

2022

## IERE Annual Report 2022

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# Annual Report

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## 2022



Institute of Environmental  
Research and Education





Students Erin Ogrodnik and Eleanor Ascheman kayaking at Silver Springs during the fall retreat.



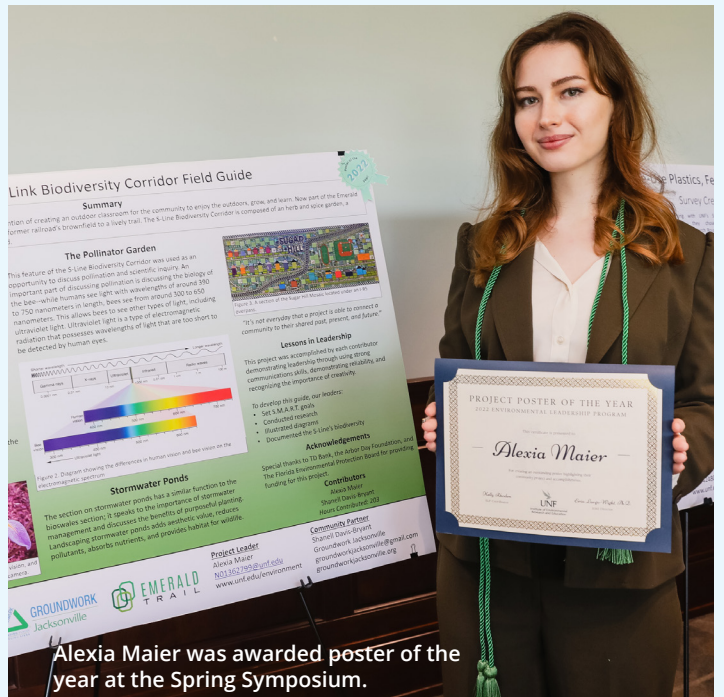
Students during the Florida Field School spring break trip at the Marine Science Station on Crystal River.



Students from the Environmental Leadership Program (ELP) wearing their graduation cords following the Spring Symposium.



KAO Honors Society member Mahelet Dalke viewing artifacts at the Silver River Museum.



Alexia Maier was awarded poster of the year at the Spring Symposium.



# LETTER FROM THE DIRECTOR

We are back on campus! Here are just a few highlights from this year:



ELP Project Leaders Ruby Cox and Nathaniel Rodefer with Drs. Truelove and Largo-Wight at the Spring Symposium.

- **NEW! Name Change:** We changed our name! The new Institute of Environmental Research and Education (IERE) is building on our past successful programming and developing new initiatives geared toward greater collaborative research, career or graduate school readiness, enhanced academic programming, student engagement and community involvement.
- **NEW! Community Council:** The Community Council provides community and industry leaders an opportunity to contribute to the mission of IERE. This inaugural year, the founding members worked to raise the profile and success of IERE and its students.
- **NEW! Florida Field School:** The new Florida Field School has an updated focus on introducing students to conservation and environmental careers. This year, 58 students participated in three Field Fridays and a five-day extended spring break field experience.
- **NEW! Environmental Sustainability Living-Learning Community (LLC):** We partnered with housing to offer incoming freshmen a “living-learning community” focused on sustainability. In our inaugural year, we had 10 students enroll and help build this green community, and we expect this cohort to continue to grow.
- **Environmental Studies Minor:** 77 students representing all UNF colleges are currently enrolled in IERE’s environmental studies minor, which focuses on exploring the relationship between humans and the natural environment.

