LAKEWATCH Report for Crystal River-3 in Citrus County
Watershed Region: Peninsular
Using Data Downloaded 1/17/2020

Introduction for River/Streams

This report summarizes data collected on systems that have been part of the LAKEWATCH program. Data are from the period of record for individual systems. The first part of this summary lists background data for each system, the second part lists the long-term data geometric means and ranges and the final part are the trend plots for nutrients, chlorophyll and Secchi depth. Plots were only made for systems with five or more years of data.

For decades Florida has had a narrative nutrient water quality criterion in place to protect Florida’s waters against nutrient over-enrichment. In 2009, the Florida Department of Environmental Protection (FDEP) initiated rulemaking and, by 2011, adopted what would be the first set of statewide numeric nutrient standards for Florida’s waters. By 2015, almost all the remaining waters in Florida have numeric nutrient standards (see for FDEP Regulation Nutrient Criteria’s for: Streams, spring vents: https://www.flrules.org/gateway/RuleNo.asp?title=SURFACE%20WATER%20QUALITY%20STANDARDS&ID=62-302.531).

Figure 1. Map showing nutrient thresholds areas for streams set forth by FDEP.

Table 1. The nutrient thresholds for streams are listed in table below along with the map showing zones.

<table>
<thead>
<tr>
<th>Nutrient Watershed Region</th>
<th>Total Phosphorus Nutrient Threshold¹</th>
<th>Total Nitrogen Nutrient Threshold¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panhandle West</td>
<td>60 µg/L</td>
<td>670 µg/L</td>
</tr>
<tr>
<td>Panhandle East</td>
<td>180 µg/L</td>
<td>1030 µg/L</td>
</tr>
<tr>
<td>North Central</td>
<td>300 µg/L</td>
<td>1870 µg/L</td>
</tr>
<tr>
<td>Peninsular</td>
<td>120 µg/L</td>
<td>1540 µg/L</td>
</tr>
<tr>
<td>West Central</td>
<td>490 µg/L</td>
<td>1650 µg/L</td>
</tr>
</tbody>
</table>

¹These values are annual geometric mean concentrations not to be exceeded more than once in any three calendar year periods.
Base File Data for River/Streams: Definitions

- **County**: Name of county in which the system resides.
- **Name**: Stream name that LAKEWATCH uses for the system.
- **GNIS Number**: Number created by USGS's Geographic Names Information System.
- **Water Body Type**: Four different types of systems; lakes, estuaries, river/streams and springs.
- **Period of Record (years)**: Number of years a system has been in the LAKEWATCH program.
- **Latitude and Longitude**: Coordinates identifying the exact location of station 1 for each system.

Table 2. Base File Data.

<table>
<thead>
<tr>
<th>County</th>
<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Crystal River-3</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>293978</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>28 (1992 to 2019)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.89</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.6024</td>
</tr>
</tbody>
</table>

Long-Term Data for River/Streams: Definitions

The following long-term data are the primary trophic state parameters collected by LAKEWATCH volunteers and classification variables color and specific conductance (LAKEWATCH recently began analyzing samples quarterly for color and specific conductance):

- **Total Phosphorus (µg/L)**: The nutrient most often limiting growth of plant/algae.
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- **Secchi (ft), Secchi (m)**: Secchi measurements are estimates of water clarity.
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Table 3. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance (collected quarterly).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Minimum and Maximum Annual Geometric Means</th>
<th>Grand Geometric Mean (Sampling years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phosphorus (µg/L)</td>
<td>20 - 33</td>
<td>27 (28)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>180 - 379</td>
<td>379 (28)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>3 - 18</td>
<td>10 (28)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>4.1 - 7.6</td>
<td>5.5 (27)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>1.2 - 2.3</td>
<td>1.7 (27)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>3 - 9</td>
<td>6 (19)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25 C)</td>
<td>1260 - 6782</td>
<td>2757 (18)</td>
</tr>
</tbody>
</table>
Figure 1 and Figure 2. Trend plots of annual average total phosphorus and annual average total nitrogen versus year. The $R^2$ value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the $R^2$ the stronger the relation) and the p value indicates if the relation is significant ($p < 0.05$ is significant). Trend status are reported on the plots.
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LAKEWATCH Report for Homosassa River-1 in Citrus County
Watershed Region: Peninsular
Using Data Downloaded 1/17/2020

Introduction for River/Streams

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- **Latitude and Longitude**: Coordinates identifying the exact location of station 1 for each system.

