

Restoring Resiliency in Lake Worth Lagoon

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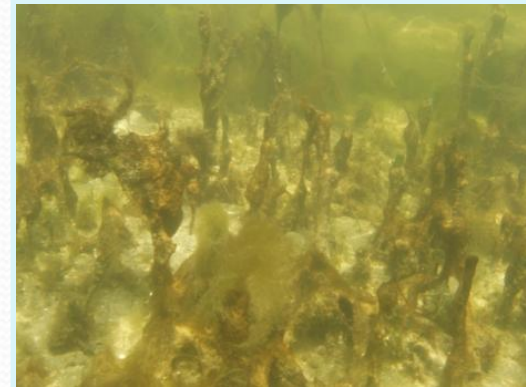
Lake Worth Lagoon

- Historically a freshwater lake
- 2 ocean inlets
- 20 mi long, 0.5 mi wide, 8' deep
- Village of North Palm Beach to Town of Ocean Ridge
- Intracoastal Waterway (ICW)
- 3 Canals—Central & Southern Flood Control



Indicators

- Loss of mangroves
- Loss of seagrass
- Decline in fisheries
- Murky water
- Muck deposits
- Blue-green algae blooms (Lyngbya)



LAKE WORTH LAGOON INITIATIVE



Habitat
Working Group

Water Resources
Working Group

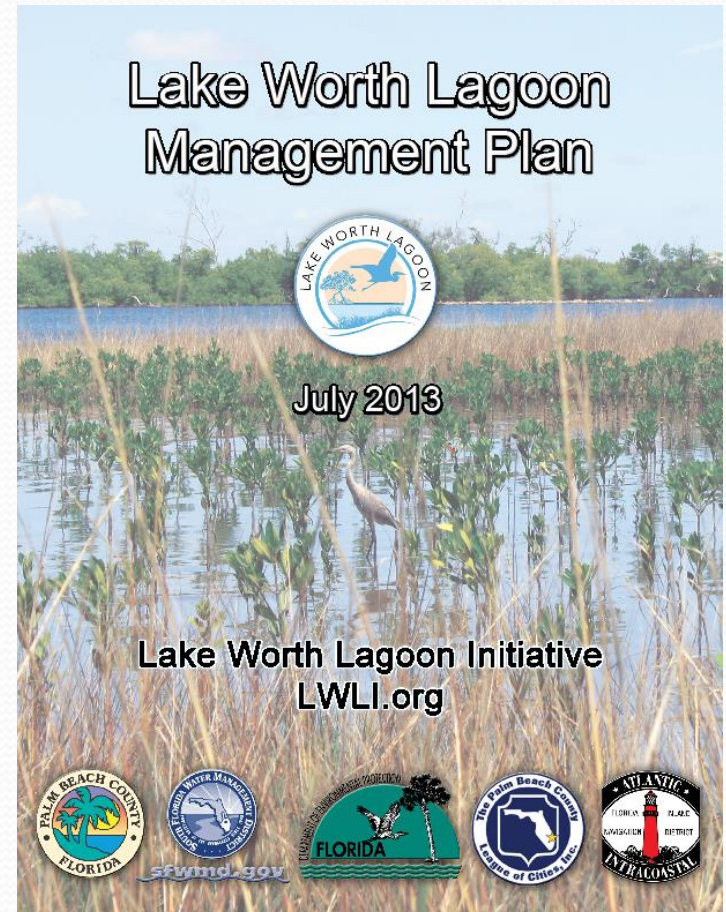
Public Outreach
Working Group



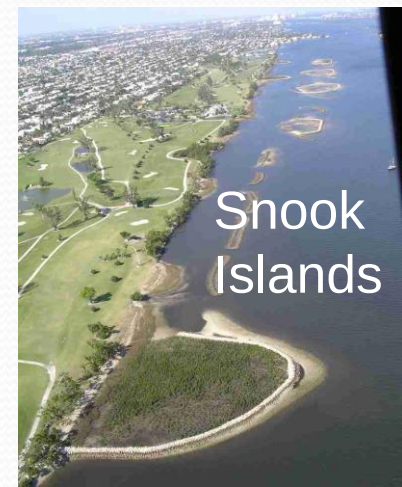
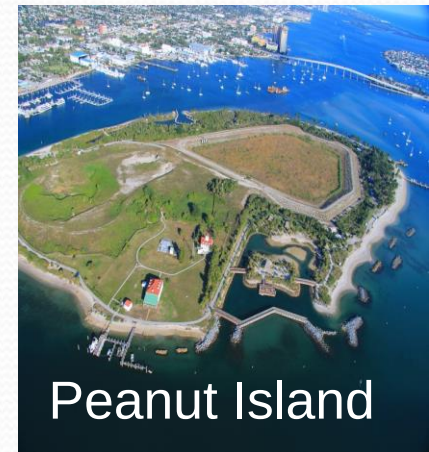
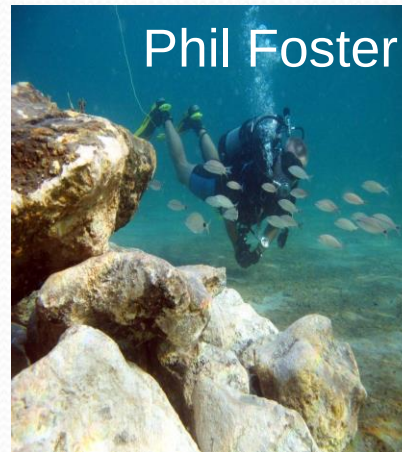
LWL Management Plan

Since 1992:

- \$21M FL Legislature
- \$64M match (local & federal)
- \$85M = 51 projects
- >250 acres created/restored



