

**GLENN A. COLDREN, PH.D.**  
FLORIDA OCEANOGRAPHIC SOCIETY  
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**Education**

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Florida Atlantic University, Boca Raton, FL Ph.D. in Integrative Biology	2007-2013
Harriet L. Wilkes Honors College Florida Atlantic University, Jupiter, FL B.A. Environmental Science	2003-2007

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**Professional Experience**

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<b>Research Associate</b> Florida Oceanographic Society, Stuart, FL Conducted oyster, mangrove, and salt marsh research and restoration for the Florida Oceanographic Oyster Restoration (FLOOR) and Florida Oceanographic Seagrass Training Education Restoration (FOSTER) programs.	2017-Present
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<b>Adjunct Faculty and Academic Support Center Tutor</b> Indian River State College, Stuart, FL Taught undergraduate Biology, Life Science, and Marine Biology courses. Tutored students in Biology in the Academic Support Center.	2015-Present
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<b>Postdoctoral Research</b> Villanova University, Villanova, PA Conducted research at Kennedy Space Center (KSC NASA) to determine effects of warming on mangrove encroachment into salt marsh habitats due to climate change. Designed, implemented and coordinated field research as part of a collaborative project between NASA, Villanova University and the Smithsonian Environmental Research Center.	2013-2015
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<b>Graduate Teaching Assistant</b> Florida Atlantic University, Boca Raton, FL Assisted with courses, which included graduate Experimental Design and Biometry and undergraduate Marine Ecology. Designed and coordinated all statistical analyses assignments and lab activities.	2007-2013
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<b>Field Team Lead (Sub-Contractor)</b> Industrial Economics, Inc., Cambridge, MA Led a multi-agency field team to investigate the effects of the B.P. oil spill on Fiddler Crabs and Periwinkle Snails in the Salt Marshes of Louisiana, USA. Managed team field sampling and training and coordinated data collection between team leads.	2011
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<b>Statistical Consultant</b> Ecological Associates, Inc., Jensen Beach, FL Performed statistical analyses on the impacts of beach nourishment on sea turtle nesting.	2010
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<b>Research Assistant</b> Florida Atlantic University, Boca Raton, FL Performed honors thesis research and mangrove reproductive studies. Assisted with NSF grant research on hurricane damage to salt marsh areas in Louisiana, USA and other student projects.	2006
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**Independent Contractor**

2005-2006

D.B. Ecological Inc., Palm Beach, FL

Conducted daily sea turtle nesting surveys and performed gopher tortoise relocations.

**Awarded Grants**

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Indian River Lagoon National Estuary Program – Small Grants Program. 2018-2019

Assessing the effects of restored oyster reefs and seagrasses on shoreline stabilization.

Florida Oceanographic Society

Indian River Lagoon License Plate Funding 2018-2019

New planting methods to enhance the resiliency of Living Shorelines

Florida Oceanographic Society

**Pending Grant Proposals**

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Florida's State Wildlife Grants Program 2019-2020

Jensen Beach Impoundment Mangrove Restoration Project

Martin County with Florida Oceanographic Society

**Publications**

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**Coldren, G.A.**, J.A. Langley, I.C. Feller, S.K. Chapman. 2018 .Warming Accelerates mangrove expansion and surface elevation gain in a subtropical wetland. *Journal of Ecology*.<https://doi.org/10.1111/1365-2745.13049>**Coldren, G.A.**, C. Edward Proffit. 2017. Mangrove seedling freeze tolerance depends on salt marsh presence, species, salinity, and age. *Hydrobiologia* 803(1):159-171.**Coldren, G.A.**, C. Barreto, D. Wycoff, E. Morrissey, J. Adam Langley, I.C. Feller, S.K. Chapman. 2016. Chronic warming stimulates growth of marsh grasses more than mangroves in a coastal wetland ecotone. *Ecology* 97(11):3167-3175.**Coldren, G.A.** 2013. The Multiple Stress Gradient Hypothesis: Expansion of the revised Stress Gradient Hypothesis using a mangrove and salt marsh study system. Florida Atlantic University Dissertation.Vogt, J., A. Skóra, I.C. Feller, C. Piou, **G. Coldren**, U. Berger. 2012. Investigating the role of impoundment and forest structure on the resistance and resilience of mangrove forests to hurricanes. *Aquatic Botany* 97(1):24-29.**Coldren, G.A.** 2007. Influences of mosquito control impoundments on *Rhizophora mangle* initial propagule establishment and growth. Florida Atlantic University Undergraduate Honors Thesis.**Selected Media Coverage**

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Wetland warming work was included in the IUCN Report in the "Impacts and effects of ocean warming on tidal marsh and tidal freshwater forest ecosystems" chapter. August 2016.