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<table>
<thead>
<tr>
<th>County</th>
<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Homosassa River-1</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>284222</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>13 (2007 to 2019)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.7973</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.5889</td>
</tr>
</tbody>
</table>

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<th>Minimum and Maximum Annual Geometric Means</th>
<th>Grand Geometric Mean (Sampling years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phosphorus (µg/L)</td>
<td>14 - 20</td>
<td>16 (13)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>433 - 785</td>
<td>785 (13)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>1 - 1</td>
<td>1 (13)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>-</td>
<td>(0)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>-</td>
<td>(0)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>1 - 8</td>
<td>3 (12)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>514 - 1164</td>
<td>663 (12)</td>
</tr>
</tbody>
</table>
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LAKEWATCH Report for Homosassa River-2 in Citrus County
Watershed Region: Peninsular
Using Data Downloaded 1/17/2020

Introduction for River/Streams

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Figure 1. Map showing nutrient thresholds areas for streams set forth by FDEP.

Table 1. The nutrient thresholds for streams are listed in table below along with the map showing zones.

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<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Panhandle West</td>
<td>60 µg/L</td>
<td>670 µg/L</td>
</tr>
<tr>
<td>Panhandle East</td>
<td>180 µg/L</td>
<td>1030 µg/L</td>
</tr>
<tr>
<td>North Central</td>
<td>300 µg/L</td>
<td>1870 µg/L</td>
</tr>
<tr>
<td>Peninsular</td>
<td>120 µg/L</td>
<td>1540 µg/L</td>
</tr>
<tr>
<td>West Central</td>
<td>490 µg/L</td>
<td>1650 µg/L</td>
</tr>
</tbody>
</table>

[^1]These values are annual geometric mean concentrations not to be exceeded more than once in any three calendar year periods.
Base File Data for River/Streams: Definitions

- **County**: Name of county in which the system resides.
- **Name**: Stream name that LAKEWATCH uses for the system.
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Table 2. Base File Data.

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<tr>
<th>County</th>
<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Homosassa River-2</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>284222</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>13 (2007 to 2019)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.7987</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.5905</td>
</tr>
</tbody>
</table>

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<tr>
<td>Total Phosphorus (µg/L)</td>
<td>14 - 21</td>
<td>18 (13)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>422 - 790</td>
<td>790 (13)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>1 - 2</td>
<td>1 (13)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>5.0 - 5.8</td>
<td>5.4 (3)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>1.5 - 1.8</td>
<td>1.7 (3)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>2 - 8</td>
<td>4 (12)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>1053 - 1990</td>
<td>1501 (12)</td>
</tr>
</tbody>
</table>
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<tr>
<th>Nutrient Watershed Region</th>
<th>Total Phosphorus Nutrient Threshold(^1)</th>
<th>Total Nitrogen Nutrient Threshold(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panhandle West</td>
<td>60 µg/L</td>
<td>670 µg/L</td>
</tr>
<tr>
<td>Panhandle East</td>
<td>180 µg/L</td>
<td>1030 µg/L</td>
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<td>300 µg/L</td>
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<tr>
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<td>1650 µg/L</td>
</tr>
</tbody>
</table>

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<tr>
<th>County</th>
<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Homosassa River-3</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>284222</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>13 (2007 to 2019)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.7968</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.5929</td>
</tr>
</tbody>
</table>

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<td>24 (13)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
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<td>715 (13)</td>
</tr>
<tr>
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<td>1 - 12</td>
<td>5 (13)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>3.0 - 4.5</td>
<td>3.7 (12)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>0.9 - 1.4</td>
<td>1.1 (12)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>3 - 7</td>
<td>5 (12)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>1423 - 2544</td>
<td>2097 (12)</td>
</tr>
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Homosassa River-3 (Citrus)

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure1}
\caption{Total Phosphorus vs Year. $p = 0.89$, $R^2 = 0$, No Trend}
\end{figure}

Homosassa River-3 (Citrus)

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure2}
\caption{Total Nitrogen vs Year. $p = 0$, $R^2 = 0.84$, Increasing}
\end{figure}
Figure 3 and Figure 4. Trend plots of annual average chlorophyll and annual average Secchi versus year. The $R^2$ value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the $R^2$ the stronger the relations and the p value indicates if the relation is significant ($p < 0.05$ is significant). Trend status are reported on plots.