- **Environmental Leadership Program (ELP) and Scholarships:** UNF’s group of trained future leaders continues to grow! This year, 22 students completed the year-long program including environmental and leadership training and community partner project implementation. These students presented at the ELP Symposium in April. IERE raised \$70,000 from generous donors - the Felburn Foundation, the Cummer Foundation and the IERE Community Council — for up to 35 student scholarships for next year’s cohort!
- **KAO Honors Society:** A total of 38 members were inducted in to IERE’s Kappa Alpha Omicron (KAO) Honors Society since 2020. The KAO Honors Society is associated with Interdisciplinary Environmental Association (IEA), and is ideal for high achieving students interested in environmental sciences.
- **Research:** This year, IERE distributed two interdisciplinary research seed grants to faculty from three colleges focused on the health risks of “forever chemicals” in water and oyster shell habitat erosion. These grants are funded by our generous donors, the River Branch Foundation and Vulcan Materials Company Foundation. In addition, IERE was involved in the development and implementation of several funded research proposals to solve environmental problems such as the Jacksonville Heat Mapping study (2022) and Single-Use Plastic study (2020-2023).

We hope that our work contributes to a healthier, greener tomorrow.

Erin Largo-Wight, Ph.D.  
Director, Institute of Environmental Research and Education  
Professor, Department of Public Health



# MEET THE TEAM



## **Erin Largo-Wight, Ph.D.**

Director, Institute of Environmental Research and Education  
Professor, Department of Public Health



## **James W. Taylor**

Assistant Director, Institute of Environmental Research and Education  
Adjunct Professor, Department of Biology



## **Kelly A. Rhoden**

Coordinator, Institute of Environmental Research and Education

# DR. J. DAVID LAMBERT



We were saddened by the passing of J. David Lambert on Sept. 8, 2021, at the age of 63. Dr. Lambert was a former director and integral supporter of the Institute of Environmental Research and Education and associate professor of geographic information systems (GIS) in the Coggin College of Business.

Dr. Lambert first arrived at UNF in 2000 as a visiting faculty member in the College of Computing, Sciences and Engineering. Over the next 20 years, he developed the Monitoring, Mapping, Analysis and Planning Systems Lab and significantly contributed to the formation of the Environmental Center, now the Institute of Environmental Research and Education (IERE).

His greatest passion was mentoring students and helping them gain the skills to advance their careers. Dr. Lambert could often be found working late with students teaching them GIS. One of his proudest accomplishments was the creation of the Environmental Leadership Program, which provides students scholarships to complete community-based projects. He wanted to create a program that would train the next generation of environmental leaders, while also empowering students to make real contributions to their community.

Dr. Lambert will be greatly missed by the Osprey community. An endowed scholarship has been established in his name by his family. The scholarship will provide support to students with a passion for environmental science and GIS. The first scholarship will be awarded in fall 2022.



# COMMUNITY COUNCIL

**Chuck Ged**

Charles “Chuck” Ged is the owner of Advanced Environmental Laboratories and a graduate of UNF.

**James Richardson**

James A. Richardson, II is a native of Jacksonville. Since April 2012, he has worked with the City of Jacksonville as program administrator for the Jacksonville Environmental Protection Board.

**Rhodes Robinson**

Rhodes Robinson is a wildlife biologist, certified environmental professional and professional wetland scientist.

**Jim Schwarz**

James “Jim” Schwarz works with business leaders, organizations and business groups enabling them to achieve their strategic goals.

**David Strickland**

David Strickland retired in 2013 after 42 years in banking. Strickland has served on many boards including the Cummer Museum and Jacksonville University’s Marine Science Research Institute.

## Support IERE

All IERE programs are funded through external gifts and grants. Gifts to IERE will provide students with scholarships, support programs that create the next generation of environmental leaders and enhance faculty research.

There are multiple ways to support IERE. Please consider making a gift today by visiting [www.unf.edu/environment](http://www.unf.edu/environment) or contact Director of Development for Academic and Student Affairs Kathleen Leone at [k.leone@unf.edu](mailto:k.leone@unf.edu).

