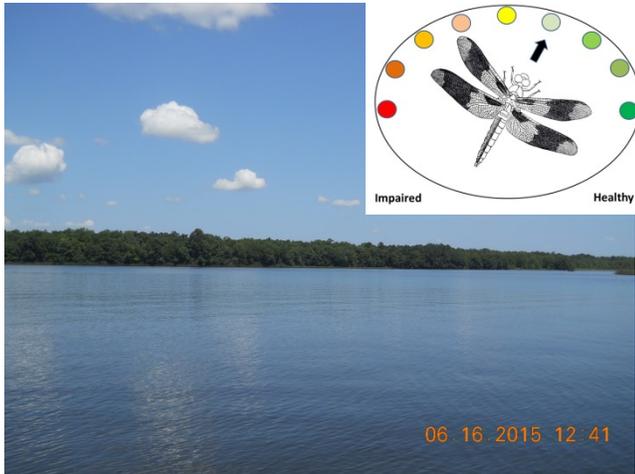


Waterbody: Lake Talquin



Basin: Ochlockonee River

The 6,963 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. Lake Talquin State Park is along the southern shoreline of the lake and was acquired as a donation to the state from Florida Power Corporation.

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). FDNR/FDEP managed the dam without producing power until 1981. The City of Tallahassee then took over the dam, refurbished the dam and power plant, and reinstalled generators. In August 1985, the plant became operational as the C. H. Corn Hydroelectric Power Generating Plant.

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 $\mu\text{g/L}$), 2013 (22 $\mu\text{g/L}$) and 2015 (31 $\mu\text{g/L}$). The 2015 chlorophyll-*a* level is the highest on record. Total phosphorus thresholds were exceeded during the same years. Nitrogen levels, while not exceeding the NNC, have substantially increased over the period of record.

Table 1. FDEP’s chlorophyll-*a*, total nitrogen and phosphorus criteria for lakes applied to Lake Talquin WBIDs 1297C and 1297D. Results in bold signify exceedances of the State criteria.

Colored Lakes	Chlorophyll- <i>a</i> < 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	29	0.78	0.06
2012	20	0.72	0.05
2013	22	0.81	0.08
2014	5	0.78	0.06
2015	31	0.78	0.06

Unlike other lakes in Leon County, Lake Talquin is divided by FDEP into two Water Body Identification WBIDs (1297C and 1297D shown in Figure 1). Tables 2 and 3 show the NNC results by WBID.

Table 2 shows the chlorophyll-*a* standard in WBID 1297C was exceeded in 2011 (32 µg/L), 2012 (23 µg/L), 2013 (24 µg/L), and 2015 (32 µg/L). Total phosphorus threshold levels were exceeded those same years.

Table 3 shows the chlorophyll-*a* standard was exceeded in 2011 (22 µg/L) and 2015 (28 µg/L) for

WBID 1297D. Total phosphorus thresholds were exceeded during those same years.

Table 2. FDEP’s chlorophyll-*a*, total nitrogen and phosphorus criteria for lakes applied to Lake Talquin WBID 1297C only. Results in bold signify exceedances of the State criteria.

Colored Lakes	Chlorophyll- <i>a</i> < 20.0 µg/L	Total Nitrogen Threshold 1.27-2.23 mg/L	Total Phosphorus Threshold 0.05-0.16 mg/L
2004	11	0.56	0.03
2005	9	0.50	0.04
2006	4	0.72	0.04
2007	8	0.86	0.05
2008	9	0.77	0.05
2009	4	0.66	0.07
2010	10	0.73	0.05
2011	32	0.80	0.06
2012	23	0.70	0.05
2013	24	0.84	0.08
2014	6	0.73	0.05
2015	32	0.71	0.05

As noted in Table 1, Tables 2 and 3 shows that nitrogen levels, while not exceeding the NNC, have substantially increased over the period of record.

Table 3. FDEP’s chlorophyll-*a*, total nitrogen and phosphorus criteria for lakes applied to Lake Talquin WBID 1297D only. Results in bold signify exceedances of the State criteria.

