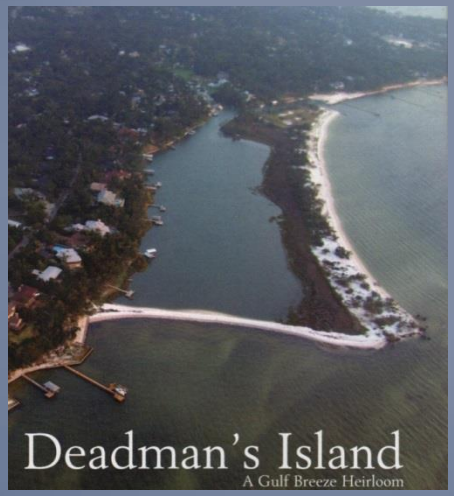
TIMELINES, DECISIONS AND THE EVOLUTION OF A LARGE SCALE OYSTER REEF AND SHORELINE PROTECTION RESTORATION PROJECT OF THE CITY OF GULF BREEZE DEADMAN'S ISLAND, GULF BREEZE, FLORIDA

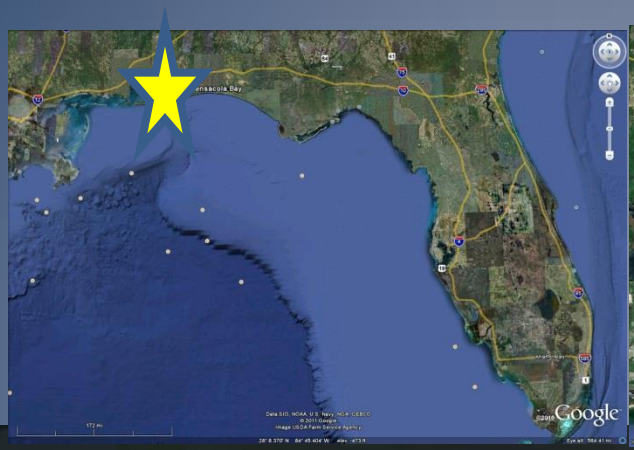


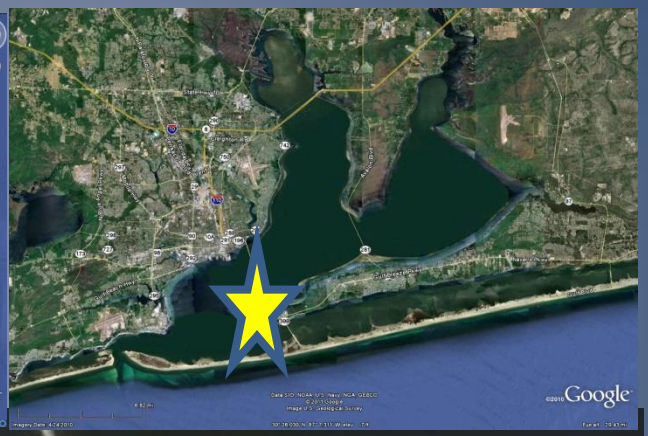
TUESDAY, JANUARY 21, 2014
FRIENDS OF THE GULF BREEZE LIBRARY

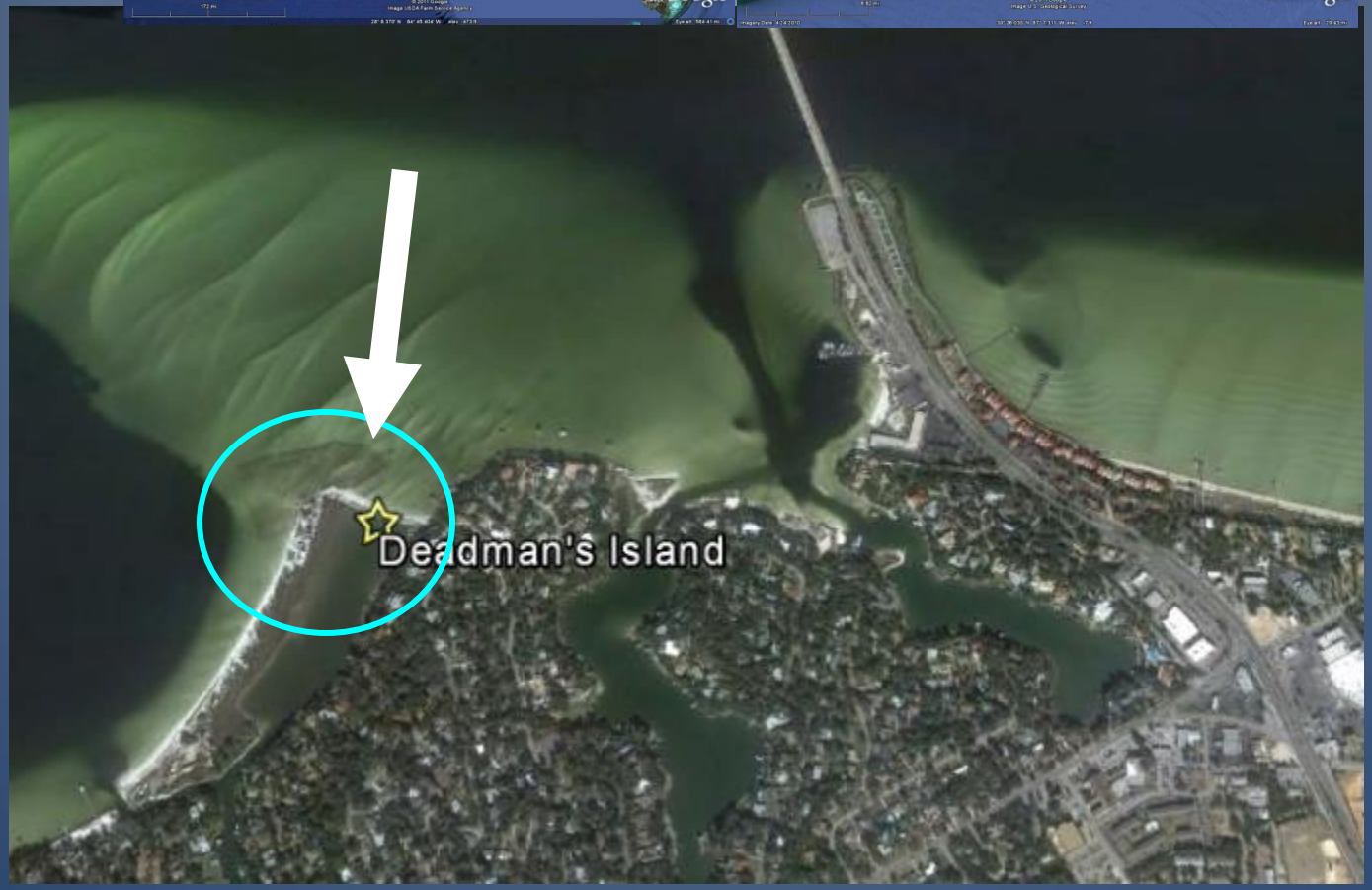
Heather Reed
Project Manager for the City of Gulf Breeze Deadman's Island Restoration Project

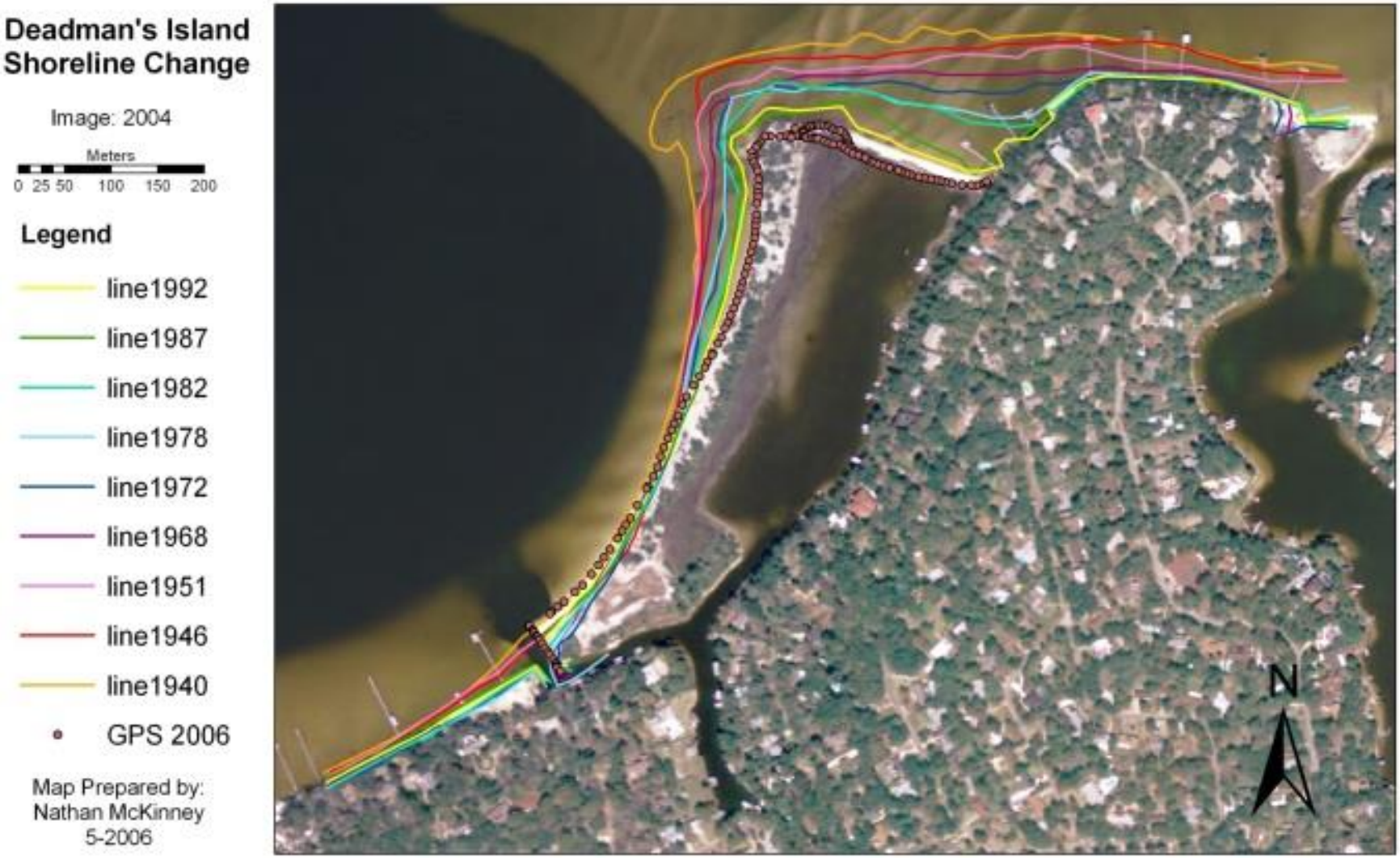
Ecological Consulting Services, Inc.

