The Delaware Bay shell planting program after 3 years: recruitment enhancement and carbonate budget.

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Russell Babb
Gulnihal Ozbay
Richard Cole

Photo courtesy of NJDEP
Spat in Delaware

Spat in New Jersey

Total Spat and Mean Spat per Bushel for Delaware's Five Main Seed Beds, 1977-2007

- Total Spat
- Mean Spat

Year


- Total Spat
- Mean Spat

Year
Shell Plant Material

- Maryland Mined Oyster Shell
- Ocean Quahog Shell
- Surf Clam Shell
- Native Oyster Cultch
### Efficiency of Dredge vs Diver

<table>
<thead>
<tr>
<th></th>
<th>New Jersey</th>
<th>Delaware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oyster</td>
<td>20.5%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Native</td>
<td>10.8%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Mined</td>
<td>-</td>
<td>1.3%</td>
</tr>
<tr>
<td>Surf Clam</td>
<td>0.8%</td>
<td>-</td>
</tr>
<tr>
<td>Quahog</td>
<td>0.6%</td>
<td>-</td>
</tr>
</tbody>
</table>
Efficiency of Open vs Lined Dredge

Surf Clam: 33%
Quahog: 22%

Photo courtesy of DNREC
<table>
<thead>
<tr>
<th>Year</th>
<th>Bushels Planted*</th>
<th>Projected Yield**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>63,876</td>
<td>&gt;53,000 bushels</td>
</tr>
<tr>
<td>2006</td>
<td>474,845</td>
<td>&gt;166,000 bushels</td>
</tr>
<tr>
<td>2007</td>
<td>646,519</td>
<td>&gt;373,000 bushels</td>
</tr>
</tbody>
</table>

*clam shell only

**marketable bushels from initial year’s set

2007 Harvest for NJ+DE = 92,654 Bushels
Addition and loss rates of shell 1998-2005

<table>
<thead>
<tr>
<th>Location</th>
<th>Addition Rate</th>
<th>Loss Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arnolds</td>
<td>39.5</td>
<td>39.0</td>
</tr>
<tr>
<td>Cohansey</td>
<td>39.4</td>
<td>39.0</td>
</tr>
<tr>
<td>Shell Rock</td>
<td>39.3</td>
<td>39.0</td>
</tr>
<tr>
<td>Ship John</td>
<td>39.2</td>
<td>39.0</td>
</tr>
<tr>
<td>Bennies Sand</td>
<td>39.1</td>
<td>39.0</td>
</tr>
<tr>
<td>New Jersey</td>
<td>39.0</td>
<td>39.0</td>
</tr>
<tr>
<td>Delaware</td>
<td>39.0</td>
<td>39.0</td>
</tr>
<tr>
<td>Delaware Bay</td>
<td>39.0</td>
<td>39.0</td>
</tr>
</tbody>
</table>

Note: The addition and loss rates are given in units of Time$^{-1}$.
Bushels of Shell Lost on NJ Oyster Beds

Based on Box Volume (Bu)

Based on Box Weight (Kg)
Net Change in Shell on NJ Oyster Beds by Region

- Low Mortality Beds
- Medium Mortality Beds
- High Mortality Beds

New Jersey
- Cohansey
- Ship John
- Bennies Sand
- Nantuxent
- Hawk's Nest
- Over the Bar
- Silver
- Pleasanton Rock Ridge
- Lower Middle
- Shell Rock
- Nantuxent

Delaware
- Delaware Bay

Year
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
• Cumberland Empowerment Zone Corporation
  • DE & NJ Shellfish Industries
• DE Dept. of Natural Resources and Environmental Control
  • DE River and Bay Authority
  • DE River Basin Commission
    • DE State University
• NJ Department of Environmental Protection
  • Partnership for the DE Estuary
• Rutgers University’s Haskin Shellfish Research Lab
  • US Army Corps of Engineers

QuickTime™ and a decompressor are needed to see this picture.

Photo courtesy of NJDEP
Many thanks to the dozens of individuals who approached their work with true devotion.