Stakeholder perceptions of resource condition, management, access, and use in Sarasota Bay, FL: Findings across values and space

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Overview

Presentation
• Study description
• Findings
• Discussion

Project
• GOM interest: BP oil spill
• Collaboration: USGS/FLSG
• SH Needs: GOMA, GOM Research, NOP, etc.
• Research Needs: env/soc/econ baseline, GOM specific ecosystem service valuation
Study Context: Greater Sarasota Bay
Data Collection

• SolVES: 16 values; 45 uses
  – Other: 45 management/access/condition questions

• Online survey
  – n=285 completed surveys
  – n=1744 mapped points

• Sample profile:
  – Age – 71% 50-79 years old
  – Income – ~80% $50-150k
  – Education - ~80% 4-yr degree/+  
  – Seasonal:Permanent – 1:9
  – Avg. Time Lived in GSB – 20 years

Survey Structure:
A. GSB Perceptions:
  • Resources/Mgmt*
  • Place Scale
B. SolVES*:
  • Value Allocation
  • Mapping
  • Use Preference
C. Demographics*

THE UNIVERSITY OF NORTH CAROLINA
GREENSBORO
Findings: Resources/Management

- Generally positive (1-5 :: Agree-Disagree)
  - Improving ENV: 61.1% SA/A; mean – 2.47
  - Improving REC: 71.6% SA/A; mean – 2.08
    - Reduce Access DEV: 62.8% SA/A; mean – 2.15

- Role of the public in management...
Findings: Resource Access

• “Public access to coastal waters and waterways has been identified as a priority management issue. From your perspective, how adequate is existing public access to Greater Sarasota Bay?”

<table>
<thead>
<tr>
<th>Resource</th>
<th>Mean 1 Very Adequate-5 Very Inadequate</th>
<th>SD</th>
<th>% Adequate Very Adequate + Adequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaches</td>
<td>2.566</td>
<td>1.136</td>
<td>58.30%</td>
</tr>
<tr>
<td>Scenic View Points</td>
<td>2.739</td>
<td>1.142</td>
<td>50.20%</td>
</tr>
<tr>
<td>Boat Ramps</td>
<td>2.631</td>
<td>1.183</td>
<td>43.50%</td>
</tr>
<tr>
<td>Natural Swimming Areas</td>
<td>2.786</td>
<td>1.133</td>
<td>42.80%</td>
</tr>
<tr>
<td>Dune walkovers</td>
<td>2.824</td>
<td>1.086</td>
<td>40.40%</td>
</tr>
<tr>
<td>Waterway Nature Trails (Blueways)</td>
<td>2.869</td>
<td>1.112</td>
<td>37.90%*</td>
</tr>
<tr>
<td>Waterfront restaurants w/ boat access</td>
<td>2.869</td>
<td>1.043</td>
<td>33.70%*</td>
</tr>
<tr>
<td>Nature trails adjacent to water</td>
<td>3.15</td>
<td>1.177</td>
<td>29.20%</td>
</tr>
<tr>
<td>Boat Marina Slips</td>
<td>2.655</td>
<td>1.042</td>
<td>28.80%</td>
</tr>
<tr>
<td>Boardwalks</td>
<td>3.175</td>
<td>1.04</td>
<td>24.20%*</td>
</tr>
</tbody>
</table>

*Neutral >20%
Findings: Resource Experience

• “Please indicate your level of agreement with each statement as it relates to your experience with Greater Sarasota Bay.”
  – 10/18 with >50% Strongly Agree/Agree
  – 5/18 balanced (~1/3 each: SA/A, Neutral, SD/D)

<table>
<thead>
<tr>
<th>Experience</th>
<th>Mean</th>
<th>SD</th>
<th>% Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough parking spaces at water and beach access sites</td>
<td>1.86</td>
<td>0.852</td>
<td>77.2%</td>
</tr>
<tr>
<td>Congestion at water and beach access sites</td>
<td>1.85</td>
<td>0.775</td>
<td>77.6%</td>
</tr>
<tr>
<td>Loss of natural shoreline due to development</td>
<td>1.98</td>
<td>1.046</td>
<td>69.1%</td>
</tr>
<tr>
<td>Loss of natural areas and associated wildlife</td>
<td>2.15</td>
<td>1.003</td>
<td>64.6%</td>
</tr>
<tr>
<td>Inadequate boater education</td>
<td>2.13</td>
<td>0.943</td>
<td>58.6%*</td>
</tr>
<tr>
<td>Loss of mangrove habitat</td>
<td>2.24</td>
<td>1.055</td>
<td>58.2%</td>
</tr>
<tr>
<td>Loss of public access to water and beaches</td>
<td>2.32</td>
<td>1.069</td>
<td>55.8%*</td>
</tr>
<tr>
<td>Loss of seagrass habitat</td>
<td>2.33</td>
<td>0.999</td>
<td>54.0%*</td>
</tr>
<tr>
<td>Major shoreline erosion</td>
<td>2.30</td>
<td>0.973</td>
<td>53.3%*</td>
</tr>
<tr>
<td>Fewer birds and wildlife</td>
<td>2.52</td>
<td>1.088</td>
<td>50.5%*</td>
</tr>
<tr>
<td>Too much debris and trash in the water</td>
<td>2.59</td>
<td>1.095</td>
<td>49.8%*</td>
</tr>
<tr>
<td>Fewer fish to catch</td>
<td>2.33</td>
<td>0.992</td>
<td>40.7%*</td>
</tr>
<tr>
<td>Loss of restaurants and other shoreline recreational opportunities</td>
<td>2.63</td>
<td>0.912</td>
<td>39.6%**</td>
</tr>
<tr>
<td>Too many boats</td>
<td>2.72</td>
<td>1.0455</td>
<td>34.1%**</td>
</tr>
<tr>
<td>Increased frequency of red tide</td>
<td>2.85</td>
<td>1.0426</td>
<td>33.3%**</td>
</tr>
<tr>
<td>Too many derelict vessels</td>
<td>2.82</td>
<td>1.052</td>
<td>32.7%*</td>
</tr>
<tr>
<td>Inadequate waterway maintenance (canals, channels, passes)</td>
<td>2.75</td>
<td>0.9382</td>
<td>23.2%**</td>
</tr>
</tbody>
</table>
Findings: Management Goals