Habitat Enhancement



Water Quality Improvement Projects



Hypoluxo Shores Sewer Project



Boynton Beach Federal Highway
Stormwater Improvements



West Palm Beach
Stormwater Improvements



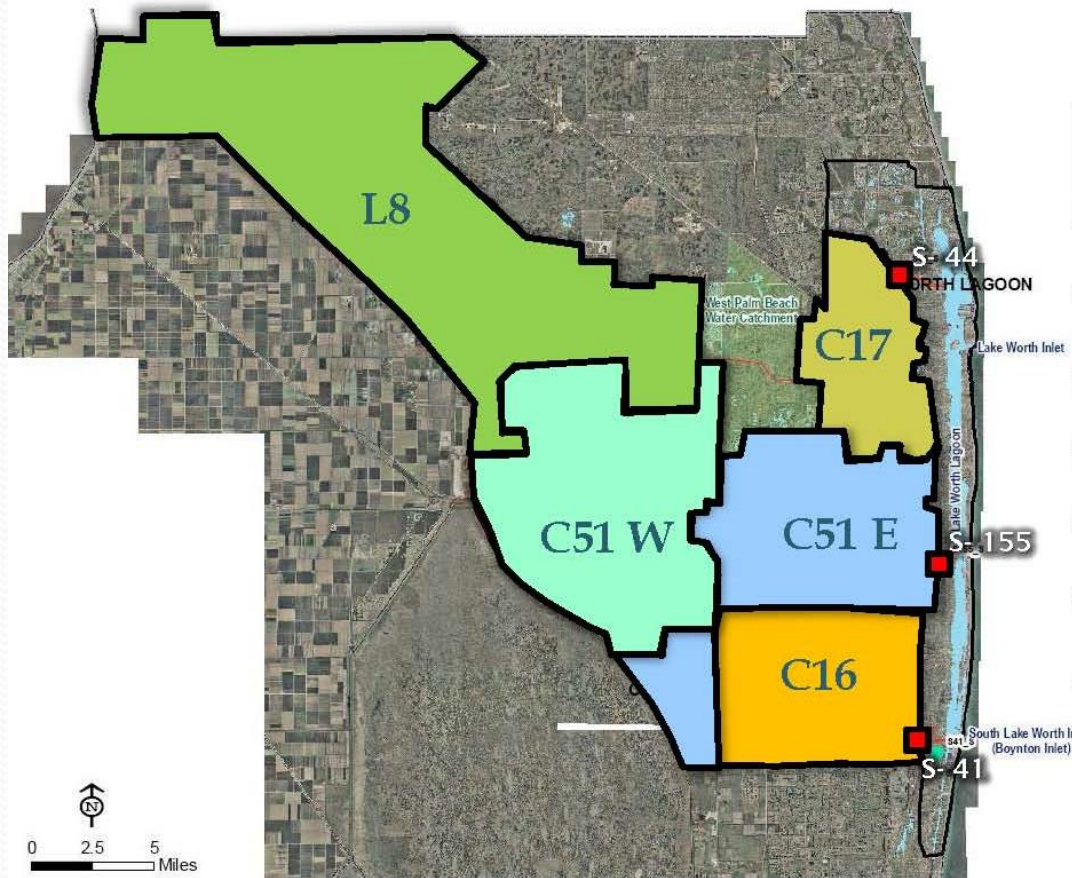