Colored Lakes	Chlorophyll- <i>a</i> < 20.0 µg/L	Total Nitrogen Threshold 1.27-2.23 mg/L	Total Phosphorus Threshold 0.05-0.16 mg/L
2004	3	0.43	0.04
2005	5	0.54	0.05
2006	3	0.60	0.05
2007	7	0.81	0.08
2008	10	0.89	0.07
2009	2	0.64	0.07
2010	8	0.80	0.06
2011	22	0.73	0.07
2012	13	0.76	0.05
2013	16	0.74	0.08
2014	4	0.83	0.07
2015	28	0.88	0.07

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, so 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 a 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.

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

Turbidity levels were moderately elevated at Station TOLR during the 1st (16.5 NTU) and the 2nd (13.2 NTU) quarters of 2015. The main tributary to that arm of the lake, the Little River, flows out of Georgia. Rainfall in the Little River watershed could have contributed to runoff that flowed into the arm. Other water quality parameters appear to be normal for the area and no other impairments were noted.

Conclusions

Based on ongoing sampling, Lake Talquin did not meet the chlorophyll-*a* and phosphorus thresholds for the Big Bend Bioregion. Nitrogen 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.LeonCountyFL.gov/WaterResources

[Click here to access the results for all water quality stations sampled in 2015.](#)

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

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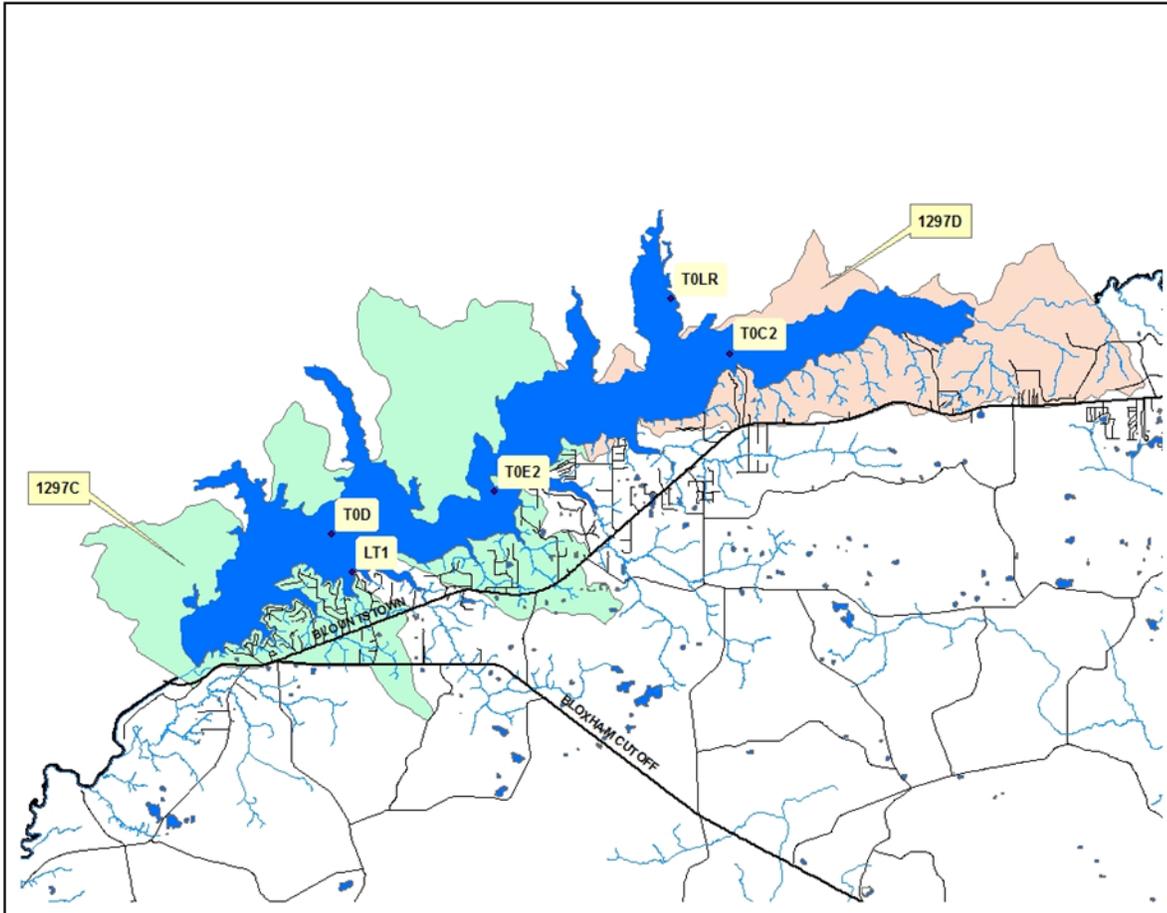