- “Local communities have identified goals to guide management decisions that affect Greater Sarasota Bay. Please indicate your level of agreement with each of the goals for Greater Sarasota Bay.”
  - High level of ‘Agreement’ across the 12 goals

<table>
<thead>
<tr>
<th>Management Goal</th>
<th>Mean</th>
<th>SD</th>
<th>% Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage quantity/improve quality of stormwater runoff to GSB</td>
<td>1.396</td>
<td>0.626</td>
<td>88.50%</td>
</tr>
<tr>
<td>Eliminate further loss of shoreline and wetland habitats</td>
<td>1.434</td>
<td>0.671</td>
<td>87.40%</td>
</tr>
<tr>
<td>Restore shoreline and wetland habitats.</td>
<td>1.459</td>
<td>0.731</td>
<td>87.00%</td>
</tr>
<tr>
<td>Increase understanding of human-use patterns that influence resource sustainability (commercial development, recreation, etc.)</td>
<td>1.61</td>
<td>0.703</td>
<td>85.60%</td>
</tr>
<tr>
<td>Restore/sustain fish stocks/other living marine resources in GSB</td>
<td>1.542</td>
<td>0.744</td>
<td>85.20%</td>
</tr>
<tr>
<td>Improve water quality</td>
<td>1.412</td>
<td>0.636</td>
<td>82.40%</td>
</tr>
<tr>
<td>Incorporate local social/cultural heritage into management of GSB resources (such as public input and community advisory boards)</td>
<td>1.738</td>
<td>0.759</td>
<td>81.40%</td>
</tr>
<tr>
<td>Establish areas in GSB where motorized crafts are limited to no-wake and non-motorized crafts are encouraged to use.</td>
<td>1.672</td>
<td>1.001</td>
<td>80.40%</td>
</tr>
<tr>
<td>Purchase add’l non-wetland areas to add to publicly owned lands</td>
<td>1.553</td>
<td>0.81</td>
<td>79.30%</td>
</tr>
<tr>
<td>Provide increased levels of public access to GSB and its resources</td>
<td>1.864</td>
<td>0.87</td>
<td>74.70%</td>
</tr>
<tr>
<td>Increase coastal community resilience in the face of natural and human-induced disasters (such as hurricanes and rising seas)</td>
<td>1.839</td>
<td>0.983</td>
<td>70.90%</td>
</tr>
<tr>
<td>Create &quot;fishery reserve areas&quot; in GSB where no fishing is allowed</td>
<td>2.045</td>
<td>1.199</td>
<td>64.20%</td>
</tr>
</tbody>
</table>
Findings: Resource Uses

• “Controversial” (based on support:opposition)
  – 20 of 45 were controversial uses
    • Ranges: 10-67% oppose, 12-65% support
  – 7 highly controversial (>25% opposed/supported)
    • Difference between <20%

• Support/Opposition
  – 80%+ support: 16 uses
    • 9 virtually unopposed
    • 60-80% support: 9 uses
  – 75%+ opposition: 2 uses
    • High-rise condo construction & Industrial manufacturing
      – Other: Offshore oil/gas exploration/drilling
Findings: Resource Uses

• Highest responses for controversial uses
  – Agricultural land use: 70.88%
    (SUPPORT/oppose 17 points)
  – Private dock development: 65.26%
    (support/OPPOSE 14 points)

• Non-response rate average: 2.73%
  – Desalinization plant/water treatment: 9.47%
  – Mooring fields: 12.28%
  • Others: Beach nourishment: 5.26%
Findings: SolVES Mapping

- 7 “controversial” uses
  - Agriculture
  - Land-based aquaculture
  - Off-shore aquaculture
  - Desalinization
  - Private dock development
  - Commercial fishing
  - Transportation infrastructure
    - + oil/gas drilling

- Environmental Data Layers
  - Landsat 8, Band 1 “coastal”
  - Coastal DEM
  - Distance to shore
  - Distance to access
  - Distance to transportation
  - Distance to artificial reefs

- Value: recreation
  - Others: aesthetics, biodiversity
Agriculture

Favor

Oppose
Land based aquaculture

Favor

Oppose
Off-shore aquaculture

Favor

Oppose
Desalinization

Favor

Oppose
Private dock development

Favor

Oppose
Commercial fishing

Favor

Oppose
Transportation infrastructure

Favor

Oppose
Off-shore oil and gas drilling

Favor

Oppose
Discussion

• Generally:
• Recreational values across the board associated with shoreline and beaches.
• Anthropogenic structures such as artificial reefs and channels were important parameters for recreational values of some subgroups (e.g. those who favor transportation infrastructure).
• Values tend to drop off with distance from shore, but there is a great deal of variability in the near shore environment.
  – Lagoon areas were especially variable in the spatial distribution of recreational values.
Conclusions/ Next steps

- Exploring using other survey questions as bridge to potential management applications.
- How do we apply this output to management questions?
- Metadata analysis?
Questions/Comments

• Thank You
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