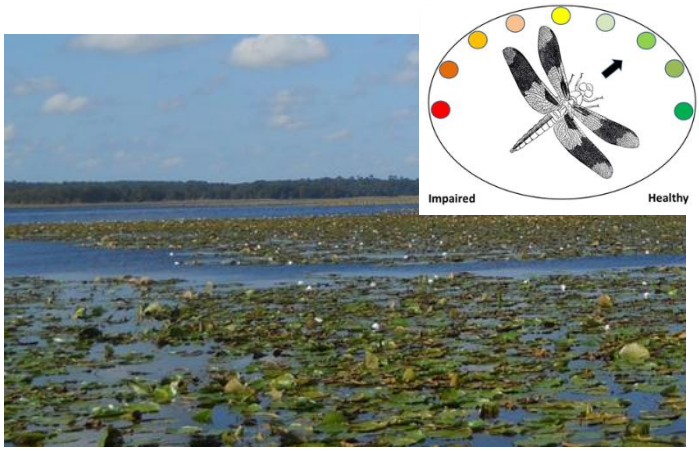
Waterbody: Lake Iamonia



Basin: Lake Iamonia

The largest waterbody in the county, Lake Iamonia is an approximately 5,554 acre, shallow, flat-bottomed, phosphorus-limited, prairie lake located in northern Leon County. Drastic water level fluctuations occur from discharge to the sinkhole and receiving floodwaters from the Ochlockonee River. The most recent example is the substantial inflow from the river during Spring 2013 which refilled the lake. Various control structures have been constructed (and ultimately dismantled) in order to attempt to control water level fluctuations.

Starting in the early 1900's, various management practices, especially water-level stabilization and changes in land use, have led to the overabundance of aquatic plants and the accumulation of organic sediment in Lake Iamonia which impede recreational usage and threaten its fish, wildlife, and ecosystem integrity. One of the largest modifications occurred in 1939, when an earthen dam was constructed to isolate the 20-acre sink basin from the lake. Other modifications continued with the latest being the removal of two gates that were formerly used to control water level. Prior to their removal (2007), the gates had remained open since 1980, due to the fact that the Northwest Florida Water Management District deemed the dam to be unsafe for impounding water. These latest modifications have been performed in order to protect the public and to allow the lake to have more naturally fluctuating water levels. Water quality monitoring is continuing to be used to evaluate the long term health of the lake.

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 nuisance 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 was conducted to determine the health of Lake Iamonia and met the requirements of the Florida Department of Environmental Protection (FDEP).

Results

Nutrients

Due to drought, several stations were inaccessible during the sampling period. Sinkhole activity and drought prevented staff from collecting samples in 2012. When viewing tables and figures, the absence of data mean there was not enough data collected (due to lack of water) to fulfill data requirements.

The nutrient thresholds and results are found in Table 1. Due to low water conditions, FDEP data requirements for the Numeric Nutrient Criteria could not be met for 2011 through 2012.

Table1. FDEP's chlorophyll *a*, total nitrogen and phosphorus criteria for lakes applied to Lake Iamonia. Due to low water, the numeric nutrient criteria data requirements could not be calculated for years 2011-2012.

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	1.7	0.41	0.01
2005	3.9	0.48	0.01
2006	1.8	0.57	0.02
2007	5.0	0.90	0.02
2008	6.1	1.11	0.04
2009	5.8	0.53	0.02
2010	5.6	0.69	0.02
2011-2012	-	-	-
2013	14.52	0.72	0.04

While state numeric nutrient criteria were not exceeded during the period of record, the elevated chlorophyll *a* results in 2013 should be noted.

Dissolved Oxygen (DO)

As Figure 1 shows, Lake Iamonia often did not meet the state DO criteria. This was not unexpected, since all stations are shallow (< 2.0 meters) and are normally covered with vegetation, which prevents rapid water exchange with the larger area of the lake and limits the air/water gas exchange. Plant respiration (samples were often taken in the morning hours) and sediment oxygen demand also contributed to the low DO saturation values. Staff considers this a natural condition for Lake Iamonia.

Metals

The Bull Headley boat ramp station on Lake Iamonia exceeded Class III water quality criteria for lead during the first quarter of 2013. While relict anthropogenic sources could have contributed to the elevated lead levels, this site is often used for skeet shooting. The use of lead shot in shotgun shells normally used for this type of shooting may be contributing to elevated lead levels.