Hosassa River-3 (Citrus)

Total Chlorophyll (µg/L)

Year

Hosassa River-3 (Citrus)

Secchi depth (ft)

Year
LAKEWATCH Report for Homosassa River-4 in Citrus County
Watershed Region: Peninsular
Using Data Downloaded 1/17/2020

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<td>Peninsular</td>
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<td>1650 µg/L</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>County</th>
<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Homosassa River-4</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>284222</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>12 (2007 to 2018)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.8009</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.5983</td>
</tr>
</tbody>
</table>

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<tr>
<th>Parameter</th>
<th>Minimum and Maximum Annual Geometric Means</th>
<th>Grand Geometric Mean (Sampling years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phosphorus (µg/L)</td>
<td>17 - 28</td>
<td>23 (11)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>382 - 637</td>
<td>637 (11)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>2 - 15</td>
<td>9 (11)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>4.3 - 5.3</td>
<td>4.8 (11)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>1.3 - 1.6</td>
<td>1.5 (11)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>3 - 9</td>
<td>6 (10)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>1562 - 2859</td>
<td>2289 (10)</td>
</tr>
</tbody>
</table>
Figure 1 and Figure 2. Trend plots of annual average total phosphorus and annual average total nitrogen versus year. The $R^2$ value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the $R^2$ the stronger the relation) and the p value indicates if the relation is significant ($p < 0.05$ is significant). Trend status are reported on the plots.

**Homosassa River-4 (Citrus)**

- **Figure 1 (Total Phosphorus)**
  - $p = 0.43$, $R^2 = 0.07$
  - No Trend

- **Figure 2 (Total Nitrogen)**
  - $p = 0.01$, $R^2 = 0.53$
  - Increasing
Figure 3 and Figure 4. Trend plots of annual average chlorophyll and annual average Secchi versus year. The $R^2$ value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the $R^2$ the stronger the relations and the p value indicates if the relation is significant ($p < 0.05$ is significant). Trend status are reported on plots.
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![Figure 1. Map showing nutrient thresholds areas for streams set forth by FDEP.](image)

Table 1. The nutrient thresholds for streams are listed in table below along with the map showing zones.

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<tr>
<td>Panhandle West</td>
<td>60 µg/L</td>
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<td>300 µg/L</td>
<td>1870 µg/L</td>
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<td>1540 µg/L</td>
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<tr>
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<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Homosassa River-6</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>284222</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>3 (2017 to 2019)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.798</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.5897</td>
</tr>
</tbody>
</table>

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<th>Parameter</th>
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<th>Grand Geometric Mean (Sampling years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phosphorus (µg/L)</td>
<td>19 - 26</td>
<td>21 (3)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>663 - 700</td>
<td>700 (3)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>1 - 1</td>
<td>1 (3)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>-</td>
<td>(0)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>-</td>
<td>(0)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>2 - 4</td>
<td>3 (2)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>1527 - 2658</td>
<td>2014 (2)</td>
</tr>
</tbody>
</table>
LAKEWATCH Report for Magnolia Creek-1 in Citrus County
Watershed Region: Peninsular
Using Data Downloaded 1/17/2020

Introduction for River/Streams

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Table 2. Base File Data.

<table>
<thead>
<tr>
<th>County</th>
<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Magnolia Creek-1</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>1802686</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>15 (2004 to 2018)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.9042</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.5986</td>
</tr>
</tbody>
</table>

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<td>Total Phosphorus (µg/L)</td>
<td>22 - 32</td>
<td>26 (15)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>205 - 366</td>
<td>366 (15)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>1 - 5</td>
<td>2 (15)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>2.8 - 2.8</td>
<td>2.8 (1)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>0.9 - 0.9</td>
<td>0.9 (1)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>3 - 16</td>
<td>8 (15)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>242 - 566</td>
<td>335 (12)</td>
</tr>
</tbody>
</table>
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**Magnolia Creek-1 (Citrus)**

- $p = 0.21$, $R^2 = 0.12$
- No Trend

**Magnolia Creek-1 (Citrus)**

- $p = 0.13$, $R^2 = 0.17$
- No Trend
Figure 3 and Figure 4. Trend plots of annual average chlorophyll and annual average Secchi versus year. The $R^2$ value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the $R^2$ the stronger the relations and the p value indicates if the relation is significant ($p < 0.05$ is significant). Trend status are reported on plots.

