

2018

## University of North Florida Environmental Center Annual Report 2018

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# ANNUAL REPORT

2018



Environmental Center





# Credits

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## FRONT AND BACK COVER:

Buttonbush (*Cephalanthus occidentalis*) is a common shrub that grows in swamps, ponds and stream banks throughout Florida.



The Environmental Center could not do its vital work without the support of its donors and community partners.

This year, the Environmental Center received \$102,000 in donations. This money was used for sustainability work, community programming, research and Environmental Leadership projects.

Make a difference by supporting the areas that are most meaningful to you: Environmental Leadership Program (ELP), Academic Initiatives or Research Development.

To donate, please visit [www.unf.edu/ecenter](http://www.unf.edu/ecenter).

For more information regarding giving to the Environmental Center, contact:

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HOW TO DONATE

# From the Director

This year's annual report is organized to reflect the Center's three primary strategic initiatives: the Environmental Leadership Program (ELP); the development of new research focused on environmental issues in Northeast Florida; and academic initiatives that provide community-based transformational opportunities for students. Within each of these initiatives, the Center's programs and projects focus on community-identified needs related to parks and preserves, rivers, coasts and springs, and sustainability in the urban environment.

In order to address these needs, the Center coordinates and supports the efforts of a diverse and ever-growing team of students, staff and faculty, representing disciplines from all of the UNF colleges. Importantly, our community collaborators round out our team and keep us grounded by reminding us of the realities and challenges we face in achieving our mission in the "real world."

Creating the next generation of environmental leaders is the Center's top priority, and the Environmental Leadership Program has truly become our signature strategic initiative. The ELP continues to make a measurable impact on the region thanks to the hard work of the Center's staff, faculty and, of course, our community partners. We are very proud of our transformative academic initiatives. For example, this was the 11th year for the annual "St. Johns River Experience" course and the second year for the Pre[serve] Art Exhibition. The Pre[serve] program is a student and alumni juried exhibition featuring works inspired by UNF Sawmill Slough Preserve that also includes a series of workshops for students. This very successful program is an academic collaboration between the Environmental Center, Department of Art and Design, Gallery of Art and Lufrano Intercultural Gallery. This year, with the support of generous donors, the Center was also able to provide four "Seed Grants" to faculty who are developing new research aimed at solving environmental problems in Northeast Florida.

As always, we are grateful for the generous support from our donors. Since the Center's business model dictates that the vast majority of our programs must be supported by donations from the community, our donors are truly essential members of our team!

**J. DAVID LAMBERT, PH.D.**





# Professional Staff



**J. David Lambert, Ph.D.**  
Director



**James W. Taylor**  
Coordinator



**Maria D. Mark**  
Coordinator

# Executive Board



*From left to right:*

**Chris Baynard, Ph.D.**  
Department of Economics  
and Geography



**Charles Closmann, Ph.D.**  
Department of History



**Erin Largo-Wight, Ph.D.**  
Department of Public Health



**Brian Zoellner, Ph.D.**  
Department of Foundations  
and Secondary Education

# Student Staff



**John Aloszka**  
Graphic Designer



**Terri Bell**  
Project Search Intern



**McKenzie Edwards**  
Public Health Intern



**Alex Fancher**  
Project Search Intern



**Molly O'Brien**  
Office Assistant



**Natalie Sassine**  
Communications Assistant



**Danielle Tipley**  
River Report Assistant



**Tiffany Torres**  
Graphic Designer



**Brittany Wussick**  
Communications Assistant



# Community Focused

The Environmental Center is focused on working with community partners to address community needs, whether through research, education or service-learning. Working with community partners is an integral part of the Center's mission.

The Environmental Center has three areas of strategic focus:

- Parks and preserves
- Rivers, coasts and springs
- Sustainability



## Jacksonville Environmental Symposium

Partner: City of Jacksonville Environmental Protection Board

The annual symposium is hosted at the UNF Adam W. Herbert University Center and features the release of the State of the River Report for the Lower St. Johns River Basin and breakout sessions on various topics.

## Climate Refugee Lecture

Partner: UNF Department of Political Science

As part of the Pre-Law Lecture Series, Florida A&M College of Law Professor Randall S. Abate gave a public lecture titled "Plight of Climate Refugees: Rising Seas, Melting Ice and Inadequate Legal Projections" at the Adam W. Herbert University Center.

## U.S. Green Building Council Florida

The Environmental Center has partnered with USGBC Florida to help develop and implement sustainability education programs.

### LiveSMART

The U.S. Green Building Council Florida, with support from many businesses and community partners, developed the Sustainability Materials and Resources Trailer, or LiveSMART, as a mobile educational unit that provides direct education on sustainable living and green building practices.

