

**Florida Gulf Coast  
University**



# Engage K-12 Audiences in Their Watershed Through Use of Geospatial Technologies

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# Presenters



# Shaping Future GIS Water Resource Professionals @ FGCU

Faculty, Staff & Student

- Research
- Teaching





Service-Learning  
& Civic Engagement

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# Environmental GIS Community Projects

FGCU students in the GIS Class have the option to partner with community groups to develop their final GIS project and earn service-learning hours.

- Naples Zoo
- ECHO Global Farm
- Engaged Estero
- CREW Land & Water Trust
- Fakahatchee State Park



## Climate Resiliency focuses on Mitigation & Adaptation.

**Mitigation** by identifying and addressing the root causes of climate change.

**Adaptation** by protecting against current climate crisis threats and preparing for future changes as well.



# Teaching Resiliency through Environmental Education in Schoolyards T.R.E.E.S.

The T.R.E.E.S. curriculum is Florida standards-based GIS integrated lessons and activities that allow educators to utilize their schoolyards as living laboratories to collect data and better understand their community.

# T.R.E.E.S. Planning

## Needs Assessment of EE in Schools

- Science and math needs related to data collection and analysis
- Schoolyards vary by campus
- Teacher training for a new program

## FGCU The Water School Expertise and Resources

- CES works directly with teachers, schools, and district curriculum experts
- CES grows environmental know-how through education and nurtures connections to nature through direct experiences
- TWS utilizes ArcGIS Online among many other GIS tools for research, teaching, and training

## Shared Vision

- All students will spend more time in their schoolyard
- All students will benefit from a sense of place, regular data collection/analysis, and an understanding of their local environment
- Teachers and students will be able to develop projects based on these experiences related to their local climate resiliency issues

# T.R.E.E.S. Development

## Phase 1 Shared Tools

- ArcGIS Online used by FGCU and adopted by the school districts
- Development of pilot lessons, activities, and GIS tools (Survey123, Maps, & Dashboards)
- School outreach presenting at STEM events, tabling, open houses, teacher conferences

## Phase 2 Early Adoptors

- From outreach identify teachers and students to test out the curriculum
- Make opportunities for teachers and students to share their experiences and make changes to the curriculum.
- Offer trainings for teachers to develop proficiency in using ArcGIS Online Survey123, Map Viewer, & Dashboard.

## Phase 3 Curriculum Guide Integration

- All students will spend more time in their schoolyard
- All students will benefit from a sense of place, regular data collection/analysis, and an understanding of their local environment
- Teachers and students will be able to develop projects based on these experiences related to their local climate resiliency issues



10:01 AM

Leatherback

Loggerhead

Add an image of the environment where the nest is located.

Select image file

What type of data are you submitting?\*

Qualitative data are observations and use words to express information.  
Quantitative data uses numbers to express information.

Qualitative

Quantitative

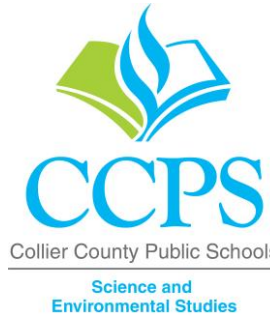
What is the internal nest temperature?\*

Measurement is in degrees Celsius.

Submit

Powered by ArcGIS Survey123

# School District Collaborations



**PERSONAL | PASSIONATE  
PROGRESSIVE**

**Learn to Use Geospatial Tools in the K-12 Science Classroom**

Bring a science lesson that collects data outside to this workshop.

During the workshop you will,

1. Develop an easy-to-use data collection survey for that lesson.
2. Practice GIS (Geographic Information System) data collection.
3. Build a map & design a data dashboard with the collected data.

