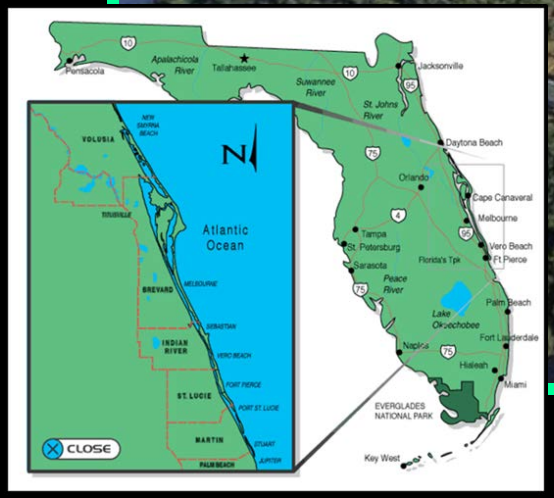
Oyster Reef Restoration & Boating Activity

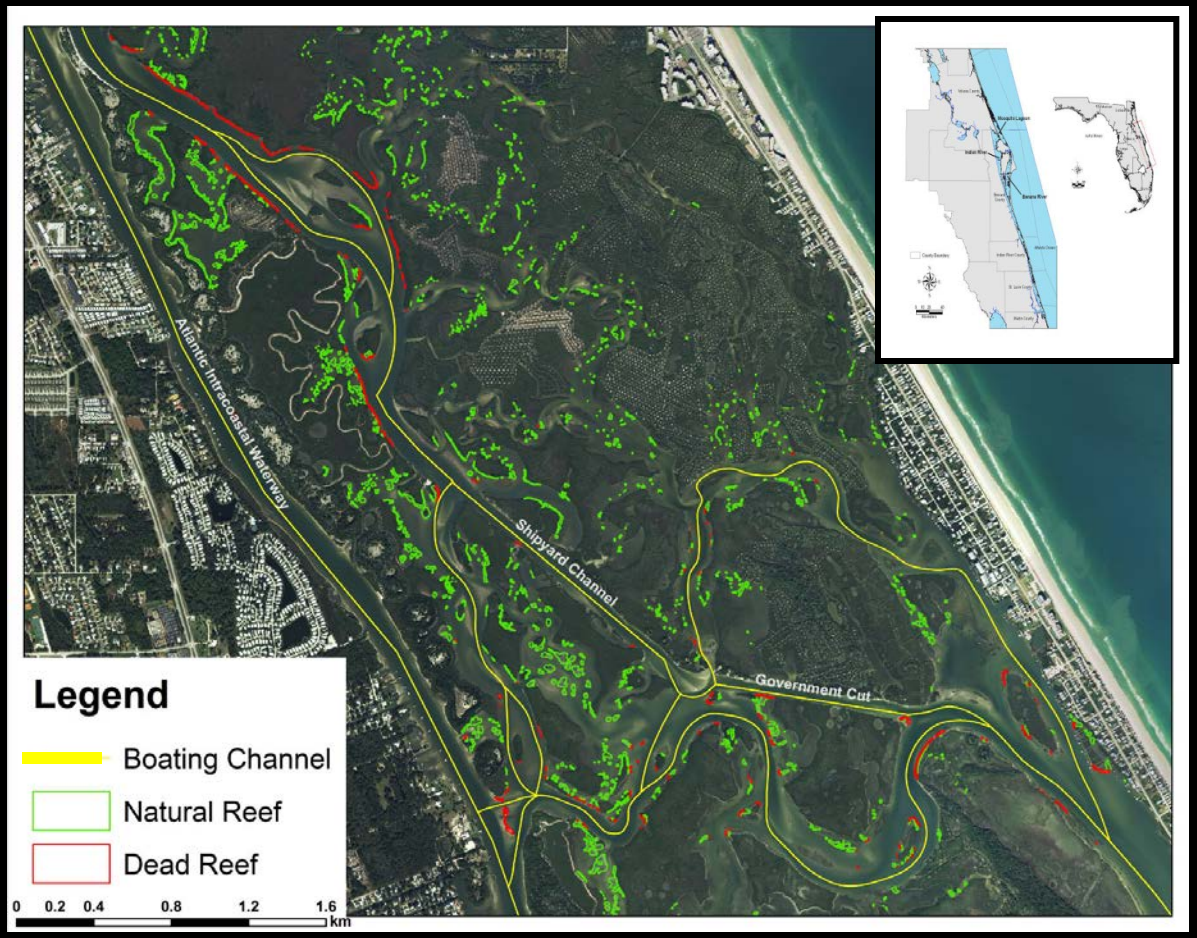
L. Walters, P. Sacks, S. Garvis UCF Biology
J. Palmer, K. Fusco Brevard Zoo