Westgate
Infrastructure
Improvements



Lake Worth
2nd Ave North
Outfall/Baffle Box

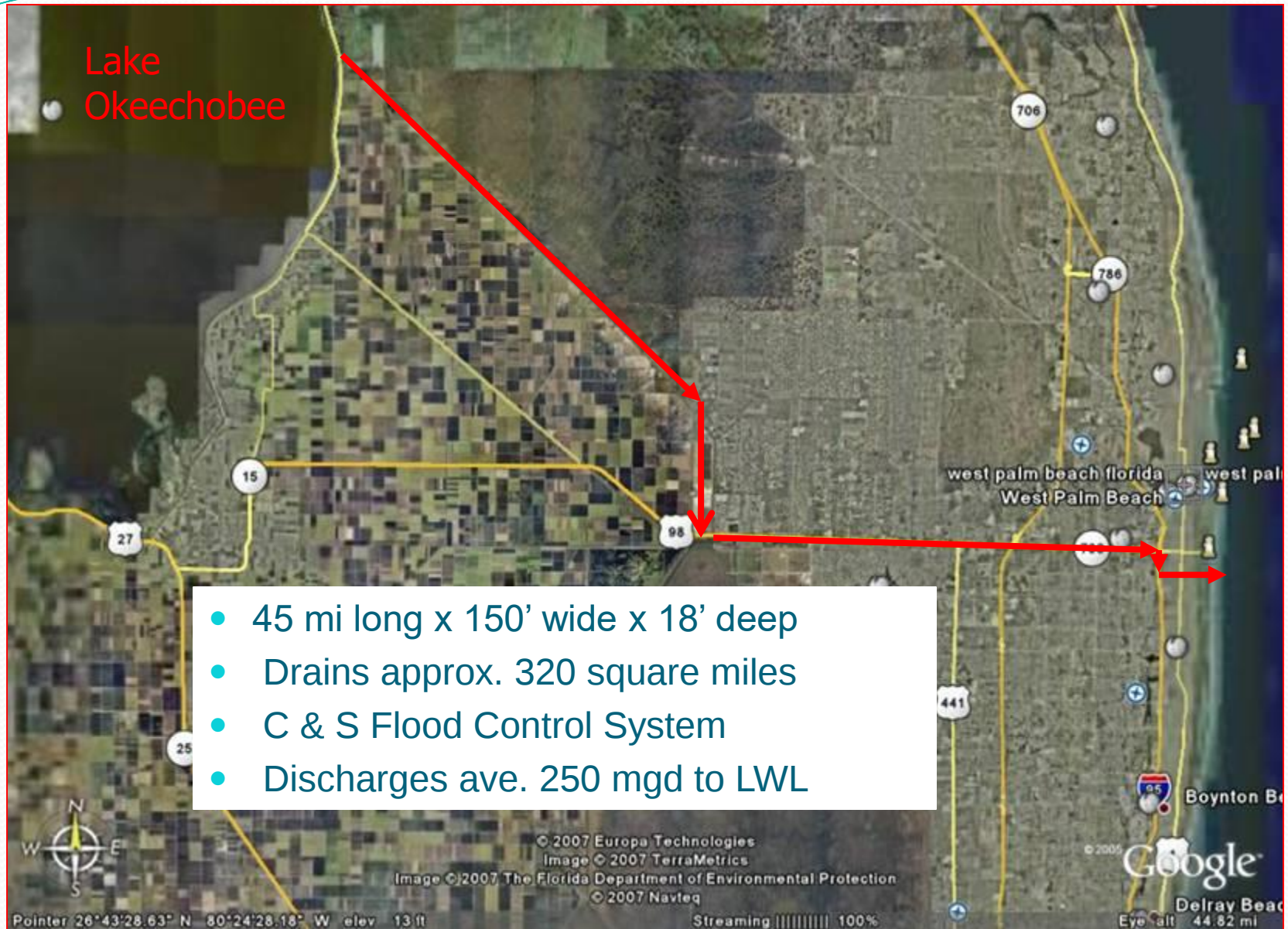


LWL Watershed Consists of 6 Major Drainage Basins (Totaling About 480 Square Miles)



