts*. (eds.) Galil B, Clark P., Springer., p. 687-701

### 2010

- 17) Griffen BD, Spooner D, Spivak A, Kramer A, Santoro A, Kelly N (2010) Moving species redundancy towards a more predictive framework. *Limnology and Oceanography Methods, Eco-DAS VIII* 3:30-46
- 16) Drake JM, Griffen BD (2010) Early warning signals of extinction in deteriorating environments. *Nature* 467:456-459

Data deposited on Dryad: doi:10.5061/dryad.q3p64

### 2009

- 15) Griffen BD, Drake JM (2009) Environment, but not migration, influences extinction risk in experimental metapopulations. *Proceedings of Royal Society of London B* 276:4363-4371  
Featured in *Nature* 461:573 (1 October 2009)
- 14) Griffen BD (2009) Effects of a newly invasive parasite on the burrowing shrimp, a widespread ecosystem engineer. *Marine Ecology Progress Series* 391:73-83
- 13) Griffen BD (2009) Consumers that are not 'ideal' or 'free' can still approach the ideal free distribution using realistic patch-leaving rules. *Journal of Animal Ecology* 78:919-927
- 12) Drake JM, Griffen BD (2009) The speed of expansion and extinction in experimental populations. *Ecology Letters* 12:772-778
- 11) Griffen BD, Byers JE (2009) Community impacts of two invasive crabs: the roles of density, prey recruitment, and indirect effects. *Biological Invasions* 11:927-940
- 10) Griffen BD, Drake JM (2009) Scaling rules for the final approach to extinction. *Proceedings of the Royal Society of London B* 276:1361-1367

#### 2008

- 9) Griffen BD, Drake JM (2008) Effects of habitat quality and size on extinction in experimental populations. *Proceedings of the Royal Society of London B* 275:2251-2256
- 8) Griffen BD, Drake JM (2008) A review of extinction in experimental populations. *Journal of Animal Ecology* 77:1274-1287
- 7) Griffen BD, \*Williamson, T (2008) Influence of predator density on nonindependent effects of multiple predator species. *Oecologia* 155:151-159
- 6) Griffen BD, \*Guy T, \*Buck JC (2008) Inhibition between invasives: a newly introduced predator moderates the impacts of a previously established invasive predator. *Journal of Animal Ecology* 77:32-40

Featured in *Science* at: <http://sciencenow.sciencemag.org/cgi/content/full/2007/1016/1>

#### 2007

- 5) Griffen BD, Delaney DG (2007) Species invasion shifts the importance of predator dependence. *Ecology* 88:3012-3021

#### 2006

- 4) Griffen BD (2006) Detecting emergent effects of multiple predator species. *Oecologia* 148:702-709
- 3) Griffen BD, Byers JE (2006) Intraguild predation reduces redundancy of predator species in multiple predator assemblage. *Journal of Animal Ecology* 75:959-966
- 2) Griffen BD, Byers JE (2006) Partitioning mechanisms of predator interference in different habitats. *Oecologia* 146:608-614

#### 2004

- 1) Griffen BD, DeWitt TH, Langdon C (2004) Particle removal rates by the mud shrimp *Upogebia pugettensis*, its burrow, and a commensal clam: effects on estuarine phytoplankton abundance. *Marine Ecology Progress Series*. 269:223-236

#### Conference Proceedings and Technical Reports:

- 1) Griffen BD (2006) Pictorial key of invertebrates recruiting into the Great Bay, NH. Component of final report for 2005-6 cooperative project proposal to NH state sponsor: NH Estuaries Project.
- 2) Byers JE and Griffen BD (2006) Spatial Patterns of Marine Larvae as Indicators of Incipient Invasions in Great Bay, NH. Final report for 2005-2006 cooperative project proposal to NH state sponsor: NH Estuaries Project.

