Re-Engineering Living Shorelines to Halt Erosion and Restore High-Energy Coastal Environments

Kaitlyn Dietz
Guana Tolomato Matanzas National Estuarine Research Reserve

"Using the NERRS as platforms for testing shoreline restoration strategies"
12/10/2018
Intracoastal Waterway (ICW) shoreline
Many living shoreline designs fail
Our approach: **two** lines of defense

Bird’s Eye View of One Experimental Living Shorelines Treatment

Paired living shoreline & unmanipulated controls at 6 sites of varying channel width

1 year pre-treatment + 1 year of post-treatment monitoring
Semi-permeable branch-filled break walls

Oyster shell-filled gabions

Potato-based BESE-elements
Volunteers
Research
Education

**LIVING SHORELINES**

**THE CONNECTION...**
The waters of the Reserve sanctuary are highly productive and fragile. Salt marshes and oyster reefs provide many valuable services including shoreline protection, nursery habitat, food web support, water filtration, and sequestering carbon.

**THE ISSUE...**
People have relied upon and shaped the Reserve lands over time and across many cultures. Increased wave energy on the Intracoastal Waterway has led to increased erosion and net loss of habitat. As marsh habitats disappear, so do the valuable services they once provided.

**THE INNOVATION...**
The University of Florida and Georgia Tech have developed a hybrid way to construct living shorelines. Benefits to this approach include:
- Reduced wave energy striking the shoreline,
- Reduced shoreline erosion,
- Restored reefs using recycled oyster shell, and
- Expanded natural shoreline processes.

While on the water, keep a lookout for our hybrid living shorelines within the Tomoka River (see map). Please take caution when recreating near these research sites.

**CAUTION**

Oysters working hard for the money

This project is funded by the Florida Sea Grant Graduate Collaborative, which is sponsored by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration.
Coastal Training Program

https://goo.gl/71EN6B
• Additional data; published and unpublished
• Local knowledge
• Increased awareness
• Permitting
• Manpower, volunteers and partnerships
• Coastal Training Program; Education
• Vessels and vehicles
“Lead by example through innovating, testing, and applying best management practices, planning approaches, and behaviors.”