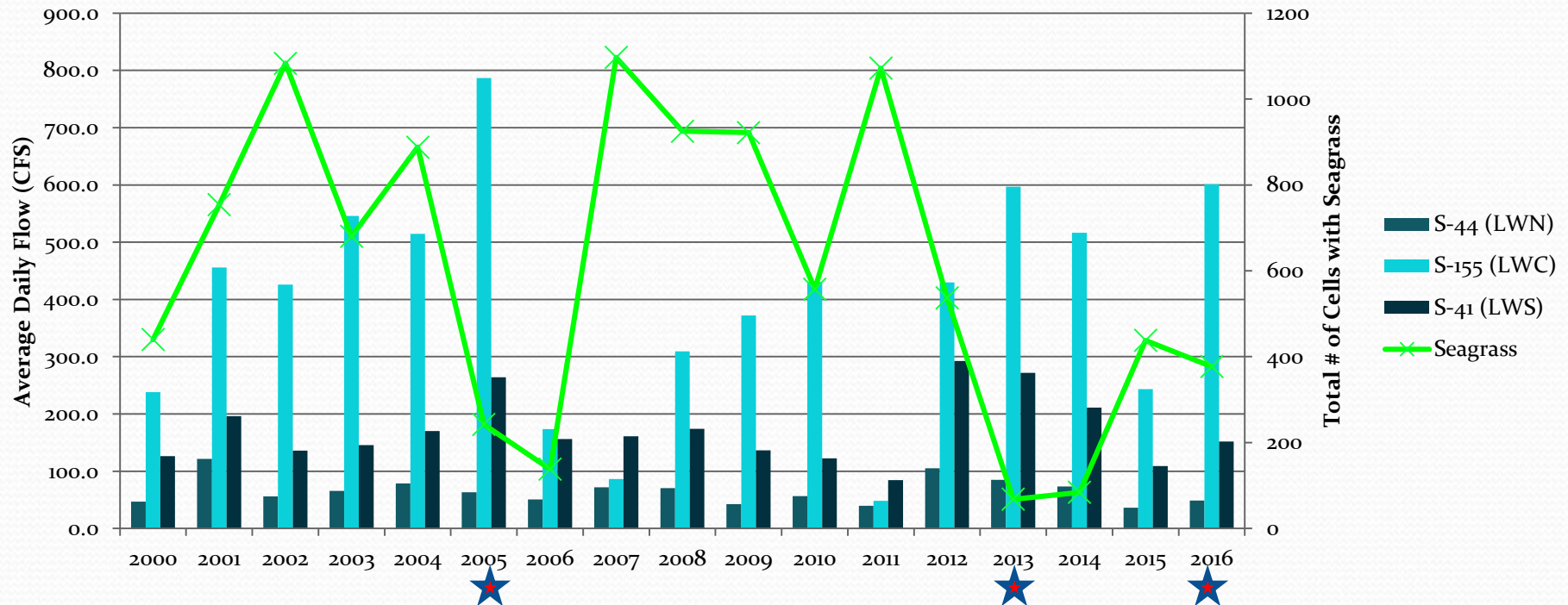
Basin	Area (acres)	Structure
C17	22,569	S- 44
L8	106,440	
C51 EAST	47,012	S- 155
C51 WEST	51,737	
C16	39,813	S- 41
LAKE WORTH LAGOON	38,139	UNGAUGED

C-51 - West Palm Beach Canal



Seagrass Abundance and Freshwater Inflow in Lake Worth Lagoon

Data from DBHYDRO and the Lake Worth Lagoon Fixed Transect Seagrass Monitoring Program.



