WALTON COUNTY NRDA ARTIFICIAL REEF PROGRAM

Melinda Gates  Walton County - Coastal Resource Liaison
Lauren Floyd  APTIM - Senior Marine Biologist
Kathryn Brown  APTIM - Marine Biologist
Beau Suthard, PG  APTIM - Senior Marine Geologist
Franky Stankiewicz  APTIM - Marine Geologist

February 8, 2018
FSBPA 31st National Conference on Beach Preservation Technology
PROJECT LOCATION AND ENVIRONMENTAL SETTING

- 1,037 sq. mi.
- Pop. ~53,000 (~ 52 persons/sq. mi.)
- ~26 miles of Gulf of Mexico shoreline
- County and State parks along the Gulf
- Tourism ~ $1 billion/year
PROJECT HISTORY AND DEVELOPMENT

• 1980 - Chapter 379.249 F.S. created the **Florida Artificial Reef Program**, establishing financial and technical assistance to coastal local governments, universities, and non-profits for reef siting and monitoring. FWC administers program through Ch. 68E-9 F.A.C.

Objectives of Artificial Reef Program include:
• Enhance recreational fishing and diving opportunities
• Provide socio-economic benefit to local coastal communities
• Increase reef fish habitat
• Reduce user conflicts
• Facilitate reef research
• Do no harm to fisheries, EFH or human health
PROJECT LOCATION AND ENVIRONMENTAL SETTING

Natural Hardbottom
- Limited “reef” habitat in northern Gulf
- Few areas with limestone outcropping
- Majority of substrate off of Walton is sand/shell
- Limited data, but some hardbottom in ~90 ft depth, 4.5 miles offshore of Grayton Beach

Artificial Reefs
- 1995 – Walton #1 (concrete pyramids)
- 1997 – Eastern Lake Reef (concrete culverts)
- 1999 – Frangista Barge (steel barge)
- 2001 – Frangista Beach Culverts (concrete culverts)
• April 20, 2010 – BP Deepwater Horizon Oil Spill

• April 2011 - NRDA Trustees and BP entered into the Framework Agreement for Early Restoration Addressing Injuries Resulting from the Deepwater Horizon Oil Spill.

• 2013 – NRDA Early Restoration Phase III – Northwest Florida Artificial Reef and Restoration Project:
  • 5 NW Florida Counties
  • ~ 3,000 artificial reefs
  • 48 permitted areas
  • Different depths
  • Different module designs
  • Cost ~ $11.5 M
Proposed Construction of Offshore and Nearshore Artificial Reefs

- 622 reef modules
- 16 permitted reef sites
  - 4 inshore snorkel reefs (12-20 ft)
  - 9 nearshore fish/diving reefs (55-62 ft)
  - 3 offshore fish/diving reefs (68-90 ft)
WALTON COUNTY NRDA ARTIFICIAL REEF PROJECT

Reef Modules

- **Ecosystems Snorkeling Reef**
- **Florida Limestone Pyramid Reef**
  - 8’ tall, 3 tons
- **Grouper Reef**
  - 5’ tall, 5’ x 10’ wide
  - 3+ tons
- **Super Reef**
  - 18’ tall, 18+tons

The Reefmaker / Walter Marine
South Walton Artificial Reef Association (SWARA), Inc.

- Formed in 2012 in response to concerns over impacts from Deep Horizon Oil Spill
- Grass-roots, non-profit 501(c)3 organization of marine enthusiasts and artificial reef advocates
- Dedicated to the construction, deployment, and monitoring of Walton County’s artificial reefs for the benefit and health of environment and community
- Appointed coordinator for the NRDA artificial reef projects
AGENCY COORDINATION AND PERMITTING

- State (FDEP) and Federal (USACE) permits required for reefs
- FWC funding through Agreement No. 15156
- NMFS consultation for sea turtles and Gulf sturgeon and Critical Habitat

