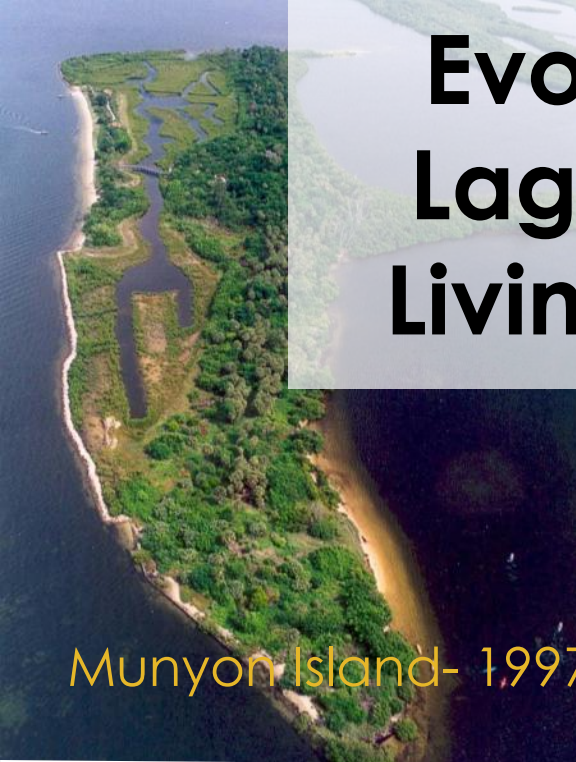


Evolution of Lake Worth Lagoon Restoration and Living Shorelines Projects



Munyon Island- 1997



John's Island- 2003



Snook Islands - 2005



Peanut Island - 2005



Ocean Ridge - 2006

Lost Opportunity “kick-started” the County’s Artificial Reef Program

Molly Wilmot’s Thanksgiving Day surprise in 1984

200’ Coastal Freighter M/V MERCEDES



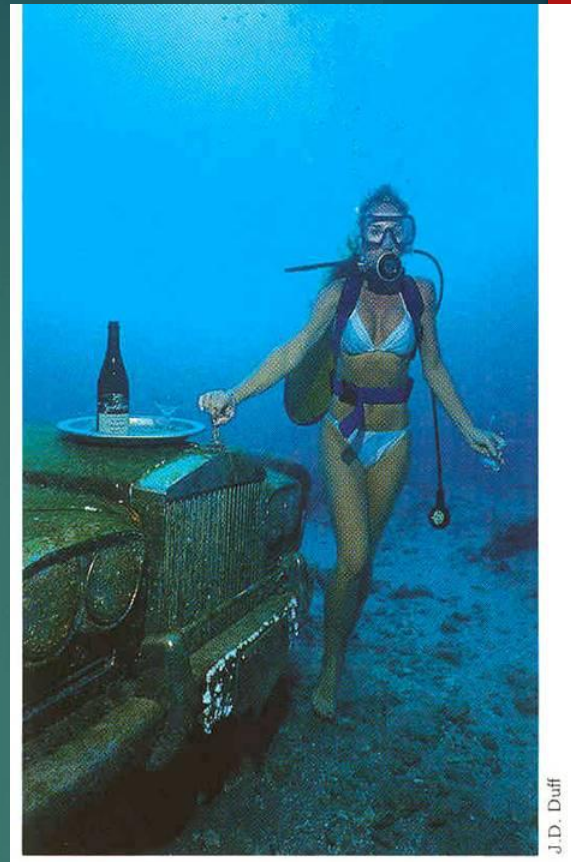
The ship was purchased for \$29,000 by the *Broward County Environmental Control Board* and prepared for sinking as an artificial reef. On March 30, 1985, as 20,000 spectators including millionaire *Mollie Wilmot* in the *Goodyear Blimb* watched, the ship was detonated and sank to her final resting place.



