

Curriculum Vitae

Stephen A. Borgianini, Ph. D.

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Education

Ph.D. University of South Carolina

Department of Biological Sciences, Ecology and Evolutionary Biology, 2008

M.S. Rutgers University

Department of Biology, 1984

B.S. Stockton University

Marine Sciences Department, 1978

Professional Experience (Academic)

2016 – 2020: Chair, Department of Natural Sciences

In addition to my responsibilities as an Associate Professor in the Department of Natural Sciences I am serving as Department Chair. My responsibilities as Chair include scheduling of course offerings, new course development, recruiting and hiring of faculty to support the goals of the Department, planning for future growth, budget oversight, and personnel issues.

2014 – Present: Associate Professor, Ecology and Evolutionary Biology

As a tenured member of the Biology faculty I am responsible for lecture and laboratory course development and instruction for introductory Biology, sophomore level Ecology and Evolution, and upper level Marine Biology, Marine Ecology and Conservation Biology courses (detailed course list available on request). I have also developed a very active research program that focuses on involving undergraduates in baseline research. In our research lab we are examining the ecological and evolutionary effects of limitations to dispersal in marine organisms.

2009 – 2014: Assistant Professor, Ecology and Evolutionary Biology

As a tenure tract member of the Biology faculty, I am responsible for lecture and laboratory course development and instruction for introductory Biology, Environmental Biology, Oceanography, Ecology and Evolution, Marine Ecology and Conservation Biology courses (detailed course list available on request). I have also developed a very active research program that focuses on involving undergraduates in baseline research. In our research lab we are examining the ecological and evolutionary effects of limitations to dispersal in marine organisms.

2006 – 2009: Instructor of Biology, University of South Carolina Beaufort

As non-tenure tract member of the Biology faculty I was responsible for both lecture and laboratory course development and instruction for introductory Biology, Environmental Biology, Oceanography, Ecology and Evolution and Marine Ecology courses (detailed course list available on request).

2002 – 2006: Adjunct Instructor, University of South Carolina Beaufort

Responsible for both lecture and laboratory course development and instruction for introductory Oceanography, Coastal Ecology, Environmental Biology, and Ecology and Evolution courses (detailed course list available on request).

Professional Experience (Non-academic)

2005 - 2017 Of counsel, Terra Nova Environmental Services, LLC, Cranbury, NJ
 1995 - 2005 President, Terra Nova Environmental Sciences, Inc. Hilton Head Island, SC
 1990 - 2002 Founding Partner, Terra Nova Associates, Environmental Consultants, Cranbury, NJ

Job Duties:

1. Founder and President of Terra Nova Associates and Terra Nova Environmental Sciences
 2. Management of a multi-disciplined environmental and ecological consulting firm.
 3. Provide professional environmental consulting services for environmental assessments, site investigations, wetland delineations, and biological/ecological risk assessments.
 4. Plan and conduct short-term and long-term environmental impact/environmental risk assessment studies.
 5. Assisted in the development of the "National Groundwater Management Policy of the Ministry of the Environment, Republic of Slovakia". Prepared as a consultant to United States Agency for International Development's (USAID) Environmental Training Project for Eastern Europe.
- 1987 - 1990 Assistant Director, Division of Hazardous Waste Management
 New Jersey Department of Environmental Protection (NJDEP)

Job Duties:

1. Responsible for oversight and supervision of the Planning Element of the Hazardous Waste Program which includes two bureaus containing 80 personnel.
2. Responsible for strategic planning, program consistency, program oversight, fiscal planning remedial project tracking, and policy and strategy development.
3. Responsible for development of legislative coordination, preparation of Legislature and Congressional testimony, development and review of draft legislation and regulations coordination with other State and Federal agencies.
4. Responsible for the environmental site assessment and site risk prioritization program.
5. Responsible for information systems development, hardware and software procurement, and maintenance.
6. Responsible for administration of the State's hazardous waste manifest tracking program.

1979 - 1987 Various Management, and Scientific Support Positions
New Jersey Department of Environmental Protection and New Jersey
Department of Health Environmental Chemistry Laboratories

Job Duties:

1. Supervision of field sampling units and field audit units (80 employees) for the State's Superfund/Site Remediation Program.
2. Supervision of the Superfund (CERCLA) environmental assessment program, preliminary assessment program, hazards ranking program, Resource Conservation and Recovery Act (RCRA) Facility Assessment program, and Natural Resource Damage Assessment program.
3. Development of site assessment, investigation and remediation polices and strategies for the hazardous waste remediation program, underground storage tank program, and environmental enforcement programs.
4. Served concurrently as case manager and technical coordinator on State-lead Superfund and State Spill Fund sites.
5. Review of technical studies produced at Superfund and Spill Fund sites.
6. Development of field sampling procedures and protocol, sampling device design and development.
7. Analysis of environmental samples (air, water, wastewater, soils, hazardous wastes) for suspected pollutants by GC/MS and GC/FID/PID/ECD.

