Jamaica Member Report

International Coral Reef Initiative
28th General Meeting

October 14-17, 2013
Belize City, Belize

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Managing and protecting Jamaica’s land, wood & water
Coastal and Marine Resources

Beaches
Wetlands
Mangrove forests
Seagrass beds
Coral reefs
Fishable resources
Open waters

The most studied are the coral reefs
Background

Jamaica – Archipelagic state (66 rocks, cays, islands)

1240 km² of coral reef

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Mangrove - 29km (29%) of coastline
- verification of extent/area by parish
Programmes and Projects

• Ministry of Water, Land, Environment and Climate Change (Jan 2012)
• Part of the Regional Invasive Species Project (MTIASIC)
• Climate Change Adaptation and Disaster Risk Reduction Project
• Promulgation of Natural Resources Conservation (Wastewater and Sludge) Regulations (April 2013)
• Plans to treat water from Soapberry sewage treatment plant for use in agricultural industry
Wastewater & Sludge Regulations

- Regulations enable compliance with the Cartagena Convention
  - Accede to Protocol Concerning Pollution from Land Based Sources and Activities (LBS Protocol)
- Provide the framework for the
  - Licensing of treatment facilities and discharges
  - Monitoring operation of treatment facilities and quality and quantity of discharges
  - Management of Sludge generated
  - Reporting mechanisms
  - Standards for compliance
  - A discharge fee system

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National Environment & Planning Agency
Co-management

• Co-management arrangements - Montego Bay Marine Park and the Negril Marine Park.

• 14 declared Special Fishery Conservation Areas (formerly known as fish sanctuaries)
  – Recent declaration - South West Cay Special Fisheries Conservation Area located on the Pedro Banks
  – Managed by NGOs on behalf of the Government of Jamaica
Community-based monitoring

- **National Game Wardens Programme**
  - Voluntary environmental stewardship service
  - Appointed as Game Wardens by the Governor General for 1 year
  - Comprise of staff from NGOs/CBOs, NEPA and other govt agencies
  - Assist with monitoring island-wide with most concentrated in marine parks and special fishery conservation areas

- **Jamaica Coral Reef Monitoring Network**
  - Assist in island-wide monitoring
  - Mainly co-opted for assessment of multiple remote sites
  - Data archived at CCDC, Centre for Marine Sciences, UWI Mona
Current Status

Coral Reef Data Sites

Legend
- Coral Reef Sites
- Creel Sites
- Fish Sanctuaries
- Marine Protected Areas
- Parishes

Annual Hard Coral Percentage Cover

Coral Reef Datalogger Sites

Legend
- Dataloggers
- Coastal Line
- Fish Sanctuaries
- Marine Protected Areas
- Parishes
Coral Reef Health Index 2011

Wholistic approach to track and improve ecosystem health

Table 2: Threshold values used to determine ranking for each indicator

<table>
<thead>
<tr>
<th>INDEX/INDICATOR</th>
<th>VERY GOOD (5)</th>
<th>GOOD (4)</th>
<th>FAIR (3)</th>
<th>POOR (2)</th>
<th>CRITICAL (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coral Cover (%)</td>
<td>≥40</td>
<td>20.0-39.9</td>
<td>10.0-19.9</td>
<td>5.0-9.9</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Rugosity Index (m:10m)</td>
<td>&lt;0.2</td>
<td>0.2-0.49</td>
<td>0.5-0.69</td>
<td>0.7-0.89</td>
<td>≥0.9</td>
</tr>
<tr>
<td>Macroalgae Cover (%)</td>
<td>&lt;10</td>
<td>10.0-19.9</td>
<td>20.0-39.9</td>
<td>40.0-59.9</td>
<td>≥60</td>
</tr>
<tr>
<td>Herbivorous Fish Abundance (g/100m²)</td>
<td>≥4800</td>
<td>3600-4799</td>
<td>2400-3599</td>
<td>1200-2399</td>
<td>&lt;1200</td>
</tr>
<tr>
<td>Commercial Fish Abundance (g/100m²)</td>
<td>≥2800</td>
<td>2100-2799</td>
<td>1400-2099</td>
<td>700-1399</td>
<td>&lt;700</td>
</tr>
</tbody>
</table>

Coral Reef Health Index (CRHI)

Very Good (>4.2 – 5)
Good (>3.4 – 4.2)
Fair (>2.6 – 3.4)
Poor (>1.8 – 2.6)
Critical (1 – 1.8)

