Evaluating the Estuary Restoration Act and oyster reef restoration projects to inform Gulf restoration

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Current address: Dauphin Island Sea Lab, Alabama
One Hundred Sixth Congress of the United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Monday, the twenty-fourth day of January, two thousand

An Act

...
Purposes of the ERA

- Improve cost-efficiency
- Develop common monitoring standards
- Enhance monitoring and research capabilities to ensure sound science
  - Mandated monitoring
  - Public dissemination of data
National Estuaries Restoration Inventory

http://neri.noaa.gov

For more information or to inquire about including your restoration projects, please contact: nerri@noaa.gov
Case study of oyster reef projects
Restoration guidance

- Scale
- Cost
- Monitoring

How have project size, costs and metrics of success changed over time?
Project distribution

- 187 projects implemented between 2000-2011
- $45.3 million awarded
- >150 ha restored
Project size and cost

- **Project Size:**
  - Range: 0.004 - 19.8 ha
  - Average: 0.99 ha

- **Project Cost:**
  - Range: $500 - $5M
  - Average: $243K

- **American Recovery & Reinvestment Act of 2009**

### Table: Funding Mean cost (USD)

<table>
<thead>
<tr>
<th>Size class</th>
<th>Number of projects</th>
<th>Total area restored (ha)</th>
<th>Total (millions USD)</th>
<th>Federal (%)</th>
<th>Non-federal (%)</th>
<th>Mean cost (USD) per project</th>
<th>Mean cost (USD) per ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhancement (0 ha)</td>
<td>35</td>
<td>0</td>
<td>6.5</td>
<td>37%</td>
<td>63%</td>
<td>$185,180</td>
<td>N/A</td>
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<tr>
<td>Small (&lt; 0.4 ha)</td>
<td>80</td>
<td>7.5</td>
<td>9.6</td>
<td>52%</td>
<td>48%</td>
<td>$121,774</td>
<td>$3,477,339</td>
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<tr>
<td>Medium (0.4 - 2.0 ha)</td>
<td>55</td>
<td>46.7</td>
<td>15.3</td>
<td>66%</td>
<td>34%</td>
<td>$278,328</td>
<td>$337,399</td>
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<tr>
<td>Large (&gt; 2.0 ha)</td>
<td>17</td>
<td>96.4</td>
<td>13.9</td>
<td>87%</td>
<td>13%</td>
<td>$819,090</td>
<td>$97,989</td>
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</table>

- **Funding Mean cost (USD)**
  - Enhancement (0 ha): $185,180
  - Small (< 0.4 ha): $121,774
  - Medium (0.4 - 2.0 ha): $278,328
  - Large (> 2.0 ha): $819,090

R² = 0.32
Lack of monitoring data

- ~50% restored reefs monitored in Chesapeake Bay (Kennedy et al. 2011)
- ~20% restored reefs monitored in Gulf of Mexico (La Peyre et al. 2014)
- River restoration is US (Bernhardt et al. 2005), Salt marsh restoration in Europe (Wolters et al. 2005)
Where are the data?

- Why are they missing?
  - Projects not monitored?
  - Data never submitted?
  - Lack of support?

- To be expected?
  - Unrealistic goals?
  - Disconnect between on-the-ground efforts and policy making?

“I have to state that their approach was quite naïve given what everyone should have known about these efforts (except perhaps a ‘newbee’ grad student) with laudable ideals??”
A closer look for missing data
Living Shorelines: Synthesizing the results of a decade of implementation in coastal Alabama

- 12 projects implemented between 2005-2013
- Different methods
- What works best? Provides the most benefits?
Data collected and available

Check out our preliminary results at tonight’s poster session!

<table>
<thead>
<tr>
<th>Project Code</th>
<th>Shoreline position</th>
<th>Reef footprint</th>
<th>Sessile density</th>
<th>Nekton abundance</th>
<th>Marsh cover</th>
<th>SAV presence</th>
<th>Results available?</th>
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</table>
The RESTORE Act of 2012
RESTORE Act of 2012

- ~$6.5B dedicated to restoration
  - ~$200M specifically to oyster reef habitats

- ~$1.5B assigned for monitoring, adaptive management and administrative oversight

Trustee Council (2015)
Conclusions

■ Hindsight is 20:20
  - Use lessons learned from the ERA to guide RESTORE efforts.

■ Restoration ecology is a growing field
  - It is critical that both new and current restoration practitioners and scientists are able to learn from past projects and apply that collective knowledge to future restoration efforts.

■ Restoration projects face increased scrutiny
  - Transparency with the public about restoration goals and outcomes is important for maintaining and building support for continued restoration efforts.
“This commentary is written to incite debate. Public trust has been vested in the scientific community to restore oysters to the Chesapeake Bay. We have spent vast amounts of money and to date have demonstrated little progress. We offer the opinion that if this had been a private industry agricultural challenge, we would have either been fired long ago for not solving the problem or the challenge would have been redefined with pursuit of novel and tractable alternative options.”
Acknowledgements

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Thank You!

Contact me at: bblomberg@disl.org

Learn more about the living shorelines project at the poster session tonight! (PPF20)