WHAT IS LEMON BAY AQUATIC PRESERVE?

Lemon Bay Watershed Tour
October 17, 2006

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This Program Briefly Describes Lemon Bay Aquatic Preserve:

What?
Where?
How?
Why?
Resources
Management
What is Lemon Bay Aquatic Preserve?
Exceptional Submerged Resources of Lemon Bay & Tributaries
Set Aside To Be Preserved For Future Generations to Enjoy.
Who Manages Lemon Bay Aquatic Preserve?
FL Department of Environmental Protection
Charlotte Harbor Aquatic & Buffer Preserves
In Punta Gorda FL
What are FL Aquatic Preserves?

• Exceptional Submerged Resources
• To Be Preserved in Natural Conditions for Future Generations to Enjoy
• Designated by the FL Legislature
• Located in 42 FL Estuaries & Rivers
• Mostly Coastal Where People & Resources Are
• Bounded by the Mean High Water Line
Where is Lemon Bay Aquatic Preserve?

- Sarasota & Charlotte Co.
- To MHWL for Estuary & Tidal Influence of Tribs
- Includes Estuary, 7 Tributaries & 2 Gulf Passes
- Lemon Bay = 15 sq miles
  - 13 miles long X ave 3/4 mile wide
- Watershed = 73 sq miles
  - 16 miles long X ave 4.5 miles wide
How Did Lemon Bay Become an Aquatic Preserve?

- Value & Quality of Resources Recognized by Local Citizens
- Designated by FL Legislature In July 1986
- Lemon Bay Aquatic Preserve Management Plan in April 1992
Why is Lemon Bay An Aquatic Preserve?

“To Preserve Exceptional Submerged Resources in Essentially Natural Conditions for Future Generations to Enjoy” – 18-20 F.A.C.
What Submerged Resources are Found in Lemon Bay Aquatic Preserve?

- Red Mangroves: *Rhizophora sp*
- Black Mangroves: *Avicennia sp*
- White Mangroves: *Laguncularia*

Photos from Repenning
Seagrasses

Shoal

Halodule sp

Turtle

Thalassia sp

Manatee

Syringodium sp

Photos from Littler 1989 & Repenning
Invertebrates

- Sand Dollar
- Comb Jelly
- Sea Hare
- Tunicate

Photos from Amos 1987, Shefton 1986 & Repenning
Mollusks

FL Crown Conch

Tulip Snail

Quahog Clam

Oysters

Photos from Amos 1987 & Repenning
Crustaceans

Blue Crab

Fiddler Crab

Barnacles

Shrimp

Horseshoe Crab
Fish

Killifish

Sheepshead

Seahorse

Snook

Mangrove Snapper

Photos from Amos 1987 & Humann 1989 & Fuhr 2004
Birds

Yellow Crown Night Heron

Ibis

Little Blue Heron

Photos from Repenning
More Birds

Snowy Egret

Roseate Spoonbill

Ospreys
What Are Management Concerns in Lemon Bay?

Depends on at Human Activities

- In the Lemon Bay
- Adjacent to Lemon Bay
- In the Watershed
In Lemon Bay, Resource Concerns Include:

- Prop Scars
- Dock Shading
Seawalls

Cumulative Habitat Losses

Dredging
Adjacent to the Estuary, Concerns Include:

Hydrological Changes

Stormwater Runoff
Changes in Shore Movement

Septic Runoff
In the Watershed, Resource Concerns Include:

- Nonpoint Source Runoff from Residential, Commercial, Industrial, Agricultural & Land Uses
- Hydrologic Changes to Natural Surface & Ground Water Flows
- Direct Habitat Loss of Natural Habitats
How Do We Manage Lemon Bay?

• In the Estuary, Adjacent Lands & Watershed
• With the help of Many Partners
  Charlotte Harbor Aquatic Preserves
  Charlotte Harbor Preserves State Park
  Charlotte Harbor Environmental Center
  Charlotte Harbor National Estuary Program
  Sarasota & Charlotte Counties
  SWFWMD
What Tools do We Use to Manage Lemon Bay Aquatic Preserve?