Available at: [http://www.nhep.unh.edu/resources/pdf/spatial\\_patterns\\_of-unh-06.pdf](http://www.nhep.unh.edu/resources/pdf/spatial_patterns_of-unh-06.pdf)

- 3) DeWitt TH, D'Andrea AF, Brown CA, Griffen BD, and Eldridge PM (2004) Impact of burrowing shrimp populations on nitrogen cycling and water quality in Western North American temperate estuaries. In: Tamaki A (ed.), Proceedings of the Symposium on Ecology of Large Bioturbators in Tidal Flats and Shallow Sublittoral Sediments –from Individual Behavior to Their Role as Ecosystem Engineers. University of Nagasaki, Japan. pp. 107-118.
- 4) Byers JE and Griffen BD (2004) Larval Monitoring in Great Bay: System Wide Monitoring Program Larval Sampling in Great Bay, NH. Final report for 2003-2004 cooperative project proposal to NH state sponsor: NH Fish and Game.

## **TEACHING EXPERIENCE**

### **Undergraduate Courses Taught:**

Ecology, Brigham Young University, 2018  
Animal Diversity, Brigham Young University, 2018  
The oceans and society, University of South Carolina, 2017  
Marine conservation biology, University of South Carolina, 2015  
Biology of marine organisms, University of South Carolina, annually 2008-15  
Behavior of marine organisms, University of South Carolina, 2011, 2013, 2016  
Invertebrate zoology, University of South Carolina, 2010, 2012, 2014  
Marine invertebrate zoology, Three Seas Program (formerly East-West Program).  
Northeastern University, 2004, 2005.  
Biological portion of undergraduate oceanography course, Oregon State University, 2001.

### **Graduate Courses Taught:**

Agent based modeling in ecology using NetLogo, University of South Carolina, 2014, 2016  
Quantitative ecology using R, University of South Carolina, 2012, 2015  
Ecological statistics using R, University of South Carolina, 2011, 2014, 2016  
Theoretical Ecology using R, University of South Carolina, 2013, 2016

### **Faculty Advisor:**

Doctoral Students: Ben Toscano (graduated 2014), Megan Riley (graduated 2015), Ben Belgrad (graduated 2017), Zachary Cannizzo, Mustafa Gul, Doreen Cabrera  
Master's Students: Rachel Decker (graduated 2011), Jessica Hogan (graduated 2013), Eilea Knotts (graduated 2016), Eric Hancock (graduated 2017), Alexis Garretson  
Research Experience for Undergraduates (REU)  
Shoals Marine Laboratorys: Tucker Williamson, Travis Guy, Julia Buck  
University of South Carolina: Travis Rusch  
Honors College Thesis Advisor: Caleb Anderson, Tori Sipos  
Graduate Committees: Madeline St Julien (USC masters), Madeleine Gillis (Coastal Carolina University masters), ZhengYu Lu (USC PhD Chemistry), Rebecca Kulp (Stony Brook University PhD), Shelby Butz (USC masters), Brian Grieve (USC masters), Alli Duffy (BYU PhD), Josh Verde (BYU PhD), Kaitlyn Golden (BYU Masters), Nathan St Andre

(BYU Masters)

**Undergrad Researchers in my lab:**

University of New Hampshire: David Niemazyk, Anna Malek

University of South Carolina: Hallie Mosblack, Michele Repetto, Garrett Holder, Stacy Cell, Joan Combs, Stephanie Kedzuff, Bree Bess, Lauren Wilkinson, Savannah Klein, Andrea Miranda, Burns Newsome, Margaret Vogel, Lacey Goulding, Dominique Maldonado, Caleb Carroll, Erin Adams, John Gatto, Nicole Hayes, Morgan VanDyke, Luke Bassett, Kaagen Robinson, Jaclyn Fisher, Allison Mason, Joshua Helgoe, Emily Townsend, Rachel Hartman, Alex Norelli, Tori Sipos, Sarah Hylton, Eric Hancock, Sara Doermann, Jessica Karan, Elizabeth Davis, Julia Charpek, River Dixon, Sierra Wachala, Kaylie Plumb, Taylor Dranginis, Christine Cobb