Rolls Royce offshore of Palm Beach



ST. AUGUSTINE, ST. AUGUSTINE AND PALM BEACH COUNTIES; OUT USA TODAY; OUT MAGS.
1967 ROLL ROYCE SILVER SHADOW AT THE COUNTY'S FIRST DONATION TO ITS' ARTIFICIAL REEF PROGRAM
1967 ROLL ROYCE SILVER SHADOW AT THE COUNTY'S FIRST DONATION TO ITS' ARTIFICIAL REEF PROGRAM
1967 ROLL ROYCE SILVER SHADOW AT THE COUNTY'S FIRST DONATION TO ITS' ARTIFICIAL REEF PROGRAM
43.6x43



J.D. Duff

M/V GILBERT SEA 175' Coastal Freighter



Scuttled: March 17, 2002





Celtic Crusader – Mar 16, 2007

Types of Artificial Reef Materials







OCEAN RIDGE REEFS

29 “pods” extend
north to south

Each pod is approximately
20 ft. by 40 ft.

MITIGATION REEF AT SINGER ISLAND - 2009



Artificial Reef Program

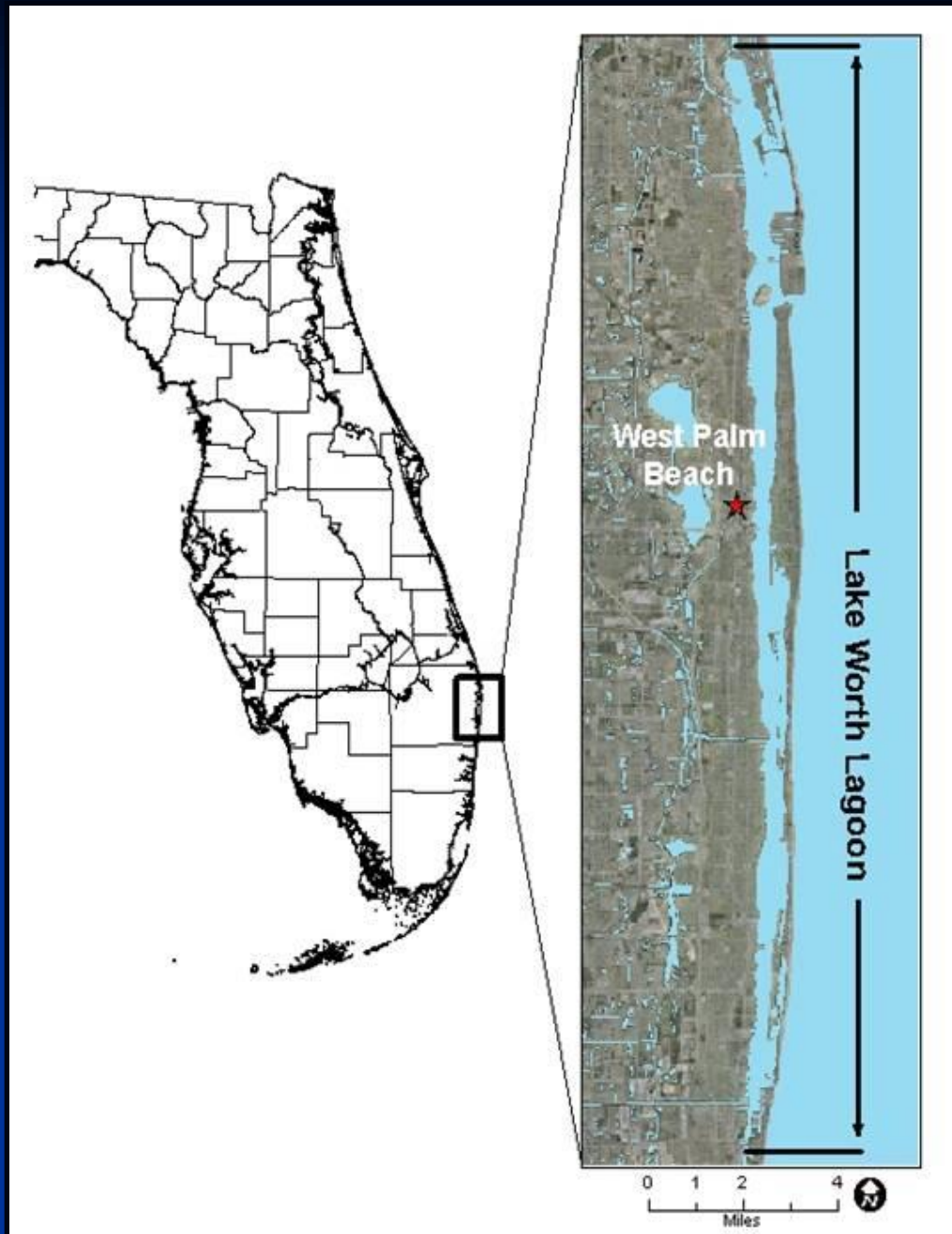
Deployments To Date: 56 Vessels/Barges/Tugs
70,000+ tons of Concrete
~200,000 tons of Limestone boulders





