

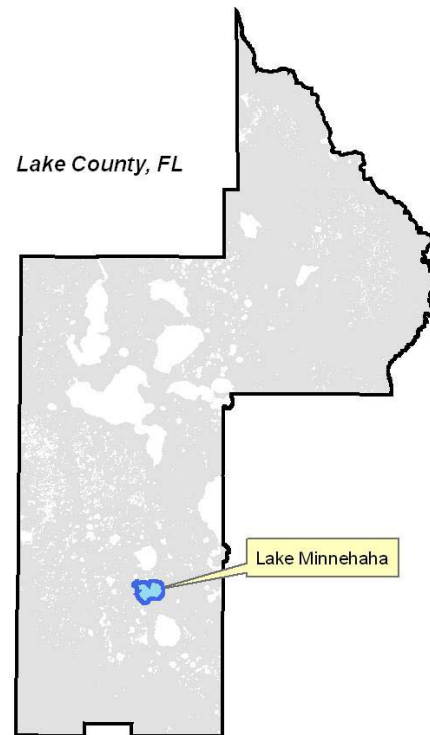


Lake Minnehaha EcoSummary July & August 2009

Lake Condition Index (LCI): A biological assessment tool developed by the Florida Department of Environmental Protection to indicate ecosystem health and identify impairment in Florida lakes

Watershed Characteristics

Located in south Lake County, the 2,298-acre Lake Minnehaha is surrounded largely by a mix of residential, natural (wetlands and forest/rangelands) and commercial lands. Lake Minnehaha is part of the Clermont Chain of Lakes and is designated as one of the Outstanding Florida Waters (OFW). An OFW is a water designated worthy of special protection because of its natural attributes. This special designation is intended to protect existing good water quality. Because Lake Minnehaha is larger than 1000 acres in size, two separate LCIs were performed, one on the north end and one on the south end. The 12 benthic grabs for Lake Minnehaha West were taken in July of 2009 and 12 benthic grabs for Lake Minnehaha East in August of 2009.



Results

Lake Minnehaha East and West both improved from a good to a very good rating on the LCI. Twenty four different macroinvertebrate taxa were collected on the east and on the west portions of the lake (up from thirteen taxa in 2007). On Lake Minnehaha East, the most abundant macroinvertebrates collected were the Chironominae *Polypedilum halterale* group, the Chironominae *Cladotanytarsus cf. daviesi* and *Limnodrilus sp.* aquatic worms. These three taxa accounted for 25.8%, 12.1% and 12.1% respectively, of the total population of macroinvertebrates present in the east portion of the lake. The Chironominae *Polypedilum halterale* group and the *Limnodrilus sp.* aquatic worms were the predominate taxa present in the west portion of Lake Minnehaha and comprised 29.1% and 26.2% respectively, of the total population of macroinvertebrates in the west portion of the lake. The benthic samples taken in the lake were predominately sand with some course particulate organic material and a small amount of muck (found in only four sample areas). Lake Minnehaha East LCI received a Hulbert Index score of 15. Lake Minnehaha West received a Hulbert

Index score of 18. The Hulbert Index is based on the number of pollution-intolerant lake macroinvertebrate species present. Therefore, higher Hulbert Index scores indicate a greater number of pollution sensitive species present or better water quality. Both Minnehaha East and West had a large number of organisms which are sensitive to pollution. A decrease in the presence of the pollution tolerant species; *Glyptotendipes paripes* (from 31.8% in 2007 to 1.4% in 2009) and increased percentage of pollution sensitive Diptera species as well as overall improved species richness, may indicate improved conditions in Lake Minnehaha from 2007. Corresponding water chemistry changes in Total Phosphorus (>30ug/L in July of 2007 to 17ug/L in June of 2009) and Chlorophyll (>11.0 ug/L in July of 2007 to 3.7ug/L in June Of 2009) also may indicate a decrease in nutrients present in Lake Minnehaha in 2009 as compared to 2007. Information on water chemistry may be found in the LakeAtlas link from the Lake County Water Authority web site (www.lcwa.org).



Tanyptodinae

Significance

Lake Minnehaha is in very good condition, as is reflected in the biota (LCI) and in water chemistry. The Lake County Water Authority will continue to monitor the Clermont Chain of Lakes, one of the Outstanding Florida Waters, to ensure continued good water quality.

Suggestions

Lakeside property owners can help keep the lake healthy by minimizing, or eliminating, the use of pesticides, herbicides and inorganic fertilizers, by preserving native shorezone vegetation, by minimizing impervious surfaces on their properties, by being careful with the use and storage of petroleum products, and by properly maintaining septic or sewer systems.



For more information, please contact:

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References

Fulton, R.S., III. 1995. *External nutrient budget and trophic state modeling for lakes in the Upper Ocklawaha River Basin*. Technical Publication SJ95-6. Palatka, Fla.: St. Johns River Water Management District.

Fulton, R.S., III, C. Schluter, T.A. Keller, S. Nagid, W. Godwin, D. Smith, D. Clapp, A. Karama, and J. Richmond. 2004. *Pollutant Load Reduction Goals for seven major lakes in the Upper Ocklawaha River Basin*. Technical Publication SJ2004-5, Palatka, Fla.: St Johns River Water Management District.