Brigham Young University: Jordynn Scheuller, Natalie Saxton, Danae Stephens, Kylie Perkins, Ashley Vernier, Abigail Knowles, Sara Summerhays, Sariah Pullan, Caitlin Playstead, Eleanor DiNuzzo, Jungwoo Choi, Luis Mesa, Jade Carver, Heidi Austin, Megan Pena Tenorio, Aubry Odum, Mandi Jebe, James Bailey, Iris Woo, Danika van den Akker, Matthew Rollins, Joseph Hilton, Lexanne Klimes

**Graduate Technicians:**

University of South Carolina Masters of Arts in Teaching students: Neelam Verma, Alisha Penfield, Dimitri Najim, Megan Kumbatovic, Loren Carpenter

**PRESENTATIONS**

**Invited Talks:**

Brigham Young University, Honors Program Chocolate Milk Discussion, 2018 Why are animal personalities important

Oregon Institute of Marine Biology, University of Oregon, OR 2018 Why more students should use mechanistic modeling to understand ecology

Stony Brook University, Stony Brook, NY 2018 Why more students should use mechanistic modeling to understand ecology

University of California, Santa Barbara, CA 2017 Finding patterns in responses to different types of environmental change

Northeastern University, Boston, MA 2016 Finding patterns in organismal responses to different types of environmental change

Brigham Young University, Provo, UT 2016 Shifts in life-history in response to human induced rapid environmental change

Brigham Young University, Provo, UT 2016 Connections between land and sea: the ocean is downstream from everywhere

East Carolina University, Greenville, NC 2016 The ecological role of mangrove tree crabs and their response to climate change

Brigham Young University, Provo, UT 2016 The ecological role of mangrove tree crabs and their response to climate change

Brigham Young University, Provo, UT 2015 Finding patterns in responses to different types of



environmental change

Researcher-Educator Exchange Forum, SC Sea Grant Consortium/COSEE SE, 2015 Science in Action: Night at the Museum – creating collaborations between university scientists and K-12 teachers

University of South Carolina College of Arts and Sciences Weekend at the Coast 2014 Our coasts, our future – human impacts on coastal environments

Winthrop University, SC 2014 Invasions and ecological extinctions: the roles of diet, gut size, and reproductive success

University of South Carolina College of Arts and Sciences Board of Visitors 2013 Teaching outside the classroom: the importance of undergraduate research

Smithsonian Marine Station, Fort Pierce, FL 2013 The roles of gut morphology and reproductive physiology in invasive species replacement

Explorer Club, Columbia, SC 2012 Species invasions and extinction – mechanistically understanding the link

University of South Carolina new student convocation 2012 The importance of out-of-classroom experiences in developing who we are to become

Sierra Club, USC Green Quad, Columbia, SC 2012 Species invasions and extinction – mechanistically understanding the link

Science Café, EngenuitySC, Columbia, SC 2012 Species invasions and extinctions – mechanistically understanding the link

College of Charleston/Fort Johnson Marine Lab 2011 The role of behavior in species invasion

University of South Carolina, Aiken 2010 The role of behavior in species invasion.

Georgia Southern University 2009 From individual behavior to population patterns: understanding invasions from the bottom up.

Oregon State University, Hatfield Marine Science Center 2009 From individual behavior to population patterns: understanding invasions from the bottom up.

York County, Maine Community College 2009 The role of behavior in creating patterns within marine systems.

Penn State Abington, Biology Dept. 2008 Population regulation: the importance of individual behavior.

University of South Carolina, Dept. of Biological Sciences and Marine Science Program 2008 From individual behavior to population patterns: understanding invasions from the bottom up.

University of Georgia, Odum School of Ecology 2008 From individual processes to population patterns: understanding invasions from the bottom up.

Ecological Society of America 2007 Organized Oral Session (The behavior of invasions: is there a path from mechanism to prediction?) Talk: Behavioral differences underlie different community impacts of two similar marine invaders.

Northeastern University 2003. East-West Science in the Summer seminar series. Talk: Multiple Predator Effects and Substitutability between *Carcinus maenas* and *Hemigrapsus sanguineus*.

University of New Hampshire 2002. Feeding rates of the mud shrimp *Upogebia pugettensis* and implications for estuarine phytoplankton abundance.