Selected Professional Publications

1994 **Borgianini, SA.** NPDES Holding times; effects on groundwater sample collection. Environmental Testing and Analysis 3 (2);28-30.

- 1989 **Borgianini, SA**, Grayson, LS. Environmental Insurance as a Tool to Achieve Compliance with Environmental Regulation. *Proceedings: Summer National Meeting, AICHE*. Philadelphia, PA. August 21, 1989.
- 1989 **Borgianini, SA**, Grayson, LS, Sovinee, BA. Advantages of Automation for Regulatory Enforcement. *Proceedings: Information Technology and Environmental Issues*. Princeton, NJ. June 1, 1989.
- 1988 Grayson, LS, **Borgianini, SA**. Witt, A. Remedial Process Matrix as it Relates to the NJDEP's Integrated Case Management Strategy. *Proceedings: Superfund 1988 Conference*. Washington, DC. November, 1988.
- 1988 Tonelli, JM, Grayson, LS, **Borgianini, SA**. An Analysis of Spatial Distribution of Contaminants at an Uncontrolled Hazardous Waste Site. *Proceedings: 61st Annual Conference of the Water Pollution Control Federation*. Dallas, TX. October 2-6, 1988.
- 1987 Lowry, WF, **Borgianini, SA**, Andreas, CM. A Field Audit Program to Ensure the Quality of Environmental Measurements, *Proceedings: Third Annual Solid Waste Testing and Quality Assurance Symposium*. Washington, DC. July, 1987.
- 1987 Grayson, LS, **Borgianini, SA**, Andreas, CM, Elmendorf, CE. Remedial Investigation Guidance Strategy, *Proceedings: Third Annual Solid Waste Testing and Quality Assurance Symposium*. Washington, DC. July, 1987.
- 1987 Grayson, LS, Andreas, CM, **Borgianini, SA**. A Proposal for Certification of Environmental Measurements Professionals, *Proceedings: Fifth Annual Hazardous Materials Management Conference*. Atlantic City, NJ. June, 1987.
- 1987 Andreas, CM, Grayson, LS, **Borgianini, SA**. A Pre-Remedial Investigation Study as an Alternative Approach in the Site Remediation Process, *Proceedings: Third Annual Solid Waste Testing and Quality Assurance Symposium*. Washington, DC. July, 1987.
- 1987 Andreas, CM, Frasco, BF, Grayson, LS, **Borgianini, SA**. Accountability: Quality Control in Data Acquisition by Government Agencies, *Proceedings: Fifth Annual Hazardous Materials Management Conference*. Atlantic City, NJ. June, 1987.
- 1986 **Borgianini, SA**, Zachowski, M. Field Decontamination Requirements to Assure the Quality of Environmental Measurements. *Proceedings: Fourth Annual Hazardous Materials Management Conference*. Atlantic City, NJ. June, 1986.
- 1984 Zachowski, M, **Borgianini, SA**. Problem and Pitfalls Associated with Trace Organic Air Emission Monitoring at Suspected Hazardous Waste Sites. *Proceedings: Fourth Annual National Symposium on Recent Advances in Measurement of Pollutants in Ambient Air and Stationary Sources*. Raleigh, NC. May 8-11, 1984.

- 1983 **Borgianini, SA.** NJDEP, Division of Hazards Management, Disposal Technology Review Series I. "Anthropogenically Enhanced Biodegradation of Hazardous Substance: An Overview of the Technology and Its Application".
- 1983 Buttich, J, **Borgianini, SA.** Disposal of Shock Sensitive Chemical Explosives. *Proceedings: Management of Uncontrolled Hazardous Waste Sites 1985.* Washington, DC. November, 1985.