Indian River Lagoon, Florida, USA



In 2005, retail sales associated with recreational fishing in *northern* half of IRL totaled $262.9 million

ARC GIS Map of Oyster Reefs in Mosquito Lagoon



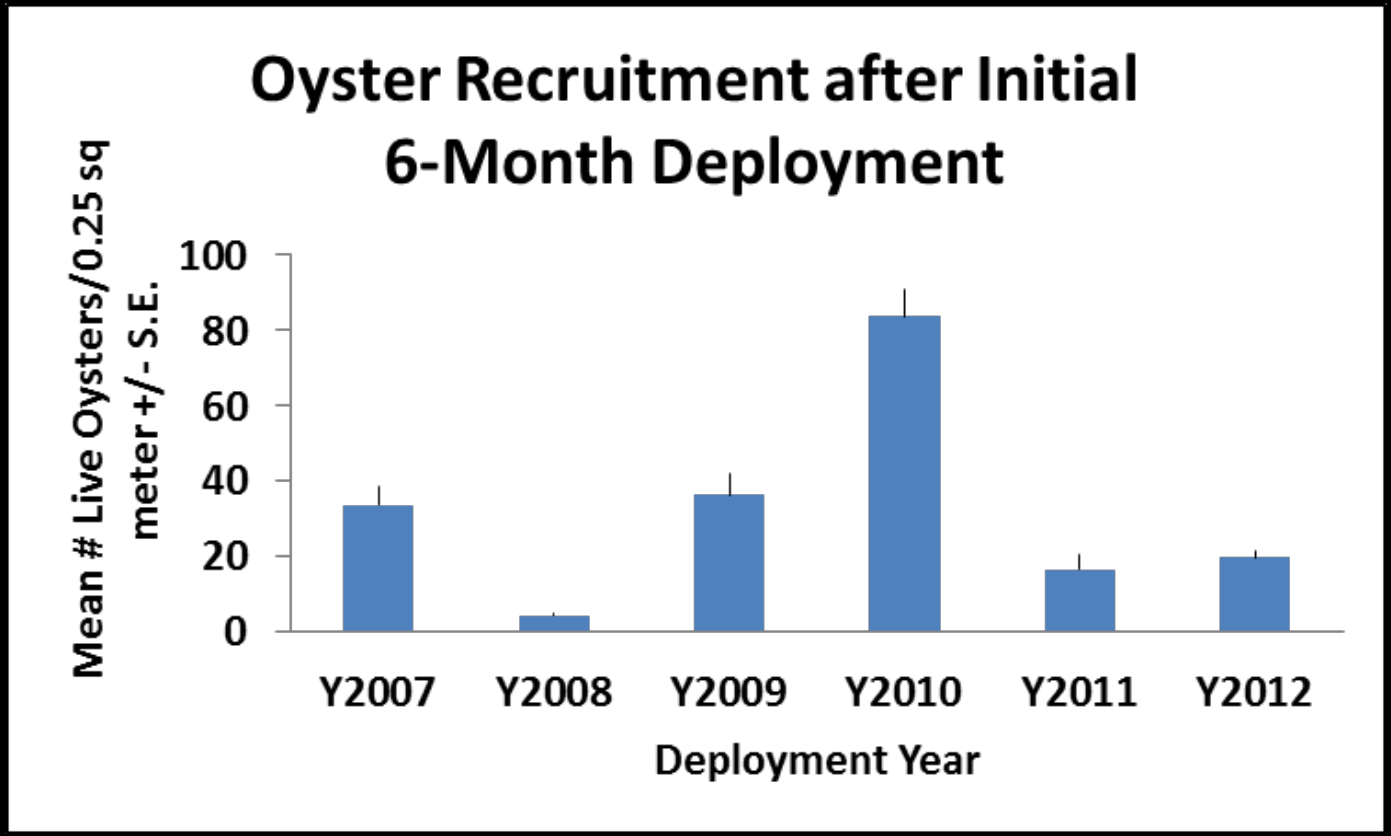
Mosquito Lagoon
Total reefs: 2802
Dead reefs: 262 (9.3%)