**Conference Presentations:**

Polar bear energetics when the benthos gets pulled out from under them. Benthic Ecology Meeting, Corpus Christi TX 2018

Burrowing behavior and energy requirements of ghost crabs, *Ocypode quadrata*, under anthropogenic pressure. Benthic Ecology Meeting, Corpus Christi TX 2018

Man-made docks provide a better reproductive habitat than the surrounding marsh for range-expanding mangrove tree crabs. Benthic Ecology Meeting, Coprus Cristi, TX 2018

Personality interacts with habitat quality to govern individual mortality and migration patterns. Benthic Ecology Meeting, Myrtle Beach, SC 2017

An anthropogenic habitat provides a refuge for the range shifting mangrove tree crab within a suboptimal novel ecosystem. Benthic Ecology Meeting, Myrtle Beach, SC 2017

An ecological indicator, *Ocypode quadrata*, of natural and anthropogenic impacts on sandy beaches. Benthic Ecology Meeting, Myrtle Beach, SC 2017

An exploration of changing diet and behavior in the range-shifting mangrove tree crab (*Aratus pisonii*) between its historic and novel habitats. Benthic Ecology Meeting, Portland, ME 2016

Predator-prey interactions mediated by prey personality and predator identity. Benthic Ecology Meeting, Portland, ME 2016

Individual movement rates are sufficient to determine and maintain dynamic spatial positioning within *Uca pugilator* herds. Benthic Ecology Meeting, Portland, ME 2016

What controls the distribution of herbivory in Belize mangrove forests? Benthic Ecology Meeting, Portland, ME 2016

The influence of dietary shifts on fitness as examined through the commercially harvested blue crab, *Callinectes sapidus*, Benthic Ecology Meeting, Quebec, CA 2015

Trematode infection does little to hinder invasive green crabs in eastern North America. Benthic Ecology Meeting, Quebec, CA 2015

Parasite modification of predator functional response. Evolution, Raleigh, NC 2014

Prey behavioral types and susceptibility to predation. Benthic Ecology Meeting, Jacksonville, FL 2014

Secondary effects of invasive parasitic rhizocephalans on mud crabs *Eurypaneopus depressus*, Benthic Ecology Meeting, Jacksonville, FL 2014

Living on the edge: Alternative life history strategy associated with the climate-induced

- range expansion of a mangrove crab, Benthic Ecology Meeting, Jacksonville, FL 2014
- Connecting individual diet variation and fecundity. Benthic Ecology Meeting, Savannah, GA, March 2013
- Exploring the effects of trematode infection on the behavior and physiology of the global invasive green crab, *Carcinus maenas*. Benthic Ecology Meeting, Savannah, GA, March 2013
- Enemy release and immune defense trade-offs in the invasive shore crab, *Carcinus maenas*, in the northwestern Atlantic. Benthic Ecology Meeting, Savannah, GA, March 2013
- Trait-mediated functional responses: consumer personality and fear mediate prey consumption. Benthic Ecology Meeting, Savannah, GA, March 2013
- You are what you eat: Effect of diet on physiological and reproductive condition in the mangrove tree crab *Aratus pisonii*. Benthic Ecology Meeting, Savannah, GA, March 2013
- Ecological effects of resource polymorphism in a salt march crab predator. Benthic Ecology Meeting, Savannah, GA, March 2013
- Implications of fishery-related claw loss for the Florida stone crab. Benthic Ecology Meeting, Savannah, GA, March 2013
- You are what you eat: Effect of diet on physiological and reproductive condition in the mangrove tree crab *Aratus pisonii*. Society for Integrative & Comparative Biology, San Francisco, CA, January 2013
- Unsuccessful response of an invasive species to environmental change. Benthic Ecology Meeting, Norfolk, VA, March 2012
- Foraging in a tight spot: the crab functional response in oyster reefs. Poster. Benthic Ecology Meeting, Norfolk, VA, March 2012
- Understanding and predicting the impacts of different consumers. Benthic Ecology Meeting, Mobile, AL, March 2011
- Correlating behavior and physiological condition of sand fiddler crabs. Benthic Ecology Meeting, Mobile, AL, March 2011
- A new hypothesized mechanism for species replacement of one invasive crab by another: behavior effects, not predation. Poster. Benthic Ecology Meeting, Wilmington, NC, March 2010
- Mechanisms responsible for location-specific change in species dominance with species invasion. Ecological Society of America annual meeting, Pittsburg, PA, August 2010
- Early warning signals of extinction in deteriorating environments. Ecological Society of America. Drake JM and Griffen BD, Pittsburg, PA, August 2010
- A new hypothesize mechanism for species replacement of on invasive crab by another: behavior effects, not predation. Benthic Ecology Meeting. Wilmington, NC, March 2010
- Extinction in experimental populations: effects of habitat quality, size, and metapopulation configuration. Ecological Society of America. Drake JM and Griffen BD, Milwaukee, WI, August 2008
- Redundancy within communities: a case study using two invasive predators. Eco-DAS Symposium. Honolulu, HI, October 10-17, 2008