Click here for more information on metal levels in Leon County waterbodies.

Fecal Coliforms

Fecal coliform bacteria exceeded the Class III water quality standard of a daily maximum of 800 colonies/100 mL at Station IA6 (800/100 mL) during the June 2013 sampling event and at Station IA7 (1900/100 mL) during the September 2013 event. In these cases, the probable source of fecal coliforms is wildlife.

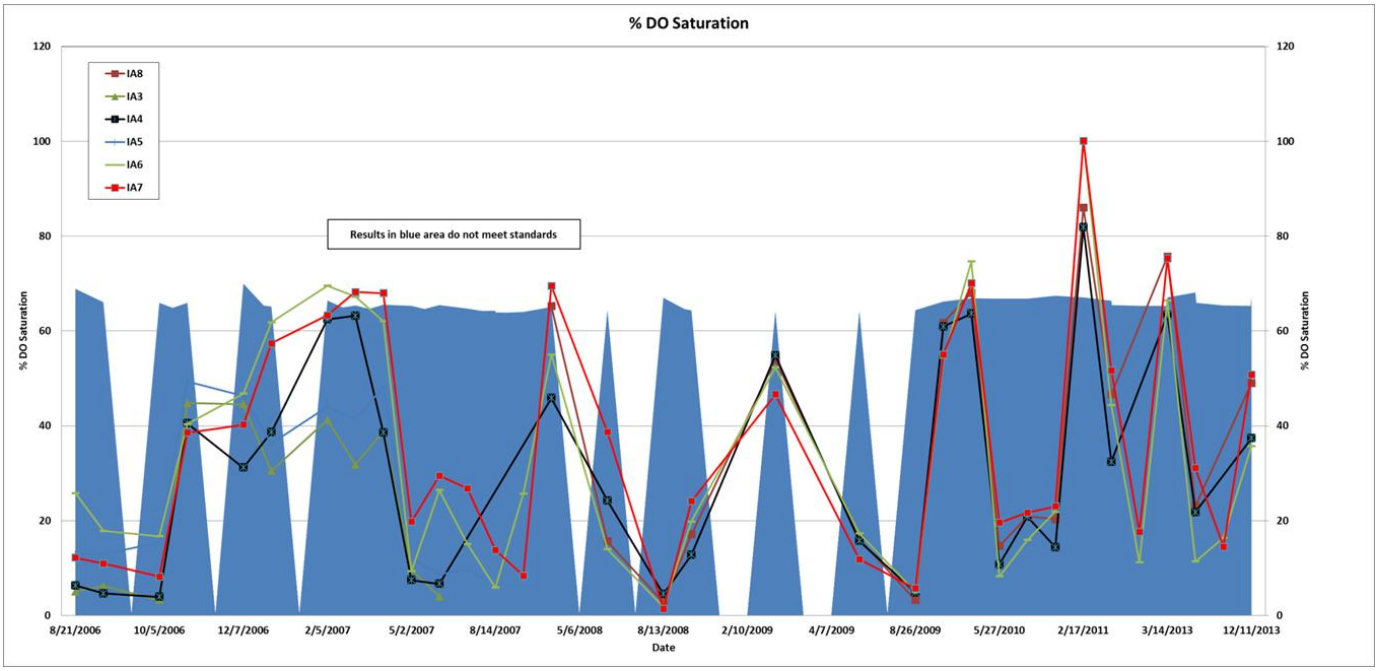


Figure 1. Dissolved Oxygen Percent Saturation results for Lake Iamonia.

Other Parameters

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

Conclusions

Based on ongoing sampling, Lake Iamonia met the nutrient thresholds for the East Panhandle Region. DO criteria were not met, but staff considers the low DO results a natural condition. The Bull Headley boat ramp station on Lake Iamonia exceeded Class III water quality criteria for lead during the first quarter of 2013. Fecal coliform bacteria exceeded the Class III water quality standard of a daily maximum of 800 colonies/100 mL at Station IA6 during the June 2013 sampling event and at Station IA7 during the September 2013 event. In these cases, the probable source of fecal coliforms is wildlife. Other parameters appeared normal for the area and no other 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.LeonCountyFL.gov/WaterResources

Click here to access the results for all water quality stations sampled in 2013.

Johnny Richardson, Water Resource Scientist
(850) 606-1500
Richardsonjo@leoncountyfl.gov