Canaveral National Seashore
Total reefs: 645
Dead reefs: 122 (18.9%)

DEAD REEF

Why is the number of live reefs declining?

1) Disease
2) Water quality
3) Salinity
4) Storms
5) Algal Blooms
6) Recreational boating



= the brown tide microalga *Aureoumbra lagunensis*

Did NOT kill all oysters in 2012

Is recreational boating the problem?

Potential Problems Related to Boating

- Boat strikes
- Chemicals

- Noise
- Boat wakes

Reduce boat strikes

REEL Florida iPhone App

Reel Florida™

Boat Smart. It's Our Nature.

ReelFl.org /ReelFl bit.ly/ReelFlorida

Become a part of our community today by:

- *Learning* the importance of sea grasses, oyster reefs, mangroves, and marsh cordgrass.
- *Understanding* the damage of improper boating on the lagoon.
- *Practicing* smart boating by minimizing contact with these sensitive species.
- *Being* a smart boating role model by navigating responsibly.
- *Knowing* you're helping preserve Mosquito Lagoon for future generations.

UCF NOAA Sea Grant Florida

Download the official *Reel Florida*™ app today to boat smart while enjoying the beautiful waters and wildlife of Mosquito Lagoon. Our app features:

- **Real-time maps** that identify locations of ecologically-sensitive habitats.
- **Useful locations** like boat ramps, historic sites, fishing spots and so much more.
- **Photographic dictionary of species** known to thrive in and around the lagoon.
- **Contact info** for local services and agencies involved in lagoon management and protection.

Download our app Now!

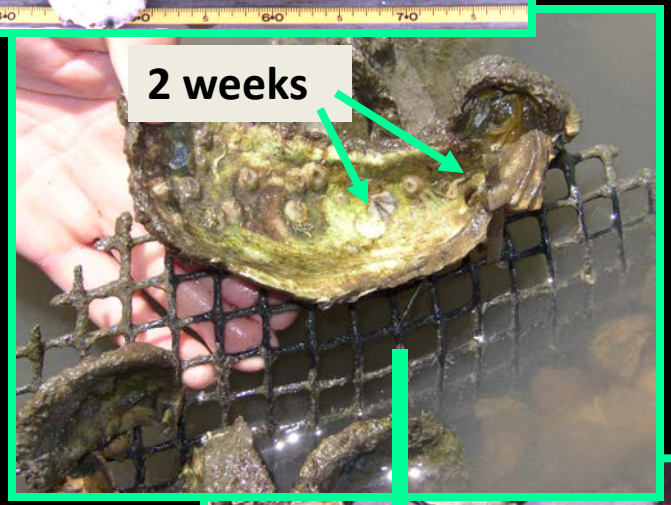
Available on the App Store

Search "Reel Florida" in the Apple App Store or visit us at bit.ly/ReelFlorida

Boat Wake Problem

- Lagoon is shallow (1.5 m) & microtidal (10 cm)
- Intense recreational boating pressure
- Intertidal oysters grow as clusters in sediment
- Clusters dislodged by wakes, pushed up above high tide line and stuck!

