Challenges and Opportunities on the Edges of East Florida

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Edges of Our Estuaries Workshop – Oct 18-19, 2018

Introduction

Oysters



























Coastal Wetlands







Mangroves Replacing Marshes





Threats

Localized Predation



Oyster Harvest

	To De:	otal Oyste nsity (#/r	er n²)		Tolomato	
Tolomato Summer 2015	_		**	Car feet		
Salt Run Summer 2014			***		14	
Salt Run Winter 2015			***		Salt Ru	n
Salt Run Summer 2015			***	1		
Matanzas Summer 2015			*			
	0	1000	2000		Mata	nzas
	III r	on-harv	est	5. 14	States 1	
	harvest					
*** <0.001	**<0.01	. *<0.05		A Same	Weeren hart Childrathan and an	Contrator In, Linton, P, andersteps,

Boat Traffic

Boats in Tolomato River between 11/17/17 and 12/04/17



Shell Rakes





Shell Rakes











Shell Rakes

Change Analysis 1943-2009

Mosquito Lagoon Total reefs: 2542 Dead reefs: 247 (8.9%) Loss of coverage: 24%

<u>Canaveral National</u> <u>Seashore</u> Total reefs: 624 Dead reefs: 109 (17.5%) Loss of coverage: 40%

Movement of Dead Reefs 0.9 ± 0.3 m/y (Mean ± S.E.) Grizzle et al. 2002 Garvis et al. 2015

Shorebirds

Frequently used shell rakes by nesting oystercatchers (2012-2018)

Used by nesting Least Terns (2015-2018)

*ALL shell rakes along rivers in NE Florida are used by state listed shorebirds during the breeding and nonbreeding seasons

Storms and Sediment Dynamics

August 2008

100 KM 100 Miles

Summer Haven River

Google Earth

Image NASA Image U.S. Geological Survey Image USDA Farm Service Agency Image © 2018 DigitalGlobe

Marmeland

Summer Haven River Restoration Project (December 2016-September 2017, Turnbull Environmental, Inc.)

Excavation of 275,000 cubic yards of sand beginning in December 2016 and ending in September 2017 Closure of breaches due to Hurricane Matthew, Hurricane Irma, and Oct. 2017 nor'easter

Sea Level Rise and Upland Barriers to Marsh Migration

1 m SLR = -4230 ac salt marsh -790 ac tidal flats

Sea Level Rise and Sediment Supply

Management & Research Needs

Oyster Population Modeling

Habitat Mapping & Change

Shoreline Characterization

mean Linear (mean)

Fort Mose Historical State Park Midden in St. Augustine, Florida

Shell Rake Stabilization

Wetland Sustainability

Sentinel Site Application Module 1: Coastal Habitat Response to Changing Water Levels

DRAFT Implementation Plan

Guana Tolomato Matanzas National Estuarine Research Reserve

June 30, 2017

Wetland Sustainability

Big Mama