- Above average rainfall
- Above average canal discharges: C-17 (S-44), C-51 (S-155), C-16 (S-41)
- Reduced water clarity
- Temporal pattern SAV correlated to SoFL hydrologic regime & discharges

2013 Lake Worth Lagoon Seagrass Habitat Map

North, Central, and
South Segments

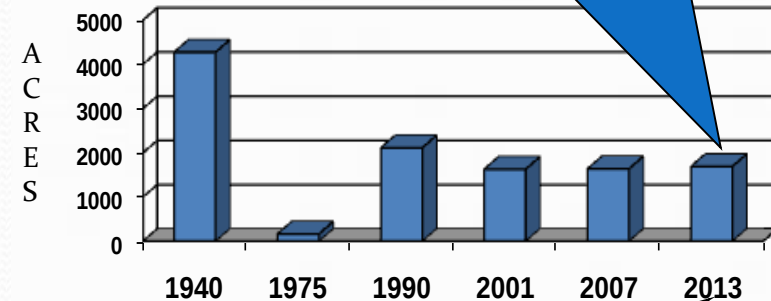
2013 Seagrass Habitats

- Moderate to High Density Seagrass Habitat
- Low Density / Patchy Seagrass Habitat
- Zone of Seagrass Occurrence
- Unvegetated Potential Seagrass Habitat
- Unvegetated Softbottom (Central LWL)



SEAGRASSES

1688 acres SAV
23% of the lagoon



~65% north
~12% central
~23% south



Sediment Loading at C-51 Canal

Stormwater discharges carry:

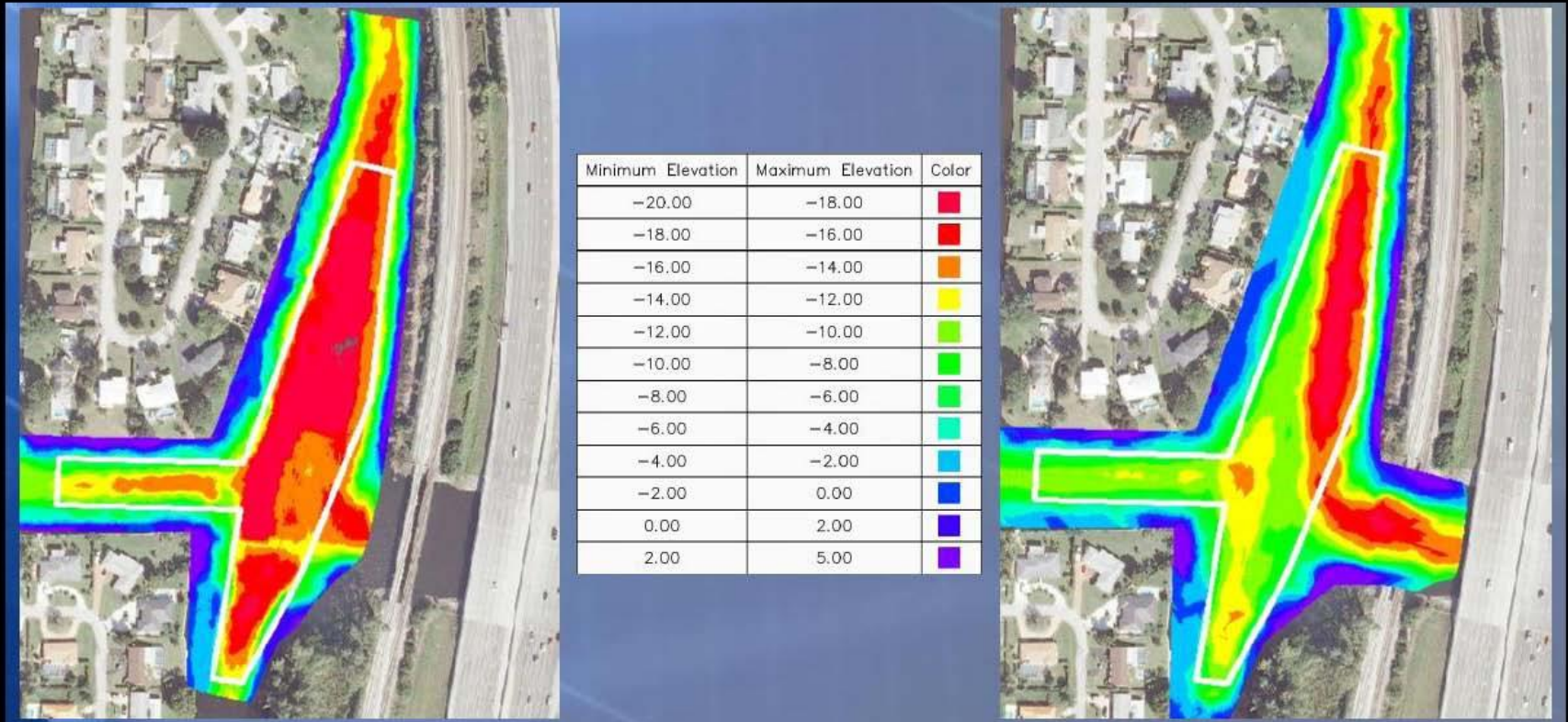
- Nutrients
- Suspended sediments
- Organics