Solution: Oyster Restoration Mats



1 year

4 years of testing of materials, field retention, and biodiversity accumulation prior to community engagement

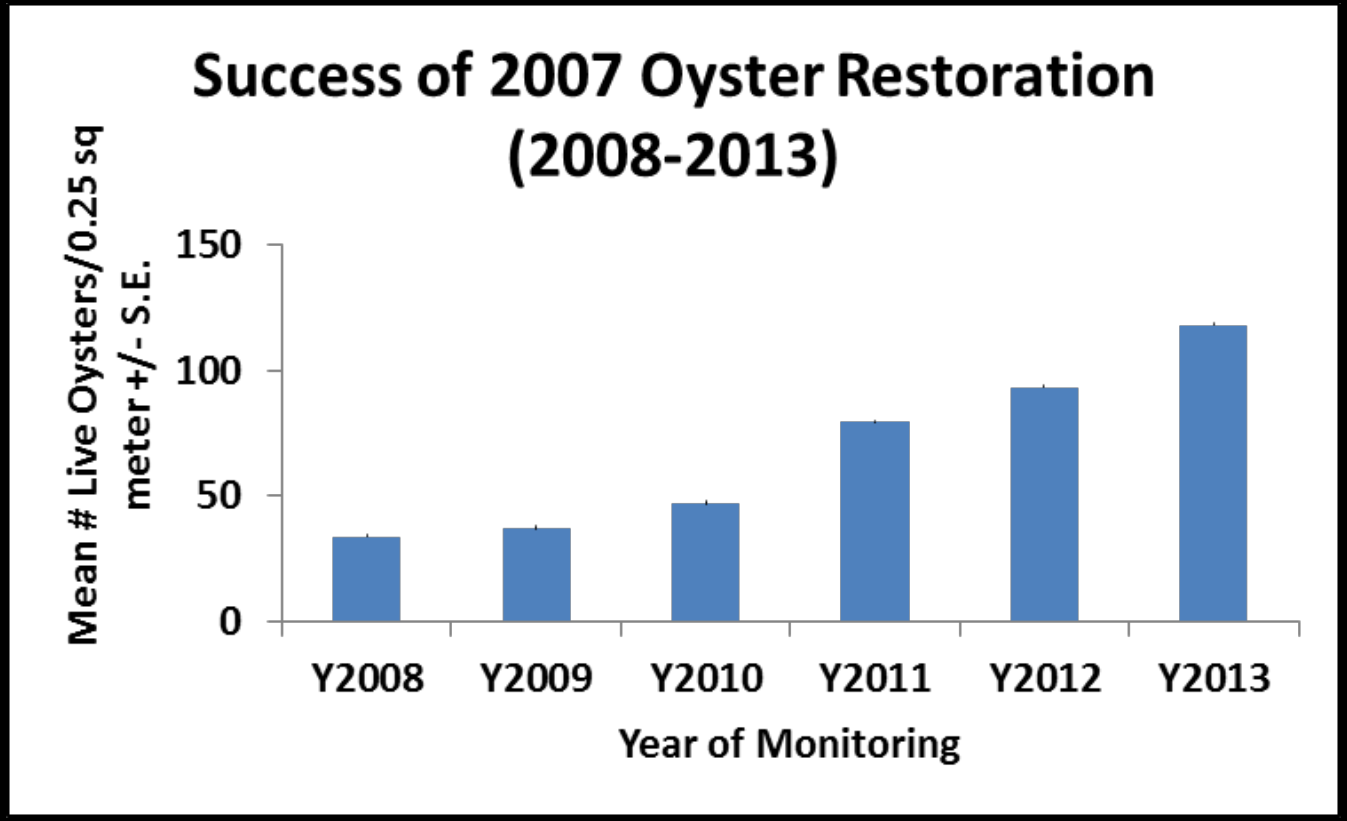
Community Engagement: Oyster Reef Restoration