- State Statutes
  Chapt 258 FS
- Agency Rules
  Chapt 18-20 FAC
- Management Plans
  Lemon Bay Aquatic Preserve Management Plan

LEMON BAY
AQUATIC PRESERVE MANAGEMENT PLAN

DEPARTMENT OF NATURAL RESOURCES
1992
What does Lemon Bay Aquatic Preserve Resource Management Focuses on?

- Resource Monitoring
- Research
- Education
Resource Monitoring Includes: CHEVWQMN Water Quality Monitoring

- Monthly for 19 parameters
- 11 sites in Lemon Bay
- 40 sites throughout the Charlotte Harbor APs
### Summary of 1999-2005 Results Available

- **Compared to Typical Florida Estuaries**

<table>
<thead>
<tr>
<th>Units</th>
<th>Secchi Depth (meters)</th>
<th>Temp. (°C)</th>
<th>Dissolved Oxygen (mg/l)</th>
<th>pH</th>
<th>Salinity (ppt)</th>
<th>Total Nitrogen (ppm)</th>
<th>Total Phosphorus (ppm)</th>
<th>Chlorophyll a (μg/l)</th>
<th>Fecal Coliform Bacteria (cfu/100ml)</th>
<th>Turbidity (NTU)</th>
<th>Color (PCU)</th>
<th>Average Overall Conditions*</th>
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</thead>
<tbody>
<tr>
<td>Upper Lemon Bay</td>
<td>0.9</td>
<td>24.5</td>
<td>3.9</td>
<td>8.0</td>
<td>25.3</td>
<td>1.006</td>
<td>0.130</td>
<td>6.40</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>below average</td>
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<tr>
<td>Lower Lemon Bay</td>
<td>1.3</td>
<td>24.0</td>
<td>4.8</td>
<td>8.3</td>
<td>33.5</td>
<td>0.767</td>
<td>0.070</td>
<td>3.94</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>above average</td>
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<tr>
<td>Upper Charlotte</td>
<td>0.9</td>
<td>24.0</td>
<td>5.2</td>
<td>7.8</td>
<td>17.9</td>
<td>0.975</td>
<td>0.240</td>
<td>6.32</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>below average</td>
</tr>
<tr>
<td>Lower Charlotte</td>
<td>1.5</td>
<td>24.5</td>
<td>5.5</td>
<td>8.2</td>
<td>23.0</td>
<td>0.755</td>
<td>0.100</td>
<td>4.61</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>above average</td>
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<tr>
<td>Gasparilla/Cape Haze</td>
<td>1.5</td>
<td>25.0</td>
<td>4.6</td>
<td>8.2</td>
<td>33.2</td>
<td>0.806</td>
<td>0.080</td>
<td>3.66</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>above average</td>
</tr>
<tr>
<td>Pine Island Sound</td>
<td>1.3</td>
<td>24.5</td>
<td>5.9</td>
<td>8.4</td>
<td>32.9</td>
<td>0.752</td>
<td>0.060</td>
<td>5.01</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>above average</td>
</tr>
<tr>
<td>Matlacha Pass</td>
<td>1.6</td>
<td>24.5</td>
<td>5.6</td>
<td>8.2</td>
<td>22.1</td>
<td>0.851</td>
<td>0.076</td>
<td>3.62</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>above average</td>
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<tr>
<td>San Carlos Bay</td>
<td>1.4</td>
<td>24.3</td>
<td>5.9</td>
<td>8.2</td>
<td>30.6</td>
<td>0.753</td>
<td>0.060</td>
<td>3.58</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>above average</td>
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<tr>
<td>Estero Bay</td>
<td>1.1</td>
<td>25.0</td>
<td>4.8</td>
<td>8.2</td>
<td>30.4</td>
<td>0.762</td>
<td>0.060</td>
<td>4.43</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
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<td>above average</td>
</tr>
<tr>
<td>All Sites</td>
<td>0.9</td>
<td>24.0</td>
<td>5.2</td>
<td>7.8</td>
<td>17.9</td>
<td>0.975</td>
<td>0.240</td>
<td>6.32</td>
<td>≤ 0.440</td>
<td>≤ 0.048</td>
<td>≤ 3.30</td>
<td>above average</td>
</tr>
</tbody>
</table>