DEADMAN'S ISLAND








Deadman's Island
Shoreline Change
Image: 2004
Meters
0 25 50 100 150 200
Legend
line1992
line1987
line1982
line1978
line1972
line1968
line1951
line1946
line1940
GPS 2006
Map Prepared by:
Nathan McKinney
5-2006
N

SIGNIFICANT HISTORY

- *Previous archaeological investigations have documented that groups of Native Americans have occupied the Pensacola Bay area since the prehistoric Archaic Stage, approximately 8,000 B. C. NOrthwe5t Florida was occupied solely by aboriginal groups of people until approxi.mately A.D. 1500,*
- *The Early Pensacola Phase (A.D. 900 - 1,500) during the Early Mississippian Period*
- *The European Contact Phase (A.D. 1500 - 1698)*

- *Used by the Spanish and British as a careening ground (1698-1821)*
- *19th Century used to quarantine ships during yellow fever epidemics*
- *1891 Quarantine station was built (First reference of the term Deadman's Island)*
- *Fish Fertilizer Factory (Snapper Company)*
- *Glue Factory*

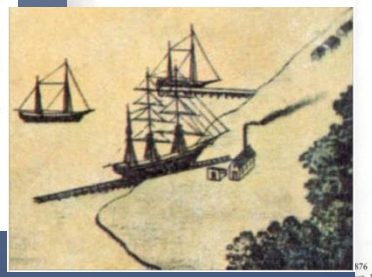
- *City of Gulf Breeze-*

Historic Pensacola Photographs Collection

The "Santa Rosa", a Corps of Engineers survey schooner involved in the surveying of the Intracoastal Waterway system between Pensacola and St. Marks, was tossed ashore in the Hurricane of 1906. Captain George Addison Duncan, Sr., was captain of "Santa Rosa" during the Hurricane of 1916. As the storm approached, Capt. Duncan, having the obligation to save the vessel under his command, stayed aboard and anchored her near the Pensacola waterfront to protect the ship from northerly winds. During the eye of the storm, Duncan motored the "Santa Rosa" to Old Navy Cove on the south side of the bay, in order to have a lee anchorage when the wind changed, thereby saving the ship from destruction.

Historic Pensacola Photographs Collection

In Spanish, the careening grounds at Town Point in Navy Cove were officially named "Carenero," indicating that the area was used to careen wooden ships over ont



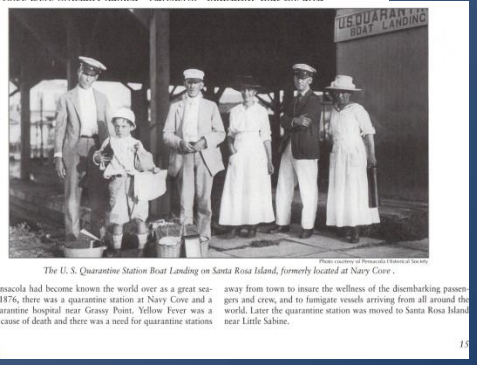


Photo courtesy of Pensacola Historical Society

The U. S. Quarantine Station Boat Landing on Santa Rosa Island, formerly located at Navy Cove .

876 Pensacola had become known the world over as a great sea- ort. In 1876, there was a quarantine station at Navy Cove and a nall quarantine hospital near Grassy Point. Yellow Fever was a ommon cause of death and there was a need for quarantine stations away from town to insure the wellness of the disembarking passen- gers and crew, and to fumigate vessels arriving from all around the world. Later the quarantine station was moved to Santa Rosa Island near Little Sabine.

15

- *(Joy 1988, Bense 1983, T. T. Wentworth Florida State Museum)*

HURRICANE DENNIS (2005)

Coffins dated from the 1800's were unearthed by erosion from Hurricane Dennis.

Courtesy of the University of West Florida and State Archeologist, Ryan Wheeler

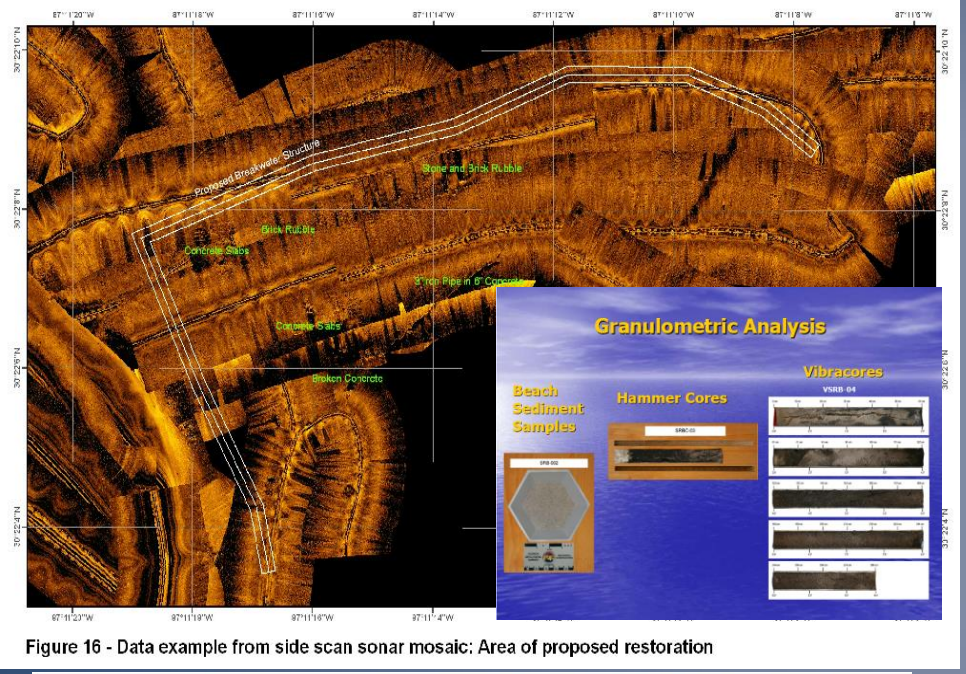


Figure 16 - Data example from side scan sonar mosaic: Area of proposed restoration

