



Lake Dora EcoSummary

November 2007– January 2008

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 4,475-acre Lake Dora is surrounded largely by a mix of residential, industrial and agricultural lands. Discharges from Lake Beauclair were the dominant nutrient sources for Lake Dora representing 76.5% of estimated Total Phosphorus loading and 85.9% of estimated Total Nitrogen loading. Lake Beauclair has nutrient loadings more than four times that of any other lake in the Upper Ocklawaha River basin largely due to incoming flow from the Apopka-Beauclair Canal. The largest other sources of nutrient loading into Lake Dora were runoff from the residential areas (9.3% TP and 3.4% TN loading). Because Lake Dora is larger than 1000 acres in size, three separate LCIs were performed, one on the east lobe, one center and one on the west lobe. The 36 benthic grabs for Lake Dora were taken between November 2007 and January 2008.



Results

Overall LCI scores decreased over last year's scores on the center and west portions of Lake Dora. During periods of extended drought it is not uncommon to see some degradation in lake water quality in shallow, eutrophic systems. Lake Dora West received a poor rating on the LCI. Lake Dora Center and East received a very poor rating on the LCIs. Nine different macroinvertebrate taxa were collected on the east lobe, eleven taxa in the center and twelve taxa on the west. On the Lake Dora East LCI, the most abundant macroinvertebrates collected were oligochaete, tubificid worms, the phantom midge *Chaoborus punctipennis* and the midge *Cladotanytarsus sp. B*. Oligochaetes made up 27%, 19.6% and 28% of macroinvertebrates collected on Dora East, Center and West, respectively. Tubificids frequently form dense populations in organically enriched habitats with a mucky substrate tending toward anoxic conditions. The pollution tolerant *Cladotanytarsus sp.B* and *Chaoborus punctipennis* were the predominant Chironomids present in all three sections of Lake Dora. The sediment in all of the 36 benthic grabs in Beauclair East were predominately muck, sand and coarse particulate organic matter. Lake Dora East, Center and

West LCIs received Hulbert Index scores of 0, 0 and 1, respectively. The HI is based on the number of pollution-sensitive lake macroinvertebrate species present.

LCI SCORES

	<u>04/05</u>	<u>05/06</u>	<u>06/07</u>	<u>07/08</u>
Dora East	15.39	29.18	14.14	16.90
Dora Center	26.43	34.02	27.36	16.52
Dora West	22.20	41.74	26.15	20.58



A Cladotanytarsus sp.B from Lake Dora

Significance

The Lake County Water Authority has an off-line alum system or NuRF (Nutrient Reduction Facility) located on the Apopka-Beauclair Canal that came online in March of 2009. This will reduce the total phosphorus load from Lake Apopka by as much as 81% annually. Elimination of such a large upstream source of total phosphorus could dramatically improve water quality in Lake Dora and other downstream lakes. 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 Dora 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.



For more information, please contact:

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