

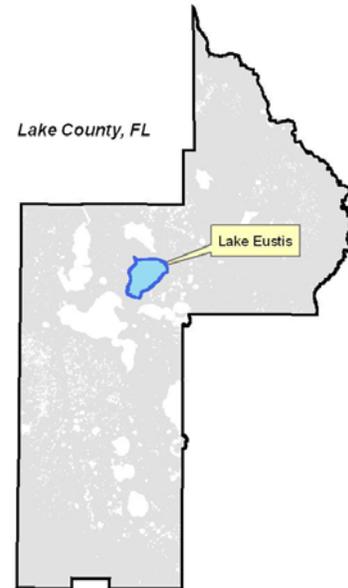


Lake Eustis EcoSummary February 2007

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 central Lake County, the 7,806-acre Lake Eustis is surrounded largely by a mix of residential, commercial and agricultural lands. Discharges from Lake Dora represented 33.6% of estimated Total Phosphorus (TP) loading and 50.0% of estimated Total Nitrogen (TN) loading. Discharges from Lake Harris-Little Lake Harris represented 9.3% of estimated TP loading and 26.1% of estimated TN loading to Lake Eustis. Aside from Lake Dora discharges, the largest single source of TP loading was from agriculture other than muck farms, which represented 18.9% of estimated TP loading and 4.6% of estimated TN loading. Additionally, in previous years, the City of Eustis discharged waste water into Trout Lake, which subsequently entered Lake Eustis at the north east corner of the lake. There are significant differences in the sediment substrate in Lake Eustis, with the north half dominated by muck and the south half still partially comprised of sand. Because Lake Eustis is larger than 1000 acres in size, two separate LCIs were performed, one on the north end and one on the south end. The benthic grabs for Lake Eustis were taken in February of 2006.



Results

Both Lake Eustis North and Lake Eustis South received a poor rating on the LCI. Nine different macroinvertebrate taxa were collected on the north portion. Sixteen taxa were collected on the south. On Lake Eustis North the most abundant macroinvertebrate collected was the aquatic snail Hydrobiidae, comprising 36% of the total population of macroinvertebrates. *Glyptotendipes sp.B* (midge) was the predominate single taxa present in the south portion of Lake Eustis. Chironomids or midges were 53% of the total population of macroinvertebrates in the south portion and 50% in the north portion of the lake. Lake Eustis North LCI received a Hulbert Index score of 2. Lake Eustis South received a Hulbert Index score of 5. 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. Eight of the twelve benthic samples taken in the south portion of the lake were predominately muck while all of the twelve northern lake samples were primarily muck.



A Chironomid (or midge) from Lake Eustis

Significance

The Lake County Water Authority has an off-line alum system or NuRF (Nutrient Reduction Facility) project under construction that would reduce the total phosphorus discharge from Lake Apopka by as much as 77% annually. Elimination of such a large upstream source of total phosphorus could dramatically improve water quality in the other downstream lakes such as Lake Eustis. This could increase recreation on the lake by eliminating persistent algal blooms, eventually leading to reestablishment of beneficial vegetation, improved pollution sensitive macroinvertebrate populations with increased macroinvertebrate diversity and a more productive sportfish population. The Lake County Water Authority will continue to monitor the macroinvertebrates in Lake Eustis in order to assess the NuRF project impacts on the ecosystem health.

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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