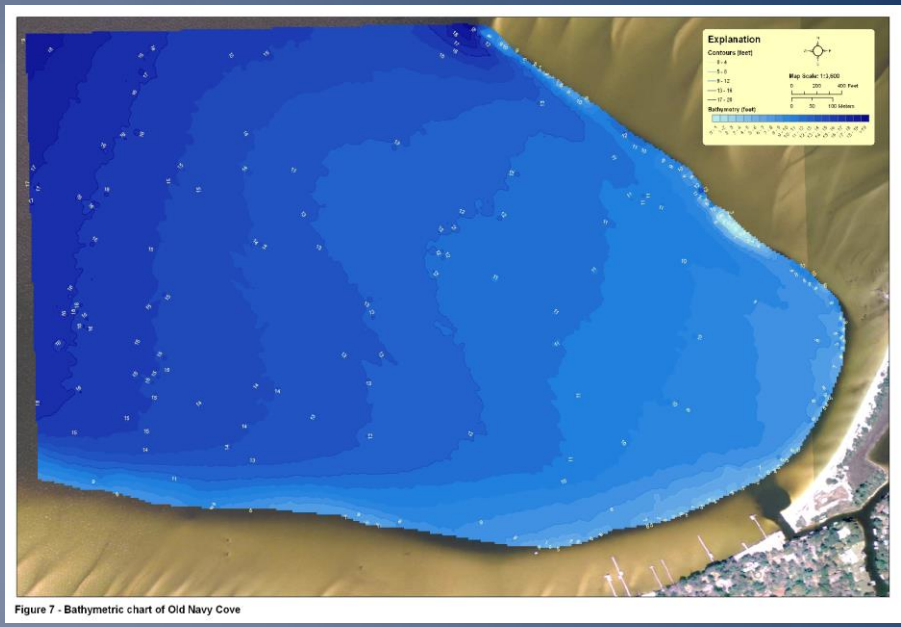
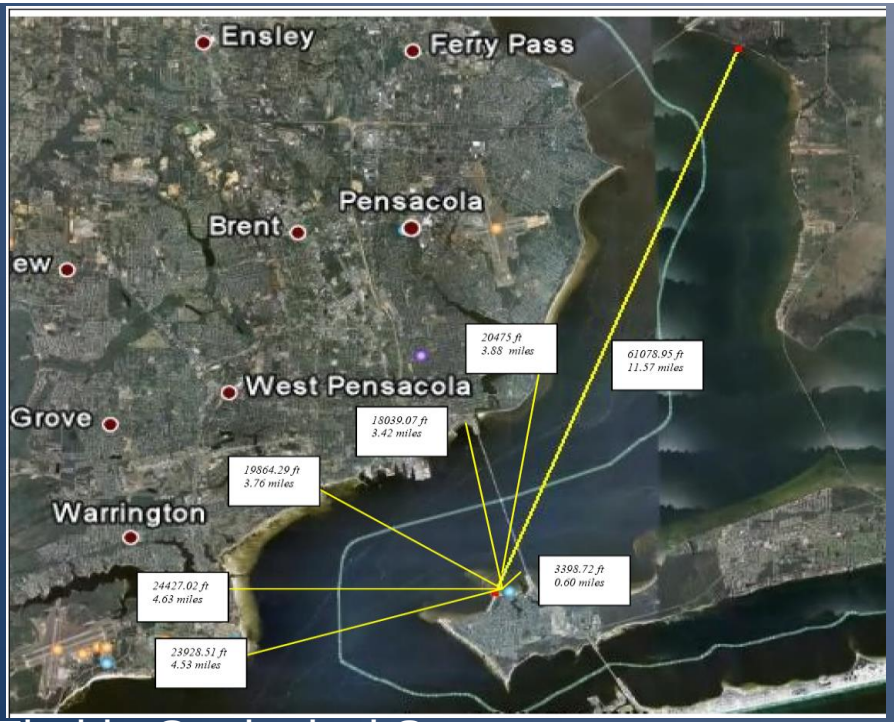
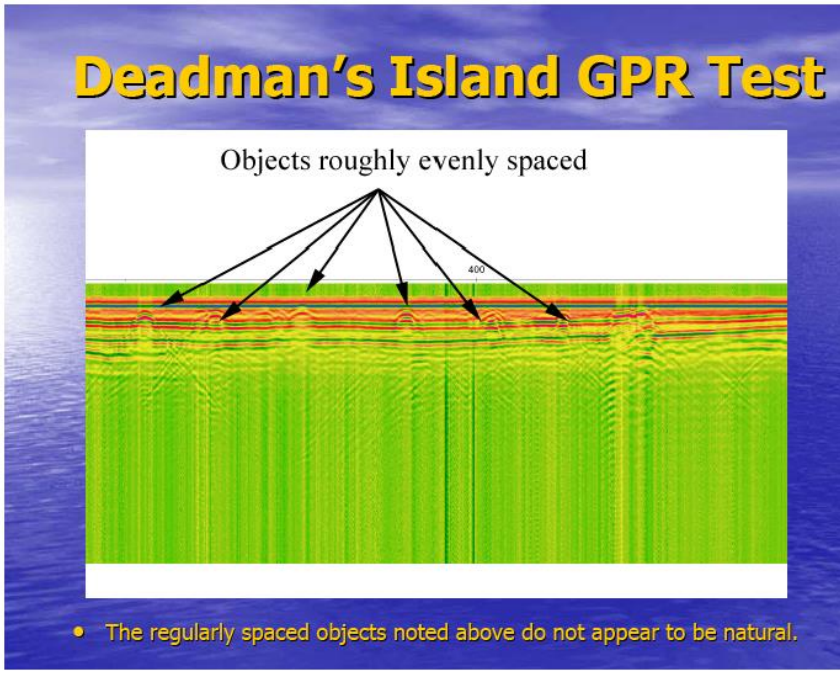
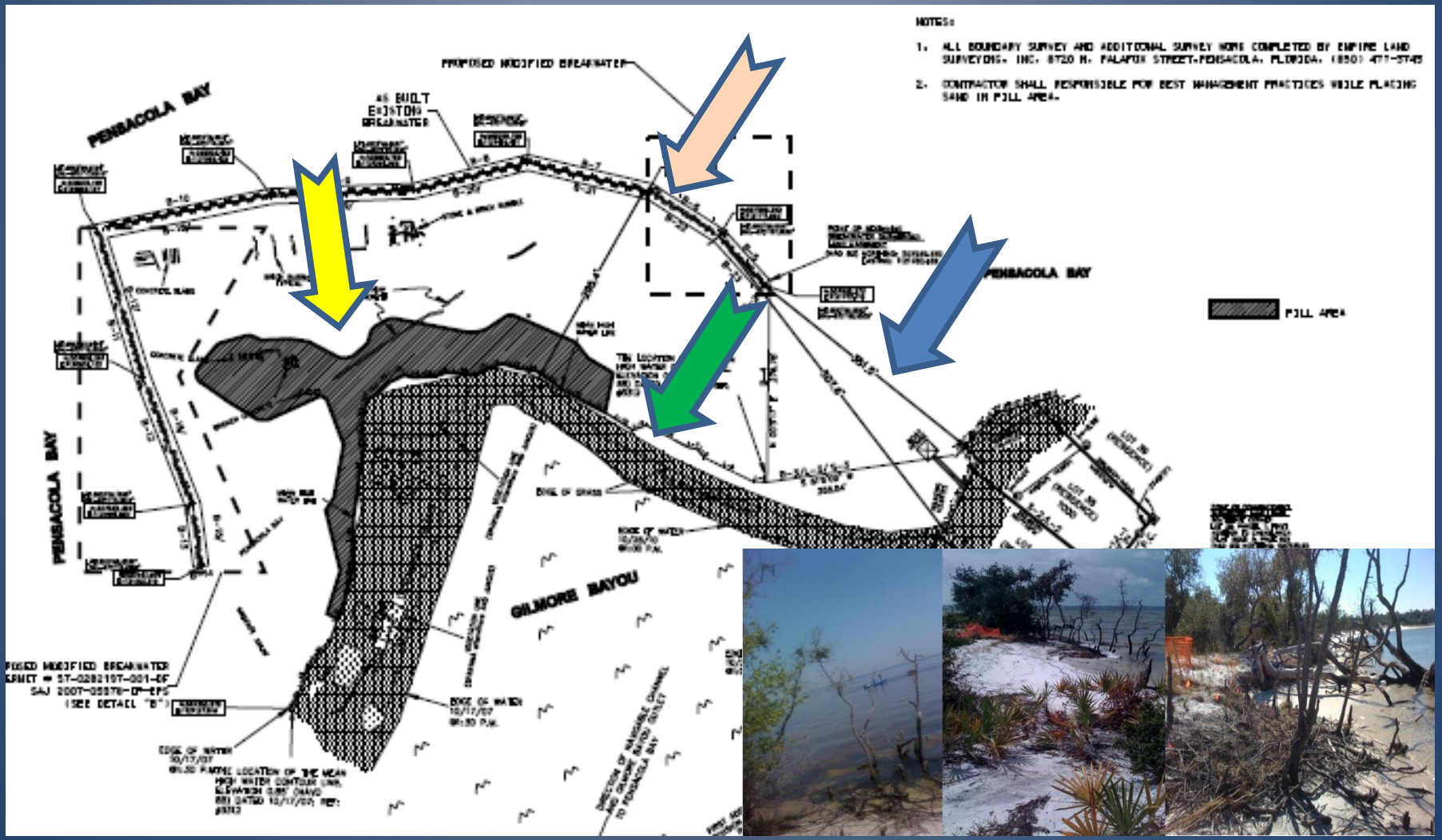


Figure 7 - Bathymetric chart of Old Navy Cove





Florida Geological Survey


NOTES:
1. ALL BOUNDARY SURVEY AND ADDITIONAL SURVEY WORK COMPLETED BY EMPIRE LAND SURVEYING, INC. 8720 N. PALAFOX STREET-PENSACOLA, FLORIDA. (850) 477-5745
2. CONTRACTOR SHALL RESPONSIBLE FOR BEST MANAGEMENT PRACTICES WHILE PLACING SAND IN FILL AREA.
PROPOSED MODIFIED BREAKWATER
AS BUILT EXISTING BREAKWATER
PENSACOLA BAY
PENSACOLA BAY
PENSACOLA BAY
FILL AREA
GILMORE BAYOU
EDGE OF WATER
EDGE OF GRASS
DIRECTION OF NAVIGABLE CHANNEL INTO GILMORE BAYOU INLET TO PENSACOLA BAY