<table>
<thead>
<tr>
<th>Reef Name</th>
<th>ACOE Permit</th>
<th>FDEP Permit</th>
<th>Number of Modules to be deployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miramar Beach Snorkel Reef</td>
<td>SAJ-2014-00327</td>
<td>66-0324064-001-EG</td>
<td>77</td>
</tr>
<tr>
<td>Topsail Hill Snorkel Reef</td>
<td>SAJ-2014-00327</td>
<td>66-0324065-001-EG</td>
<td>78</td>
</tr>
<tr>
<td>Grayton Beach Snorkel Reef</td>
<td>SAJ-2014-00327</td>
<td>66-0322891-001-EG</td>
<td>5</td>
</tr>
<tr>
<td>Inlet Beach Snorkel Reef</td>
<td>SAJ-2014-00327</td>
<td>66-0324077-001-EG</td>
<td>94</td>
</tr>
<tr>
<td>Miramar Beach Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324063-001-EG</td>
<td>30</td>
</tr>
<tr>
<td>Topsail Bluff Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324066-001-EG</td>
<td>30</td>
</tr>
<tr>
<td>Fort Panic Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324067-001-EG</td>
<td>30</td>
</tr>
<tr>
<td>Ed Walline Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324068-001-EG</td>
<td>30</td>
</tr>
<tr>
<td>Blue Mountain Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324071-001-EG</td>
<td>30</td>
</tr>
<tr>
<td>Grayton Beach Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324072-001-EG</td>
<td>30</td>
</tr>
<tr>
<td>Santa Clara Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324070-001-EG</td>
<td>30</td>
</tr>
<tr>
<td>Deer Lake Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324074-001-EG</td>
<td>31</td>
</tr>
<tr>
<td>Inlet Beach Fish/Dive Reef</td>
<td>SAJ-2014-00326</td>
<td>66-0324076-001-EG</td>
<td>31</td>
</tr>
<tr>
<td>Miramar Reef Site</td>
<td>SAJ-1996-06244</td>
<td>66-0311284-002-EG</td>
<td>31</td>
</tr>
<tr>
<td>Fish Haven #1</td>
<td>SAJ-2013-01166</td>
<td>66-0318419-001-EG</td>
<td>32</td>
</tr>
<tr>
<td>Fish Haven #2</td>
<td>SAJ-2013-01167</td>
<td>66-0318423-001-EG</td>
<td>32</td>
</tr>
</tbody>
</table>
2015 GRAYTON BEACH SNORKEL REEF DEPLOYMENT

It’s official, South Walton has a new artificial reef, and it is in the shape of a sea turtle!

WaltonOutdoors.com (July 2015)
WALTON COUNTY NRDA ARTIFICIAL REEF PROJECT - MONITORING

• Pre-Deployment Inspection (APTIM)
• Mid-Deployment Observations (Walton Co. & SWARA)
• Post-Deployment Surveys (APTIM)
PRE-DEPLOYMENT INSPECTION

FEBRUARY 2017

Goal: Verify intended reef locations do not have seagrass, shellfish, hardbottom, corals or historic artifacts present.

• Review existing data (desktop analysis)
PRE-DEPLOYMENT INSPECTION

FEBRUARY 2017

Goal: Verify intended reef locations do not have seagrass, shellfish, hardbottom, corals or historic artifacts present.

• Review existing data (desktop analysis)
• February 2017 –pre-deployment survey
  1. Towed DGPS-integrated underwater video
Goal: Verify intended reef locations do not have seagrass, shellfish, hardbottom, corals or historic artifacts present.
• Review existing data (desktop analysis)
• February 2017 –pre-deployment survey
  1. Towed GPS-integrated underwater video

PRE-DEPLOYMENT INSPECTION
FEBRUARY 2017
PRE-DEPLOYMENT INSPECTION

FEBRUARY 2017

Goal: Verify intended reef locations do not have seagrass, shellfish, hardbottom, corals or historic artifacts present.