Training Facilitators  
**Regina Bale**  
 Environmental Education Coordinator

**Dhruvkumar Shatt**  
 GIS Analyst I

Tuesday, June 6, 2023 @FGCU Academic Building 9  
 The Water School from 9am-3pm

FGCU Register for this paid science training on



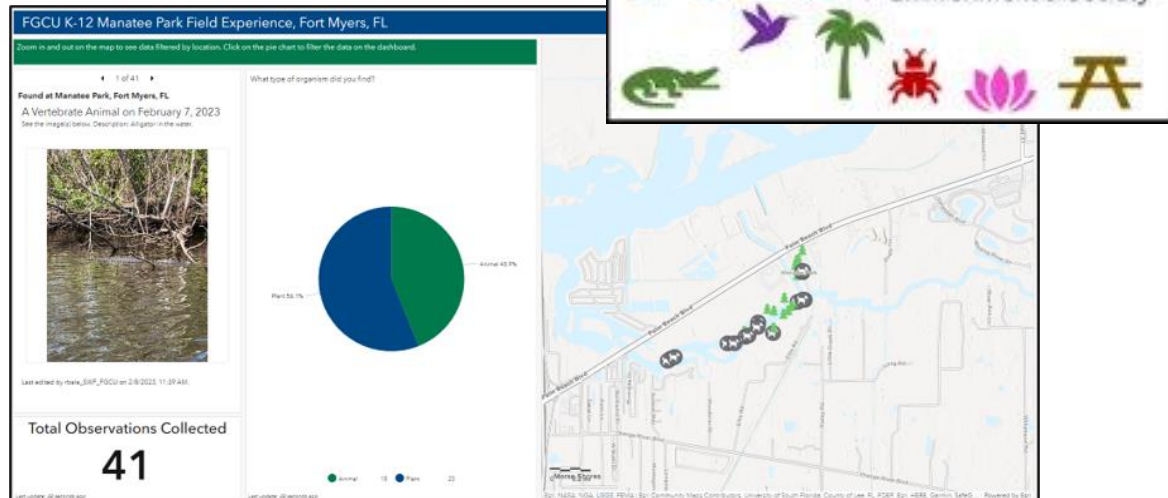
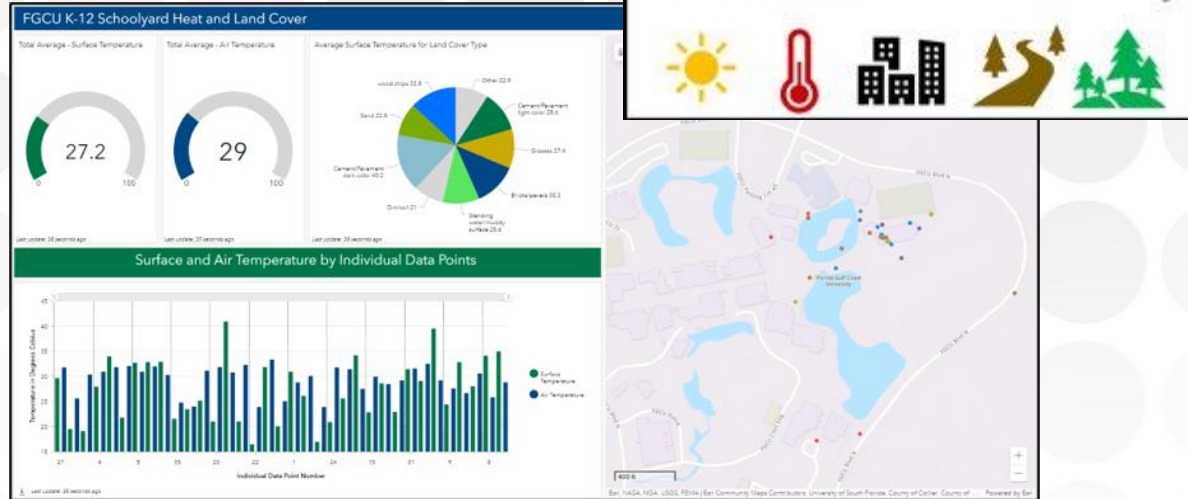
- Testing K-12 activities designed at FGCU
- Teachers adapting activities for their classrooms
- Teacher training with ArcGIS Online software to develop their own data collection tools



# Teacher Training: GIS Software and Lesson Planning

Training sessions for teachers have occurred at school sites and on the FGCU campus.

Teacher training in using GIS for schoolyard learning involves lesson plan development along with designing the GIS tools students will use.



# T.R.E.E.S. Next Steps

- Continue teacher training and support for Lee and Collier county schools
- Begin outreach to the rest of the SWFL service area for FGCU (Charlotte, Collier, Glades, Hendry, and Lee)
- Expand T.R.E.E.S. development team
- Develop more partnerships around the region

