

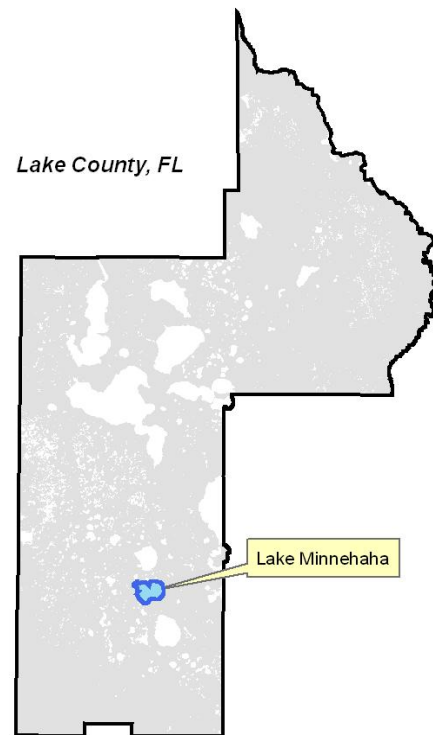


Lake Minnehaha EcoSummary July & August 2007

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 2007 and 12 benthic grabs for Lake Minnehaha East in August of 2007.



Results

The LCI scores for Lake Minnehaha East and West both dropped from a very good in 2006 to a good rating in 2007. Thirteen different macroinvertebrate taxa were collected on the east and on the west portions of the lake. On Lake Minnehaha East, the most abundant macroinvertebrates collected were the Chironominae *Glyptotendipes paripes*, *Polypedilum halterale* group and the Tanypodinae *Djalmabatista pulchra*. These three taxa accounted for 49%, 11% and 27% respectively, of the total population of macroinvertebrates present in the east portion of the lake. The Chironominae *Polypedilum halterale* group and Oligochaeta *Limnodrilus hoffmeisteri* were the predominate taxa present in the west portion of Lake Minnehaha and comprised 28.5% and 15.3% 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 coarse 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 10. Lake Minnehaha West received a Hulbert Index score of 9. 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. However, the significant increase in the presence of the pollution tolerant species; *Glyptotendipes papipes* (from 3.7% in 2006 to 14.2% in 2007) and the decrease in the number of species of pollution sensitive caddisflies (from 4 in 2006 to 2 in 2007) in the west half of Lake Minnehaha, may indicate increased nutrient levels in the lake. The east half of Lake Minnehaha also demonstrated an increase in the presence of the pollution tolerant *Glyptotendipes papipes* (from 0% in 2006 to 49% in 2007) and the decrease in the number of species of pollution sensitive caddisflies (from 4 in 2006 to 3 in 2007).



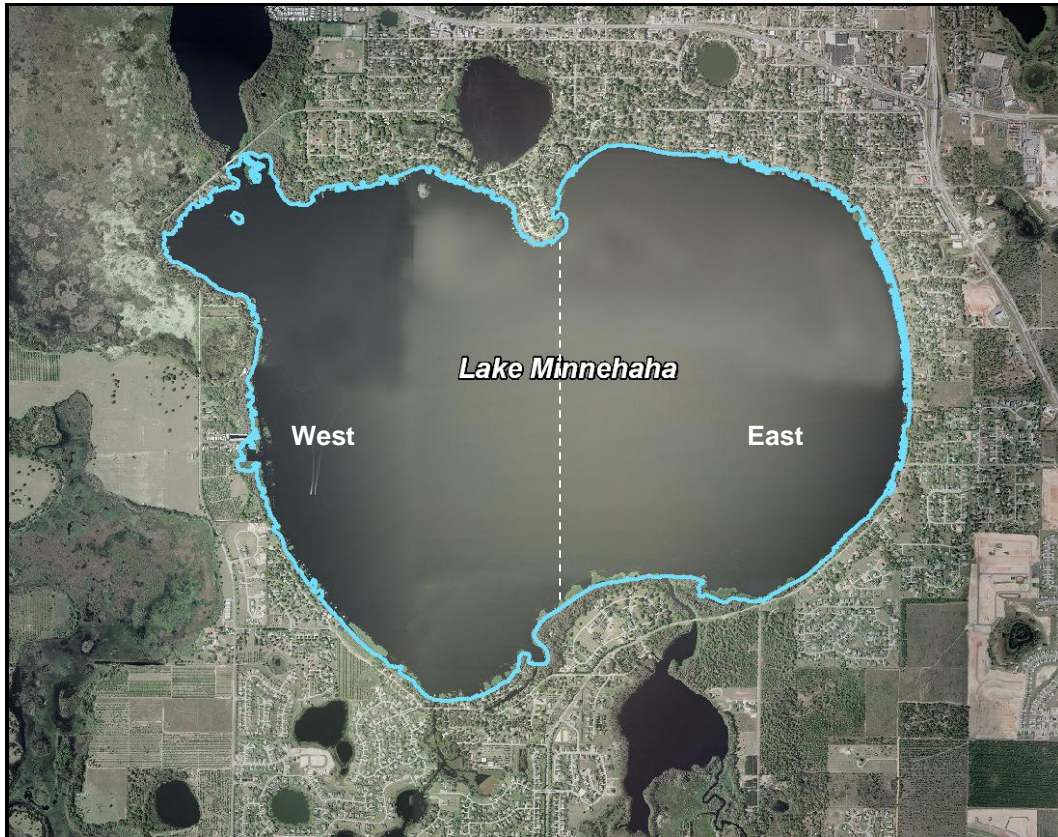
Tanypodinae

Significance

Lake Minnehaha is in 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 see if the trend toward pollution tolerant species continues. With the drought for the last two years, there has been little to no flow while water levels continue to decrease in the Clermont Chain of Lakes.

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:

Sandi Hanlon-Breuer - Lake County Water Authority 107 North Lake Avenue Tavares, FL 32778

(352) 343-3777 ext. 26

Email:sandihb@lcwa.org

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.