• Review existing data (desktop analysis)
• February 2017- pre-deployment survey
  1. Towed GPS-integrated underwater video
  2. Diver verification
REEF DEPLOYMENT / OBSERVATIONS

JUNE – AUGUST 2017

- Reef Deployment Methodology
- Observation Methodology
POST-DEPLOYMENT

DIVER INVESTIGATIONS (NOVEMBER 2017)

Goal: Survey at least 30% of deployed modules and collect:
• Physical observations – damage, subsidence, relief
• Recreational usage – boat type/size, activity
• Benthic survey - invertebrates and macroalgae
• Fish census – species and abundance
POST-DEPLOYMENT

DIVER INVESTIGATIONS

Physical Observations and Recreational Usage

- Super Reef – Blue Mountain
- Florida Limestone Pyramid Reef – Fish Haven #2
- Grouper Reef – Fish Haven #1
- Ecosystems Snorkeling Reef – Topsail Hill
POST-DEPLOYMENT

DIVER INVESTIGATIONS

Benthic Survey

APTIM diver on ecosystem reef

Anemones, tunicates

Cyanobacteria (*Lyngbya* sp.)

Octocoral (*Carijoa riisei*)

Octocoral (*Leptogorgia virgulata*)
POST-DEPLOYMENT

DIVER INVESTIGATIONS

Fish Census

Great amberjacks
Round scad
Goliath grouper
Red snapper
Red lionfish
Tomtates
Southern stingray
POST-DEPLOYMENT

SIDESCAN SURVEY (NOVEMBER 2017)

Goal: Conduct sidescan over all permitted reef areas to assess reef placement and seafloor features.

• EdgeTech 4125 sidescan sonar system with high/low dual frequency
• Survey designed varied for inshore, nearshore and offshore plans due to varying water depths
• Survey designed to collect over 100% sidescan coverage
• Mosaics produced for all 16 reef areas
• Sidescan data analyzed for module positions, additional contacts and seafloor features.
POST-DEPLOYMENT SIDESCAN SURVEY

- Mosaics of all 16 reef areas
- All modules intact and upright
- All placed in the vicinity of the planned locations
POST-DEPLOYMENT

SIDESCAN SURVEY

Mirimar Fish Haven #3
POST-DEPLOYMENT

SIDESCAN SURVEY

Seafloor Features
- Fine sands
- Sand with some coarse grains
- Potential exposed hardbottom with rubble
POST-DEPLOYMENT SIDESCAN SURVEY
POST-DEPLOYMENT

SIDESCAN SURVEY

Topsail Hill – Inshore Snorkel
POST-DEPLOYMENT

SIDESCAN SURVEY

Inlet Beach – Inshore

Miramar Beach - Inshore
POST-DEPLOYMENT

SIDESCAN SURVEY

Fort Panic - Nearshore

Fish Haven #2 - Offshore
WHAT'S NEXT

• Educational Signage

MARINE LIFE TO LOOK FOR

DIRECTIONS

Line up the poles so they appear as the pole for correct heading. If you can see green poles you are off-course.

BEACH FLAG WARNINGS

WATER CLOSED
Water activity is prohibited

HIGH HAZARD
Knee deep is too deep

MODERATE SURF/CURRENTS

CALM CONDITIONS

STINGING MARINE LIFE
Man o' War, Jellyfish, Stingrays

BEWARE OF RIP CURRENTS

Rip currents are powerful currents of water that can sweep even the strongest swimmers out to sea. If you get caught in one, don't panic and don't swim against the current. Relax, float with the current until it dissipates. Swim parallel to the shore and diagonally back in.

DIVER DOWN SAFETY

State law requires that scuba divers or snorkelers display either a traditional divers-down flag or a divers-down buoy whenever they are in the water. This legislation is a means of increasing diver visibility and diver safety on the waterways.
WHAT’S NEXT

• Educational Signage

REEF SAFETY TIPS

PROTECT YOURSELF, PROTECT OUR REEF

• Always use caution
• Watch for others diving
• Wear protective clothing
• Be mindful of boats
• Always dive with a buddy
• Do not harass marine life
• Always carry diver down flag

*All State Park Rules apply within the State Park Boundaries.

BEWARE OF RIP CURRENTS

Rip currents are powerful currents of water that can sweep even the strongest swimmers out to sea. If you get caught in one, don’t panic and don’t swim against the current. Relax, float with the current until it dissipates. Swim parallel to the shore and diagonally back in.

DIVER DOWN SAFETY

State law requires that scuba divers or snorkelers display either a traditional divers-down flag OR a divers-down buoy whenever they are in the water. This legislation is a means of increasing diver visibility and diver safety on the waterways.
WHAT'S NEXT

• Future Monitoring
• Next Phases of Reef Deployments