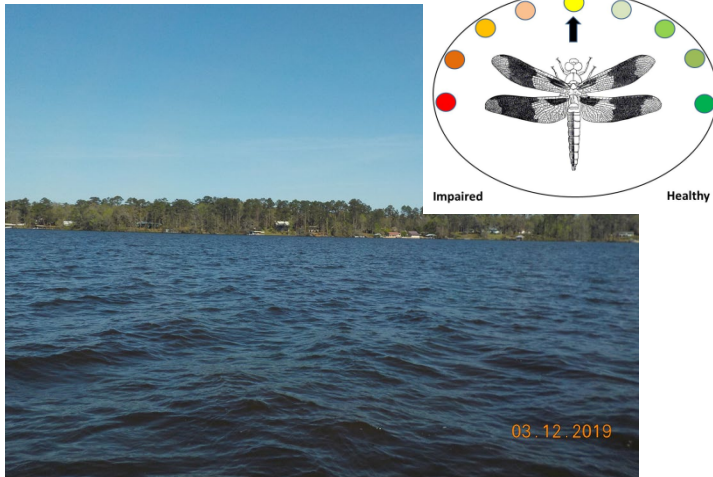


## Waterbody: Lake Talquin



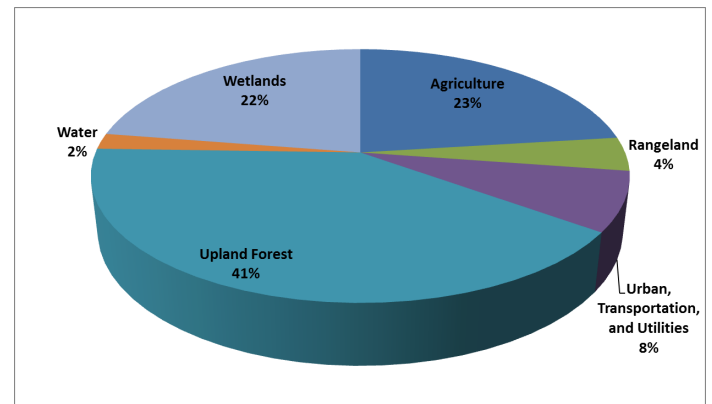
## Basin: Ochlockonee River

The 7,782-acre Lake Talquin is considered an Outstanding Florida Water by the Florida Department of Environmental Protection (FDEP) and is located in western Leon County. Its basin extends into surrounding Florida counties as well as southern Georgia. In 1970, Florida Power Corporation donated the land that is now Lake Talquin State Park along the southern shoreline of the lake.

The lake was formed in 1929 when the Jackson Bluff Dam was constructed on the Ochlockonee River to produce hydroelectric power. The dam, built and managed by the West Florida Power Company (later to become Florida Power Corporation) who operated the facility until 1970, was abandoned as a power plant and turned over to the Florida Department of Natural Resources (later to become FDEP). FDEP managed the dam without producing power until 1981. The City of Tallahassee then took over the dam, and in August 1985, the plant became operational as the C. H. Corn Hydroelectric Power Generating Plant. In 2017, the City did not renew its lease to operate the power plant and turned the dam back over to state.

As shown in the following pie chart, approximately 35% of land use in the 1,019,525-acre Ochlockonee Basin is agriculture, urban, transportation or utilities. Increases in stormwater runoff and waterbody

nutrient loads can often be attributed to these types of land uses.



Because of probable nitrogen and phosphorus issues in Lake Talquin, the FDEP, with the help of the EPA, have written a draft Total Maximum Daily Load document which can be found here:

<https://floridadep.gov/dear/water-quality-evaluation-tmdl/content/draft-tmdls>.

It is anticipated that a final version of this document will be released in 2021.

### Background

Healthy, well-balanced lake communities may be maintained 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, adverse hydrologic alterations, undesirable removal of habitat or riparian buffer vegetation, and introduction of exotic plants and animals. 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 and sediment sampling were conducted and met the collection and analysis requirements of the FDEP.

## Results

### Nutrients

The nutrient thresholds and results are found in Table 1. According to FDEP requirements, Numeric Nutrient Criteria (NNC) (expressed as an annual geometric mean) cannot be exceeded more than once in a three-year period. Taken as a whole, Lake Talquin's chlorophyll-a standard was exceeded in 2011 (29 µg/L), 2013 (22 µg/L), 2015 (31 µg/L), 2016 (29 µg/L) 2017 (22 µg/L) and 2019 (25 µg/L). Total phosphorus thresholds were exceeded during the same years. Nitrogen levels, while not exceeding the NNC, have substantially increased over the period of record.

### Dissolved Oxygen (DO)

Dissolved oxygen saturation values were below the Class III water quality limits during certain events (Figure 2). In the majority of cases, the low oxygen values are results from deep water (> 4 meter) readings. There does not appear to be any stratification in the water column, which could prevent oxygen transfer from the surface to lower levels. It is thought that microbial activity in the organic sediment demands more oxygen than can be readily replaced leading to the low DO levels. While the run of the river reservoir cannot be considered "natural", it is normal for organic rich sediments to have low DO levels immediately above the sediment surface. Anthropogenic activities upstream (e.g. agricultural) can make such conditions worse. However, when the lake was created, organic-rich bottomland forest was flooded. These pre-existing bottomland trees (still onsite and submersed) are continuing to release nutrients into the system, contributing to oxygen demand.

FDEP now requires oxygen level readings to be taken only in the top two meters of the water column for TMDL purposes, so Leon County no longer takes deep water readings, hence the "improved" DO readings.

