Protecting Shoreline: Living Shorelines Projects

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Introduction

• MD’s shoreline- approx. 7,532 miles (Maryland Geological Survey).

• Significant problem facing landowners- SHORE EROSION, which is a natural process.

• With the current focus in hurricanes, flood, and other natural disasters, the need to protect people, land and natural resources- great importance.

• Conventional practices- bulkheads, rip raps.
Rip raps

Bulkheads
Living Shorelines (LS)

- A popular approach to erosion control.

- Uses strategically placed plants, stone and sand to deflect wave action, conserve soil and simultaneously provide critical shoreline habitat.

- Creating or preserving WETLANDS.

- LS stand up to wave energy better than solid bulkheads or rip raps.

- Minimal disruption of normal coastal processes - sediment movement along shoreline and protection and restoration of wetlands.
Living Shorelines (LS)

- Great relevance in MD and VA
- Miles and miles of shorelines are hardened each year
- Hardened shorelines- increases the vulnerability to storm damage and loss of valuable habitat for fish, crabs and waterfowl.
Common Types of LS Projects

- Marsh edging
- Groins
- Stone sills
- Breakwaters
- Biologs
Advantages

• Hardened shorelines- lower abundance of bottom-dwelling organisms offshore and lower numbers of juvenile fish and crabs.

• Abundance and diversity of aquatic species- higher in habitats adjacent to natural marsh.

• Density of crabs- significantly higher in natural marsh than in bulkhead habitats.

• Helps to maintain a link between aquatic and upland habitats.
Advantages

• Lower construction costs.
• Maintain natural shoreline dynamics and sand movement.
• Reduce wave energy.
• Absorb storm surge and flood waters.
• Filter nutrients and other pollutants from the water.
Drawbacks

- Not effective in all situations, especially in high energy environments.
- Lack of knowledgeable marine contractors.
- Lack of detailed science/literature.
Queen Anne’s and Kent: RC&D Projects
(Eastern Shore Resource Conservation & Development, Council)
# Economics of the Projects

<table>
<thead>
<tr>
<th>County</th>
<th>Number of RC&amp;D Projects</th>
<th>Total project cost ($)</th>
<th>Average Cost Per Project ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent</td>
<td>28</td>
<td>874,502</td>
<td>31,232.20</td>
</tr>
<tr>
<td>Queen Anne</td>
<td>58</td>
<td>2,040,398</td>
<td>35,179.28</td>
</tr>
</tbody>
</table>
## Merits of the Shoreline Erosion Control Projects in MD

<table>
<thead>
<tr>
<th>County</th>
<th>Total Project Length (ft)</th>
<th>Sediment saved (tons/yr)</th>
<th>Wetland created (sq. ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent</td>
<td>11,714</td>
<td>3,863.27</td>
<td>224,566</td>
</tr>
<tr>
<td>Queen Anne</td>
<td>34,791</td>
<td>17,941.32</td>
<td>711,981</td>
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</tbody>
</table>
Conclusions
• Healthy marsh grasses = stronger protection from erosion.

• Keys to success of LS projects:
  - Good design
  - Knowledgeable contractor
  - Awareness
    • LS- need maintenance; not “zero maintenance”.
  - Property owners’ involvement.
Thank You !!!!