**Magnolia Creek-1 (Citrus)**

- $p = 0.54$, $R^2 = 0.03$
- No Trend

**Magnolia Creek-1 (Citrus)**

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</tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Magnolia Creek-2</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>1802686</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
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</tr>
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</tr>
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<td>2 - 6</td>
<td>3 (15)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
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<td>9 (15)</td>
</tr>
<tr>
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<td>258 - 886</td>
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**Magnolia Creek-2 (Citrus)**

![Graph showing total phosphorus trend](image)

$p = 0.43, R^2 = 0.05$

No Trend

**Magnolia Creek-2 (Citrus)**

![Graph showing total nitrogen trend](image)

$p = 0.1, R^2 = 0.2$

No Trend
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</tr>
</thead>
<tbody>
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<td>Name</td>
<td>Magnolia Creek-3</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>1802686</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>15 (2004 to 2018)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.8997</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.6017</td>
</tr>
</tbody>
</table>

Long-Term Data for River/Streams: Definitions

The following long-term data are the primary trophic state parameters collected by LAKEWATCH volunteers and classification variables color and specific conductance (LAKEWATCH recently began analyzing samples quarterly for color and specific conductance):

- **Total Phosphorus (µg/L)**: The nutrient most often limiting growth of plant/algae.
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Table 3. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance (collected quarterly).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Minimum and Maximum Annual Geometric Means</th>
<th>Grand Geometric Mean (Sampling years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phosphorus (µg/L)</td>
<td>25 - 39</td>
<td>30 (15)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>230 - 387</td>
<td>387 (15)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>2 - 7</td>
<td>3 (15)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>4.0 - 4.0</td>
<td>4.0 (2)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>1.2 - 1.2</td>
<td>1.2 (2)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>4 - 13</td>
<td>8 (15)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>251 - 1015</td>
<td>441 (12)</td>
</tr>
</tbody>
</table>
Figure 1 and Figure 2. Trend plots of annual average total phosphorus and annual average total nitrogen versus year. The $R^2$ value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the $R^2$ the stronger the relation) and the p value indicates if the relation is significant ($p < 0.05$ is significant). Trend status are reported on the plots.

**Magnolia Creek-3 (Citrus)**

- $p = 0.97$, $R^2 = 0$
  - No Trend

Year

**Magnolia Creek-3 (Citrus)**

- $p = 0$, $R^2 = 0.62$
  - Increasing

Year
Figure 3 and Figure 4. Trend plots of annual average chlorophyll and annual average Secchi versus year. The $R^2$ value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the $R^2$ the stronger the relations and the $p$ value indicates if the relation is significant ($p < 0.05$ is significant). Trend status are reported on plots.

**Magnolia Creek-3 (Citrus)**

![Diagram](image1)

- $p = 0.35$, $R^2 = 0.07$
- No Trend

**Magnolia Creek-3 (Citrus)**

![Diagram](image2)

- $p = NA$, $R^2 = NA$
LAKEWATCH Report for Magnolia Creek-4 in Citrus County
Watershed Region: Peninsular
Using Data Downloaded 1/17/2020

Introduction for River/Streams

This report summarizes data collected on systems that have been part of the LAKEWATCH program. Data are from the period of record for individual systems. The first part of this summary lists background data for each system, the second part lists the long-term data geometric means and ranges and the final part are the trend plots for nutrients, chlorophyll and Secchi depth. Plots were only made for systems with five or more years of data.

For decades Florida has had a narrative nutrient water quality criterion in place to protect Florida’s waters against nutrient over-enrichment. In 2009, the Florida Department of Environmental Protection (FDEP) initiated rulemaking and, by 2011, adopted what would be the first set of statewide numeric nutrient standards for Florida’s waters. By 2015, almost all the remaining waters in Florida have numeric nutrient standards (see for FDEP Regulation Nutrient Criteria’s for: Streams, spring vents: https://www.flrules.org/gateway/RuleNo.asp?title=SURFACE%20WATER%20QUALITY%20STANDARDS&ID=62-302.531).

Figure 1. Map showing nutrient thresholds areas for streams set forth by FDEP.

Table 1. The nutrient thresholds for streams are listed in table below along with the map showing zones.

<table>
<thead>
<tr>
<th>Nutrient Watershed Region</th>
<th>Total Phosphorus Nutrient Threshold</th>
<th>Total Nitrogen Nutrient Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panhandle West</td>
<td>60 µg/L</td>
<td>670 µg/L</td>
</tr>
<tr>
<td>Panhandle East</td>
<td>180 µg/L</td>
<td>1030 µg/L</td>
</tr>
<tr>
<td>North Central</td>
<td>300 µg/L</td>
<td>1870 µg/L</td>
</tr>
<tr>
<td>Peninsular</td>
<td>120 µg/L</td>
<td>1540 µg/L</td>
</tr>
<tr>
<td>West Central</td>
<td>490 µg/L</td>
<td>1650 µg/L</td>
</tr>
</tbody>
</table>

¹These values are annual geometric mean concentrations not to be exceeded more than once in any three calendar year periods.
**Base File Data for River/Streams: Definitions**

- **County**: Name of county in which the system resides.
- **Name**: Stream name that LAKEWATCH uses for the system.
- **GNIS Number**: Number created by USGS's Geographic Names Information System.
- **Water Body Type**: Four different types of systems; lakes, estuaries, river/streams and springs.
- **Period of Record (years)**: Number of years a system has been in the LAKEWATCH program.
- **Latitude and Longitude**: Coordinates identifying the exact location of station 1 for each system.