### LEEDing Tiny House

Tiny homes have become a popular trend for people looking to reduce their impact, and the local U.S. Green Building Council Florida chapter took it a step further with the creation of the first Leadership in Energy and Environmental Design (LEED)-certified tiny home.

### Green Carpet Film Series

This multipart film series explores topics related to sustainability and the environment. After the screening, each film is followed by a panel discussion featuring local experts on the topic.

Opening session at the Jacksonville Environmental Symposium







# Environmental Leadership Program

Forward by Maria D. Mark

2018 was another outstanding year for the Environmental Leadership Program (ELP)! Student project leaders addressed environmental or social justice issues ranging from climate change to educating school children about shark protection.

An integral part of the ELP is leadership development. The students attended a variety of facilitated workshops led by local professionals and UNF staff that focused on topics such as emotional intelligence development, time-management skills and public speaking.

The positive impacts of the students' projects were also realized within our community. For example, "Food Fighters: Student-Powered Hunger Relief" diverted 6,817 pounds of prepared, unserved food from the UNF Osprey Café and repackaged the food into 6,866 nutritious meals. These meals were delivered to the Northeast Florida AIDS Network for their clients who suffer from HIV or HIV-related illnesses.

Our project leaders also attended and participated in several conferences and symposiums this past year. At the 2018 Timucuan Science & History Symposium, one student presented her project about the Preservation Project Jacksonville; another student served as a panelist for the climate change session; and three students presented posters on their projects during the poster session. Two students also attended and presented project posters at the Florida Undergraduate Research Conference held at Eastern Florida State College.

The ELP would not be possible without the generous support of the Cummer Family Foundation, the UNF Alumni Association and the Felburn Foundation. Their commitment to the ELP ensures our goal to train the next generation of environmental leaders.

Common pokeweed (*Phytolacca americana*) is a common native plant that is toxic to many species; however, birds are largely immune and aid in seed dispersal.







# Project Leaders



**Brandie Brooks**

Major:  
*Coastal Biology*  
Hometown:  
*Sebastian, Fla.*

## Beyond the Trail: The Art of Science

Project Leader Brandie Brooks focused on combining art with science to show that they are not mutually exclusive. Thirteen UNF students and 15 community members participated in five events, each in a different park, where they learned how to use both sides of their brain through creative writing, music, poetry and art while learning about the science and ecology of our parks. Service projects were also included and the participants logged 90 hours of community service consisting of invasive species removal and removing litter from waterways. The events were held at Julington-Durbin Creek Preserve, Huguenot Memorial Park, Ribault Club and McCoys Creek in the Emerald Necklace. The wrap-up event took place in UNF's Sawmill Slough Preserve.

See page 17 for more details on this project.



**Kaley Crawford**

Major:  
*History and Anthropology*  
Hometown:  
*Bluffton, S.C.*

## Preservation Parks Jacksonville: The Untold Story

Through research and oral recordings, Project Leader Kaley Crawford is preserving the history of the Preservation Project and personal accounts of the struggles and challenges the city faced in acquiring these lands we now enjoy as public parks. The information for the history project is being sourced through research of the parks, primarily oral history recordings with interviewees who were particularly instrumental in the creation of the parks. Much of the information is being obtained from community partner Mark Middlebrook, who is the executive director of the Timucuan Parks Foundation. The end goal is to create a story map for public access, which showcases the Preservation Project Jacksonville parks, tells the unique history of our parks and inspires more people to enjoy their beautiful city parks.

## Changing the Climate of our Conversation

Project Leader Bella Genta addressed a controversial topic by utilizing communication strategies developed by the National Network for Ocean and Climate Change Interpretation (NOCCI) to train enough voices to shift the national conversation to be more productive, creative and solutions-driven. Her project focused on strengthening the Jacksonville NOCCI chapter to better engage and empower college students to be leaders of climate change in their communities and everyday lives. She organized and co-facilitated a Climate Change Communications Summit, where over 50 UNF students and faculty were taught some of the NOCCI communications strategies. Genta also served as the communication director and created an online monthly newsletter to better inform and gauge the needs of the NOCCI chapter.

See page 16 for more details on this project.



**Isabella Genta**

Major:  
*Interdisciplinary Studies: International Conservation*  
Hometown:  
*Sarasota, Fla.*

## Food Fighters: Student-Powered Hunger Relief

Reducing food insecurity and food waste on campus and throughout the Jacksonville community was Project Leader Courtney Hogan's goal. She organized student volunteers who recovered trays of unserved food from the UNF Osprey Café and repackaged it into well-balanced meals that were donated to the Northeast Florida AIDS Network. She held two "hunger dinners" on campus where students participated in a food insecurity simulation to raise awareness about the extent of food insecurity internationally and within the Jacksonville community. Food Fighters is also one of 206 chapters of the Food Recovery Network. Since its inception in January 2017 to date, 6,817 pounds of recovered food was converted to more than 6,800 meals.