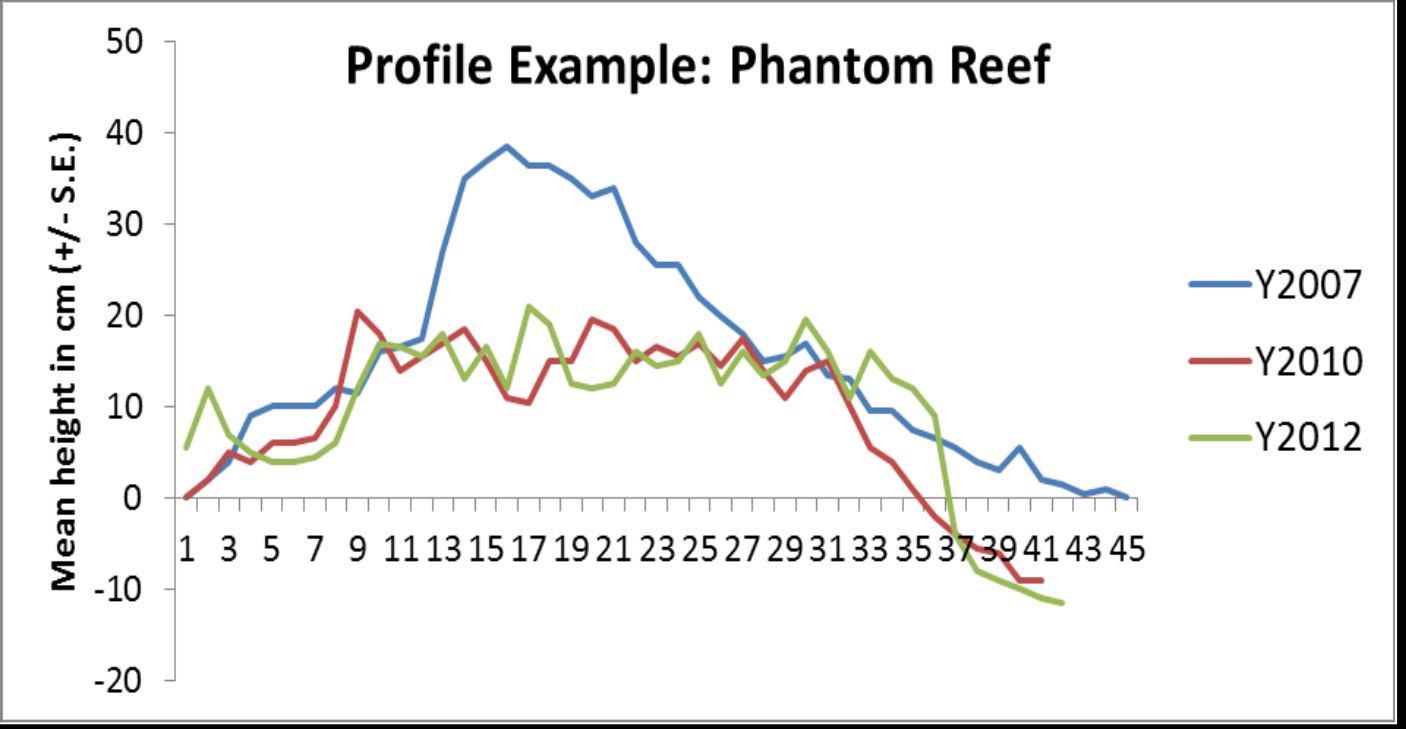
Oyster Restoration Update

69 reefs restored (2.0 acres)

- 472 live oysters/square meter
- Substrate for 5 million^{+} oysters
- 36,704 volunteers (3456 volunteers in past 12 months)