What controls the distribution of invasive European Green crabs. Benthic Ecology Meeting. Providence, RI, April 2008

Consequences of replacing one invasive crab with another on New England shores. Benthic Ecology Meeting, Atlanta, Georgia, March 2007.

Could the introduced predator *Hemigrapsus sanguineus* actually increase survival of mussel prey? Graduate Student Research Seminar, University of New Hampshire, Durham, NH, April 2006.

Awarded 2<sup>nd</sup> place for best talk

Interactions between foraging *Carcinus maenas* and *Hemigrapsus sanguineus*. Research Experience for Undergraduates (REU) orientation seminar, Isle of Shoals, June 2006

Could the introduced predator *Hemigrapsus sanguineus* actually increase survival of mussel prey? Benthic Ecology Meeting, Quebec, Canada, March 2006.

European green crab (*Carcinus maenas*) eats less and changes its diet in the presence of the Asian shore crab (*Hemigrapsus sanguineus*). Benthic Ecology Meeting, Quebec, Canada, March 2006.

Awarded 2<sup>nd</sup> place for best poster

Detecting patterns in nonadditive effects of multiple predators. Benthic Ecology Meeting, Williamsburg, Virginia, April 2005

Does trophic structure influence the importance of predator species richness? Graduate Student Research Seminar, University of New Hampshire, Durham, New Hampshire, April 2004.

Awarded outstanding research award

Substitutable effects of *Carcinus maenas* and *Hemigrapsus sanguineus* foraging on amphipod prey. Benthic Ecology Meeting, Mobile, Alabama, March 2004.

Interference between two invasive predatory crabs. Research Experience for Undergraduates (REU) orientation seminar, Isle of Shoals, June 2004.

Feeding rates of the mud shrimp *Upogebia pugettensis* and implications for estuarine phytoplankton abundance. Aquatic Sciences Meeting of the American Society of Limnology and Oceanography, Albuquerque, New Mexico, February 2001.

Interactions between burrowing shrimp and commercially grown oysters: competition for food. Research Awards Symposium, Hatfield Marine Science Center, Newport, OR, May 2000.

### **Symposiums and Workshops**

Research needs for the sustainable management of crustacean resources in the South Atlantic bight, Marine Resources Research Institute, Charleston, SC, April 9-10, 2014

Organized a Science in Action Night at the Museum (in collaboration with COSEE) to bring together University of South Carolina scientists and K-12 teachers from around South Carolina to establish collaborations and improve the broader impacts of environmental researchers at USC, Feb. 16, 2012

Research Educator Exchange Forum (REEF), held by the Centers for Ocean Sciences Education Excellence (COSEE) southeast division, Columbia, SC, July 20-22, 2011

Oil Spill-Induced Trophic Cascades in the Gulf: Exploring Impacts, Research Needs and Management Responses, Mote Marine Laboratory, Sarasota, FL, Nov. 8-9, 2010 (invited)

participant)

## **PROFESSIONAL SERVICE**

Associate Editor, *Journal of Animal Ecology*, May 2014 – present

Academic Editor, *PLOS One*, Sept 2018 – present

Head of Integrative Biology group of Department of Biological Sciences, University of South Carolina, 2014 – 2017.