**Courtney Hogan**

Major:  
*Interdisciplinary Studies: Sustainable Development*  
Hometown:  
*Coral Springs, Fla.*



# Project Leaders



**Caleb Johnston**

Major:  
*Coastal Biology*  
Hometown:  
*Jacksonville, Fla.*

## Parks 360: Bridging the Gap Between Students and Parks

Bridging the gap between the classroom and Jacksonville's local parks is the goal of Project Leader Caleb Johnston's project. Utilizing virtual reality (VR) 360 degree technology, 4th graders in economically-disadvantaged schools will be "transported" to our parks and preserves. Jacksonville has 37 schools where the students are considered economically disadvantaged. Simply put, these students have few resources to access these parks. The videos will focus on Northeast Florida's cultural history and environmental science, which will create opportunities for teachers to use this technology as an educational tool. Assessments will help measure the impact VR has on the students' knowledge and awareness. Also, immersing students in their parks will help foster a strong environmental ethic.



**Kyle Kenney**

Major:  
*Coastal Biology*  
Hometown:  
*Land O' Lakes, Fla.*

## Preserve Ambassadors

In its second year, the Preserve Ambassadors project continued to increase the overall campuswide use and awareness of UNF's Sawmill Slough Preserve (SSP). Two Outdoor Nation (ON) grants enabled Project Leader Kyle Kenney to expand his project into the community to create another group of "preserve ambassadors." The ON grant funded a Campus Challenge where students, faculty and community members could log the hours of their outdoor activities and compete for prizes. Thirty-one participants reported 160 hours of outdoor activities. Kenney also organized student volunteers to rebuild a wheelchair-access ramp at Hanna Park. He also hosted events in the SSP where students learned about the native reptiles in addition to hosting the wrap-up event for Beyond the Trail.

## UNFLT: Land Trust Outreach and Advocacy

Project Leader Thoren Perego wanted to raise awareness on campus of the importance of land conservation, so he partnered with the North Florida Land Trust (NFLT). He and NFLT staff conducted classroom lectures followed by field trips to visit some of NFLT's Preservation Priority Areas. The lectures were planned around the course syllabus so the professor could interject at times and connect theoretical concepts to the practical applications of NFLT's work. The field trips provided students an immersive, hands-on experience of what they were learning in class. Perego's plan for phase two will be to create a "How to Advocate for Land Conservation" handbook to continue to raise awareness and support for NFLT and land conservation, generally.



**Thoren Perego**

Major:  
*Ecology and Evolutionary Biology*  
Hometown:  
*Port Orange, Fla.*

## The Next Generation of Shark Ambassadors

Creating the next generation of shark advocates is Project Leader Cailla Strobel's passion. Her partnership with Sharks4Kids is enabling her to take her passion into the classroom to teach first through fifth graders the importance of sharks, remove the fear factors and teach them about conservation. She is also raising awareness with UNF students by holding "Shark Yoga & Beach Cleanup" events. Different yoga positions have been created to mimic sharks and as participants are performing the yoga movements, Strobel shares facts about sharks. Following the shark yoga, participants then do a beach cleanup. To date, she has educated over 150 students (elementary and college); collected 75 cigarette butts; 32 bottle caps; 18 straws; and 20 fishing nets.



**Cailla Strobel**

Major:  
*Coastal Biology*  
Hometown:  
*Brooksville, Fla.*



# Featured Projects

Project leader Isabella “Bella” Genta addressed a controversial topic by utilizing communication strategies developed by the National Network for Ocean and Climate Change Interpretation (NNOCCI). NNOCCI’s goals are to train enough voices to shift the national conversation of climate change to be more productive, creative, community-based and solutions-driven.

Genta’s project was two-pronged. First, it focused on building a communications channel to strengthen the Jacksonville NNOCCI chapter and its 23 local connections in order to gauge the need and desire for future trainings. As the communication director, Genta created an online monthly newsletter in order to achieve these goals. The second prong was to better engage and empower college students to be leaders of climate change in their communities and everyday lives.

Partnering with the Jacksonville Zoo and Gardens, Genta organized and helped facilitate a Climate Change Communications Summit, where over 50 UNF students and faculty were taught some of the NNOCCI communications strategies. The summit included a panel discussion with local professors and environmental leaders covering topics such as climate science, climate policy, ecosystem effects, and local issues and advocacy. A Q&A followed the panel discussion. The attendees then participated in a facilitated action-planning session to identify community-level solutions that could be implemented on the UNF campus. Some of these solutions included a bike-sharing program and a composting program for the campus dorms.