Reefs Restored in 2007: 472 live oysters/m^2





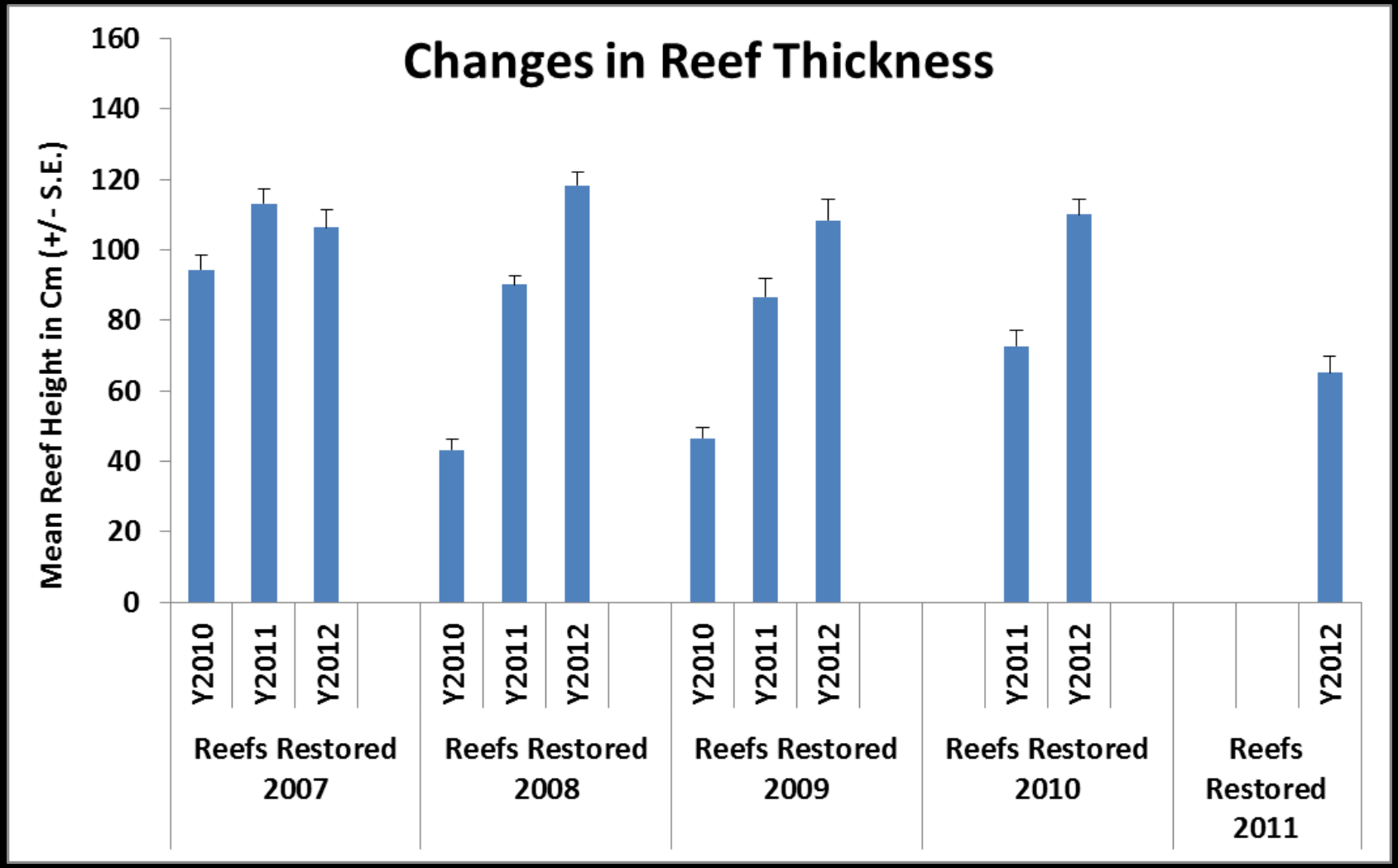
No return of dead reef areas after 5 years