PERMITTING CHALLENGES

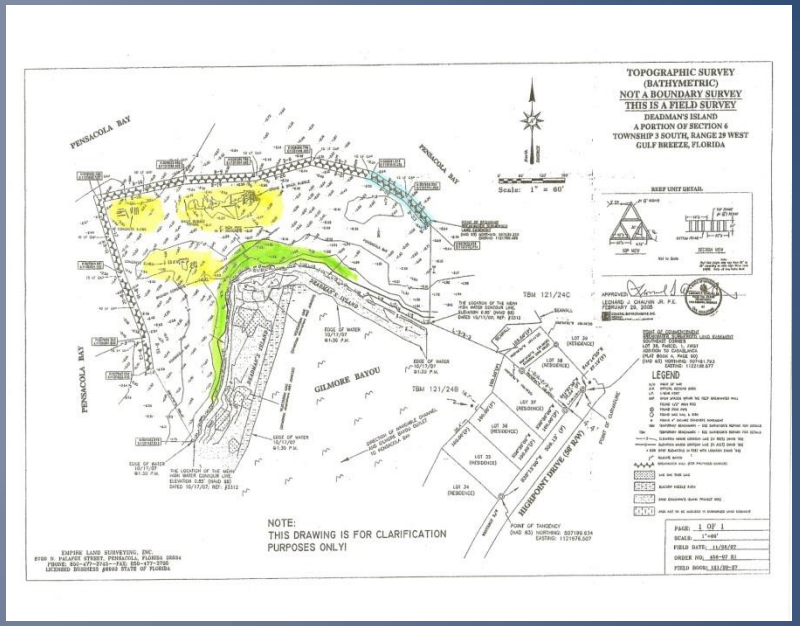
- ***Public and Political Interest***
- *People wrote letters*
- *State Representative supported the project*
- *City, homeowners and State came together*

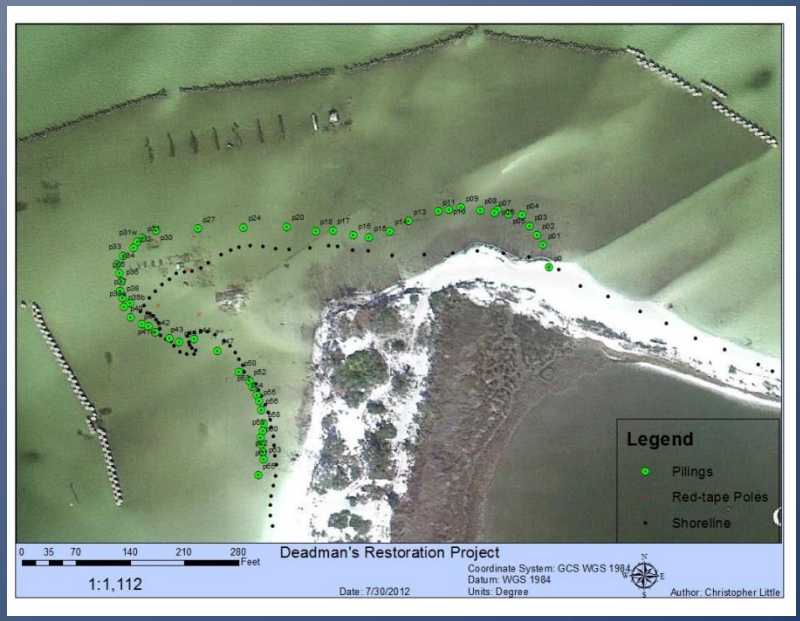
- *Legal fees $20,000 City*
- *Legal fees $20,000 Homeowners*

Pro Bono Maggie Tamburro

PROJECT SETBACKS

- *Homeowner objection*
- *Negotiation-changes to the plans according to the homeowners needs*
- *Deep Water Horizon Oil Spill*

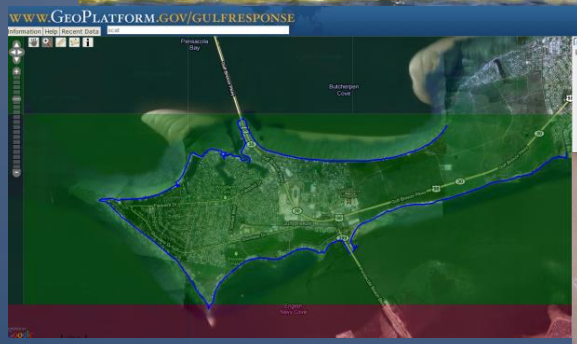




2010

DWH Oil Spill

- Located and reported oil in the bay to unified command, the coast guard and worked with BP
- Project surrounded by boomed and deployment delayed a year
- Grant agreements delayed and modified and had to deploy projects out of grant timeline



Sunken Oil

ECS

Sample: June 23 Pure Bay Lab ID: 3520885002 Collected: 10/22/10 14:30

Results reported on a "dryweight" basis

Parameters	Results	Units	PQL	MDL	DF
FL-PRO Soil Microwave	Analytical Method: FL-PRO Preparation Method: EPA 3				
Petroleum Range Organics	462000	mg/kg	3200	2040	20
C-39 (S)	113	%	60-118		20
o-Terphenyl (S)	572	%	62-109		20

FL-PRO Soil Microwave	Analytical Method: FL-PRO Preparation Method: EPA				
Petroleum Range Organics	124000	mg/kg	2250	1430	20
C-39 (S)	120	%	60-118		1
o-Terphenyl (S)	148	%	62-109		1

FL-PRO Soil Microwave	Analytical Method: FL-PRO Preparation Method: EPA				
Petroleum Range Organics	20700	mg/kg	454	306	100
C-39 (S)	134	%	60-118		20
o-Terphenyl (S)	517	%	62-109		20

September 30, 2010

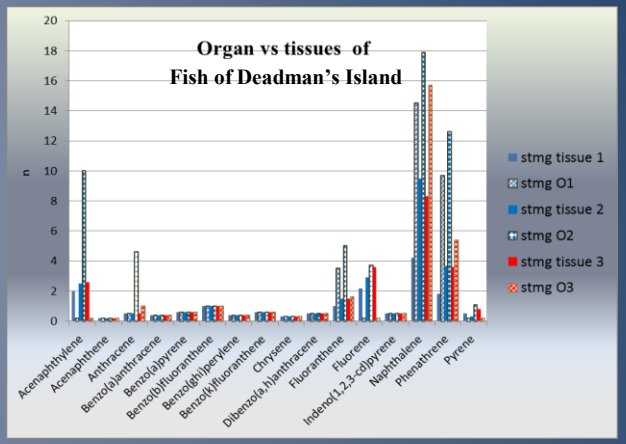
Field ID: PROXIMITY REP-1

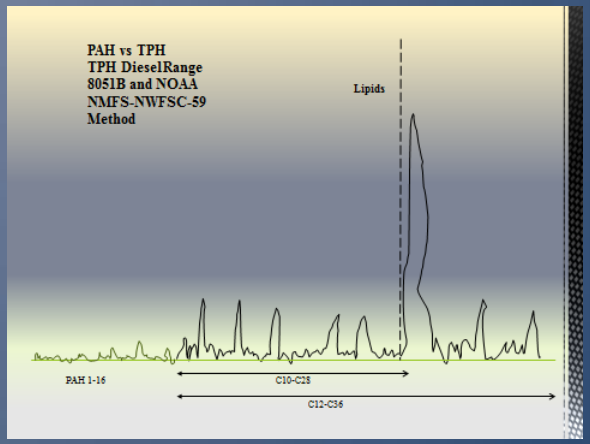
Sample ID Ref. Method Component Result Code QC Failures Units Cert #

Sample Location: SPOIL ISLAND SIDE OFF FT McRAE Collection Date/Time: 10/07/2010 11:50 AM

Conflicting lab results of the same sample of the sunken oil found at Fort Mcrae

Oyster and fish tissue and organ testing





Summary:

Premonitoring 2010 of 155 units – showed a healthy reef

July and August 2010 showed fish die off, and oyster mortality

2011- showed no resident fish, increase in predators and decline in live oysters

New SARP reefs 2012- showed increase in fish population and 1% live oyster (increase in fish population -SARP reefs)

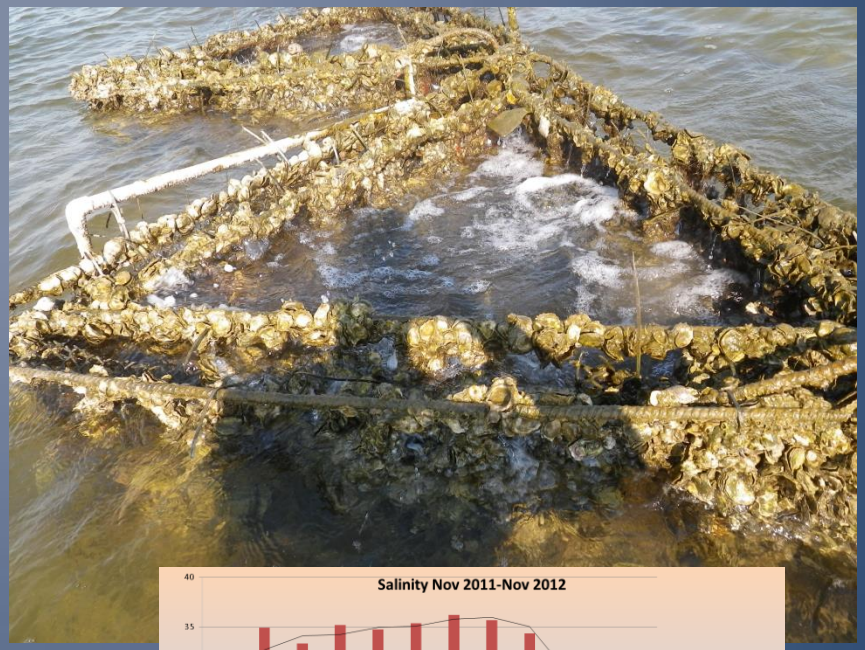
2013-showed oysters on SARP reefs and no oysters on old reefs