Lake Worth Lagoon Restoration and Living Shorelines





LAKE WORTH LAGOON

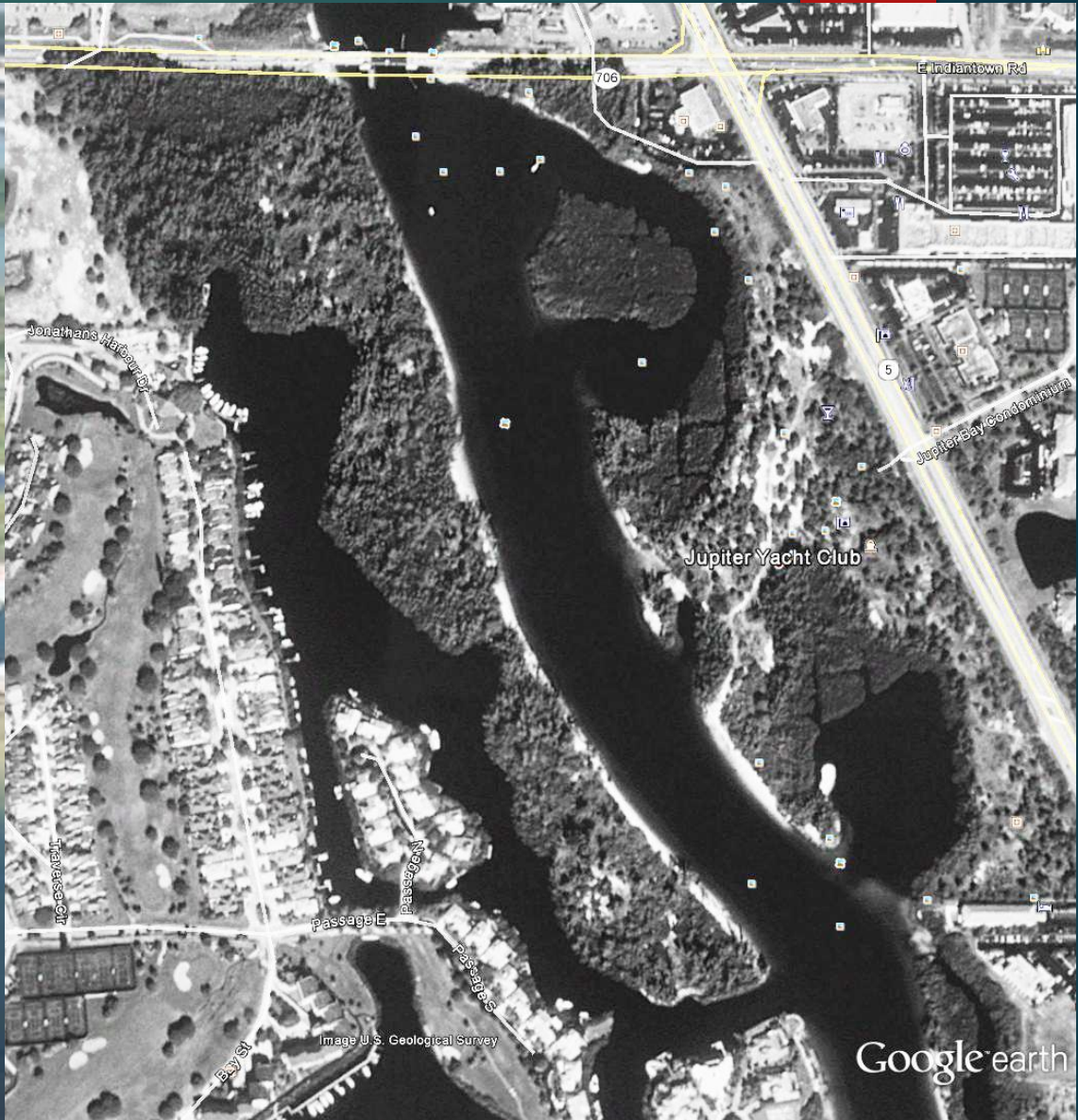
- **Orig. FW**
- **20 mi long**
- **1/2 mi wide**
- **North Palm Beach to Ocean Ridge**
- **13 Municipalities**
- **450 sq. mile watershed**
- **Urbanized**