# FACULTY EXECUTIVE BOARD

**Amber Barnes, Ph.D.**

Department of Public Health  
Brooks College of Health

**Christopher Baynard, Ph.D.**

Department of Economics and Geography  
Coggin College of Business

**Jeffrey Chamberlain, Ph.D.**

Hicks Honors College

**Chiradip Chatterjee, Ph.D.**

Department of Economics and Geography  
Coggin College of Business

**Charles E. Closmann, Ph.D.**

Department of History  
College of Arts and Sciences

**Raphael W. Crowley, Ph.D.**

Taylor Engineering Research Institute  
College of Computing, Engineering and Construction

**Josh Gellers, Ph.D.**

Department of Political Science and Public Administration  
College of Arts and Sciences

**Katrina W. Hall, Ph.D.**

Department of Childhood Education, Literacy and TESOL  
College of Education and Human Services

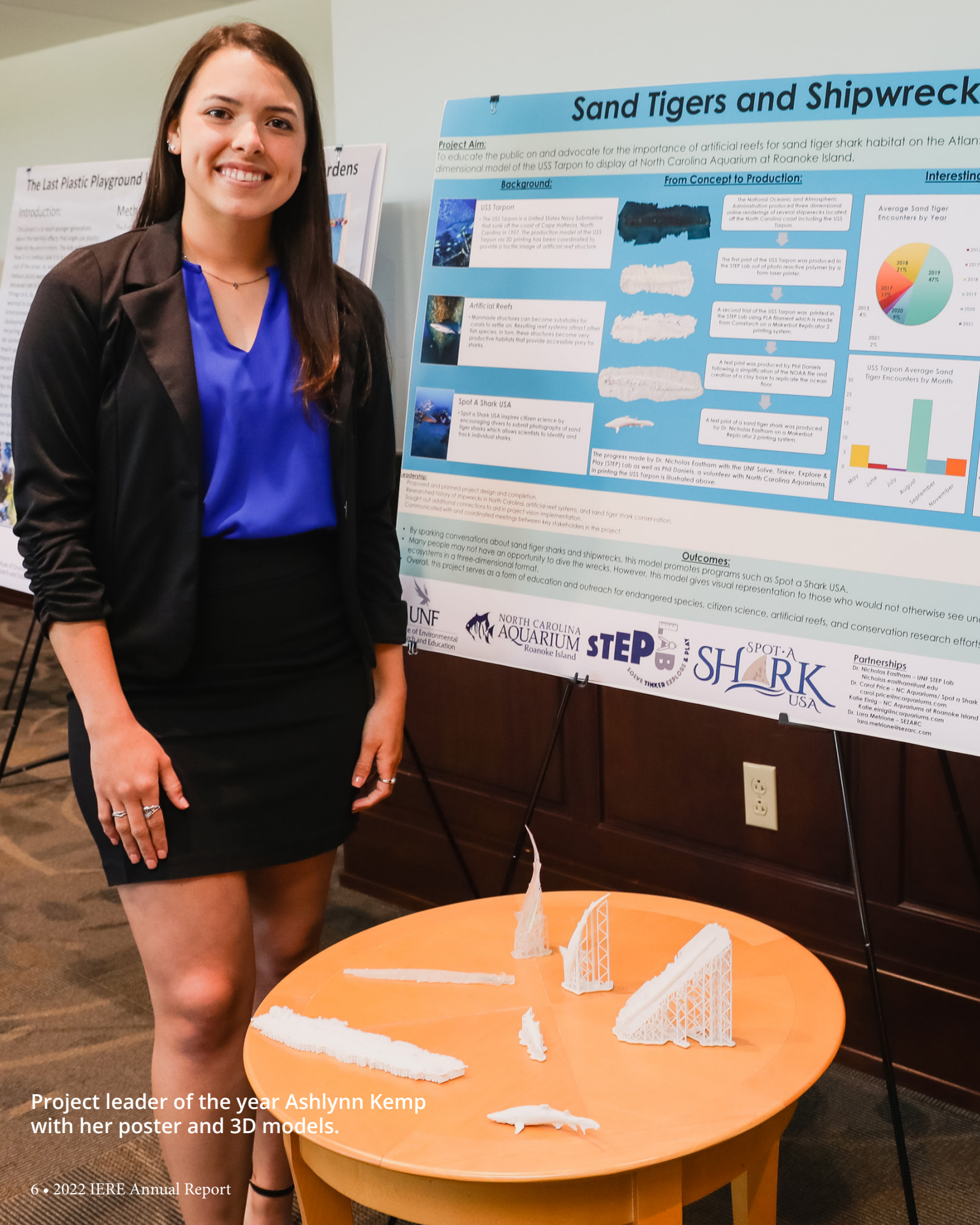
**Kelly Smith, Ph.D.**

Department of Biology  
College of Arts and Sciences

**Heather Barnes Truelove, Ph.D.**

Department of Psychology  
College of Arts and Sciences





# Sand Tigers and Shipwreck

**Project Aim:**  
To educate the public on and advocate for the importance of artificial reefs for sand tiger shark habitat on the Atlantic coast. A 3D dimensional model of the USS Tarpon to display at North Carolina Aquarium at Roanoke Island.

## Background:



### USS Tarpon

The USS Tarpon is a United States Navy Submarine that sank off the coast of Cape Hatteras, North Carolina in 1917. The production model of the USS Tarpon via 3D printing has been coordinated to provide a tactile image of artificial reef structure.



### Artificial Reefs

Manmade structures can become substrates for corals to settle on. Resulting reef systems attract other fish species. In turn, these structures become very productive habitats that provide accessible prey for sharks.



### Spot A Shark USA

Spot A Shark USA inspires citizen science by encouraging divers to submit photographs of sand tiger sharks which allows scientists to identify and track individual sharks.

## From Concept to Production:



The National Oceanic and Atmospheric Administration produced three dimensional online renderings of several shipwrecks located off the North Carolina coast including the USS Tarpon.



The first print of the USS Tarpon was produced in the STEP Lab out of photo reactive polymer by a form laser printer.