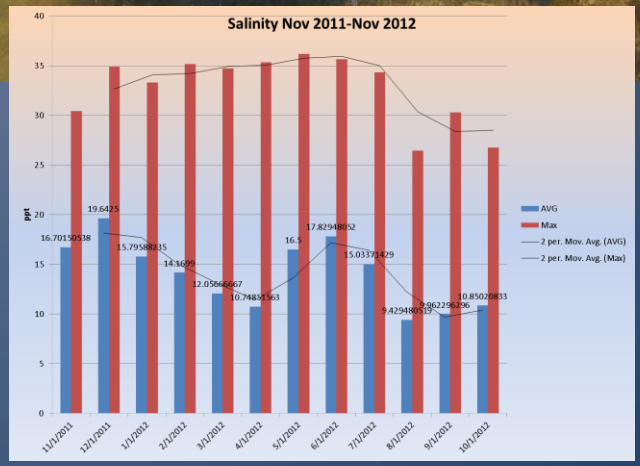
PREOIL SPILL 2010-2013

- *2013- covered with algae, shell worn down and fell through bags- no oysters or fish habitat (2013 60% loss in wave attenuation)*

OBSERVATIONS REEFBLK

- *Height limited Depth limited- 3ft breakwater in 2-6ft water*
- *When lowered bags flair out and the oyster shell height drop*
- *Exposure to tides- oysters can remain closed for over eight hours but this is at risk- leaving them open to potential stress and disease*
- *Unsure of salinity to sustain the reef*
- *2011-2012 Avg salinity range 10-20ppt*
  Max- 25-30ppt
- *Lost all oysters in 2011-2012 and shell tumbled and degraded through the mesh*
- *And uncertain of direct and indirect recovery from environmental impacts*





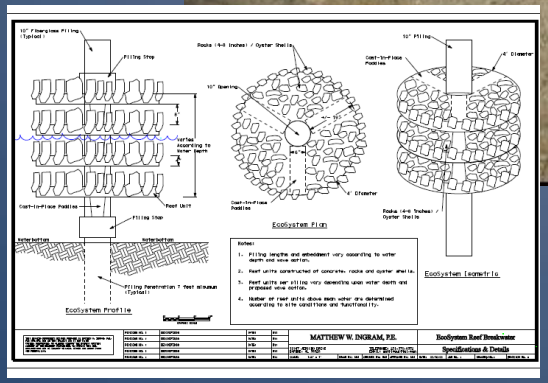
Observations Ecosystems

- *Flow through system*
- *Can stack according to depth to create a uniform Height*
- *Not salinity or live oyster dependent (creates diverse habitat and promotes oyster growth)*
- *Can withstand higher wave impact without breaking down*
- *More surface area for settlement and habitat*
- *Embed Natural oyster shell to promote higher rate of settlement*

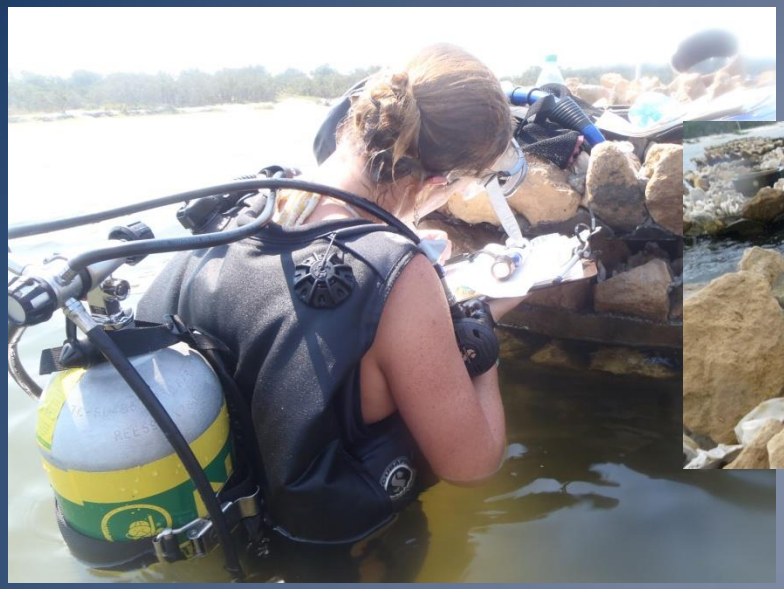
- *Modify permit to change design*

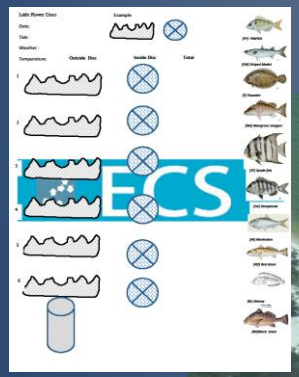
- *Request the grant modification*

PHASE 2 BREAKWATER DESIGN



2011





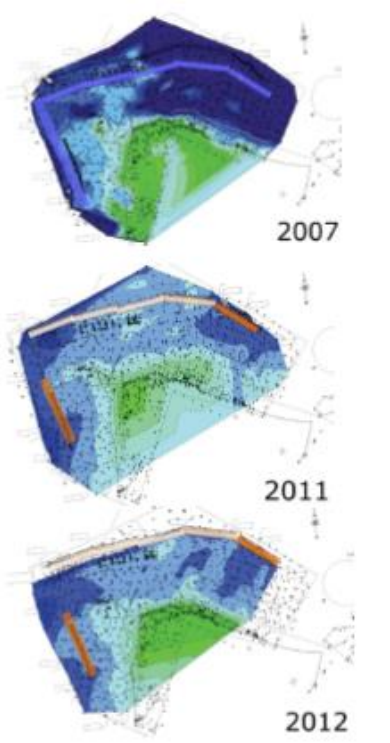
Monitoring (QUEST) methods- Underwater Ecological Survey Techniques
Coral Reef monitoring methods modified for oyster reef

- % coverage / biodiversity/species competition/ mortality
- Relative Fish abundance- Relative Species Abundance
- Fixed Quadrat / Rebar Reefblks
- Ecosystems/ changed design and spacing to accommodate monitoring
- Growth Rate
- Fish Surveys
- Tissue Testing (Oil Spill)
- Accretion/Scouring/shifting
- Yearly bathymetric survey
- Structure Testing/Comparison
- Birds
- Gulf Sturgeon monitoring

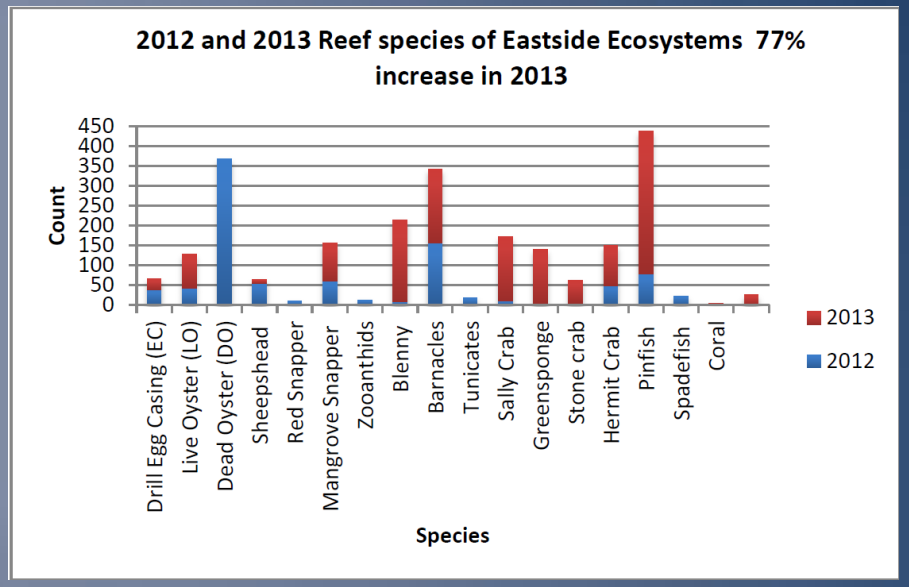
Gulf Sturgeon Monitoring

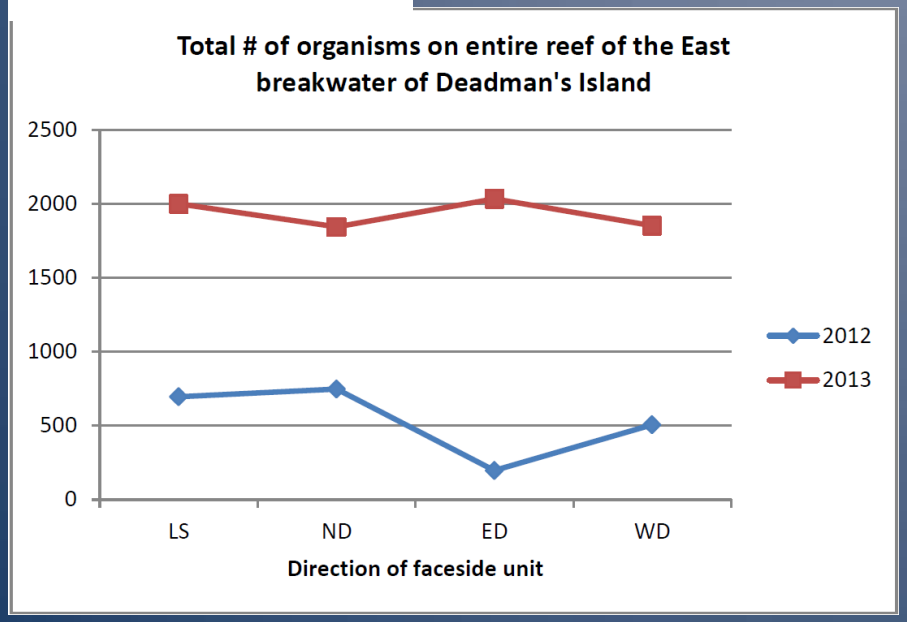
- Paid/trained technicians – End of year BS or post graduate
- Monitoring data from volunteer training is reviewed and taken into consideration but not used for QA purposes