Biodiversity rapidly returns to restored reefs

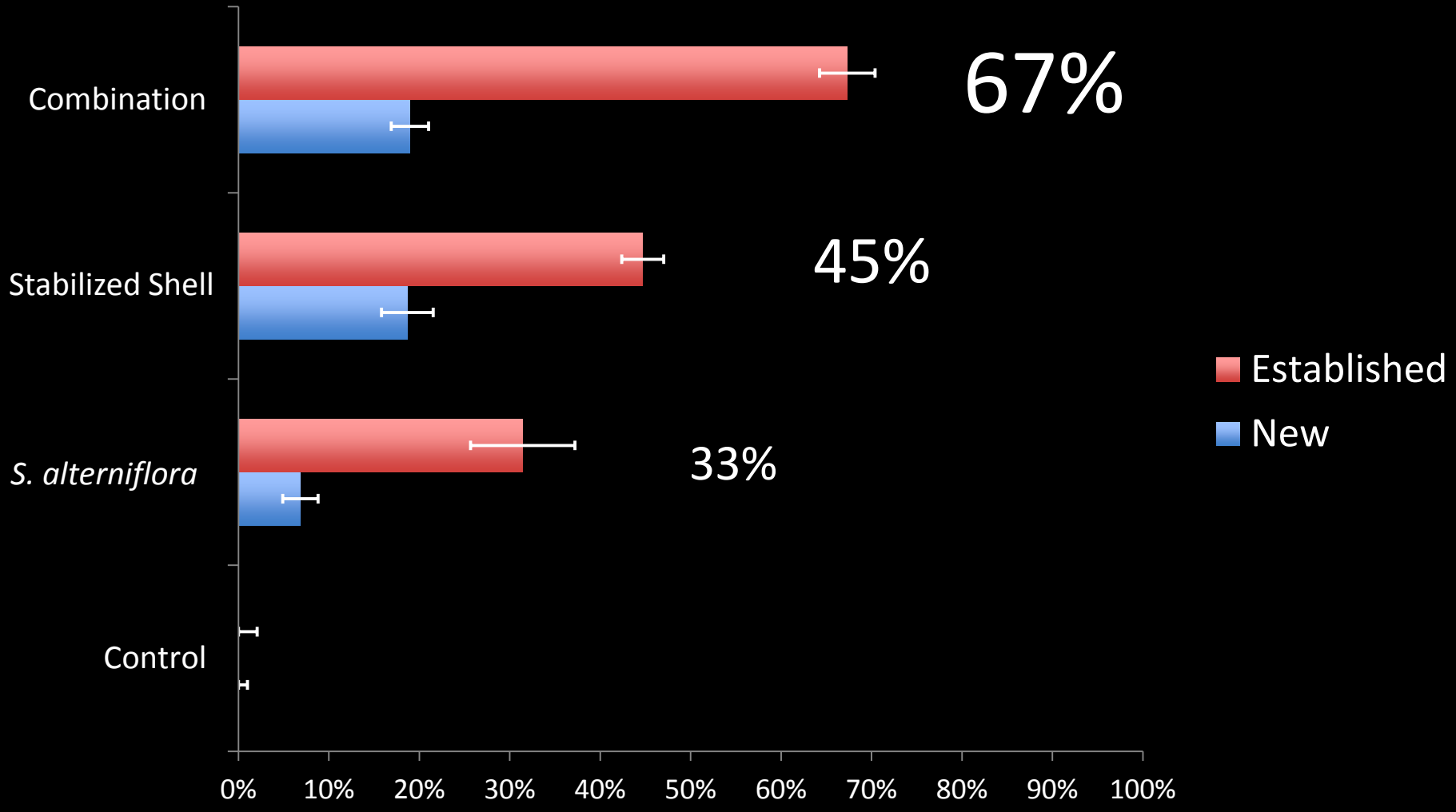
New seagrass recruitment: 37% of restored reefs

Reef Thickness:

