Water Quality Characteristic

• Existing Long-term Data (problems)

• Water Quality Questions
  – Differences along river and among sub-basins
  – Historical changes in lower estuarine reach
Long-Term USGS Myakka River Gages

Upper (1963) ~ 125 sq miles
Lower (1937) ~ 229 sq miles
Monthly median flow at long-term lower Myakka River gage (1937-2004)
<table>
<thead>
<tr>
<th></th>
<th>1937</th>
<th>1990</th>
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</thead>
<tbody>
<tr>
<td><strong>Month Means</strong></td>
<td>Slope = 0.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P = 0.005</td>
<td>N.S.</td>
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<tr>
<td><strong>Monthly Medians</strong></td>
<td>Slope = 0.43</td>
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<td>P = 0.001</td>
<td>N.S.</td>
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Water Quality Characteristic Patterns within the Watershed

- Conductivity
- Nitrate + Nitrite – Nitrogen
- Total Kjeldahl Nitrogen
- Orthophosphorus
- Dissolved Oxygen
- Chlorophyll a
Box & Whisker SAS Plots
Boxplots of COND levels among lower river WBIDs
Boxplots of COLOR concentrations among WBIDs

Deer Prairie Creek
Difference -2.2 ppt
p = 0.02
Difference +7.1 PCU

p = 0.48
Long-term surface dissolved oxygen at EI Jobean
Difference $+0.48\text{ mg/l}$

$p = 0.002$
Difference + 0.40 mg/l
p = 0.01

Long-term bottom dissolved oxygen at El Jobean

Annual Average Dissolved Oxygen (mg/L)
Difference +0.07 mg/l
p = 0.23
Difference 0.16 mg/l
p = 0.007
Difference -0.05 mg/l
p = 0.001
Long-term surface silica at El Jobean

Silica (mg/L)
Difference = 0.31 mg/l  
\( p = 0.009 \)
Difference = 4.0 ug/l
p = 0.06
Major Conclusions

• Significant Differences in Water Quality Characteristics within the Watershed

• Some Small Long-term Changes within the Lower Estuarine Area of the River