**Table 2. Base File Data.**

<table>
<thead>
<tr>
<th>County</th>
<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Magnolia Creek-4</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>1802686</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>14 (2005 to 2018)</td>
</tr>
<tr>
<td>Latitude</td>
<td>28.9046</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.5932</td>
</tr>
</tbody>
</table>

**Long-Term Data for River/Streams: Definitions**

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**Table 3. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance (collected quarterly).**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Minimum and Maximum Annual Geometric Means</th>
<th>Grand Geometric Mean (Sampling years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phosphorus (µg/L)</td>
<td>19 - 30</td>
<td>26 (14)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>188 - 415</td>
<td>415 (14)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>1 - 5</td>
<td>2 (14)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>2.5 - 2.5</td>
<td>2.5 (2)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>0.8 - 0.8</td>
<td>0.8 (2)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>2 - 14</td>
<td>8 (14)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>203 - 290</td>
<td>245 (12)</td>
</tr>
</tbody>
</table>
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**Magnolia Creek-4 (Citrus)**

- **Total Phosphorus (µg/L.)**
- **$p = 0.19$, $R^2 = 0.14$**
- **No Trend**

**Magnolia Creek-4 (Citrus)**

- **Total Nitrogen (µg/L.)**
- **$p = 0.21$, $R^2 = 0.13$**
- **No Trend**
Figure 3 and Figure 4. Trend plots of annual average chlorophyll and annual average Secchi versus year. The $R^2$ value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the $R^2$ the stronger the relations and the $p$ value indicates if the relation is significant ($p < 0.05$ is significant). Trend status are reported on plots.

**Magnolia Creek-4 (Citrus)**

- Total Chlorophyll (μg/L)
- Year

$p = 0.66$, $R^2 = 0.02$

No Trend

**Magnolia Creek-4 (Citrus)**

- Secchi depth (ft)
- Year

$p = NA$, $R^2 = NA$
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<tr>
<th>Nutrient Watershed Region</th>
<th>Total Phosphorus Nutrient Threshold(^1)</th>
<th>Total Nitrogen Nutrient Threshold(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panhandle West</td>
<td>60 µg/L</td>
<td>670 µg/L</td>
</tr>
<tr>
<td>Panhandle East</td>
<td>180 µg/L</td>
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- **Latitude and Longitude**: Coordinates identifying the exact location of station 1 for each system.

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<table>
<thead>
<tr>
<th>County</th>
<th>Citrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Withlacoochee River-Citrus Springs</td>
</tr>
<tr>
<td>GNIS Number</td>
<td>294199</td>
</tr>
<tr>
<td>Water Body Type</td>
<td>River/Stream</td>
</tr>
<tr>
<td>Period of Record (years, range)</td>
<td>18 (2002 to 2019)</td>
</tr>
<tr>
<td>Latitude</td>
<td>29.0298</td>
</tr>
<tr>
<td>Longitude</td>
<td>-82.443</td>
</tr>
</tbody>
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<tbody>
<tr>
<td>Total Phosphorus (µg/L)</td>
<td>29 - 107</td>
<td>48 (18)</td>
</tr>
<tr>
<td>Total Nitrogen (µg/L)</td>
<td>714 - 1499</td>
<td>1499 (18)</td>
</tr>
<tr>
<td>Chlorophyll-uncorrected (µg/L)</td>
<td>13 - 39</td>
<td>26 (18)</td>
</tr>
<tr>
<td>Secchi (ft)</td>
<td>2.1 - 5.9</td>
<td>3.3 (18)</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>0.6 - 1.8</td>
<td>1.0 (18)</td>
</tr>
<tr>
<td>Color (Pt-Co Units)</td>
<td>16 - 188</td>
<td>62 (17)</td>
</tr>
<tr>
<td>Specific Conductance (µS/cm@25°C)</td>
<td>205 - 327</td>
<td>262 (13)</td>
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</tbody>
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