Article featuring our NASA warming project in Wetland Science and Practice. "Climate Adaptation at Kennedy Space Center: How can Wetlands Help NASA Adapt to Warming Temperatures and Rising Seas?" June 2014.

## **Relevant Research Experience**

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### **Effects of integrating shoreline vegetation plantings into oyster reef construction on effectiveness of living shoreline restoration**

Ongoing experiments to test how different oyster reef profiles effect shoreline protection and the effectiveness of integrating shoreline plantings (mangrove or salt marsh) into the oyster reef as a method of protecting the shoreline vegetation during establishment.

### **Effects of restored oyster reefs on sediment elevation**

Examining how constructed oyster reefs affect sediment elevation (sediment elevation tables; SETs) at living shoreline sites as part of restoration efforts by Florida Oceanographic Society, Stuart, Florida.

### **In situ freezing experiments testing the effect of salt marsh and latitude on mangrove seedling and young adult survival**

Ongoing field experiments using a portable freezing chamber to test the effects of salt marsh vegetation and latitude on mangrove survival following artificial freeze events.

### **Effects of chronic warming and salt marsh on mangrove poleward invasion**

Designed, performed and analyzed experiments at Kennedy Space Center (NASA) to determine effects of warming on the trajectory of mangrove encroachment into marsh habitats due to climate change.

### **Effects of biotic and abiotic interactions on mangrove freeze survival**

Designed, performed and analyzed a series of experiments to test the effect of co-occurring salt marsh, salinity, mangrove age, and mangrove species, and freeze duration on mangrove seedlings freeze survival.

### **The Multiple Stress Gradient Hypothesis**

Posed a new predicative framework for the Stress Gradient Hypothesis. Tested my revised hypothesis using a mangrove and salt marsh system to determine how plant interactions vary along two co-occurring stressors, with an emphasis on gradients associated with climate change (e.g., freeze). Conducted a Florida wide observational study and a series of greenhouse experiments.

### **Salt marsh species richness effects on mangrove colonization and growth**

Tested the effects of salt marsh species richness on Rhizophora mangle colonization and growth over a water depth gradient. Results were conveyed to FDEP to enhance shoreline restoration projects (CAMA), by incorporating salt marsh species diversity to improve mangrove recruitment, establishment, and survival.

### **Colonization of a restored spoil island**

Investigated how the constructed environmental gradients (elevation, distance to water) of a restored spoil island altered colonization of salt marsh and mangrove species.

### **BP Oil Spill**

In 2010, collected pre-oil spill samples for salt marsh species, Littorina sp., seagrass species, and other associated species throughout the Florida Panhandle. In 2011, hired as field team lead to study effects on salt marsh fiddler crabs and periwinkle snails.

### **Large scale marsh area creation effects**

Assisted on NSF founded project to determine effects of large scale marsh creation. Conducted salt marsh plant identification and interactions with elevation using sediment elevation table (SET) studies. Installed several SETs in Louisiana marshes as part of the study.

## Honors Thesis Research 2006

Compared growth of mangroves in mosquito control impoundments and natural areas.

## Selected Presentations

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### Invited Speaker

**Coldren, G.A.**, C.E. Proffitt, D.J. Devlin, and K.A. Tiling. 2012. Competition versus Facilitation: testing multiple stress gradient effects in a salt marsh and mangrove system at a climatic transition zone. Utrecht University, Utrecht, Netherlands (Invited Visiting Researcher Talk)

**Coldren G.A.** 2012. Species interactions in estuarine systems along a climatic transition zone in southeastern USA. Utrecht University, Utrecht, Netherlands (Invited Visiting Researcher Talk)

### Conferences

**Coldren, G.A.**, C. Sims, V. Encomio, 2018. Use of surface elevation tables to measure sediment elevation changes due to living shoreline restoration. IRL Symposium, Fort Pierce, FL. (Poster)

**Coldren, G.A.**, S.K. Chapman, J.A. Langley, I.C. Feller. 2016. Artificial warming increases adult mangrove and salt marsh growth rates and may enhance transition to mangrove dominance. MMM4, Saint Augustine, FL (Oral).