Some of the feedback from the attendees revealed more confidence in effectively talking about climate change to friends, family members and strangers. There were also comments where the students’ mindset had been changed about climate change and its importance.

Genta also served as a panelist at the 2018 Timucuan Science & History Symposium and at a climate change panel hosted by the Episcopal Church of Jacksonville. She attained the level of “skillful interpreter” of NNOCCI materials and assisted with developing materials for use at conferences across the United States.



## Beyond the Trail

In this third series of BTT, project leader Brandie Brooks combined her passions for creativity and science to show they are not mutually exclusive. Thirteen UNF students and 15 community members participated in five events, which took place in different parks in Jacksonville. The participants learned how to use both sides of their brain through creative writing, music, poetry and art, while learning about the science and ecology of our parks.

The five-event series included creative writing at Julington-Durbin Creeks Preserve after the participants learned about Rachel Carson, were entertained by “William Bartram,” and paddled the creek. They removed litter along the creek and finished the event by journaling their observations during the paddle.

Songwriting was the theme when they hiked Huguenot Memorial Park, led by a local park ranger. The participants used the sights and sounds from the hike to create song lyrics promoting environmental health. A shoreline cleanup and invasive plant removal yielded 15 bags of litter and plant removal.

The Ribault Club event featured Craig O’Neal, prominent wildlife and nature photographer. He shared numerous photographs from wildlife to amazing storms and discussed how the power of an image can far transcend words. The participants were given a “billboard photo challenge” to take a picture while hiking around the club that captured the essence of the park and would attract visitors.

The recycled art project was a challenge for the participants. The participants first did a cleanup of McCoys Creek, located in downtown historic Springfield. Seven bags of trash were removed from McCoys Creek. With the creative talent of local artist Sarah Crooks, they then turned the litter into floatable mini-boats. Teams launched the boats in McCoys Creek and dueled to see who had the fastest and best floating vessel.

The final event was held in UNF’s Sawmill Slough Preserve, a 382-acre preserve located on campus. Project leader Kyle Kenney led a hike, and art stations were set up that combined art and science activities. Overall, 90 service hours were completed; two participants kayaked for the first time; all participants visited at least one of the locations or the first time; and, a majority of them had never been to any of the locations.





A close-up photograph of a poison ivy plant. The image shows a cluster of small, light green flowers with yellow centers, and several green, unopened berries. The plant has a reddish-brown stem and green leaves. The background is dark and out of focus.

# Academic Initiatives

Forward by James W. Taylor

In an effort to help produce a rich learning environment at UNF, the Environmental Center actively collaborates with faculty to create unique experiential learning opportunities for both undergraduate and graduate students. These distinctive programs are led by faculty, but receive significant support from the Environmental Center in the form of funding, equipment and professional assistance.

Academic Initiatives provide students with an opportunity to earn academic credit while engaging in transformational learning through community engagement, internships and research. These programs are grounded in critical thinking, effective communication and analytical skills, and give students the chance to gain professional experience in a community-based setting.

Unlike traditional courses that typically take place over the course of one semester, these initiatives are long-term and provide continuous opportunities for students. These programs also aim to be high-impact and provide individualized attention for students who participate.

While many people are sensitive to the toxins from poison ivy (*Toxicodendron radicans*), the woody vine produces attractive white berries that are favored by many birds.



# St. Johns River Experience

The St. Johns River Experience is a unique undergraduate course that explores the history and ecology the St. Johns River. The interdisciplinary course combines classroom lectures, laboratory work and field experiences to create a transformational experience that students will remember for a lifetime.

The 2018 course included guest speakers, community field trips, water quality analysis, service projects, spring break field experience and a student-led public forum focused on restoration of the St. Johns River.

Funding for the St. Johns River Experience is provided by the UNF Office of Undergraduate Studies, Cummer Family Foundation and David Strickland.



TOP LEFT: The group enjoying a hike at Black Bear Wilderness Area.

TOP RIGHT: Student Katie Vearil planting beneficial plants along the St. Johns River.

BOTTOM LEFT: Dr. Robert Knight from the Florida Springs Institute discusses aquatic vegetation with the group at Silver Springs State Park.