Munyon Island, 1991-1997



43 Acres of Mangrove Creation, Restored 23 Acres Maritime Hammock

Waterway Park Mitigation- 1997



Johns Island Restoration

2002



Image U.S. Geological Sur

2004



2005



2016



Imagery Date: 2/16/2016 26°38'4

Imagery Date: 1/19/2005 26°31'

Ocean Ridge, 2006



Peanut Island, 2005



JUNO DUNES NATURAL AREA, 2008



Boynton Beach Riprap, 2009



Highland Beach Riprap, 2015



Johns Island Oyster Reef Restoration, 2009/2013



Johns Island Oyster Reef Restoration, 2009/2013



More Recent “Living Shoreline” Projects: Working along Bulkheads



Palm Beach Par Three Mangrove Planter

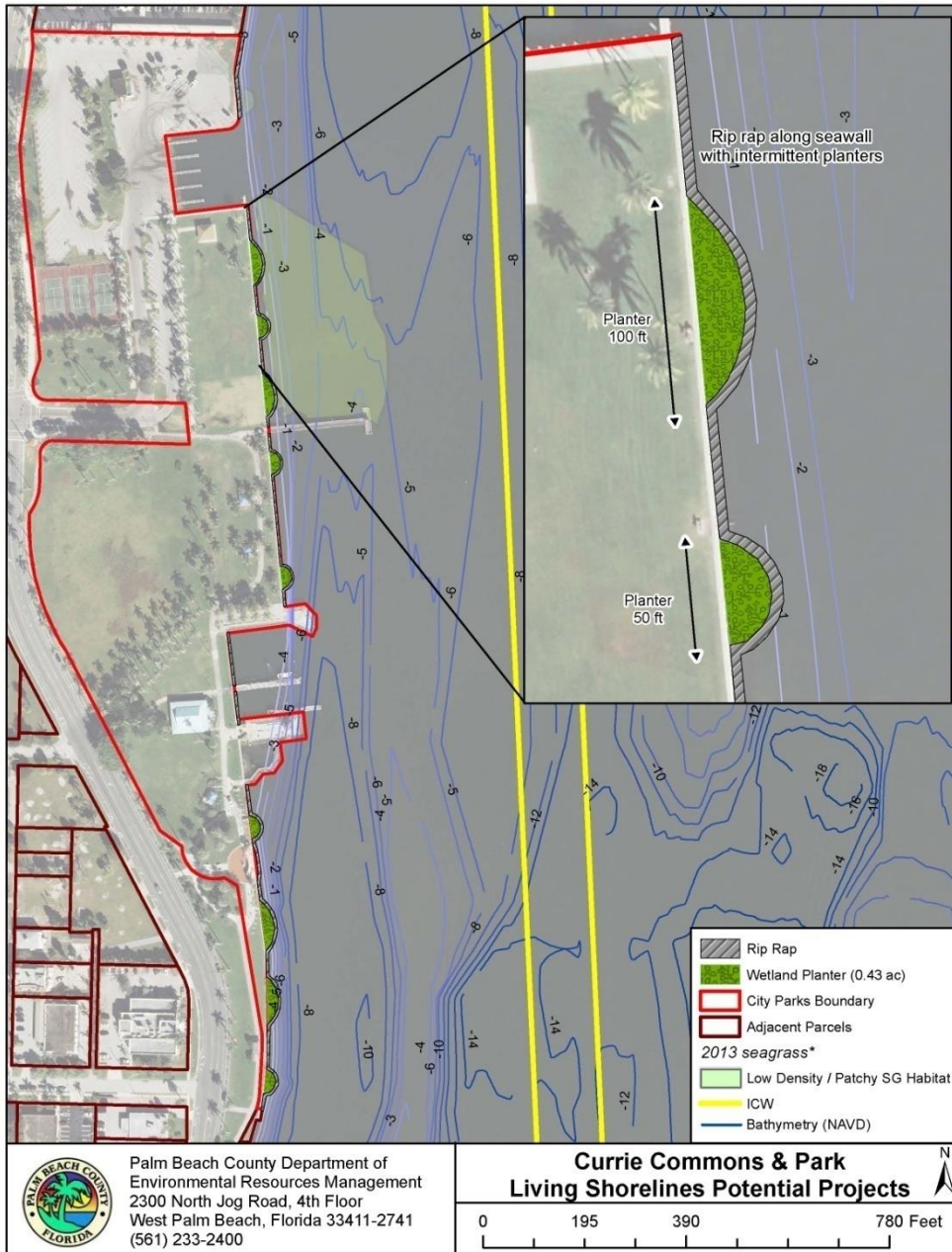


Currie Park

- Length: 2,000'
- Seawall; urban rip-rap off seawall,

Project Components:

- 1,200' of rip-rap
- 9 planters = 880' of shoreline
- Planters vary between 50' and 100' in length and 25' wide.
- Design gaps for views



Currie Park Mangrove Planter Construction



Snook Islands Natural Area Habitat Enhancement Project



Palm Beach County Department
of Environmental Resources Management

Project Partners:

- Palm Beach County E.R.M.
- City of Lake Worth
- Florida Inland Navigation District
- U.S. Army Corps of Engineers
- Port of Palm Beach
- West Palm Beach Fishing Club



US Army Corps
of Engineers ®





Project Goals:

- Protect existing mangrove fringe
- Remove shoreline armor
- Stabilize eroding shoreline by creating a new vegetated shoreline

