



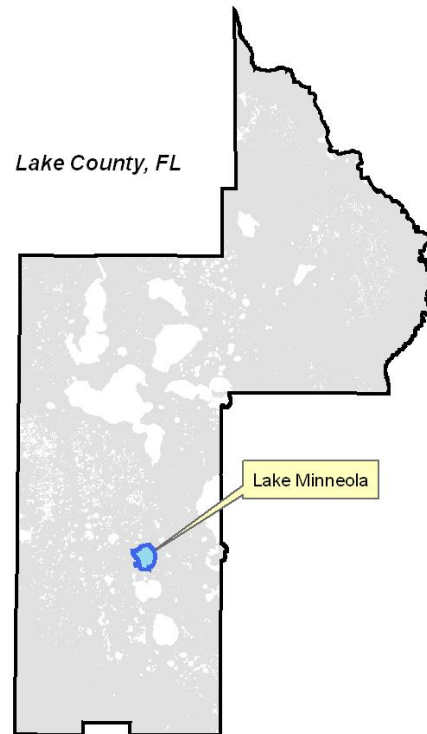
Lake Minneola EcoSummary

June & July 2006

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 1,883-acre Lake Minneola is surrounded largely by a mix of residential, natural (wetlands and forest/rangelands) and commercial lands. Lake Minneola is part of the Clermont Chain of Lakes and is designated as one of the Outstanding Florida Waters (OFW). 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 Minneola 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 Minneola South were taken in July of 2006 and 12 benthic grabs for Lake Minneola North in June of 2006.



Results

Lake Minneola North received a very good rating and Lake Minneola South dropped to a good rating on the LCI. Twenty five different macroinvertebrate taxa were collected on the north portion (a drop from 2005 count of thirty two different taxa) and eighteen taxa on the south (a drop from the 2005 twenty-three taxa). On Lake Minneola North, the most abundant macroinvertebrates collected were the Chironominae *Tanytarsus sp. S* and *Polypedilum halterale* group. These two groups both accounted for 19.2% and 12.8% respectively, of the total population of macroinvertebrates present in the north portion of the lake. The Chironominae *Glyptotendipes paripes*, a more pollution tolerant species, was the predominant taxa present in the south portion of Lake Minneola and comprised 64.2% of the total population of macroinvertebrates. This pollution tolerant species was not present in the LCI samples for Lake Minneola north or south the previous year. 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 two sample areas). Lake Minneola North LCI received a Hulbert Index

score of 16. Lake Minneola South 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 Minneola North and South still have a relatively large number of organisms which are sensitive to pollution.



Chironomus larvae head close-up (photo courtesy of Dana Denson, FDEP)

Significance

Lake Minneola is still in very good overall condition, as is reflected in the biota (LCI) and in water chemistry. However, the LCI mean scores dropped in both the Minneola North (from 71.27 in 2005 to 52.98 in 2006) and Minneola South (from 67.38 in 2005 to 37.29 in 2006) portions of the lake. The presence of more pollution tolerant species such as *Glyptotendipes paripes* and *Chironomus sp.* indicate a potential decrease in water quality. Water chemistry records indicate increasing total phosphorus concentrations for Lake Minneola since the end of the drought in late 2002.

Water quality (and the subsequent LCI score) may be influenced in the short term by many natural and anthropogenic (human caused) factors. Within the Clermont Chain, droughts tend to result in clearer water and improved water quality. Conversely, floods tend to increase the level of natural tannins which give the Clermont Chain a characteristic tea color. Levels of nutrients tend to increase during post-drought periods because of the prior decay and desiccation/oxidation of organic material.

The contribution of nutrients from development is the only controllable source of nutrient load within this basin. The Florida Department of Environmental Protection's (FDEP) Total Maximum Daily Load program is aimed at identifying and reducing these types of pollutants. To date, the Clermont Chain is not considered impaired, but impairments have been identified downstream of lake Minneola. The FDEP revisits each waterbody once every five years to determine if the new impairments have been identified. 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:
Sandi Hanlon-Breuer - Lake County Water Authority 107 North Lake Avenue Tavares, FL 32778
(352) 343-3777 ext. 26
Email: sandihb@lcwa.org