## 2018 Students

**Korrin Brickman**  
Health Science

**Brandie Brooks**  
Coastal Biology

**McKenzie Edwards**  
Health Science

**Hannah Ernstsen**  
Ecology and Evolutionary Biology

**Caitlin Gilbert**  
Coastal Biology

**Haley Keener**  
Coastal and Marine Biology

**Hannah Haselden**  
Interdisciplinary Studies

**Victoria Marcotte**  
Coastal Environmental Science

**Jeremi Todaro**  
Coastal Environmental Science

**Katie Vearil**  
Interdisciplinary Studies

**Chris Williams**  
Ecology and Evolutionary Biology

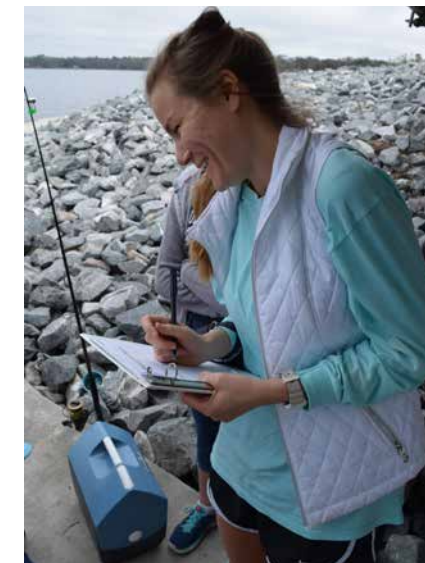
**Tyler Williamson**  
Interdisciplinary Studies

## Academic Leaders

**James W. Taylor**  
Environmental Center

**Rick Troendle, Ph.D.**  
Department of Chemistry

**Jake FitzRoy**  
Naturalist





# Sawmill Slough Preserve



## Preserve Digital Archive: *Historical and Ecological Research*

The Sawmill Slough Preserve not only provides habitat for wildlife and recreational opportunities for the community, but also serves as a living laboratory for research and education. Since 2006, the Environmental Center has been working with Preserve Curator Chuck Hubbuch to create an inventory of flora and fauna found within the Sawmill Slough Preserve. To date, more than 500 species have identified.

More recently, students and faculty from the Department of History have been compiling historical records related to the Sawmill Slough Preserve and Robert W. Loftin Nature Trails.

Data and information gathered through research is stored in the Preserve Digital Archive, which was developed by Dr. Stuart Chalk from the Department of Chemistry. The archive serves as a scientific, cultural and historical archive and will allow future researchers and the general public to access information related to the Sawmill Slough Preserve.

Visit [preserve.unf.edu](https://preserve.unf.edu) to learn more about the Preserve Digital Archive.

**The Sawmill Slough Preserve is a 382-acre protected natural area located on UNF's campus. The area was designated a preserve in 2006 by President John A. Delaney and the Board of Trustees.**

ABOVE: A cypress dome is a common habitat found in the Sawmill Slough Preserve.

## Pre[serve] Art Exhibition

The second installment of the Pre[serve] Art Exhibition was hosted in April 2018. The exhibition featured works created by students and alumni that were inspired by personal experiences within the Sawmill Slough Preserve.

The 2018 exhibition featured 35 works of art from 27 different students and alumni. The works were displayed at the Lufrano Intercultural Gallery from March 29 through April 27. The opening reception, which was held on Thursday, March 27, was attended by more than 150 people.

Works from the exhibition have been archived online through the Thomas G. Carpenter Library. In addition, the works are displayed via an online Story Map that provides a tour through the Sawmill Slough Preserve showing the “point of inspiration” where the artists were inspired to create their works.

Pre[serve] is an academic collaboration among the Environmental Center, Department of Art and Design, Gallery of Art and the Lufrano Intercultural Gallery. Support for this program was provided by the Cummer Family Foundation.



ABOVE: Student artist Julia McBride stands with her artwork at the reception.



LEFT and ABOVE: Attendees look at a piece in the Pre[serve] exhibition in the Lufrano Intercultural Gallery.



# Campus Sustainability

The Environmental Center has a long history of working with university administration to ensure that UNF remains a leader when comes to campus sustainability.

Students from the Environmental Center host waste audits, textbook collections, cleanups, educational events and more.

The Sustainability Committee, which is chaired by Environmental Center coordinator James W. Taylor, advises the president on issues related to the environment and sustainability.



## Pepsi Recycling Roadster



Working with campus vendors is an important way to educate students about their environmental impact and the ways they can make a difference. In the spring semester, Pepsi brought their Recycling Roadster to the UNF campus to help educate people about the importance of recycling and inspire action through fun and interactivity. The hybrid vehicle operates off the grid due to its solar panels, and provides six different activities that help promote the benefits of sustainability.

ABOVE: Public health intern McKenzie Edwards tables during move-out.

LEFT: Students participate in the Pepsi Recycling Roadster.

RIGHT: Student assistant Molly O'Brien helps prepare books for deliver to Better World Books.