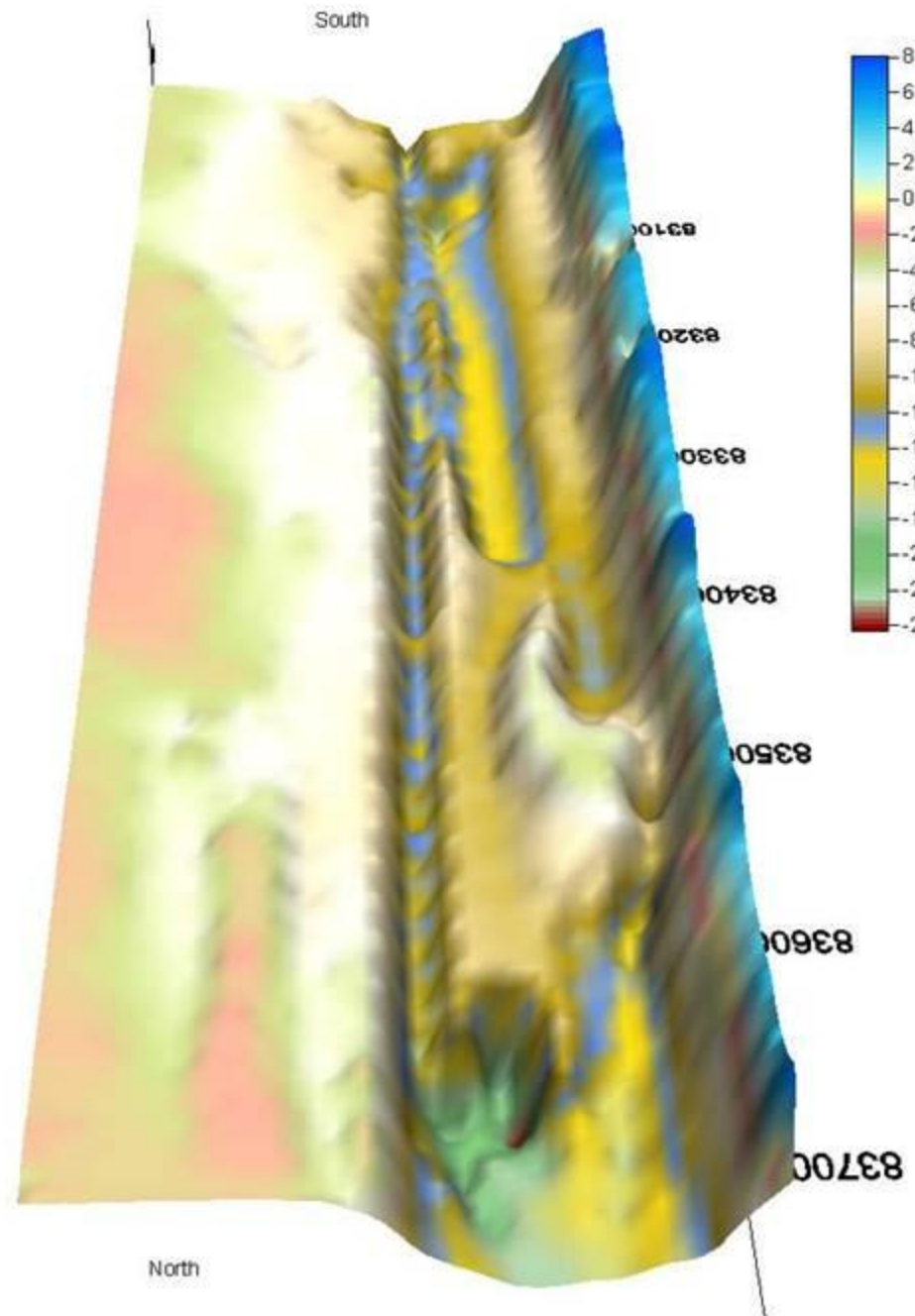


Lake Worth Municipal Golf Course

- **Created out of 100 acres of submerged lands**
- **1.2 miles of shoreline**
- **Left deep anoxic dredge hole just offshore**

Pre-Construction Bathymetry

- Deep holes collected muck over time
- Muck depths range from 10 to over 20 feet
- Original depths to west of ICW