Academic Publications

- 2020 *The Natural History of the Crustacea, Evolution and Biogeography of the Crustacea*, Volume 8, Chapter 6. Ed. Thiel. M, Poore, G.
- 2020 Cole, CA, Fahim, Gusmaroli, G, **Borgianini, SA.** De Novo Assembly of *Uca minax* Transcriptome from Next Generation Sequencing. Preprint arXiv ..., 2020 - arxiv.org
- 2019 Monczak A, Mueller C, Miller ME, Ji Y, **Borgianini SA**, Montie EW. 2019. Sound patterns of snapping shrimp, fish, and dolphins in an estuarine soundscape of the southeastern USA. *Mar Ecol Prog Ser* 609:49-68. <https://doi.org/10.3354/meps12813>
- 2018 Staton, J. Canada, B, **Borgianini, S.** Book Chapter (in press): Natural History of Crustaceans, Chapter 10, Biodiversity of Crustaceans in Neritic and Estuarine Waters. Oxford University Press.
- 2017 Brodie, RB, Roberts, J. Espinosa, K. Heilman, S, **Borgianini, S.** Welch, J, Reinsel, K. 2017. Seasonal and latitudinal variations in the energy reserves of the mud fiddler crab *Uca pugnax*: implications for the response to climate change. *Aquatic Biology* 26:113-123.
- 2016 **Borgianini, SA**, Gentzler, RE, Nardi, P, Lewis. R. Using Geographic Information Systems and Large Historical Data Bases to Protect Public Health and the Environment. *European Scientific Journal*, June 2016. Special Edition. ISSN: 1857 – 7881.
- 2015 Omar, H, Cole, CA, Fahim, A, Gusmaroli, G, **Borgianini, S**, & Valafar, H. De novo assembly of *Uca minax* transcriptome from next generation sequencing. Paper presented at the 59-66. Retrieved from <https://search.proquest.com/docview/1705667203?accountid=29000>
- 2014 Styles, R, **Borgianini, SA**, Brodie, RJ. Jurissa, J. Application of a Particle Transport Model in the Vicinity of a Riverine Tidal Boundary. *J. of Coastal Sciences* 7:1-10.
- 2014 Staton, JL, **Borgianini, SA**, Gibson, IB, Brodie, RJ, Greig, TW. Limited gene flow in *Uca minax* (LeConte 1855) along a tidally influenced river system. *Cent. Eur. J. Biol.* 9: 28-36.

- 2012 **Borgianini, SA**, Styles, R, Brodie, RJ. 2011. Simple model of megalopal transport in narrow river-dominated estuaries. *Marine Ecology Progress Series* 452:179-191.
- 2007 Brodie, RJ, Styles, R, Borgianini, SA, Godley, J, Butler, K. Larval mortality during export to the sea in the fiddler crab *Uca minax* (Le Conte, 1855). *Marine Biology*. 152: 1283-1291.

Posters and Abstracts

- 2014 Hearn, VR, Presnar, LA, Staton, JL, Borgianini, SA, D'Antonio, EL, *Amphitrite ornata* erythrocyruorin functions with substantial dehaloperoxidase activity. Presented at the American Chemical Society Southeastern Regional Meeting, Nashville, Tennessee. October 16-19, 2014.
- 2014 Player, RA, **Borgianini, SA**, Staton, JS, Osmotic partitioning in the pickleweed, *Salicornia virginica*. Presented at Spring Meeting of the Southeastern Estuarine Research Society, Jacksonville, FL. February 13-15, 2014.
- 2014 Prakriti, K, Shrestha, S, Zhu, N, Roberts, B, **Borgianini, SA**, Brodie, RJ. Salinity impacts time to metamorphosis in megalopae of the fiddler crab *Uca minax*. Presented at the 43rd Annual Benthic Ecology Meeting, Jacksonville, FL, March 19-22, 2014.
- 2013 Gusmaroli, G, **Borgianini, SA**. Identification of osmoregulatory ion transporters from gills of the Caribbean spiny lobster *Panulirus argus* using degenerated oligonucleotides designed on evolutionary conserved protein domains. Presented at the Southeastern Estuarine Research Society Annual Meeting, Charleston, SC. April 17-19, April, 2013.
- 2013 Hedley, Z, Palmieri, A, Welch, G, Pawelek, KA, **Borgianini, SA**. A model to predict the effects of freshwater runoff on estuarine pelagic primary production. Presented at the Southeastern Estuarine Research Society Annual Meeting, Charleston, SC. April 17-19, April, 2013.
- 2013 Conner, BA, **Borgianini, SA**. Temporal, Seasonal and spatial variation in the zooplankton community in a high salinity estuary. Presented at the 42nd Annual Benthic Ecology Meeting, Savannah, GA, March 20-24, 2013.
- 2013 Brown, M, Hughes, H, Bury, C, **Borgianini, SA**. Effects of an invasive alga on local mudflat community structure. Presented at the 42nd Annual Benthic Ecology Meeting, Savannah, GA, March 20-24, 2013.
- 2013 Miller, PM, **Borgianini, SA**. Prevalence and lack of host specificity of a parasitic isopod in intertidal Ccabs. Presented at the 42nd Annual Benthic Ecology Meeting, Savannah, GA, March 20-24, 2013.

