Using Science to Engage Communities in Adaptively Managing Growth

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Mobile Bay National Estuary Program
Making Science Matter to Community Influencers: The Mobile Bay Estuary National Estuary Program Management Conference
The Comprehensive Conservation and Management Plan for Alabama’s Estuaries and Coast 2013-2018
Respect the Connect
The Connection:

What people value most about living in coastal Alabama...

- Access to Water and Open Spaces
- Coastlines (Beaches and Other Shorelines)
- Fish
- Heritage and Culture
- Environmental Health and Resilience
- Water Quality
### Assessing Stressors on Ecosystem Services Provided by a Suite of Priority Habitats

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Eco-Service</th>
<th>Chemical Contamination</th>
<th>Dredging/Filling</th>
<th>Fire Suppression</th>
<th>Fragmentation</th>
<th>Invasive Species</th>
<th>Land Use Change</th>
<th>Nutrient Enrichment</th>
<th>Pathogens</th>
<th>Sedimentation</th>
<th>Sea Level Rise</th>
<th>Climate Variability</th>
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</table>
## The Science:

### Highest Ranking Habitats, Ecosystem Services and Stresses

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Ecosystem Services Most Stressed</th>
<th>Top Stress Impacts</th>
<th>Values</th>
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</thead>
<tbody>
<tr>
<td>Freshwater Wetlands</td>
<td>Nesting for birds and turtles, Biodiversity, Wildlife, Fisheries</td>
<td>Land Use Change Fragmentation, Dredging and Filling</td>
<td>Access, Fish, Heritage, Resilience, Water Quality</td>
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<tr>
<td>Intertidal Marshes and Flats</td>
<td>Biodiversity, Fisheries, Wildlife, Water Quality</td>
<td>Sediment, Sea Level Rise Fragmentation</td>
<td>Access, Beaches, Fish, Heritage, Resilience, Water Quality</td>
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<td>Streams and Rivers (Riparian Buffers)</td>
<td>Fish, Biodiversity, Water Quality, Sediment</td>
<td>Freshwater discharge, Land Use Change Sediments</td>
<td>Access, Fish, Heritage, Resilience, Water Quality</td>
</tr>
</tbody>
</table>
Where do we focus our efforts?

- Size
- Proximity to developed areas
- Proximity to protected lands, developed areas, flood zones
- Presence of Species of Concern
- % of Impervious Area
- Presence of Impaired waters
The Methodology: A Watershed Approach
Traditional Approach...

Manage the consequences downstream

Watershed Approach...

Manage the system closest to the source
The Model: D’Olive Watershed

**BASELINE**

**PLAN**

**IMPLEMENTATION**

Watershed Management Plan: D’Olive Creek, Tiawasee Creek, and Joe’s Branch Watersheds
Daphne, Spanish Fort, and Baldwin County, Alabama
FINAL - August 2010
Taking a look

- Bayou La Batre
- West Fowl River
- Fowl River
- Dog River Complex
- Three Mile Creek
- Tensaw Apalachee
- D’Olive
- Weeks Bay Complex
- Bon Secour Complex
- Wolf Bay
Bayou La Batre

Stressors
• Sea Level Rise/Storm Surge
• Altered Hydrology
• Waste Water Conveyance System

Issues
• Adaptation/Retreat (Public Facilities)
• Coastal Economy- Fishing, Ecotourism, Working Waterfront
• Wastewater Treatment Outfall Extension
West Fowl River

**Stressors**
- Sea Level Rise/Storm Surge
- Altered Hydrology
- Waste Water Conveyance System

**Issues**
- Pathogens/Water Closures for Oyster Farming
- Wastewater Treatment Outfall Extension
Fowl River

Stressors

• Boat Wakes, Storm Surge
• Stormwater Runoff

Issues

• Altered Hydrology
• Transition zone marsh health
Dog River

**Stressors**
- Boat Wakes
- Stormwater Runoff
- Sediment Loading
- Pathogens/SSOs

**Issues**
- Litter
- Ecotourism Opps
- Wastewater Treatment Improvements
Three Mile Creek

**Stressors**
- Sediment
- Stormwater Runoff
- Invasive Species

**Issues**
- Greenway /blueway development
- Economic Impact of Improved Stormwater Management
- Litter reduction
- Unique Partnership
Tensaw-Apalachee

Stressors
• Invasive Species
• Altered Hydrology
• Sedimentation
• Sea Level Rise

Issues
• Much already protected
• Habitat Management Funding
• Freshwater Inflow maintenance
• Sediment Management/ Beneficial Use
• Access/controversy over management
D’Olive, Joes Branch, Tiawasee

Stressors
- Stormwater Runoff
- Altered Hydrology
- Sedimentation

Issues
- Regulatory (LID)
- Dam
- Wetlands analysis
Weeks Bay

Stressors
• Nutrients
• Agriculture
• Urbanization
• Impairments

Issues
• Organizational/Coordinating Structure
Bon Secour

Stressors
- Agriculture
- Sediment

Issues
- Land Acquisitions
- Litter
- Stormwater Management
Wolf Bay

Stressors
- Development

Issues
- Access
- Groundwater protection
- OAW status
- Stormwater Management
Watershed Restoration and Conservation

- Streambank & riparian buffer restoration
- Freshwater wetland restoration & conservation
- Shoreline stabilization/living shorelines
- Green infrastructure retrofits
- Invasive species management
- Trash management
- Tidal marsh restoration & conservation
Watershed Intergovernmental Cooperation

**D’Olive Watershed Intergovernmental Task Force**
- Consistent subdivision regulations changes
- Inclusion of LID practices in subdivision regulations
- Intergovernmental cooperation and use of resources

**Three Mile Creek Watershed Public-Private Partnership**
- Improved litter enforcement
- Incentives for LID

**Fowl River Watershed Task Force**
- Investigation of new water use category- “Outstanding Coastal Water”
- Establishment of Volunteer Monitoring Corps

**Fish River Watershed Management Authority**
- Regional Stormwater Management
- Consistency in sub-division regulations
Watershed Community Buy-In

- Volunteer WQ monitoring
- Rain barrel workshops
- Litter clean-ups
- Paddle trips
- Watershed signage
$117 million in BP Spill-related Funding and counting...
If we want to keep our water clean, we need to know what makes it dirty... and do something about it.

Stormwater:
When rain rushes over roofs, roads, and parking lots, it carries everything it touches into storm drains that empty into our streams, rivers, and bays. The good news: there are many simple ways we can all help eliminate the litter and plastic debris, vehicle and household chemicals, leaves and grass clippings, and other pollutants that wind up in our waterways.

Your Challenge:
Chose your category below, commit to one or more simple tips, become a CLEAN WATER CREATOR.
Together, we will

Thank you.