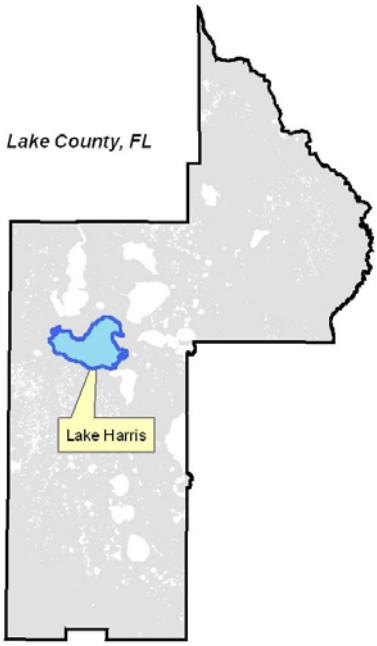
Lake Harris EcoSummary
April 2006

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 central Lake County, the 15,087-acre Lake Harris is surrounded largely by a mix of residential, natural (wetlands and forest/ rangelands) and agricultural lands. The largest single external phosphorus load to Lake Harris-Little Lake Harris was discharges from the Lake Harris Conservation Area, accounting for about 25% of the estimated load. Other phosphorus sources for Lake Harris-Little Lake Harris included atmospheric deposition (20%), tributary discharges (15%), urban-residential runoff (11%), muck farms (7%), septic tank effluents (4.5%), upland agriculture (1.5%) and point sources (0.9%). Because Lake Harris is larger than 1000 acres in size, two separate LCIs were preformed, one on the east side and one on the west side. The 12 benthic grabs for Lake Harris East and for Lake Harris West were both taken in April of 2006.

Results

Lake Harris West received a good rating on the LCI. Lake Harris East received a poor rating on the LCI. Twenty two different macroinvertebrate taxa were collected on Lake Harris West and fourteen different taxa were collected on Lake Harris East. The single most abundant macroinvertebrate species collected on Lake Harris West was the Chironomid (midge) *Glyptotendipes paripes* which comprised 23.8% of the total macroinvertebrate population and is often abundant in eutrophic lakes. *Glyptotendipes paripes* and the amphipod, *Hyalella azteca,* were the most abundant species on Lake Harris East and comprised 34.7% and 30.4% of the macroinvertebrate population sample, respectively. The sediment in the benthic samples taken on the west side of the lake was predominately course particulate organic material with a mixture of muck and sand. The east side of Lake Harris was predominantly sand with some course particulate organic material and a small amount of muck. Lake Harris West and East LCI received a Hulbert Index score of 7 and 6 respectively. 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. Lake Harris East had 4 and Lake Harris West had 5 species of macroinvertebrates which are sensitive to pollution

Hyalella azteca (left) and *Gammarus* (right)

Significance

The St. Johns River Water Management District is proposing a plan to increase the fluctuations in the water level in all the Harris Chain of Lakes. This could help Lake Harris-Little Lake Harris recover from pollution impacts by drying out large portions of mucky shoreline and helping to establish the aquatic plants essential for fisheries habitat and the overall biota of the lake. Improvement of the aquatic plant community is an important step toward the improvement of the benthic macroinvertebrate community (and resulting LCI scores).

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.

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References

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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.