## Move-Out Waste Reduction

Move-out has long been identified as a source of waste on campus. When students move out of the residence halls, they tend to leave behind large amounts of clothing, food, toiletries, furniture, etc. The Department of Housing and Residence Life provides a way for students to donate their unwanted items, yet participation has been lacking. That is where McKenzie Edwards stepped up to make a difference! Completing her public health internship with the Environmental Center, Edwards collaborated with the Department of Housing and Residence to divert waste from the landfill by increasing participation in the Give and Go program.



## Textbook Recycling

In an effort to prevent perfectly good books from ending up in the landfill, students from the Environmental Center began collecting unwanted textbooks in 2012. The program continues today with interns from Project Search managing the program. The students gain valuable job skills collecting books from a bin outside the bookstore and faculty office, then sorting and packaging the books for delivery to Better World Books. The spring 2018 collection was the largest collection to date! Students diverted more than 3,000 pounds of books from the landfill!



**3,289** POUNDS  
OF BOOKS COLLECTED



REDUCING WASTE



Eastern prickly pear (*Opuntia humifusa*) can be found in sandy upland habitats, and are a favorite of many species, including gopher tortoises.



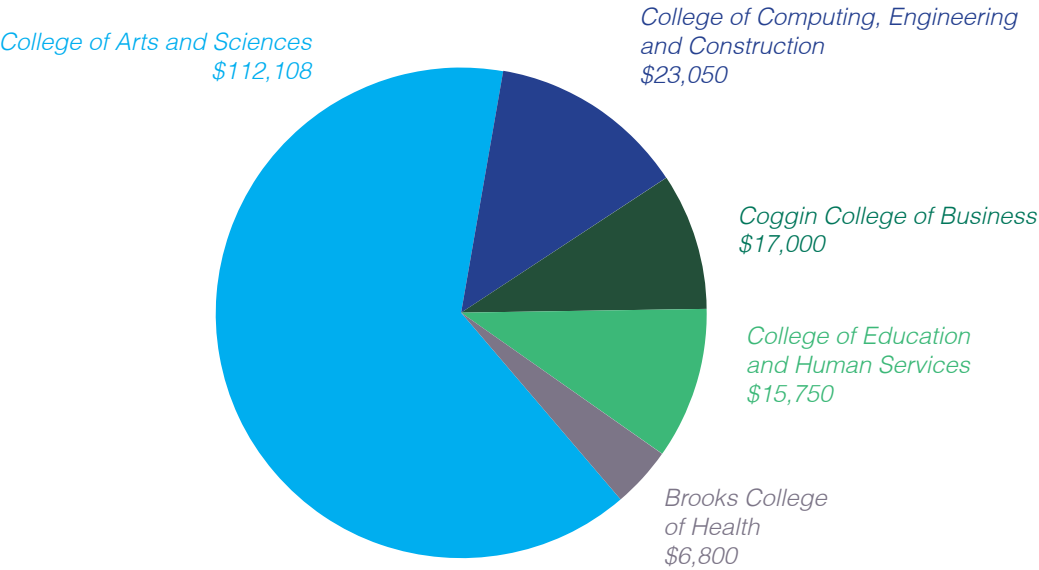
# Research

Research is a vital endeavor at any university, and providing support for faculty research has been part of the Environmental Center’s mission since it was founded in 2004.

The Environmental Center has a history of funding faculty research related to the environment and sustainability through Seed Grants. To date, the Environmental Center has provided funding to 62 different faculty in five UNF colleges totaling nearly \$175,000 in research funding. These grants have helped faculty purchase equipment, software and supplies, as well as provide numerous opportunities for undergraduate and graduate students.

In addition to providing funding, the Environmental Center also provides assistance through the use of equipment and expertise of staff.

**Research Funding by College 2006-2018**



**TOTAL FUNDING \$174,708**



# Faculty Fellows

Dr. Michael Aspinwall – 2018 Seed Grant Recipient  
Department of Biology *College of Arts and Sciences*

Dr. Joe Butler – Diamondback Terrapin Research  
Department of Biology *College of Arts and Sciences*

Dr. Dale Casamatta – 2018 Seed Grant Recipient  
Department of Biology *College of Arts and Sciences*

Dr. Chiradip Chatterjee – 2018 Seed Grant Recipient  
Department of Economics and Geography *Coggin College of Business*

Dr. Raphael Crowley – Maritime Management Plan and 2018 Seed Grant Recipient  
Department of Civil Engineering *College of Computing, Engineering and Construction*

Matthew Davies – 2018 Seed Grant Recipient  
Department of Chemistry *College of Arts and Sciences*

Dr. Terri Ellis – 2018 Seed Grant Recipient  
Department of Biology *College of Arts and Sciences*

Dr. Quincy Gibson – 2017 Seed Grant Recipient  
Department of Biology *College of Arts and Sciences*