- 2013 Gusmaroli G, **Borgianini, SA**. Transcriptome sequencing and annotation for the quantitative expression analyses of osmoregulatory genes in the oligohaline crab *Uca minax*. Presented at the 42nd Annual Benthic Ecology Meeting, Savannah GA, March 20-24, 2013.
- 2012 Staton, JL, **Borgianini, SA**, Gibson, IB, Brodie, RJ. Limited gene flow in *Uca minax* (LeConte 1855) along a linear estuary. Meeting of the Southeastern Estuarine Research Society, Jacksonville, FL. October 19-21, 2012.
- 2012 Evans, DM, **Borgianini, SA**. Abiotic and biotic forcings control plant zonation in the salt marsh. Meeting of the Southeastern Estuarine Research Society, Jacksonville, FL. October 19-21, 2012.
- 2012 Gusmaroli, G, **Borgianini, SA**. Identification of putative osmoregulatory genes in the oligohaline crab *Uca minax*. Benthic Ecology 2012 Annual Meeting, Old Dominion University, Norfolk, VA. March 21-24, 2012.
- 2012 Barra, CO, Metz, KL, Patel, KJ, **Borgianini, SA**, Gusmaroli, G. Isolation of putative osmoregulatory genes in an oligohaline crab. South Carolina Academy of Science 2012 Annual Meeting, Aiken, SC April 13-14, 2012.
- 2009 Sutton, MC, **Borgianini, SA**, Flenniken, MM, Brodie, RJ. Getting into hot water: Increasing water temperature may limit the distribution of fiddler crabs within an estuary. University of South Carolina Beaufort Student Faculty Research Day. Bluffton, SC. April 27, 2009.
- 2008 **Borgianini, SA**, Sproul, G, Flenniken, MM, Sutton, MC, Brodie, RJ. Behavioral, developmental, and physiological constraints on the distribution of fiddler crabs (*Uca minax*, Leconte, 1855) within a river-dominated estuary. SICB 2008 Meeting, San Antonio, TX, Jan. 2-6, 2008.
- 2008 Brodie, RJ, Styles, R, **Borgianini, SA**, Godley, J, Butler, K. Larval mortality during export to the sea in the fiddler crab *Uca minax* (Le Conte, 1855). 8th Larval Biology Symposium. Instituto Nacional de Recursos Biológicos, Lisbon, Portugal. July 6–11, 2008.
- 2007 **Borgianini, SA**, Sutton, MC, Flenniken, MM, Brodie, RJ. Behavioral, developmental, and physiological constraints on the distribution of fiddler crabs (*Uca minax*, LeConte, 1855) within a river-dominated estuary. Southeastern Population Ecology and Evolutionary Genetics Conference. 2007 Meeting, Great Smokey Mountains Institute, Tremont, TN. Sept. 21- 23, 2007.
- 2007 **Borgianini, SA**, Staton, JL, Brodie, RJ. Genetic variation along a tidally influenced freshwater river system. Southeastern Population Ecology and Evolutionary Genetics Conference. 2007 Meeting, Great Smokey Mountains Institute, Tremont, TN. Sept. 21- 23, 2007.

- 2007 **Borgianini, SA**, Staton, JL, Brodie, RJ. Haplotype distribution in a tidally influenced freshwater river system. **Benthic Ecology 2007 Annual Meeting**, Georgia Institute of Technology, Atlanta, GA. Mar. 21-24, 2007.
- 2007 **Borgianini, SA**, Mraz, J, Bier, R, Brodie, RJ, Staton, JL, Sproul, GD. Are there cost of living differences on a single river? **Benthic Ecology 2007. Annual Meeting**, Georgia Institute of Technology, Atlanta, GA. Mar. 21-24, 2007.
- 2006 **Borgianini, SA**, Jurisa, J, Styles, R, Brodie, RJ. A model describing the dispersal capabilities of the Red-jointed fiddler crab (*Uca minax* LeConte) postlarvae in a river-dominated estuary. **Society for Integrative and Comparative Biology, 2006 Annual Meeting**, Orlando, FL. Jan. 4-7, 2006.
- 2006 Jurisa, J, Styles, R, Brodie, RJ, **Borgianini, SA**. Discharge, tidal propagation, and currents near an upriver tidal boundary. *EOS Trans. AGU*, 87(36), Ocean Sci. Meet. Suppl., Abstract# OS35J-18.

