Issue No. 1 | August 2021

GUANA NUTRIENTS BUDGETS & BIVALVES

Biannual Newsletter of the NERRS Science Collaborative Project
"Assessing the Current and Potential Role of Shellfish for Improving Water Quality"

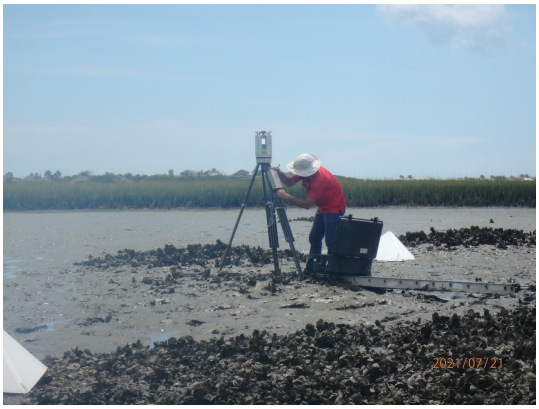
From the Field

Drone flight over Guana River

Written by Hallie Fischman, University of Florida

In late July, University of Florida students Andrew Ortega, Orlando Cordero, and I (Hallie Fischman) identified five focal oyster reefs in the Guana River and mapped them using drone images and a terrestrial laser scanner. The laser scanner uses LiDAR to build a high-resolution point cloud of the oyster reef and surrounding sediment.

Photogrammetry from the drone images will allow us to build a detailed, georeferenced photo of the focal reef and adjacent reef, mudflat, and marsh areas. Together, these maps will allow us to track reef growth in three dimensions over the duration of the project. The five focal reefs span from the Guana dam to the river mouth, so we may see effects from oyster harvesting in the shellfish harvest zone or differences in growth caused by the dam.



Top: Orlando Cordero and Hallie Fischman deploying a pressure sensor to read water depth. Center: Orlando setting up the terrestrial laser scanner. Bottom: Andrew Ortega droning the oyster reef (right). Note the pyramid drone target in the background and the terrestrial laser scanner on the left.
(Photo credit: Pam Marcum)

LiDAR: stands for Light Detection and Ranging, it is a remote sensing method that uses light in the form of a pulsed laser to measure variable distances to the Earth

Point cloud: a set of data points in space that represent a 3D object or shape

Photogrammetry: scientific and technological techniques that can make measurements from real-world physical objects

Mark Your Calendars

Your Feedback

Thank you for the feedback that you provided at the May 13, 2021 project kick-off stakeholder meeting! With your feedback, we have adjusted our stakeholder meetings from four times a year to two. See below for a schedule of when and how the project team will share updates through 2024:

- February: Newsletter
- May: In-person meeting
- August: Newsletter
- November: Virtual meeting

Field Opportunities

Interested in joining the project team in the field? Join "Mussel Counting and More" on Friday September 17th, 11:00 a.m.- 4:00 p.m. To join, please reach out to HallieFischman@ufl.edu.

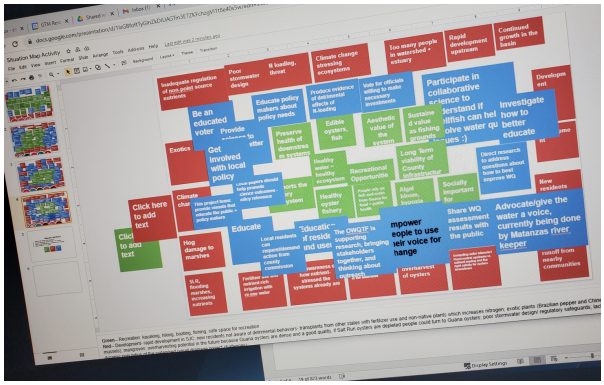
Next Meeting Details

Please save-the-date for our fall virtual stakeholder meeting. Details will be sent through email in late October.

DATE: November 30, 2021

TIME: 1:30- 3:30 p.m. (subject to change)

For more information, contact Kaitlyn.Dietz@FloridaDEP.gov.



A screengrab from our May 13, 2021 project kick-off stakeholder meeting.

Meet the Collaborative Team

Ashley Smyth, Ph.D.

Ashley is an Assistant Professor in the Soil & Water Sciences Department, located at the Tropical Research and Education Center, in Homestead, just south of Miami. Her research focuses on the sediment biogeochemical cycling and understanding how human activities modify the structure and function and chemistry of shallow coastal ecosystems. Ashley has a PhD in Marine Science from the University of North Carolina at Chapel Hill and was a postdoc at the Virginia Institute of Marine Science and University of Kansas before joining the UF faculty in 2017. Since moving to South Florida, Ashley has found an appreciation for cubaton music and mamey. She is the PI on the Guana Nutrients: Budgets and Bivalves and is excited to make measurements on denitrification from oyster reefs in Florida and find out how Guana Lake breathes.

Kaitlyn Dietz

Kaitlyn is the Coastal Training Coordinator at the GTM Research Reserve, located in Ponte Vedra Beach, Florida. As coordinator, Kaitlyn provides up-to-date scientific information and skill-building tools through workshops and technical assistance to empower local decision makers to make science-based decisions that impact coastal ecosystems and communities. Kaitlyn has a Masters in Marine Science from Jacksonville University and has been at the Reserve since 2014. Outside of the office, Kaitlyn enjoys volunteering for a local sea turtle patrol and sea turtle hospital, brewing kombucha, and crafting. Kaitlyn is a co-collaborative lead on the Guana Nutrients: Budgets and Bivalves project and is looking forward to a community level solution to help the water and habitats in the Guana River Estuary.

About the Project: http://www.nerrssciencecollaborative.org/project/Smyth20

Contact: Ashley.Smyth@ufl.edu or Kaitlyn.Dietz@FloridaDEP.gov