Dr. Christopher K. Johnson – 2018 Seed Grant Recipient  
Department of Economics and Geography *Coggin College of Business*

Dr. Chung-Ping A. Loh – 2018 Seed Grant Recipient  
Department of Economics and Geography *Coggin College of Business*

Dr. Radha Pyati – St. Johns River Report  
Department of Chemistry *College of Arts and Sciences*

Dr. Kelly Smith – 2017 Seed Grant Recipient  
Department of Biology *College of Arts and Sciences*

Dr. Russell Triplett – 2018 Seed Grant Recipient  
Department of Accounting and Finance *Coggin College of Business*

# Student Assistants

**Dr. Dale Casamatta**  
*2018 Seed Grant*

Alyssa Garvey, *Graduate student, biology*  
Danielle Tipley, *Graduate student, biology*

**Dr. Raphael Crowley**  
*2018 Seed Grant*

Paige Ammons, *Senior, civil engineering*  
Michael Durnin, *Junior, biology*

**Dr. Chiradip Chatterjee**  
*2018 Seed Grant*

Jaycee Sheffield, *Senior, marketing*  
Larisa Kupinszky, *Junior, international studies*

**Dr. Michael Aspinwall**  
*2018 Seed Grant*

Lynsae Davidson, *Junior, biology*  
Amy Neece, *Sophomore, biology*  
Alexis Rodgers, *Senior, biology*  
Kylie Harris, *Junior, biology*  
Sarah Sullivan, *Junior, biology*

**Dr. Joe Butler**  
*Terrapin Research*

Firdavs Said, *Junior, health science*  
Kyle Kenney, *Senior, biology*  
Legacy Terrell, *Junior, biology*  
Caridad Dacostagomez, *Junior, biology*  
Caroline Caron, *Junior, biology*  
Grace Clements, *Junior, biology*  
Thaddeus Heckman, *Senior, biology*  
Sarah Rutten, *Junior, chemistry*





# 2018 Seed Grants

## Exploring Ecological, Morphological, and Molecular Aspects of Cyanobacterial Communities Isolated From Ichetucknee Springs, Branford, FL

*Dr. Dale Cassamatta, Department of Biology*  
*Alyssa Garvey, Biology Graduate Research Assistant*

Anthropogenic nutrient pollution has led to an increase in harmful algal blooms in recent years, with an increase in both eukaryotic algae and cyanobacteria. Cyanobacterial blooms can be of particular concern due to their ability to produce toxins. Because of the ability for cyanobacterial blooms to occur in both freshwater and marine habitats, characterizing species composition of these communities in areas of high social and economic importance is crucial to limiting potential exposure. This project aims to characterize cyanobacterial communities isolated from Ichetucknee Springs in order to document and inform the public of potential exposure to any toxin-producing species.

## Perception of Drinking Water Quality in the City of Jacksonville, FL: The Influence of Consumer Location Within the Distribution System

*Dr. Chiradip Chatterjee, Department of Economics and Geography*  
*Dr. Russell Triplett, Department of Economics and Geography*  
*Dr. Christopher K. Johnson, Department of Economics and Geography*  
*Dr. Chung-Ping A. Loh, Department of Economics and Geography*

We received a UNF Environmental Center Seed Grant in 2016 to conduct a telephone survey designed to assess the willingness-to-pay for improvements in the quality of drinking water among local residents. The findings from that project suggest the need for follow-up research designed to fully explore the role of information, outreach and public awareness in water usage within the community. As part of this proposal and study design we have been collaborating with officials from JEA to widen the reach of a survey that includes more detailed questions regarding usage, information availability, information processing, trust in institutions, health history, demographics and geography. With the cooperation of JEA, we will pair the survey responses with administrative data on water usage. Using regression methods, we will (1) estimate the determinants of perceived quality of tap water, and then, conditional on (1), (2) estimate the determinants of water usage in the home.

## Living on the Leading Edge of an Expanding Range: Examining the Physiological Response of Mangrove Species to Temperature and Environmental Change

*Dr. Michael Aspinwall, Department of Biology*

Climate warming is causing rapid changes in saltmarsh and mangrove plant communities. Freezing temperatures have historically restricted the distribution of mangrove species to parts of South Florida. Yet, warmer temperatures have facilitated the northward expansion of mangroves, resulting in a parallel reduction in saltmarsh habitat. This project aims to examine the physiological mechanisms involved in mangrove species northward expansion. In particular, this project will determine whether mangrove species growing at the leading edge of an expanding range vary in thermal acclimation of key physiological processes (photosynthesis and respiration), and whether salinity and nutrient availability modify mangrove physiological responses to temperature. The project will take place at the Guana Tolomato Matanzas National Estuarine Research Reserve (GTM-NERR), and will involve a factorial experiment with three mangrove species, two salinity levels, and two nutrient levels. This project will improve our understanding of mangrove responses to temperature, as well as predictions of mangrove range expansion in response to future climate.