Figure 1. Lake Talquin WBIDs. Active stations shown.

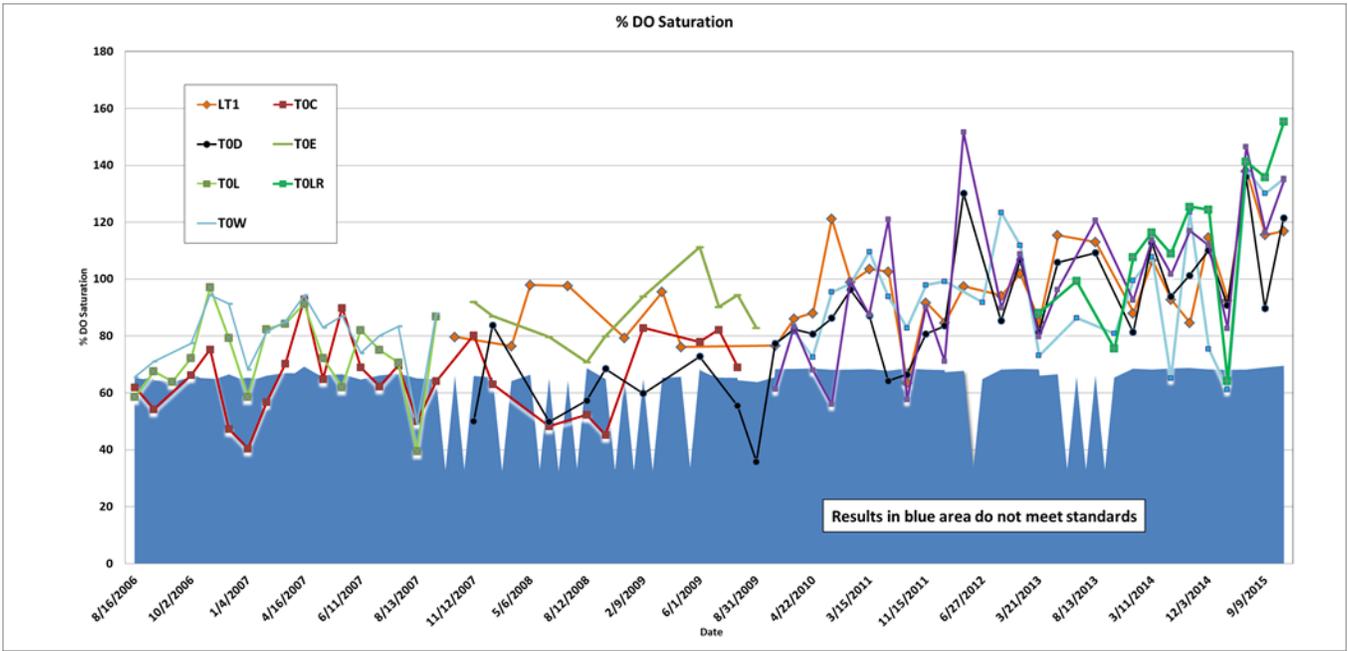


Figure 2. Dissolved Oxygen Percent Saturation results for Lake Talquin.