www.deadmansisland.org www.ecologicalconsultingservices.com



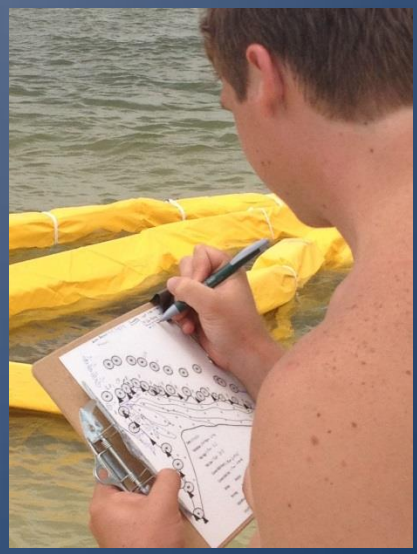
- Yearly Comparison
- Bathymetric
- Increase/Decrease
- Survival/mortality





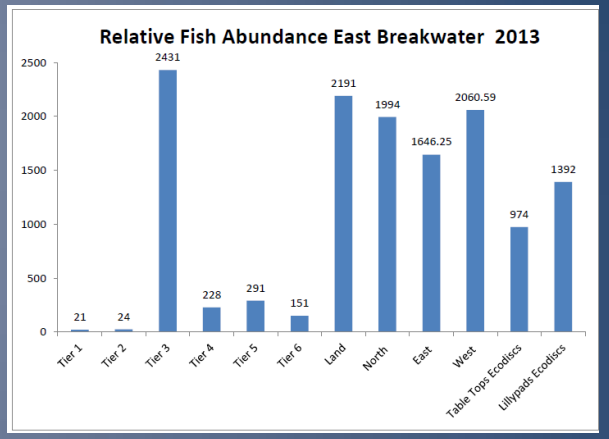
- Barrier monitoring
- Reef facing direction

Landside (LS)
North Direction (ND)
East Direction (ED)
West Direction (WD)

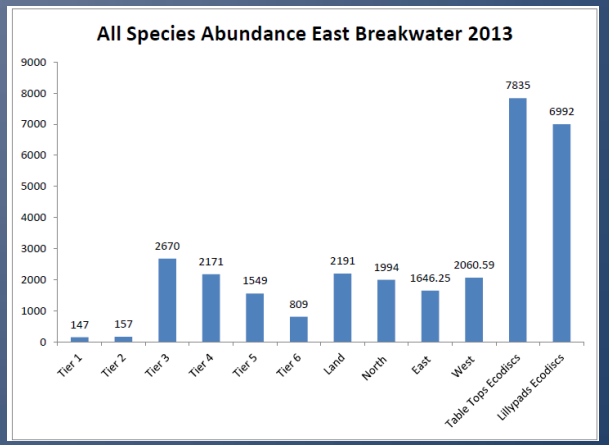


Tiers (Stackable sections) and unit type

	#units	Total All Species abundance	Live Oyster Relative Abundance	Fish relative abundance	Shannon Weiner Diversity Index	Simpson's Diversity Index
Tier 1	62	111	0	71	1.04437692	0.53833171
Tier 2	62	185	3	111	1.16156894	0.59352085
Tier 3	62	690	18	438	1.06182216	0.61406365
Tier 4	62	467	13	59	1.129841	0.69497569
Tier 5	62	376	8	76	0.93666305	0.58145499
Tier 6	62	122	0	51	1.0575529	0.76209186
Land	62	736	20	736	1.70784715	0.68301339
North	62	816	10	816	1.43075945	0.58030494
East	62	165	1	165	1.35476194	0.57184035
West	62	514	12	514	1.29067669	0.61304147
Table Tops Ecodiscs	36	2027	38	974	1.64909462	-1.7145199
Lillypads Ecodiscs	26	1392	41	1392	1.70979866	0.17563693



	#units	Total All Species abundance	Live Oyster Relative Abundance	Fish relative abundance	Shannon Weiner Diversity Index	Simpson's Diversity Index
Tier 1	62	147	1	21	0.71301372	0.39278839
Tier 2	62	157	1	24	0.76118801	0.46384146
Tier 3	62	2670	7	2431	0.40887499	0.29888058
Tier 4	62	2171	26	228	0.38278848	0.39267518
Tier 5	62	1648	34	390	0.49808366	0.52386057
Tier 6	62	809	20	151	0.34035705	0.45417067
Land	62	2191	25	2191	0.81299854	0.39983041
North	62	1994	30	1994	0.91150908	0.41261351
East	62	1745.25	19	1745.25	0.76903017	0.5067202
West	62	2060.59	11	2060.59	0.52539577	0.38244855
Table Tops Ecodiscs	36	7934	84	4270	0.68188919	0.01839816
Lillypads Ecodiscs	26	7091	77	3706	0.81307993	0.35092313



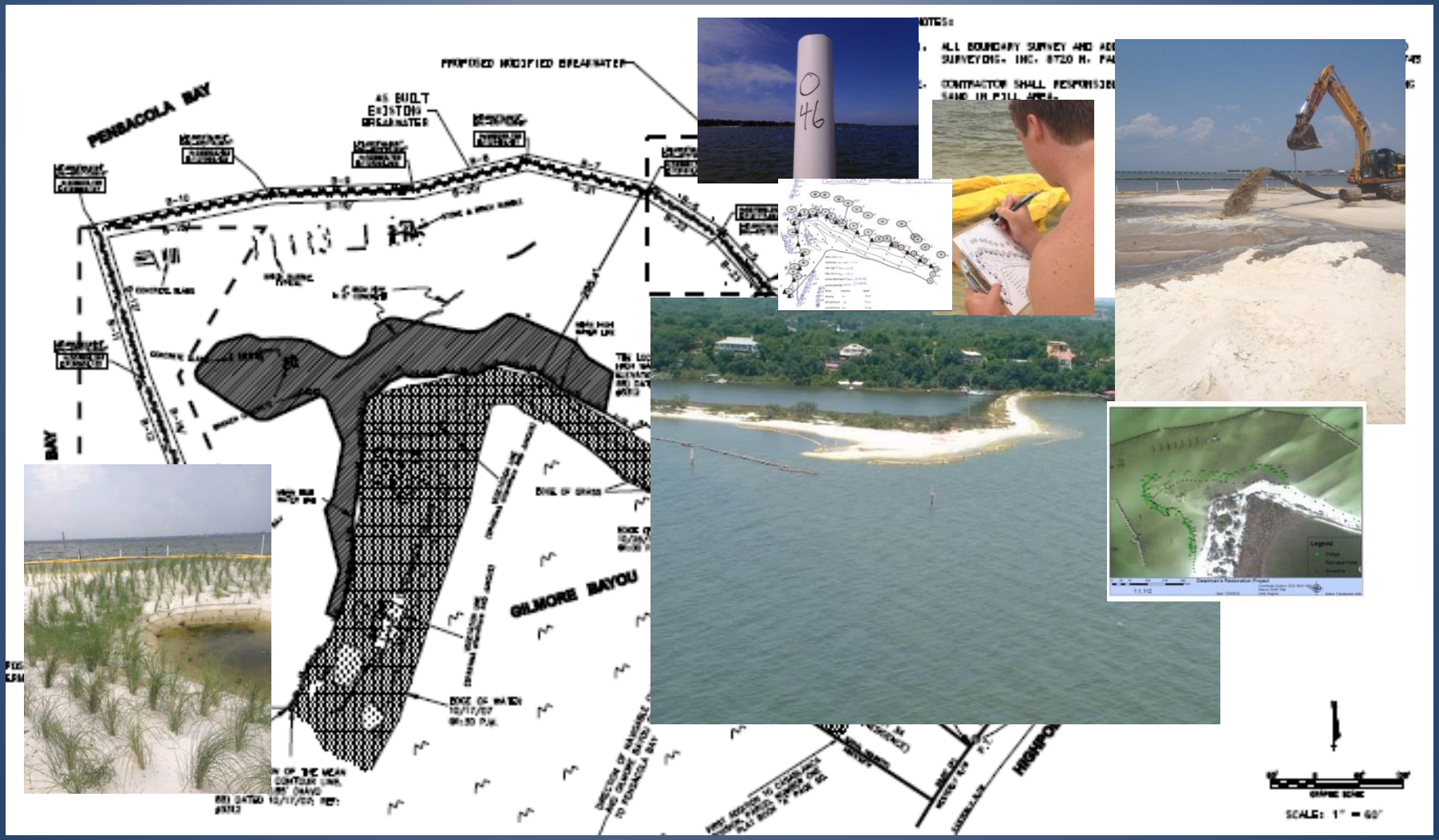
Two Types of vertical breakwater

Reefblk

Ecosystems

- Both are good habitat formation and reef builders in site specific areas
- Both attenuate waves
- Both were anchored
- What is your goal? If the reef dies off for two years will this impact the goal of the project.