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Forms the basis of our proposed 5 year strategic plan – Improved Health Index
Coastal Erosion Monitoring

• 36 sites in 7 locations monitored
  – Negril
  – Jackson Bay
  – Bluefields
  – Long Bay
  – Palisadoes
  – Font Hill
  – Burwood Beach

• Annual analysis of beach erosion trends
• Data is also collected after significant storms

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2012 Update

The severity of the shoreline change using the following criteria:
• Chronic erosion > 25% loss,
• Mild erosion 1 25% loss
• Accretion > 1 % gain.
Desktop Analysis of Erosion Trends

• Desktop assessment of beaches susceptible to erosion.

• Historic shoreline changes of beaches to calculate the rate of change.

• Beaches in excess of 3 km in length as these areas represent where coastal erosion is likely to pose significant problem both for its environmental and socio-economical impacts.
## General Summary

### Shoreline Change Analysis (Beach of South Coast > 3km)

<table>
<thead>
<tr>
<th>Region</th>
<th>No. Transects</th>
<th>Mean Shoreline Change Rate (m/yr)</th>
<th>Percent Erosion</th>
<th>Percent Accretion</th>
<th>Erosion Rate (m/yr)</th>
<th>Accretion Rate (m/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morant Point</td>
<td>72</td>
<td>0.025 ± 0.12</td>
<td>49%</td>
<td>51%</td>
<td>2.82</td>
<td>0.04</td>
</tr>
<tr>
<td>Rocky Point</td>
<td>99</td>
<td>0.423 ± 0.46</td>
<td>60%</td>
<td>40%</td>
<td>11.99</td>
<td>0.04</td>
</tr>
<tr>
<td>Palisadoes Peninsular</td>
<td>61</td>
<td>0.57 ± 0.25</td>
<td>48%</td>
<td>52%</td>
<td>2.62</td>
<td>0.03</td>
</tr>
<tr>
<td>Canoe Valley</td>
<td>123</td>
<td>1.19± 0.21</td>
<td>44%</td>
<td>56%</td>
<td>2.59</td>
<td>0.08</td>
</tr>
<tr>
<td>Jackson Bay</td>
<td>30</td>
<td>2.16 ± 0.38</td>
<td>87%</td>
<td>13%</td>
<td>4.78</td>
<td>0.29</td>
</tr>
<tr>
<td>Alligator Pond</td>
<td>54</td>
<td>0.35 ± 0.19</td>
<td>70%</td>
<td>30%</td>
<td>3.68</td>
<td>0.07</td>
</tr>
<tr>
<td>Black River</td>
<td>135</td>
<td>0.24 ± 0.19</td>
<td>58%</td>
<td>42%</td>
<td>15.58</td>
<td>0.03</td>
</tr>
</tbody>
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### Shoreline Change Analysis (Beach of North Coast > 3km)

<table>
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<th>Erosion Rate (m/yr)</th>
<th>Accretion Rate (m/yr)</th>
</tr>
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<tbody>
<tr>
<td>Annetto Bay</td>
<td>40</td>
<td>-0.639±0.22</td>
<td>72.5</td>
<td>27.5</td>
<td>2.66</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>0</td>
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<th>Accretion Rate (m/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buff Bay</td>
<td>61</td>
<td>0.34±0.16</td>
<td>49.18</td>
<td>50.82</td>
<td>2.27</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>0</td>
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</table>
Gaps and Data Required

• Following the verification – mangrove forest assessments to determine current structure and ecological function
• Verification of extent of seagrass beds and current ecological function
• Audit to determine success of relocated coastal resources
• Assessment to determine extent of coral reefs currently in protected areas including sanctuaries.
Gap and Data Required

• Vulnerability to effects of climate change still not fully understood.

• Vulnerability Mapping
  – Coastal multi-hazard mapping and vulnerability analyses

• Vulnerability Modeling
  – Cumulative impact/effect of coastal development on coastal resources
  – Coastal processes
    • sediment loading
    • influence of point source of pollution
The change we expect

Gradual improvement in the health of the marine ecosystem and retention of the provision of services provided by coastal ecosystems.

It cannot be business as usual!!!

Achieved through increased

- Collaboration
- Education
- Regulation of activities
- Enforcement

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THANK YOU

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National Environment & Planning Agency