PROJECT PERFORMANCE

2007 As-Built

Jun 2013



Elevation: NAVD 88



Grassy Flats



- Sand Shooter
- Post-project core shows sand cap over muck
- Least terns
- American Oyster Catchers



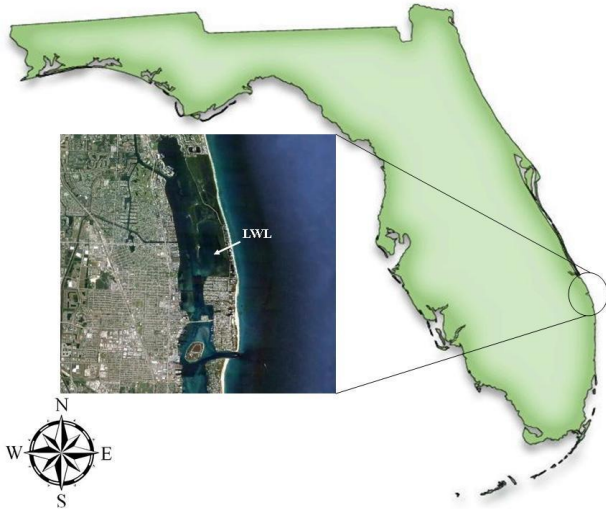




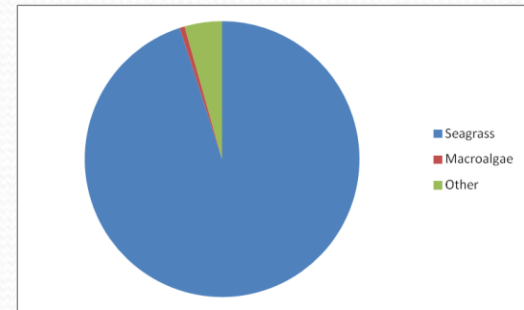
Living Shorelines Oyster/Mangrove Habitat



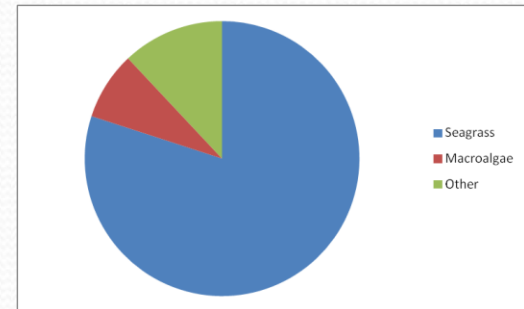
Sea Turtle Research



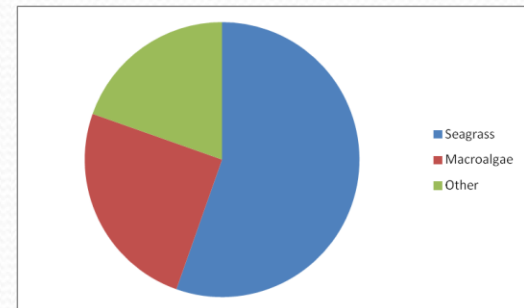
2005-2012



2014



2015



Manatees



Photo courtesy of FFWCC

Reefs





- System lacks water storage
- Excessive discharges knock back seagrass & oysters
- Muck sediments are left behind
- Reduction in discharges will allow system to re-bound
- Restoration projects provide resiliency
- Greenspace & Blueways - awareness & Ecotourism