2012 Sand Transport from Woodland Bayou Spoil Site

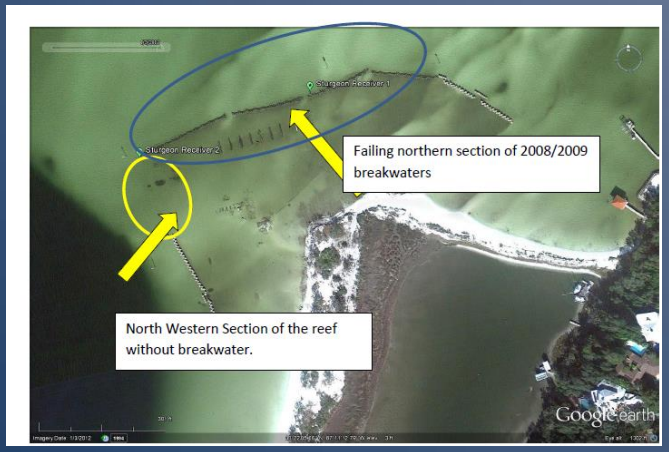



itat Breakwaters (1250 ft) and fill (1.37 acres) 2013
Legend
Ongoing construction area and bird habitat
Deadman's Island
Area designed for the public

Five Year project (Large scale)
Limited funding- evolving needs- LOTS of PROGRESS!!

Lots of educational lessons and opportunities for volunteers and students

Future plans:
Finish Breakwater footprint
Replace failing breakwaters
Replace fill
moved PVC barrier
Remove a PVC and Pilings



2007-PRESENT DEADMAN'S ISLAND COMMUNITY INVOLVEMENT







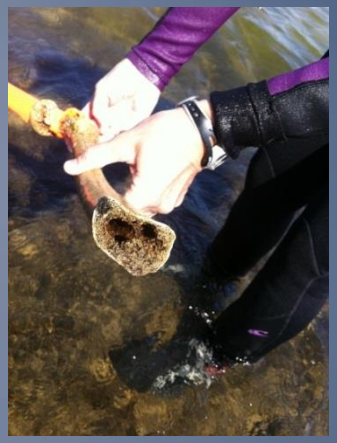








2011

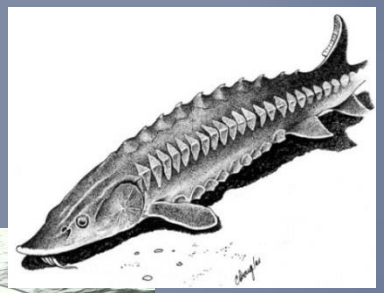


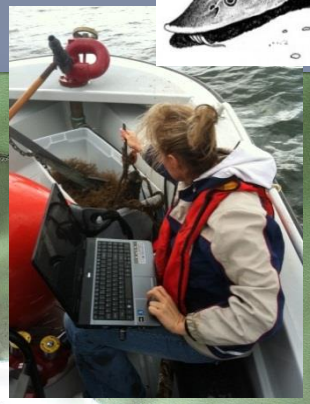
Additional

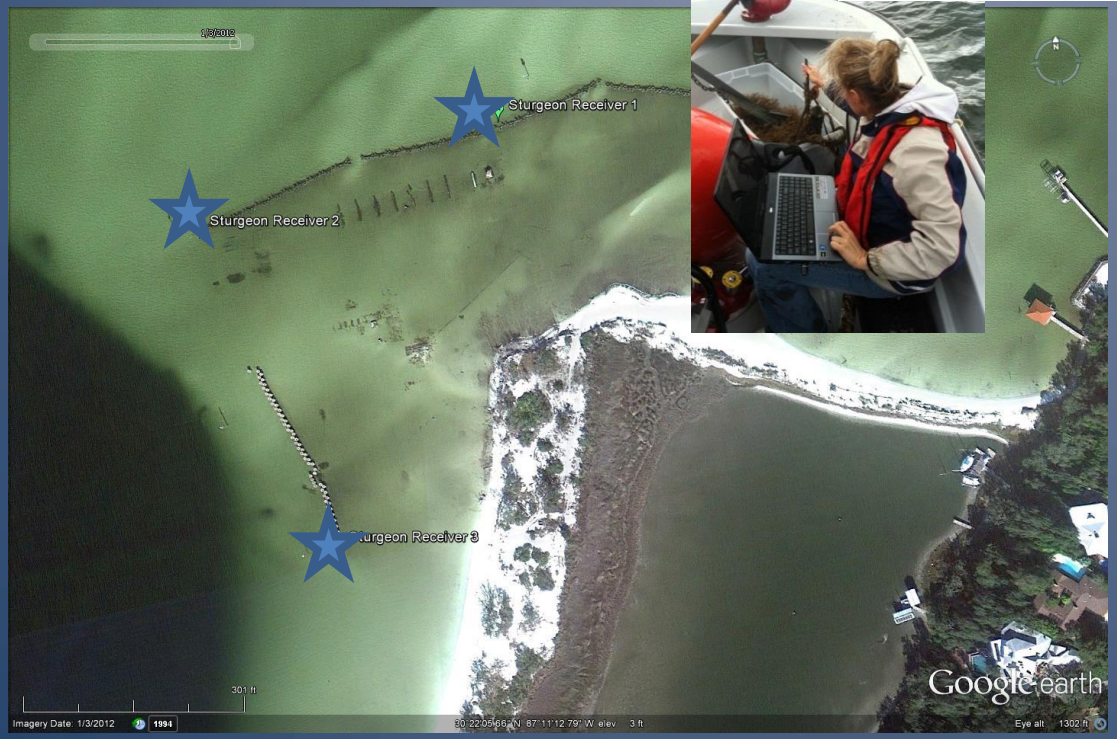
- Human Femur Bone – medical examiners inspections and paperwork
- Motor Exclusion Zone behind the breakwaters

2012 NAVIGATIONAL AIDS/GULF STURGEON MONITORING

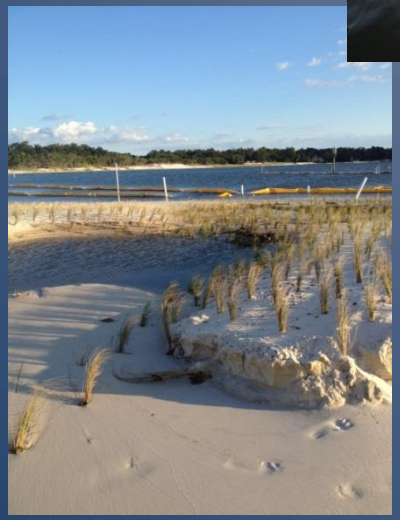
- *3 receivers to detect transmitters*

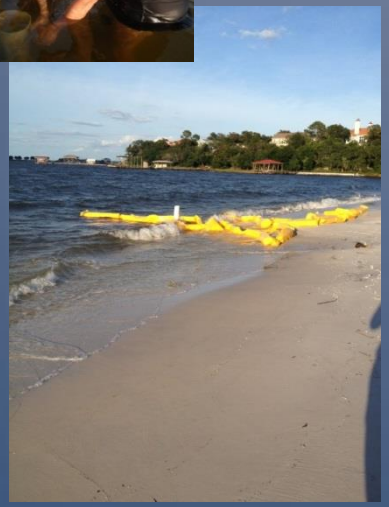






2012
Supertides and storms and community support still holds strong





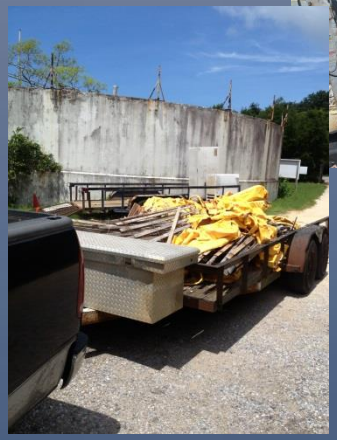
2013
UNDERWATER EDUCATIONAL KIOSKS

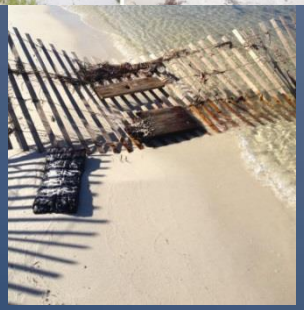
- *Under water Kiosks of Fish/Invertebrate Identification and information*
- *Replicas of Historic resources*
- *Dune Restoration*
- *Seagrass Expansion*
- *Ongoing Maintenance*