**Coldren, G.A.**, S.K. Chapman, I.C. Feller, and J.A. Langley. 2015. Warming influences growth of salt marsh but not mangrove species near the northern range limit of mangroves. Ecological Society of America, Baltimore, MD (Oral)

**Coldren, G.A.**, S.K. Chapman, J.A. Langley, and C.E. Proffitt. 2013. Artificial temperature manipulation to simulate climate change in a mangrove and salt marsh systems. Coastal and Estuarine Research Federation, San Diego, CA (Oral)

**Coldren, G.A.**, C.E. Proffitt, D.J. Devlin, and K.A. Tiling. 2012. Competition versus Facilitation: Testing multiple stress gradient effects on salt marsh and mangrove interactions. 9<sup>th</sup> INTECOL International Wetlands Conference, Orlando, FL (Oral).

**Coldren, G.A.**, and C.E. Proffitt. 2011. Multiple stress gradient effects on the interaction of salt marsh species on mangrove species. Coastal Estuarine Research Federation, Daytona, FL (Oral).

**Coldren, G.A.**, C.E. Proffitt, D.J. Devlin, and K.A. Tiling. 2011. A test of the stress gradient hypothesis in a mangrove and salt marsh system during early community development. Benthic Ecology Meeting, Mobile, AL (Oral).

## Teaching Experience

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<b>Indian River State College</b>	2015-Present
General Biology I, General Biology II, Life Science, Marine Biology	

<b>Florida Atlantic University</b>	2007-2013
Experimental Design & Biometry, Marine Ecology, Marine Invertebrate Zoology, Marine Restoration	

## Mentorship

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### Graduate

Student Committee Member: Hilary Standish

Mentor: Dana Smith, Pedro Laura, Jordan Byrum, Cheryl Doughty, Heather Tran, Chelsea Barreto

## **Undergraduate**

Student Committee Member: Hilary Standish

Mentor: Clayton Sims, Kimberly A. Corcoran, Owen Silvera, Arielle Velazquez, Caroline Wattles, Gabriel Kammel-O'Donnell

## **Synergistic Activities**

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Member of the East-Central Estuarine Restoration Team (ECERT), 2017-present

Attended Individual Based Modeling Course in Dresden, Germany, 2008

Attend statistical workshops

Bayesian Inference and Hierarchical Modeling Workshop, 2013

Analysis of Variance Workshop, 2011

Structural Equation Modeling Workshop, 2010

Model Selection Workshop, 2009

## **Reviewing**

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Journal Article Reviewing

Ecology, Oecologia, Oikos, Global Change Biology, Journal of Ecology, Ecosystems, Hydrobiologia

## **Skills**

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Microsoft Windows and Office: Word, Excel, PowerPoint, Outlook

Statistical Analysis Programs: SAS, JMP, SYSTAT, MPLUS, Sigma Plot, PRIMER and R

Experience with Trimble Navigation System (high precision GPS), Geographic Information System (GIS)

Experience in mesocosm, temperature chamber, and marine nursery construction

## **References**

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Dr. Samantha Chapman, Associate Professor, Dept. of Biology, Villanova University

Email: samantha.chapman@villanova.edu; Phone: (610) 519-5343

Dr. C. Edward Proffitt, Professor, Department of Life Sciences, Texas A&M Corpus Christi

Email: ed.proffitt@tamucc.edu; Phone: (361) 825-2358

Dr. Ilka C. Feller, Senior Scientist, Smithsonian Environmental Research Center

Email: felleri@si.edu; Phone: (301) 775-6667

Dr. Vincent Encomio, Multi-County Extension Agent, UF-IFAS/FL Sea Grant

Email: vencomio@ufl.edu; Phone: (772) 403-3830