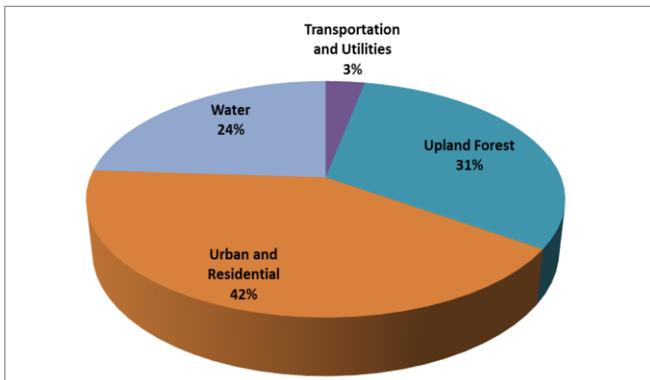


# Lake Hall EcoSummary



Lake Hall is an approximately 182-acre lake located in northern Leon County, just north of Interstate 10 and slightly west of U.S. Highway 319. Lake Hall is part of the Alfred B. Maclay Gardens State Park, a state recreation area and botanical garden, and is declared an “Outstanding Florida Waters” by the Florida Department of Environmental Protection (FDEP).

Approximately 45% of land uses in the 773-acre Lake Hall watershed are transportation, utilities, urban and residential (as shown in **Figure 1**). These types of land uses are often attributed to increases in stormwater runoff and higher nutrient loads.



**Figure 1.** Lake Hall watershed land use.

## Background

Healthy, well-balanced lake communities may stay that way with some level of human activity, but excessive human disturbance may result in waterbody degradation.

Human stressors may include increased inputs of nutrients, sediments, and/or other contaminants from watershed runoff. Stressors can also include adverse hydrologic alterations, undesirable removal of habitat or riparian buffer vegetation, and introduction of exotic plants and animals. State water quality standards are designed to protect designated uses of the waters of the state (e.g., recreation, aquatic life, fish consumption), and exceedances of these standards are associated with interference of the designated use.

## Methods

Surface water samples are collected quarterly (as field conditions allow) and sediment samples are collected annually. Leon County also conducts an annual vegetation survey to evaluate the health of floral (plant) communities in the County lakes. This information is used to determine the health of Leon County waterbodies and meets the requirements of the Florida Department of Environmental Protection (FDEP).

## Results

### *Nutrients*

The State of Florida uses Numeric Nutrient Criteria (NNC) to evaluate nutrients in waterbodies. NNC thresholds are set based on waterbody-specific characteristics and are used to determine if a waterbody meets water quality standards. The results of the four quarterly

samples from a single year are used to calculate the annual geometric mean. According to FDEP requirements, the NNC threshold cannot be exceeded more than once in a three-year period.

Water quality results and thresholds are found in **Table 1**. Since 2004, there have been no exceedances of the NNC.

Due to access restrictions associated with the COVID-19 pandemic, staff could not access the lake during the 2<sup>nd</sup> quarter of 2020 and thus could not determine the NNC for 2020.

**Table 1.** NNC thresholds and sample results for Lake Hall.

| Clear Lake, Low Alkalinity | Chlorophyll-a<br>6.0<br>µg/L | TN<br>Threshold<br>0.51-0.93<br>mg/L | TP<br>Threshold<br>0.01-0.03<br>mg/L |
|----------------------------|------------------------------|--------------------------------------|--------------------------------------|
| 2004                       | 2.1                          | 0.13                                 | 0.01                                 |
| 2005                       | 1.4                          | 0.22                                 | 0.01                                 |
| 2006                       | 1.3                          | 0.22                                 | 0.01                                 |
| 2007                       | 1.5                          | 0.42                                 | 0.01                                 |
| 2008                       | 2.2                          | 0.33                                 | 0.00                                 |
| 2009                       | 1.8                          | 0.43                                 | 0.00                                 |
| 2010                       | 2.2                          | 0.33                                 | 0.01                                 |
| 2011                       | 1.3                          | 0.41                                 | 0.01                                 |
| 2012                       | 1.4                          | 0.34                                 | 0.01                                 |
| 2013                       | 3.0                          | 0.15                                 | 0.01                                 |
| 2014                       | 1.4                          | 0.26                                 | 0.01                                 |
| 2015                       | 2.9                          | 0.26                                 | 0.02                                 |
| 2016                       | 3.5                          | 0.32                                 | 0.01                                 |
| 2017                       | 2.8                          | 0.32                                 | 0.01                                 |
| 2018                       | 2.6                          | 0.31                                 | 0.01                                 |
| 2019                       | 2.2                          | 0.26                                 | 0.01                                 |
| 2020*                      | -                            | -                                    | -                                    |
| 2021                       | 1.3                          | 0.30                                 | 0.01                                 |
| 2022                       | 1.2                          | 0.34                                 | 0.01                                 |
| 2023                       | 1.3                          | 0.38                                 | 0.01                                 |

\* Due to access restrictions associated with the COVID-19 pandemic, staff could not access the lake during the 2<sup>nd</sup> quarter of 2020 and thus could not determine the NNC for 2020.

### Chlorophyll-a

Water quality samples collected by Leon County are analyzed by Pace Analytical Services – Ormond Beach (Pace), with the analysis results provided back to the County for submission to FDEP. In June 2022, FDEP conducted a routine audit of the chlorophyll-a data. This audit revealed that from October 2014 through December 2020, the chlorophyll-a data was reported as “uncorrected chlorophyll-a” and not “corrected chlorophyll-a”, as it should have been. Pace has since rectified this error and beginning in January 2021, the chlorophyll-a data were correctly reported as “corrected chlorophyll-a”. The laboratory also provided Leon County with the “correct chlorophyll-a” data from the affected dates and the information in **Table 1** of this year’s Report has been updated to reflect this. This has resulted in chlorophyll-a numbers that are lower than past Reports, which in turn has led to changes to the current Report’s narrative.

### Floral Assessment

The Lake Vegetation Index score for Lake Hall was 78, placing the lake’s vegetative community in the healthy category.

Thirty-seven species were found during the survey. The native species, watershield (*Brasenia schreberi*), and fragrant waterlily (*Nymphaea odorata*) were the most dominant species in the lake. Other native vegetation included red maple (*Acer rubrum*), fanwort (*Cabomba caroliniana*), and buttonbush (*Cephalanthus occidentalis*).

Unfortunately, the exotics: Chinese tallow tree (*Sapium sebiferum*) a Category I Invasive Exotic, and burhead sedge (*Oxycaryum cubense*) were found in Lake Hall.

For more information concerning Florida Invasive Exotics, please click on the Florida Exotic Pest Control Council website; <http://www.fleppc.org/>.

[Click here for more information on the Lake Hall LVI.](#)

[Click here for more information on common exotic and invasive plants in Leon County wetlands and waterbodies.](#)

#### *Other parameters*

Other water quality parameters appeared to be normal for the area and no impairments were noted.

#### **Conclusions**

Based on ongoing sampling, Lake Hall met the nutrient thresholds for the Eastern Panhandle Region and the floral community is considered “Healthy” by the LVI. Other water quality parameters appeared to be normal for the area and no impairments were noted.

Thank you for your interest in maintaining the quality of Leon County’s water resources. Please feel free to contact us if you have any questions.

#### **Contact and Resources for More Information**

[www.LeonCountyWater.org](http://www.LeonCountyWater.org)

[Click here to access the results for all water quality stations sampled in 2023.](#)

[Click here for a map of the watershed – Sample Site H07.](#)

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