A second trial of the USS Tarpon was printed in the STEP Lab using FPLA filament which is made from Corastarch on a Makerbot Replicator 2 printing system.



A test print was produced by Phil Daniels following a simplification of the NOAA file and creation of a clay base to replicate the ocean floor.

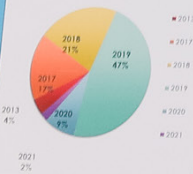


A test print of a sand tiger shark was produced by Dr. Nicholas Eastham on a Makerbot Replicator 2 printing system.

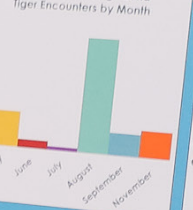
The progress made by Dr. Nicholas Eastham with the UNE Solve, Tinker, Explore & Play (STEP) Lab as well as Phil Daniels, a volunteer with North Carolina Aquariums, in printing the USS Tarpon is illustrated above.

## Interesting

### Average Sand Tiger Encounters by Year



### USS Tarpon Average Sand Tiger Encounters by Month



**Lessons:**  
Proposed and planned project design and completion.  
Researched history of shipwrecks in North Carolina, artificial reef systems, and sand tiger shark conservation.  
Sought out additional connections to add to project vision implementation.  
Communicated with and coordinated meetings between key stakeholders in the project.

## Outcomes:

By sparking conversations about sand tiger sharks and shipwrecks, this model promotes programs such as Spot a Shark USA. Many people may not have an opportunity to dive the wrecks. However, this model gives visual representation to those who would not otherwise see underwater ecosystems in a three-dimensional format. Overall, this project serves as a form of education and outreach for endangered species, citizen science, artificial reefs, and conservation research efforts.



UNF  
University of North Florida  
Office of Environmental  
Education



NORTH CAROLINA  
AQUARIUM  
Roanoke Island



STEP  
SOLVE TINKER EXPLORE & PLAY



SPOT A  
SHARK  
USA

**Partnerships**  
Dr. Nicholas Eastham - UNF STEP Lab  
Nicholas.eastham@unf.edu  
Dr. Carol Price - NC Aquariums, Spot a Shark  
carol.price@nc-aquariums.com  
Katie Enig - NC Aquariums at Roanoke Island  
katie.enig@nc-aquariums.com  
Dr. Lara Melhorne - SETARC  
lara.melhorne@setarc.com

Project leader of the year Ashlynn Kemp with her poster and 3D models.



# ENVIRONMENTAL LEADERSHIP

The Environmental Leadership Program (ELP) was started to help create the next generation of environmental leaders. In addition to ELP, IERE established an honors society to help provide leadership and professional development opportunities for students.