*average of percentiles from secchi depth, DO, TKN, TP, chlorophyll a, coliform and turbidity.
Seagrass Transect Monitoring
• Annually at 6 sites in Lemon Bay
• 50 sites throughout Charlotte Harbor APs
## 1999-2005 Data Available

- Compared to Typical Florida Estuaries

<table>
<thead>
<tr>
<th>Estuary</th>
<th>Sites</th>
<th>Species</th>
<th>Most Common Species</th>
<th>Densest Species</th>
<th>Ave Deep Edge</th>
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</thead>
<tbody>
<tr>
<td>Lemon Bay</td>
<td>6</td>
<td>3</td>
<td>Halodule</td>
<td>Syringodium</td>
<td>143 cm (4.7')</td>
</tr>
<tr>
<td>Gasparilla Sound</td>
<td>7</td>
<td>3</td>
<td>Halodule</td>
<td>Syringodium</td>
<td>156 cm (5.1')</td>
</tr>
<tr>
<td>W Charlotte Harbor</td>
<td>3</td>
<td>3</td>
<td>Halodule</td>
<td>Thalassia</td>
<td>147 cm (4.8')</td>
</tr>
<tr>
<td>E Charlotte Harbor</td>
<td>4</td>
<td>2</td>
<td>Halodule</td>
<td>Thalassia</td>
<td>114 cm (3.7')</td>
</tr>
<tr>
<td>Myakka River</td>
<td>6</td>
<td>3</td>
<td>Halodule</td>
<td>Thalassia</td>
<td>82 cm (2.7')</td>
</tr>
<tr>
<td>Peace River</td>
<td>6</td>
<td>1</td>
<td>Halodule</td>
<td>Halodule</td>
<td>86 cm (2.8')</td>
</tr>
<tr>
<td>Pine Island Sound</td>
<td>9</td>
<td>3</td>
<td>Thalassia</td>
<td>Syringodium</td>
<td>167 cm (5.5')</td>
</tr>
<tr>
<td>Matlacha Pass</td>
<td>6</td>
<td>4</td>
<td>Halodule</td>
<td>Syringodium</td>
<td>137 cm (4.5')</td>
</tr>
</tbody>
</table>
Comparison of 1999-2005 Lemon Bay Seagrass Deep Edge & Secchi

Seagrasses
Deep edge in meters
Average = 1.5 meters

Water Clarity
Secchi depth in meters
Average = 1.2 meters

Seagrass Depth at Deep Edge (m)
- 1.0
- 1.1 - 1.3
- 1.4 - 1.8
- 1.9 - 2.0

Water Clarity Depth (m)
- 0.8
- 0.9
- 1.2
- 1.4 - 1.5

Seagrass & Water Clarity 1999-2005

Seagrass Deep Edge (m)
Secchi (m)
Uses of CHAPs Seagrass & Water Quality Data

- Compare water quality & seagrass conditions.
- Set resource management goals for Charlotte Harbor Aquatic Preserves & National Estuary Program.
- Identify priority pollutants & locations & Impaired Waters
  - Identify potential impacts & public interest activities for proposed permits by agency staff & citizens.
- Research evaluating estuary conditions (SCCF, CHEC, Mote).
- Educate Citizens & elected officials (CHEC WRC).
Coastal Charlotte Harbor Water Monitoring

- Cooperative Project with Many Local Agencies
- Monthly Monitoring at Random Sites in Random Grids
- 5 Sites in Lemon Bay
Lemon Bay Aquatic Preserve
Education Activities Include:
• Presentations
• Aquatic Preserves Signs
• Assist CHEC & CHNEP
How You Can Help Manage Lemon Bay Aquatic Preserve?

• Participate in Watershed Planning Activities
• Help Educate Friends & Elected Officials about the Resources & Their Values
• Support “Estuary Friendly” Programs for Boating & Landscaping
• Support Citizen Support Organization Activities
• Support Volunteer Resource Monitoring Activities
• Encourage Wise & Responsible Use of Estuary Resources
For More Information, Please Call:

FL Dept of Environmental Protection
Charlotte Harbor Aquatic Preserves
in Punta Gorda (941) 575-5861