**Table 1.** FDEP's chlorophyll-a, total nitrogen and phosphorus criteria for lakes applied to Lake Talquin WBIDs. Results in bold signify exceedances of the State criteria.

| Colored Lakes | Chlorophyll-a < 20.0 µg/L | Total Nitrogen Threshold 1.27-2.23 mg/L | Total Phosphorus Threshold 0.05-0.16 mg/L |
|---------------|---------------------------|---|---|
| 2004          | 5                         | 0.49                                    | 0.04                                      |
| 2005          | 6                         | 0.52                                    | 0.04                                      |
| 2006          | 4                         | 0.66                                    | 0.05                                      |
| 2007          | 8                         | 0.83                                    | 0.06                                      |
| 2008          | 9                         | 0.83                                    | 0.06                                      |
| 2009          | 3                         | 0.65                                    | 0.07                                      |
| 2010          | 10                        | 0.75                                    | 0.05                                      |
| 2011          | <b>29</b>                 | 0.78                                    | <b>0.06</b>                               |
| 2012          | 20                        | 0.72                                    | 0.05                                      |
| 2013          | <b>22</b>                 | 0.81                                    | <b>0.08</b>                               |
| 2014          | 5                         | 0.78                                    | 0.06                                      |
| 2015          | <b>31</b>                 | 0.78                                    | <b>0.06</b>                               |
| 2016          | <b>29</b>                 | 0.86                                    | <b>0.07</b>                               |
| 2017          | <b>22</b>                 | 0.83                                    | <b>0.08</b>                               |
| 2018          | 19                        | 0.88                                    | 0.07                                      |
| 2019          | <b>25</b>                 | 0.70                                    | <b>0.07</b>                               |

### Fish Consumption Advisory

The Florida Department of Health has issued consumption limits for certain fish in Lake Talquin due to elevated levels of mercury.

[Click here for more information about fish consumption advisories in Leon County.](#)

### Other Parameters

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

### Conclusions

Long term sampling demonstrates that Lake Talquin continues to not meet the chlorophyll-a and phosphorus thresholds for the Big Bend Bioregion. Nitrogen, and to a lesser extent, phosphorus levels, have increased over time. Staff considers the low DO

results taken in deeper water a normal condition for Lake Talquin.

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.

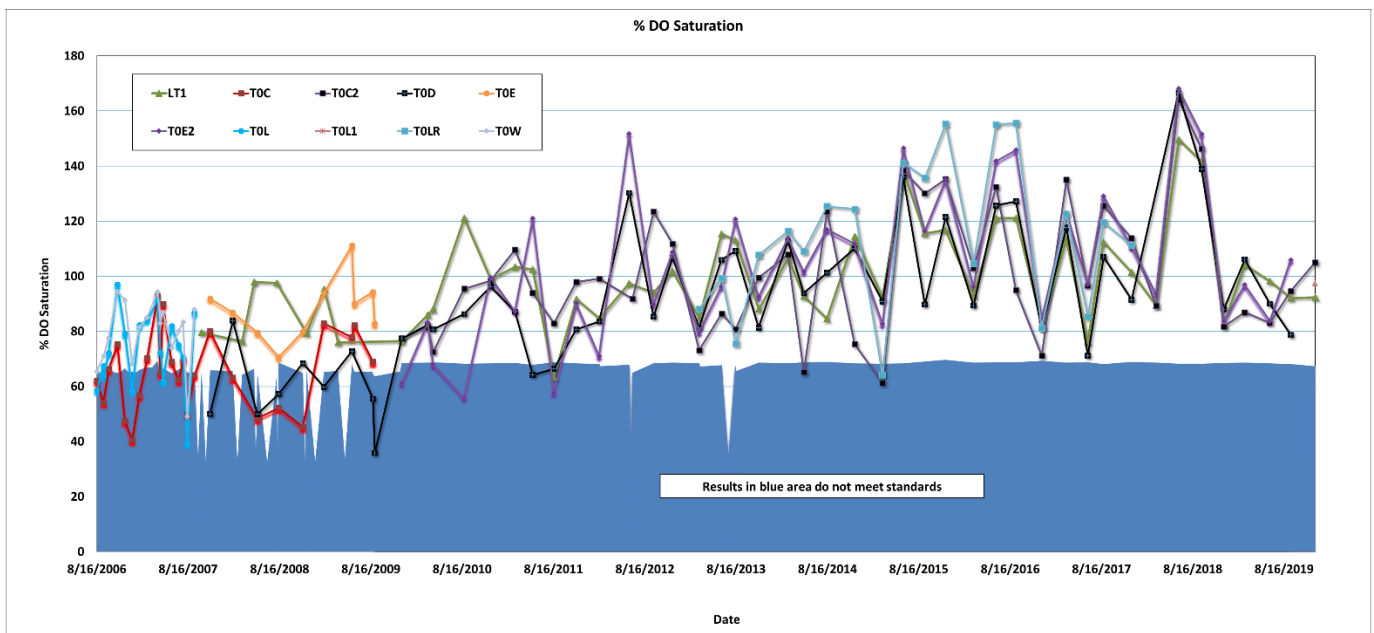
**Contact and resources for more information**

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

[Click here to access the results for all water quality stations sampled in 2019.](#)

[Click here for a map of the watershed – Sample Sites LT1, TOC2, TOD, TOE2, and TOLR.](#)

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**Figure 2.** Dissolved Oxygen Percent Saturation results for Lake Talquin. Several sampling stations have been deactivated while others have been added over the sampling period.