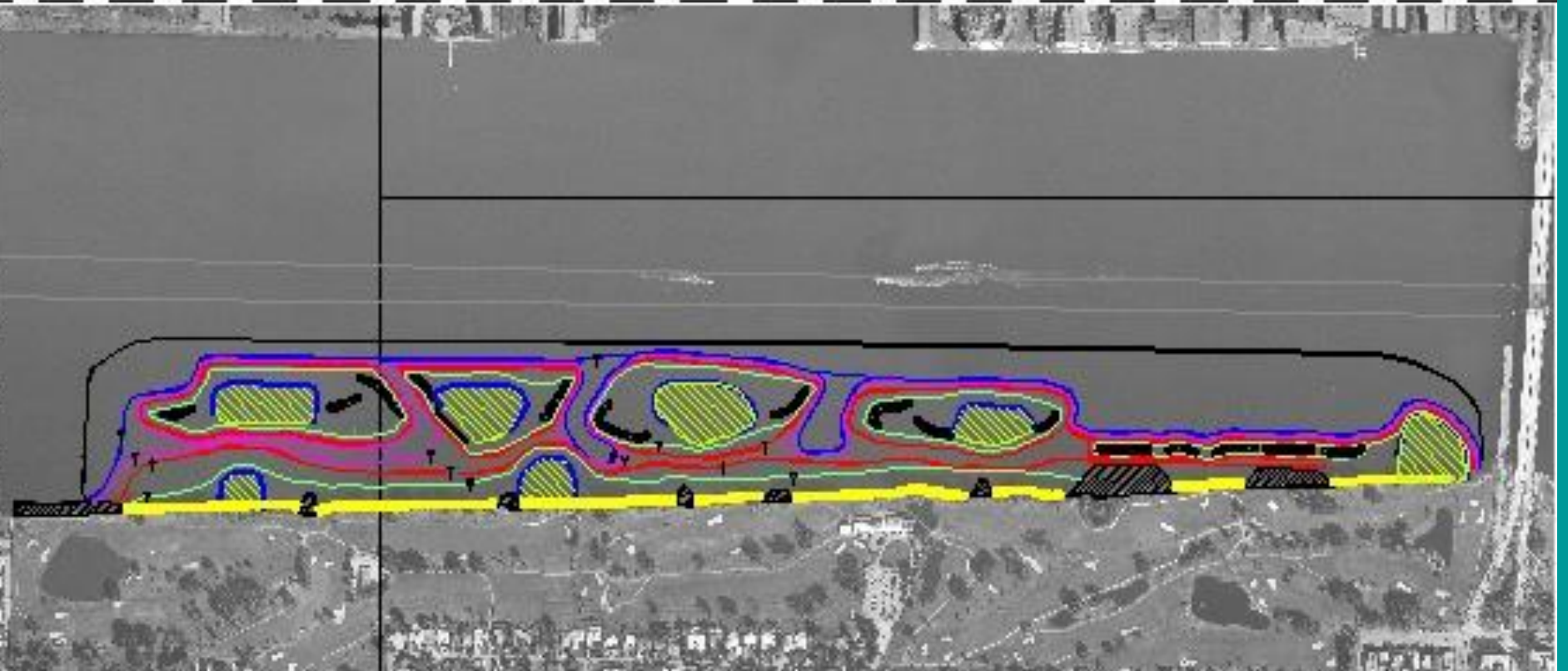


Snook Islands Pre-construction Bathymetry

(Elevations referenced to NGVD 1929)







LEGEND

	-8 FT HIGH ECHOLE
	-4 FT HIGH ECHOLE
	-8 FT HIGH ECHOLE
	-8 FT HIGH ECHOLE
	10' SW 'BANDS'
	WATERFILL PLANTING AREA (OLD AREA)
	SEAPOND RECONSTRUCTION AREA (OLD AREA)
	OTHER 100' WIDE OLD WOOD
	WATERFILL PLANTING AREA (NEW AREA)

SCALE BAR

 1" = 100'



















J.E.McAMIS



Lake Worth

Print #40113104
Date:01/13/04

 Aerial Photography, Inc. 954-568-0484











31 1:47 PM

Lat: 32.710126
Long: 96.710126
X: 500000
Y: 500000
Mode: 156.00000
HWDP: 0.0 Scale: 1
Elev: 10.00000
Hydro File: \\server\hydro\156.00000.dwg

Lat: 32.710126
Long: 96.710126
X: 500000



Layer: 0.00
Elevation: 0
STA: 003+
OFF: -619

ViewSonic

DAVE CARSON
LAKE WORTH RE-DESIGN

Office DEPOT
2HD
1.44 MB
High Capacity
Floppy Disk







Lake Worth

Print #40511090

Date:05/11/04



Aerial Photography, Inc. 954-568-0484



J.E. McAMIS



Lake Worth

Print #40709102
Date: 07/09/04

 Aerial Photography, Inc. 954-568-0484





















J.E. McAMIS



Lake Worth

Print #41108106
Date: 11/08/04

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2005



2008





Before (Looking West)



Seawall Location

After (Looking south)