## Environmental Leadership Program

This year, the ELP was transformed into a two-part program consisting of fall leadership training and sustainability training and a spring project implementation portion of the program.

# \$55,000

**FUNDING FOR SCHOLARSHIPS  
AND STUDENT EXPERIENCE**

The ELP accepted 28 students in the fall semester. Collectively, these students had an average GPA of 3.43 with representation from almost all of UNF's colleges. Each student received a \$250 scholarship for the fall semester. During the semester, students traveled to Silver Springs to participate in a leadership retreat to practice team-building skills and grow as leaders. During this trip, students were also able to hear from Guy Marwick from the Felburn Foundation, a large supporter of the program. Leadership students also participated in exclusive leadership and sustainability training to improve their professional skills and knowledge of environmental topics.



Student Raf Thomas learning how to use firefighting tools from the park ranger at Silver Springs State Park.

The fall semester ended with students meeting with 15 different community partner organizations. Community partners consist of organizations around Jacksonville looking to complete an environmentally focused project. Students were then paired with partners to design and complete a project.

During the spring semester, 22 leadership students completed community-based projects with their community partners. Students were awarded a \$1,500 scholarship for their participation. There were a wide variety of interdisciplinary projects this year including planning volunteer events, 3D printing, creating field guides, GIS mapping projects and much more. At the end of the program, students created a project poster and presented their work at the ELP Spring Symposium. Finally, students were able to showcase their work at the UNF Showcase of Osprey Advancements in Research and Scholarship (SOARS).

## Project Leader of the Year

Project Leader of Year, Ashlynn Kemp, is a coastal and marine biology major and the new president of UNF's environmental honors society, Kappa Alpha Omicron.

Kemp's leadership project focused on educating the public and advocating for the importance of artificial reefs for sand tiger shark habitats on the Atlantic coast by creating a three-dimensional model of the USS Tarpon to display at the North Carolina Aquarium at Roanoke Island. The USS Tarpon is a United States Navy submarine that sunk off the coast of Cape Hatteras, North Carolina, in 1957 and has since transformed into an artificial reef.

One of Kemp's most impressive accomplishments is leading a collaboration between multiple organizations including UNF's STEP Lab with Dr. Nicholas Eastham, the North Carolina Aquarium at Roanoke Island and Spot a Shark USA. Kemp's project will be vital to continue exploring new methods of constructing the best possible model for use at NC aquariums to inform the public on artificial reef systems and their importance to sand tiger sharks.





Students collecting samples during the Florida Field School spring break trip.



# ENVIRONMENTAL EDUCATION

Many IERE programs are designed to enhance the academic experience for students. IERE collaborates with faculty and community partners to create unique high-impact learning opportunities for both undergraduate and graduate students.

## Florida Field School

Building on the past success of the St. Johns River Experience, the Florida Field School challenges students both intellectually and physically. During the field school, students will experience a combination of classroom and experiential learning, and will learn about current environmental research, potential careers and graduate school opportunities.

There are two types of Florida Field School programs offered by IERE. Field Fridays are one-day experiences that take students into the field with researchers and professionals to learn about relevant environmental issues. IERE hosted three Field Fridays in 2021-22 focused on topics such as resiliency, forestry and wildlife conservation.

The spring break field school is a more in-depth experience that takes place during spring break. During this trip, students will visit some of Florida's best natural areas and speak with the researchers and professionals who are managing and restoring these areas. This year's spring break field school took place on Florida's Nature Coast, where students learned about aquatic preserves, manatee protection and other important topics.

## Environmental Studies

The interdisciplinary minor in environmental studies provides students with coursework that explores the relationship between humans and the natural environment. The environmental studies minor is a great option for any student passionate about the environment and/or any student interested in environmental careers or pursuing an environmentally-related graduate degree.