Oral Presentations

- 2016 (Invited) When the Water is Not So Wide (apologies to Pat Conroy): Effects of Stormwater Runoff on the Headwaters of a High Salinity Estuary. Presented to the Stormwater Utility of Beaufort County.
- 2016 (Invited) Ecological Effects of Sea Level Rise. South Carolina Aquarium, Sea Level Rise Conference, Hilton Head Island, SC
- 2016 (Invited) Salt Marshes of Beaufort County. Hilton Head-Bluffton Rotary.
- 2012 **Borgianini, SA**, Staton JL, Gibson IB, Brodie RJ, Greig TW. Limited gene flow in *Uca minax* (LeConte 1855) along a linear estuary. Presented at: The Crustacean Society Summer Meeting. Athens, Greece. June 3-7, 2012.
- 2008 **Borgianini, SA**, Sproul, G, Flenniken, MM, Sutton, MC, Brodie, RJ. Cost of living differences among fiddler crab populations along a tidal river. **Society for Integrative and Comparative Biology 2008 Meeting**, San Antonio, TX, Jan. 2-6, 2008.
- 2007 **Borgianini, SA**, Brodie, RJ, Styles, R. Limitations on the dispersal of *Uca minax* (LeConte, 1855) in a river-dominated estuary. Presented at: **Benthic Ecology 2007. Annual Meeting**, Georgia Institute of Technology, Atlanta, GA – Mar. 21-24, 2007.

Invited Seminars, Workshops, and Symposia

- 2014 **Borgianini, SA**. The effects of historical coastal geomorphology on the ecology of Sea Islands. USCB Center for Event Management & Hospitality Island Ambassador Seminar Series.

- 2013 **Borgianini, SA.** Cost of living differences on a single river? University of South Carolina Beaufort Spring Seminar Series. April 2013.
- 2008 Georgia Southern University Seminar Series: Larval Dispersal in the Red-Jointed Fiddler Crab Populations in a River Dominated Estuary. Nov. 3, 2008.
- 2008 Grice Marine Laboratory Fort Johnson Marine Science Seminar Series: The Effects of Limitations on Larval Dispersal in the Red-Jointed Fiddler Crab Populations in a River Dominated Estuary. May 18, 2008.
- 2007 **Borgianini, SA,** Styles, R, Brodie, RJ; Ground-truthing a larval dispersion model near an upriver tidal boundary. Presented at: Belle W. Baruch Institute for Marine and Coastal Studies, Research Symposium. Hobcaw Barony, Georgetown, SC – Mar. 28-29, 2007.

Grants, Fellowships, Awards

- 2017-2018 Sea Islands Institute \$5,000 (PI)
- 2014-2015 LowCountry Institute \$5,000 (PI)
- 2014-present Island Ambassador's Program Training Series \$7,500/year (PI)
- 2014 Sea Islands Institute \$5,000.00 (PI)
- 2013 Belle W. Baruch Foundation 2013, Harry M. Lightsey, Jr. Visiting Scholar Award \$4,953.00 (PI)
- 2013 Research Initiative for Summer Engagement (RISE) Grant, USC \$4,989.00 (PI)
- 2012-2013 USC Magellan Scholars Program \$4,000.00 (Mentor)
- 2012-2013 SC INBRE Bioinformatics pilot project program: SC EPSCoR/IDeA \$10,000 (Co-PI)
- 2012-20133 County Council of Beaufort County, SC \$8,192.00 (Co-PI)
- 2012 Sea Islands Institute \$4,000.00 (PI)
- 2011-2012 USC Magellan Scholars Program \$2,982.00 (Mentor)
- 2007-2008 Mount Holyoke College/under NSF subcontract. \$5,861.00 (PI)
- 2007 ARM Environmental Services Fellowship \$500.00
- 2007 Belle W. Baruch Institute for Marine & Coastal Sciences, F. John Vernberg Graduate Fellowship in Marine Science \$500.00

Professional Affiliations

Society of Integrative and Comparative Biology
 South Carolina Academy of Science
 Crustacean Society
 Southeastern Estuarine Research Society
 Phi Sigma Biological Sciences Honor Society

Patents

- Patent # 5,341,862 Device for taking, preserving, and transporting a fluid sample for analysis.
- Patent # 5,349,875 Universal sampling device for high and low viscosity substances.
- Patent # 5,566,576 Universal sampling device for high and low viscosity substances; Improvements and novel applications.
- Patent # 5,410,919 Remotely controlled sampling device having a vent passage connecting an internal chamber to the environment through an upper outlet