**Peer reviewer for** (total number of manuscripts/grant proposals/textbooks reviewed: 306)

*American Naturalist*

*Animal Behaviour*

*Aquatic Invasions*

*Austral Ecology*

*Basic and Applied Ecology*

*Behavioral Ecology*

*Behavioural Processes*

*Biological Invasions*

*Biology Letters*

*Biotropica*

*BMC Ecology*

*Canadian Journal of Zoology*

*Canadian Journal of Fisheries and Aquatic Sciences*

*Conservation Biology*

*Diversity and Distributions*

*Ecological Applications*

*Ecological Monographs*

*Ecology*

*Ecology Letters*

*Ecosphere*

*Environmental Conservation*

*Environmental Research*

*Estuaries and Coasts*

*Estuaries, Coasts, and Shelf Science*

*Ethology*

*F1000-Faculty-Reviews*

*German Research Foundation*

*Graduate Women in Science*

*Hydrobiologia*

*Journal of Animal Ecology*

*Journal of Crustacean Biology*

*Journal of Experimental Biology*

*Journal of Experimental Marine Biology and Ecology*

*Journal of Fish Biology*

*Journal of Mammalogy*

*Journal of Marine Science and*

*Engineering*

*Journal of Parasitology*

*Journal of Sea Research*

*ICES Journal of Marine Science*

*International Journal of Fisheries and Aquaculture*

*Marine Biology*

*Marine Biology Research*

*Marine and Freshwater Behaviour and Physiology*

*Marine Ecology Progress Series*

*Maryland National Sea Grant Program*

*National Estuarine Research Reserves – Narragansett Bay*

*National Oceanic and Atmospheric Administration*

*National Science Foundation*

*Nature Communications*

*Nature Ecology and Evolution*

*North Pacific Research Board*

*Northeastern Naturalist*

*Oecologia*

*Oikos*

*Oxford University Press*

*Philippine Journal of Science*

*PLOS One*

*Proceedings of the Royal Society B*

*Science Reports*

*The Science in Society Review*

*Theoretical Ecology*

*Transactions of the American Fisheries Society*

*US-Israeli Binational Science Foundation*

### **Proposal review pannels**

2016 NSF GRFP panel

2015 Maryland Sea Grant panel

2013 NSF Population and Community Ecology pre-proposal panel  
2013 NSF Population and Community Ecology DDIG panel  
2010 NSF Population and Community Ecology DDIG panel

**Department committees**

Brigham Young University

Department

Marine Biology Club Adviser – 2017-current  
Assessment Committee – 2017-current  
Scholarship and Awards Committee – 2018-current

College

Reviewer for Graduate Mentoring Awards – 2017, 2018

University of South Carolina

Marine Science Program

Undergraduate Studies – 2016-current  
Chair Undergraduate Studies – 2014-2016  
Education outreach coordinator – 2012-current  
Vernberg awards selection committee – 2015  
SEAS Faculty Adviser – 2014  
Graduate Committee – 2013  
T&P Revision Committee – 2012  
Undergraduate Studies – 2008-2013  
Future Hires – 2008-2013  
Library Liaison – 2010-2011  
Biological Oceanographer Search Committee – 2011  
Tenure and Promotion subcommittee – 2011  
Graduate Studies – 2009-2010

Biology Department

Future hires committee – 2014-current  
Graduate Studies committee – 2012-current  
Graduate Curriculum – 2009-current  
Faculty & Staff Awards committee – 2015  
Comparative physiologist search committee – 2013  
BIOL101/102 Faculty search committee – 2012  
Seminar committee – 2010  
Undergraduate Scholarship committee – 2010-2014  
Qualifying Exam committee – 2009-10  
Stockroom committee – 2010

School of Earth, Ocean, and the Environment

T&P criteria committee – 2015-current  
Baruch Director Search Committee Chair 2016  
Graduate Studies – 2009-2010

College of Arts and Sciences Service

McCausland Faculty Fellows Selection Committee 2017

Other University Service

Graduate Council, USC Graduate School 2016-2018  
Head of Integrative Biology division of Department of Biological Sciences – 2014 –  
current  
Vernberg Award Review Committee 2015  
Mentor in USC freshman Mentor Program – 2012-2013