Local sea level rise = 2.34 mm/yr



Wave Energy Dissipation:
1-yr old Oysters + Marshgrass

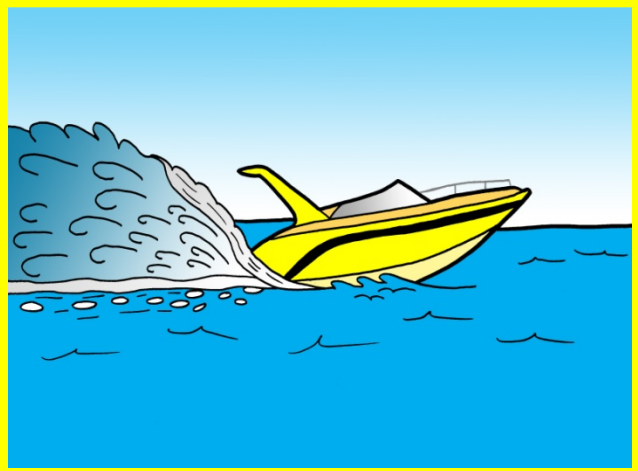


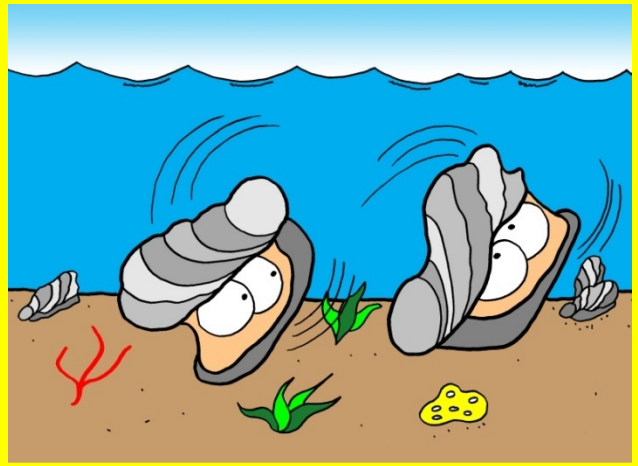
Outreach for All Ages:
Storybook for Pre-K through Second Grade

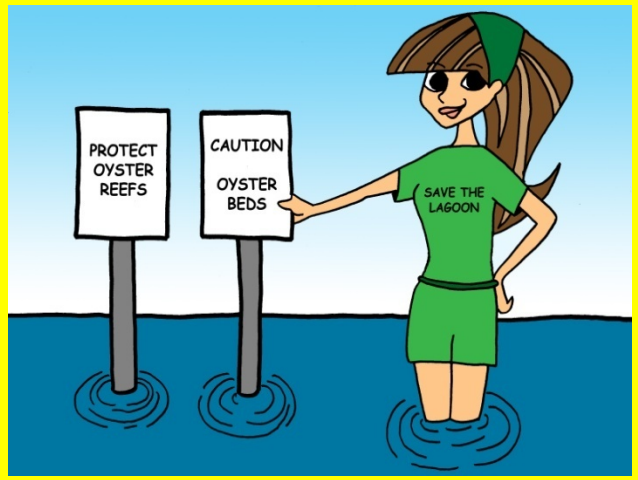
Along came a yellow speed boat flying through the water.
It's wake splashed the one,
It's wake crashed the other.
"Help! Help!" cried the oysters
in the warm, shallow water.

There were the oysters holding on to each other.
"I'm flipping" said the one.
"I'm rolling" said the other.
We're all out of place
in the warm, shallow water.

Along came a "green" lady posting signs in the water.
"Protect!" read the one,
"Caution!" read the other.
Slow down and be safe
in the warm, shallow water.

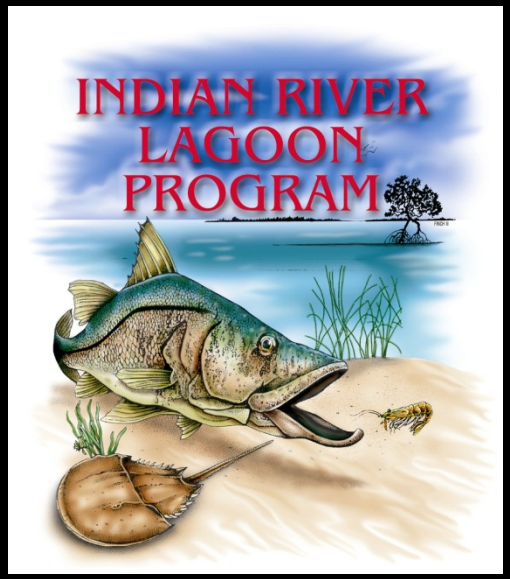






Thank You!

UCF



NATIONAL PARK SERVICE

Volusia County
FLORIDA

Disney FRIENDS FOR CHANGE project green

COASTAL CONSERVATION ASSOCIATION

Disney WORLDWIDE CONSERVATION FUND

The Nature Conservancy
Protecting nature. Preserving life.™

CESU

Friends of Canaveral

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA
U.S. DEPARTMENT OF COMMERCE

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
SJR

Anderson RENTALS INC
WWW.POTTY.COM 1-800-553-2213

BREVARD ZOO™