Mulberry Phosphate Trustees Achieve Oyster Reef Restoration in Hillsborough Bay, Florida

Erin A. Hague, CEP, Senior Coastal Ecologist
Background

1997  Mulberry Phosphates Phosphogypsum Stack Breached

2000  NOAA and FDEP formed Restoration Council (“Trustees”)

2008  Final Estuarine Restoration Implementation Plan

2013  Tetra Tech Team Selected
Purpose & Need

Goals of 2008 Final Estuarine Restoration Implementation Plan

• Maximum possible oyster reef habitat area eastern shoreline of Spoil Island 2D
• Avoid disturbing nesting shorebirds during reef installation
• Protect existing resources
• Conserve existing habitats on Spoil Island 2D
Siting, Approach & Design – Phasing

Phase I (June 2013 – June 2014)

- Review Existing Information
- Preliminary Site Investigations
- Project Initiation & Scoping Meeting
- Stakeholder and Trustee Coordination
- Final Design
- Permitting & Regulatory Approval

Phase II (June 2014 – June 2015)

- Project Implementation – Reef Creation
- Reporting
Siting, Approach & Design - Constraints

*Migratory Bird Management*

- Port Tampa Bay Migratory Bird Interagency Protection Committee (MBIPC)
- AMOY nesting season protection
- Audubon project liaison to MBIPC and daily bird monitoring

Siting Approach & Design

Baseline Investigations

• Nearly continuous, sparse shoalgrass cover (<10%)
• Established mangrove fringe community
• Narrow oyster reef bar
• Shallow, intertidal shoreline platform
Siting, Design & Approach – Wave Analysis & Rock Stability

**Design Criteria**
- 25-year wave conditions
- Periodic exposure for foraging AMOY

**Design Conditions**
- Wind speeds, water levels, bathymetry
  - Wave Conditions - depth-limited

**Reef Design**
- Rock size for stability and oyster reef growth
- Filter layer to prevent settlement
- FDOT Standard Production Grade – economic and available
<table>
<thead>
<tr>
<th>Siting, Approach &amp; Design – Adaptive Management</th>
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<tbody>
<tr>
<td><strong>Permitted Design &amp; Footprint</strong></td>
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<tr>
<td>• 16 oyster reefs segments</td>
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<tr>
<td>• 28,350 sf (0.65 acre) of reef substrate</td>
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<tr>
<td><strong>Contracted Design &amp; Footprint</strong></td>
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<td>• 2 oyster reef segments</td>
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<tr>
<td>• 1,200 cy of limestone</td>
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<tr>
<td>• 12,975 sf (0.29 acre) of reef substrate</td>
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<td><strong>Implemented Design &amp; Footprint</strong></td>
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<td>• Changed site conditions</td>
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<tr>
<td>• 3 oyster reef segments</td>
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<tr>
<td>• Single, unified installation</td>
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<tr>
<td>• 1,100 cy of limestone</td>
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<tr>
<td>• 21,470 sf (0.49 acre) of reef substrate</td>
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<tr>
<td>• 76% of permitted reef created</td>
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<td>• No increase in Project cost</td>
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Siting, Approach & Design
Implementation – Vessel Access
Implementation - Reef Creation
Implementation - Reef Creation
Implementation - Reef Creation
Implementation - Migratory Bird Protection
Success! – Recruitment & Colonization

American Oystercatcher foraging during reef installation
Success! – Recruitment & Colonization

Jackie Julien
June 25, 2015
Success! – Recruitment & Colonization
Success! – Recruitment & Colonization
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