**K-12 presentations:** My science presentations have reached over 4,745 students

Presentation Locations and grades presented to (I have presented at several of these multiple times):

SC Governor's School for Science and Mathematics (Hartsville, SC); Grades: 7-10  
Muller Road Middle School (Blythwood, SC); Grades: 6<sup>th</sup>  
H E Corley Elementary School (Irmo, SC); Grades: 4<sup>th</sup>  
Chapin Middle School (Chapin, SC); Grades: 6<sup>th</sup>, 7<sup>th</sup>  
Long Leaf Middle School (Columbia, SC); Grades: 7<sup>th</sup>  
Ballentine Elementary; Grades: K, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>  
Dutch Fork Elementary (Irmo, SC); Grades: K  
Cherryvale Elementary (Sumter, SC); Grades: K, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>  
Summit Parkway Middle School (Columbia, SC); Grades: 7<sup>th</sup>  
Bridge Creek Elementary (Elgin, SC); Grades: 4<sup>th</sup>  
Caughman Road Elementary (Columbia, SC); Grades: 5<sup>th</sup>  
Dutch Fork Middle School (Irmo, SC); Grades: 7<sup>th</sup>  
Crossroads Middle School (Irmo, SC); Grades: 6<sup>th</sup>  
Maplewood Elementary (Somersworth, NH); Grades: K  
Hilltop Elementary (Somersworth, NH); Grades: 1<sup>st</sup>

Number of school classes presented to by year (some of these were group presentations with up to 6 classes at a time)

2017: 24  
2016: 18  
2015: 17  
2014: 32  
2013: 41  
2012: 25  
2011: 18  
2010: 4  
2009: 12  
2008: 1  
2005: 2  
2004: 2

**K-12 lesson plans developed:**

Animal adaptations for different habitats, 3<sup>rd</sup> grade. Developed in collaboration in Kendall Donald, 3<sup>rd</sup> grade teacher at Ballentine Elementary, Ballentine, SC, 2013  
Terrestrial and Aquatic Ecosystems, 5<sup>th</sup> grade. Developed in collaboration with Paulette Moses, 5<sup>th</sup> grade teacher at Ballentine Elementary, Ballentine, SC 2013  
Animal communication, 10<sup>th</sup> grade. Developed in collaboration with Neelam Verma, Masters of Arts in Teaching student at USC, 2012  
South Carolina Beachcombers Guide, 7<sup>th</sup>-9<sup>th</sup> grade, Developed in collaboration with SC DNR for use with their published beach guide, 2012  
Invasive species, 7<sup>th</sup> grade. Developed in collaboration with Alicia Penfield, Masters of Arts in Teaching student at USC, 2011  
Jellyfish and its Effect on the Food Web, 10<sup>th</sup>-12<sup>th</sup> grade. Developed in collaboration with Sophia

Waheed, Masters of Arts in Teaching student at USC, 2013

**Other K-12 education outreach:**

Dutch Fork High School STEM program research mentor, 2016 (Student: Sarah Thomas)

Job shadow host for Lexington High School, 2015

Job shadow host for White Knoll High School student, 2015

Instructor for fieldtrip to conduct marsh monitoring as part of the University of South Carolina Alumni Weekend at the Coast, 2014

Marine Biology and Marine Conservation Biology summer youth camps at SC Governor's School for Science and Mathematics. Taught 3 or 4 separate one-week courses (Hartsville, SC) each year in 2012-2016

Fieldtrip to coast to run a scientific experiment with 5<sup>th</sup> grade class from Caughman Road Elementary School (Columbia, SC) 2012

"Interview a scientist" – Ballentine Elementary 3<sup>rd</sup> Grade (Ballentine, SC) 2012

Assisted group of 7<sup>th</sup> and 8<sup>th</sup> Graders in conducting several experiments that examined issues in environmental science (Irmo and Chapin, SC) 2010

Richland Northeast High School Horizon Magnet Program science expert (Columbia, SC) 2010 (Student: Courtney Cooper-Lewter)