Orange County’s Use of Continuous Monitors for the TMDL Program

Robert M. Sheridan
Senior Environmental Specialist
Orange County Environmental Protection Division
Orange County TMDL Basin Groups
Unincorporated Orange County, Orlando

Apopka, Ocoee, Winter Garden, Oakland

Bay Lake, Windermere, Lake Buena Vista

Maitland, Eatonville, Winter Park, Edgewood

Belle Isle

14 Total Jurisdictions in Orange County
Over 150 ambient sites encompassing both lakes and streams are monitored by Orange County Staff. The areas shaded in red in the graphic are the verified impaired water bodies based on the latest FDEP Impaired Waters Run.
Orange County EPD has monitored the outfall of Lake Burkett since late 2009 with continuous data for both stage and discharge, along with chemistry data to further define the model and load calculation leaving Orange County.
Initial model from FDEP showed a much higher discharge total leaving Orange County.

Using field measurements at established locations, Orange County was able to create a rating curve using the Rating Tool Box in Aquarius to compute discharge from Lake Burkett.

After development of the rating, Orange County presented data showing a reduced nutrient load leaving Orange County.
Monitoring efforts included a study of a sedimentation pond as a BMP for a period of two years.

Pond monitoring yielded data that indicated that pond performance was inadequate for reduction purposes.

Modeling using Whiteboard showed no significant reductions from inflow to outflow.

New station established to monitor stage and discharge as well as loadings.
Little Wekiva Canal monitoring began in early 2014 monitoring stage, discharge, rainfall, and standard water quality parameters.

Currently, continuous data is being used to analyze loadings leaving Orange County into Seminole County.

The continuous data record is being used to also model the load reductions in a feasibility study of a Stormwater Treatment Area at the jurisdictional boundary between Orange and Seminole County.
Little Wekiva Canal for Wekiva TMDL
## Little Wekiva Water Quality Data

<table>
<thead>
<tr>
<th></th>
<th>Avg. Annual CFS</th>
<th>Avg. Annual Flow (ac-ft/yr)</th>
<th>Avg. TN Concentration (mg/L)</th>
<th>TN Load (kg/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014*</td>
<td>32.12</td>
<td>23,239.20</td>
<td>1.11</td>
<td>31,669.32</td>
</tr>
<tr>
<td>2015</td>
<td>22.58</td>
<td>16,361.55</td>
<td>1.23</td>
<td>24,859.40</td>
</tr>
<tr>
<td>2016*</td>
<td>19.58</td>
<td>14,189.67</td>
<td>1.04</td>
<td>18,199.56</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Avg. Annual CFS</th>
<th>Avg. Annual Flow (ac-ft/yr)</th>
<th>Avg. TP Concentration (mg/L)</th>
<th>TP Load (kg/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014*</td>
<td>32.12</td>
<td>23,239.20</td>
<td>0.08</td>
<td>2,335.79</td>
</tr>
<tr>
<td>2015</td>
<td>22.58</td>
<td>16,361.55</td>
<td>0.09</td>
<td>1,735.32</td>
</tr>
<tr>
<td>2016*</td>
<td>19.58</td>
<td>14,189.67</td>
<td>0.09</td>
<td>1,627.46</td>
</tr>
</tbody>
</table>

* 2014 and 2016 based on incomplete data for a full calendar year.
Proposed Little Wekiva Canal Storm Water Treatment Area