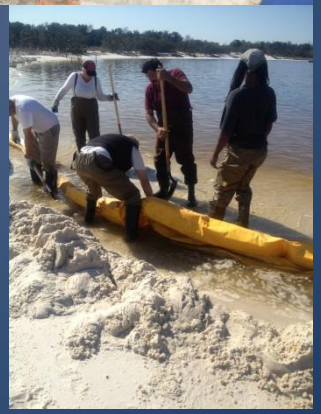










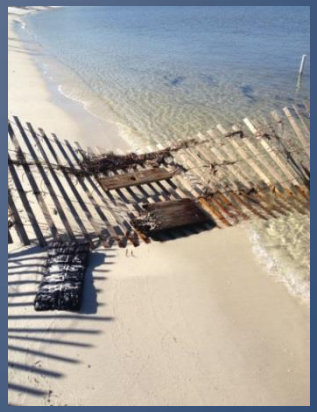


PEOPLE IMPACTS

- Fireworks
- Barrier breaking and deteriorating

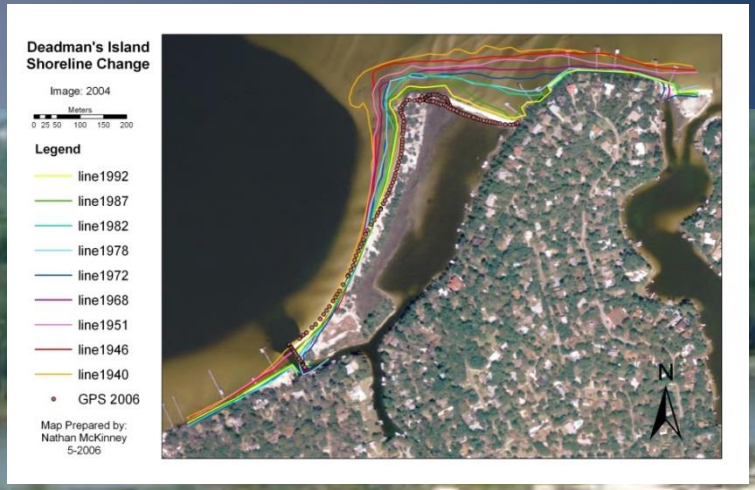
This is expensive to buy- expensive to place and expensive to remove-

- Pets (summer visitors)
- monitor ing reference stakes within the site being removed
- Fence being kicked down and burned
- Sturgeon monitors stolen
- Utility boat stolen
- Signage stolen



Biggest impact weather and wave action

Removal and replacement of non-functional rebar breakwater



No breakwater

Photo by David Walter

FUNDING

- *NRDA- BP review and State selected projected for areas which have been impacted*
- *RESTORE- State and Governor selected projects*
- *NFWF- State review and influence of select projects*

- *Grants- limited*

2013 RESTORATION OF DEADMAN'S ISLAND	9/15/2013
Closed Grants	**Given**
NFWF	183,000.00
Five Star 2009	30,000.00
US Fish and Wildlife 2009	25,000.00
US Fish and Wildlife 2009-2010	20,000.00
SARP 2010-2011	40,000.00
Historical Preservation Grant	5,000.00
Current Grants	
US Fish and Wildlife 2012-2014	9,500.00
ACOE Estuary Act 2011-2017	715,000.00
Wayne Lee (Neutral)	1,710.00
Chic Fila A (Neutral)	200.00
NRDA (Neutral)	1,260.00
City Funding	60,000.00
Total Grants to date (including closed)	**1,090,670.00**

- 2014 -Summer Monitoring
- Army Corps of Engineers ERA (monitoring only)

Current Proposals submitted for additional breakwater:

Not Accepted

- Army Corps of Engineers Estuary Habitat Restoration Program $650,000
- The Nature Conservancy $250,000 (Bird Habitat)
- FY 2013 Coastal and Marine Habitat Restoration Project Grants 668,000 –
- Natural Resources Damage Assessment $1.2 million
- RESTORE grant $1.2 million
- Reimbursement for monitoring NRDA $8500
- Coastal Partnership Initiative $110,000 (Bird Habitat)
- Gulf of Mexico Alliance $170,000 (Bird Habitat)
- FWC Legacy Grant 115,750.00

- City of Gulf Breeze –
- $20,000 in legal fees for objection
- $60,000 in permit fees
- $350,000 in match- staff, property, staging area, equipment

Writing a Resolution and the City Council is requesting Deadman's Island become a priority on the restoration list because of the reasons mentioned.

Public comments –

Pensacola Bay Center 201 East Gregory Street. Pensacola, FL 32502
January 28, 2014 6:30pm
(open house 6:00pm)
Or email comments directly to
earlyrestorationcomments@fws.gov

- Permitted Project and ready to go
- A project the PUBLIC community wants to see complete
- Ongoing Community project before the oil spill
- Healthy oysters before the oil spill
- No oysters as of today
- 60% loss in breakwater functionality
- Need to remove old and replace with new

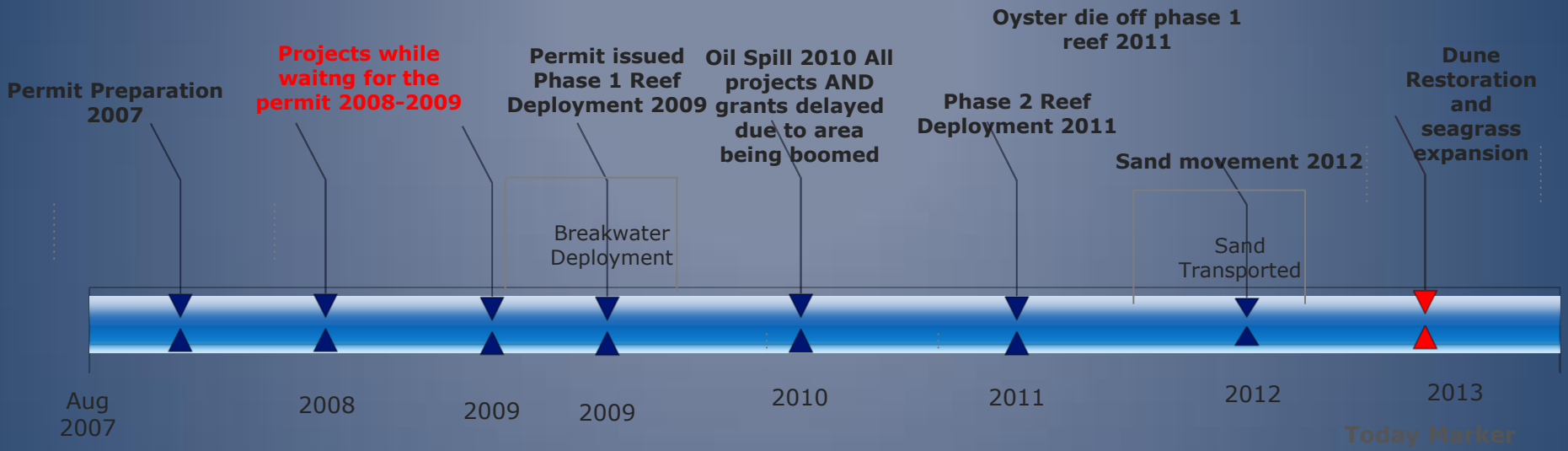
WHAT CAN YOU DO?

CONTACT DECISION MAKERS FOR FUNDING TO COMPLETE THE PROJECT

- *kendra.parson@dep.state.fl.us*
- *Kevin.claridge@dep.state.fl.us*
- *nick.wiley@myfwc.com*
- *Marti.McGuire@noaa.gov*
- ***Drew.bartlett**@dep.state.fl.us*
- *Don Gaetz – GAETZ.DON.WEB@flsenate.gov*
- *Senator Gregg Evers - greg@gregevers.com*
- *Gregg Evers **Brown.Greg.S02@flsenate.gov***
- *Doug Broxton - doug@dougbroxson.com*

- ***Herschel T. Vinyard, Jr., DEP Secretary***
- ***Secretary.QandA@dep.state.fl.us***
- ***Federal Restoration review team***
- *jody.holzworth@wdc.usda.gov*
- *renata.lana@noaa.gov*
- *nanciann_regalado@fws.gov*
- *valentine.julia@epa.gov*
- ***Government Officials***
- *Mike Hill - http://www.myfloridahouse.gov/Sections/Representatives/emailrepresentative.aspx?MemberId=4595&SessionId=75*
- *Governor Rick Scott – Rick.Scott@eog.myflorida.gov*
- *Marco Rubio - http://www.rubio.senate.gov/public/index.cfm/email-senator-rubio?p=Contact*
- *Jeff Miller - http://www.gulf1.net/Elected/JeffMiller/Jeffmail.asp*

2007-2012 Project Timeline



Thank You Partners!

Recognition from partners and other agencies as a successful large scale restoration project.

- Governors Action Plan of Gulf Mexico-

Part of the ACOE Master Sediment Management Plan

- Study site for the federal and state agencies

- The Nature Conservancy

Incorporated the Deadman's Island Monitoring plan in their programs

- Tampa Bay Estuary Conference

Over 43 presentations to various organizations and agencies

- Army Corps of Engineers
- FLDEP Coastal Aquatic Managed Areas
- NOAA
- National Fish and Wildlife Foundation
- Five Star Partners
- UWF Archeology Dept
- Escambia County Board of Education
- Georgestone Technical School
- Santa Rosa County
- US Fish and Wildlife

Continued recognition with many agencies and universities such as Dauphin Island Sea Lab and LSU

www.deadmansisland.org

QUESTIONS?

Heather Reed, Project Manager

Marine Biologist/Natural Resource Specialist

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CITY OF GULF BREEZE FLORIDA 1961

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