2005



2006



08-01-2006 10:12

2009









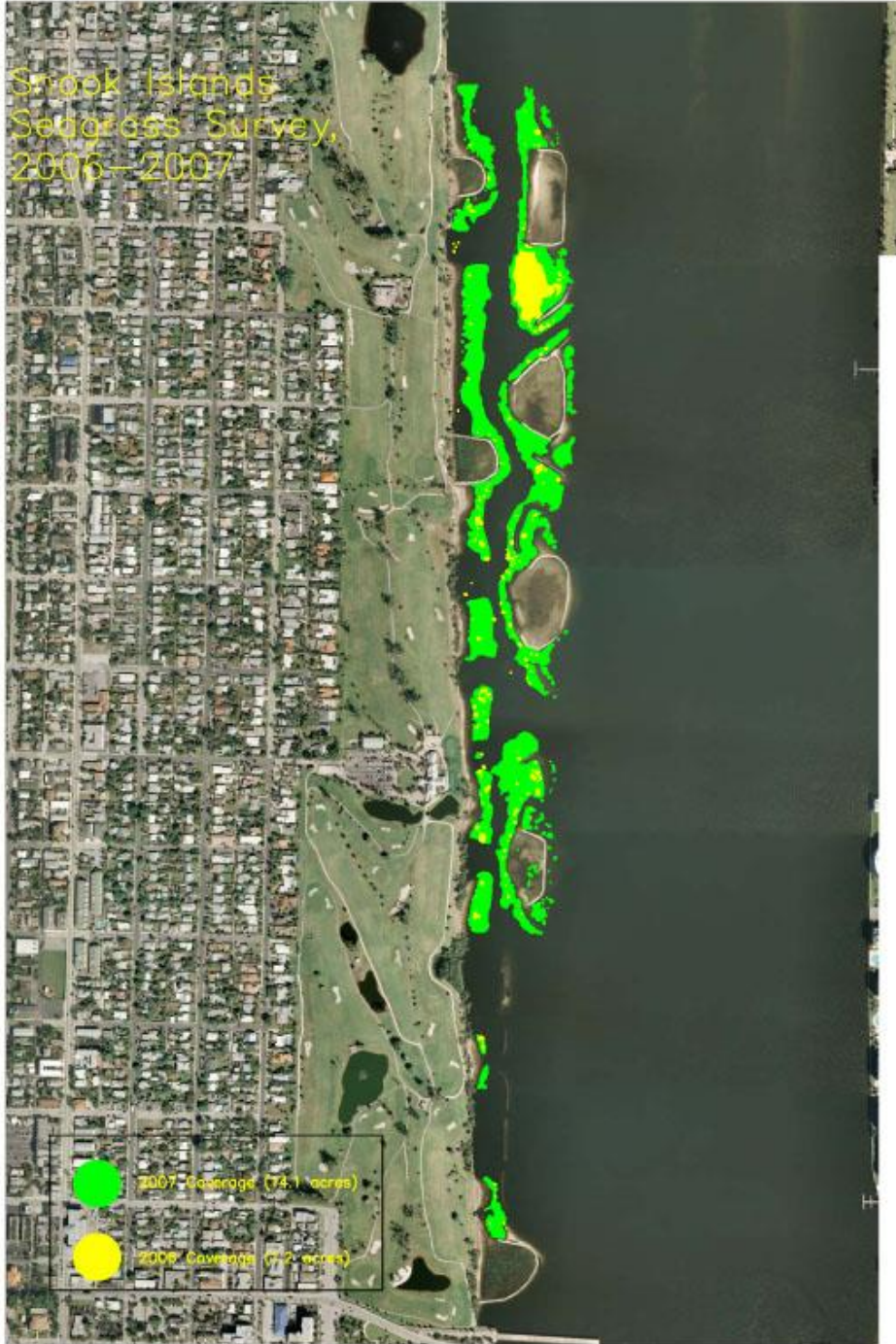








Snook Islands
Seagrass Survey,
2006–2007



2007 Coverage (74.1 acres)



2006 Coverage (7.2 acres)



Department of Environmental Resources Management

Snook Islands Habitat Enhancement Project

Halophila johnsonii flat, 2010

































2005



2013



Snook Islands Habitat Enhancement Project