## Bench-Scale Testing of Microbial Induced Calcite Precipitation (MICP) Treated Sand Dunes

*Dr. Raphael Crowley, School of Engineering*  
*Matthew Davies, Department of Chemistry*  
*Dr. Terri Ellis, Department of Biology*

Sand dunes are often the primary means of protection from hurricane storm surge and associated wave action. However, dunes are highly erodible and do a relatively poor job of protecting the coast when compared with other coastal protection measures such as seawalls, bulkheads or revetments. It would be beneficial to develop a sustainable rapid-deployment system that could be used to strengthen the dunes just prior to a hurricane. Microbial-induced calcite precipitation (MICP) is one technology that would appear to be suitable for such an application. A study is proposed whereby synthetic bench-scale dunes will be built in UNF's new wave basin, (basin will be completed by December 2017), treated via MICP, and subjected to wave action. Erosion will be quantified by measuring the dunes' profiles, and results from treated dunes will be compared with results from untreated dunes to determine erosion improvement.



# Maritime Management

## RESEARCH TEAM

### Dr. J. David Lambert

*Department of Economics and Geography*

### Dr. Raphael Crowley

*Department of Civil Engineering*

The Environmental Center completed a three-year grant to develop the “Duval Maritime Management Plan” for the City of Jacksonville. The grant is a collaborative effort with the Northeast Florida Regional Council and Jacksonville University’s Marine Science Research Institute.

The objectives of this applied-research project were to assess the current status of maritime facilities (such as boat ramps), determine current and future needs (with community input), and develop a long-term plan that assures future public access to our river and coastal resources. The team’s plan was adopted by the City of Jacksonville in June 2018.



# Terrapin Research

## RESEARCH TEAM

### Dr. Joe Butler

*Department of Biology*

### Dr. J. David Lambert

*Department of Economics and Geography*

Faculty and students continued to survey coastal Georgia in search of diamondback terrapin populations and nesting sites. The team has employed several detection methods to survey terrapins and their nesting areas. To date, the team has recorded nearly 1,000 records of diamondback terrapin activity. Additionally, the team has collected nearly 150 water samples that will be evaluated for heavy metals and other pollutants. Information gained through this study can be used by habitat managers to assure that terrapins continue to have the space and habitat they require for future success.

# State of the River Report for the Lower St. Johns River Basin

**The 10<sup>th</sup> State of the St. Johns River Report was published in summer 2017 by a team of scientists from UNF, Jacksonville University, Valdosta State University and Florida Southern College. This project, supported by the Environmental Protection Board of the City of Jacksonville, has provided an annual baseline of the basin’s health since 2008.**

## UNF RESEARCH TEAM

### Dr. Radha Pyati

*Department of Chemistry*

### Dr. Brian Zoellner

*Department of Foundations and Secondary Education*

The 2017 report revealed several areas of improvement, but also shows trends that some indicators have worsened, suggesting that continued monitoring and research of the river are needed. The report shows that nitrogen and phosphorus levels in the St. Johns River have decreased, yet chlorophyll a, an indicator of harmful algal blooms, has not decreased in the 10-year timeframe and shows no indication of decreasing soon.

Another concern the report highlights is that nonnative species have increased from 56 total species in 2008 to 80 this year. Of special concern is the spread of lionfish and Cuban tree frogs due to their impacts on the native ecosystem.

This 2017 report also featured a section on the bottlenose dolphin in the Lower St. Johns River Basin and describes dolphin residence in the river and threats to its health, including a 2010 federally-designated unusual mortality event.

The report was released at the annual Jacksonville Environmental Symposium, and members of the report team discussed the findings with several media outlets. Additionally, a UNF graduate student was hired to help educate the public about the report and its findings through social media.

For more information about the report, please visit [www.sjrreport.com](http://www.sjrreport.com).





A close-up photograph of Buttonbush flowers. The central focus is a single, fully bloomed flower with numerous white, tubular petals radiating from a green center. Above and below this flower are two unopened flower buds, which are green and have a rounded, textured appearance. The background is dark and out of focus, highlighting the plant's details.

Each of the native plants featured in the annual report can be found within the UNF Sawmill Slough Preserve.

To learn more about plants within the Preserve, visit:  
<https://preserve.unf.edu>

FRONT AND BACK COVER: Buttonbush (*Cephalanthus occidentalis*) is a common shrub that grows in swamps, ponds and stream banks throughout Florida.