Student demand for the minor is steadily growing; 77 students representing all UNF colleges are currently enrolled, which is up from 65 students in 2021 and 52 in 2020. In fact, the Brooks College of Health and the College of Computing, Engineering and Construction both increased student enrollment by 60% in 2022. The IERE Faculty Executive Board is now working on

expanding efforts to plan for a new interdisciplinary environmental studies and/or environmental studies degree that will connect students to all colleges around environmental science.

## Environmental Sustainability LLC

The Environmental Sustainability Living-Learning Community (LLC) is a new program that provides an exciting opportunity for students to get started on an environmental leadership path. Students will engage in the campus environment, local Northeast Florida ecosystems and beyond. Students will be empowered to make a positive impact on the environment in ways that are exclusive and unique to the first-year students in the LLC.

## UNF-KAO Honors Society

Twelve new members were inducted into the KAO Honors Society this year, with a total of 38 active members. The KAO Honors Society is associated with the Interdisciplinary Environmental Association, and is ideal for high achieving students interested in environmental sciences and studies.



The KAO Honors Society visited the UF Museum of Natural History.

Students benefit by participating in social engagement opportunities, professional development, networking opportunities, as well as receiving honors cords and pins to display during graduation. Students participated in multiple activities on and off campus including community cleanups, birding socials, a visit to the Florida Museum of Natural History and a 30-day carbon challenge. KAO members elected a new executive team for the next fiscal year.





Students cleaning a shoreline along the St. Johns River for a plastic pollution cleanup.



# ENVIRONMENTAL RESEARCH

Supporting faculty research through development grants and providing research support has been a top priority for IERE since it was founded.

## Seed Grants

Seed Grants are provided to faculty to stimulate the creation of multidisciplinary research projects related to the environment. The grants assist faculty with the purchase of equipment and supplies and provide paid research opportunities for students.

Since 2006, IERE has provided nearly \$200,000 in research support to more than 100 faculty members representing all UNF colleges. Funding for Seed Grants is provided by the River Branch Endowment and Vulcan Materials Company Foundation.

### *2022 Seed Grant Recipients*

#### **Do the “forever chemicals” pose significant health risks to human and aquatic wildlife populations in Northeast Florida?**

Jim Gelsleichter, Ph.D., Department of Biology

Amber Barnes, Ph.D., Department of Public Health

#### **Field analysis of pervious oyster shell habitat (posh) erosion mitigation performance**

Raphael Crowley, Ph.D., Taylor Engineering Research Institute

Kelly J. Smith, Ph.D., Department of Biology

William R. Dally, Ph.D., Taylor Engineering Research Institute

## Plastic Pollution

The Plastic Pollution project is a two-year study funded by the National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program. Essentially, the research team is working to reduce single-use plastic consumption and foster long-term pro-environmental behaviors among undergraduates in coastal communities. Ultimately, the goal is to reduce the generation of marine debris in those areas over time.

During the grant period, the researchers and IERE will integrate plastic reduction challenges, education and outreach initiatives to increase awareness, affect attitudes and beliefs and encourage behavioral changes among members of the campus community regarding reducing plastic consumption.

Dr. Erin Largo-Wight, director of the IERE and professor of public health, and Dr. Heather Barnes Truelove, associate professor of psychology, are co-principal investigators and UNF lead researchers. They are working with a team of four faculty members from Eckerd College in coastal biology, environmental science and computer science.



Students from the Environmental Sustainability LLC participating in a cleanup along the St. Johns River.

The grant would not be possible without IERE's leadership in the outreach and education efforts. These efforts are designed to raise awareness about marine debris, facilitate understanding of the connections between actions and impacts in the marine environment and encourage behavior change. The activities include both formal (e.g., courses or modules) and informal (e.g., lectures, workshops, cleanups open to voluntary participation by members of the community) education experiences.

## Jacksonville Heat Map

The University of North Florida and the City of Jacksonville are partnering on a community-led campaign to identify local urban heat hotspots, raise awareness about heat risk, incorporate local perspectives to produce heat maps and engage the community in pursuing solutions. Dr. Adam Rosenblatt, assistant professor of biology, is the principal investigator and UNF lead researcher. The work is funded in part by the National Oceanic and Atmospheric Administration (NOAA).



Institute of Environmental  
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