

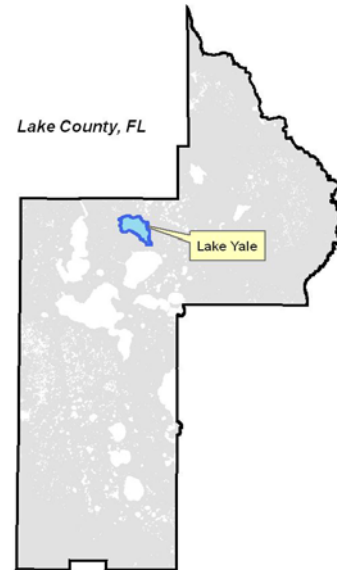


Lake Yale EcoSummary May & June 2007

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

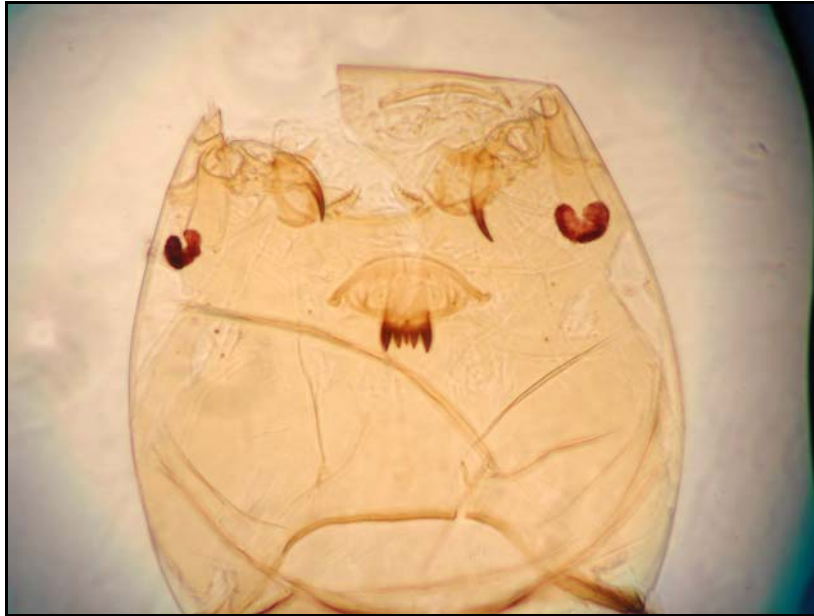
Located in central Lake County, the 4,013-acre Lake Yale is surrounded largely by a mix of residential, institutional, natural (wetlands and forest/ rangelands) and agricultural lands. The single largest external phosphorus source for Lake Yale was atmospheric deposition, accounting for about 43% of the estimated load. The largest controllable phosphorus sources were urban-residential runoff (20% of the external load), septic tank effluents (8.7% of the external load), and agricultural runoff (6.2% of the external load). Because Lake Yale 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 Yale South were taken in May of 2007 and 12 benthic grabs for Lake Yale North in June of 2007.



Results

Lake Yale North and South both received a poor rating on the LCI. Sixteen different macroinvertebrate taxa were collected on the north portion and seventeen taxa on the south. On Lake Yale North the most abundant macroinvertebrate species collected was the Chironomid (midge) *Chironomus crassicaudatus* and *Cladotanytarsus sp. B* which comprised 52% and 11.2% respectively, of the total macroinvertebrate population. *Cladotanytarsus sp. B* was the most abundant species on Lake Yale South and comprised 40.4% of the macroinvertebrate population. Diptera (midges) were the predominate taxa present in the north and south portion of Lake Yale and comprised 69% and 71% respectively, of the total population of macroinvertebrates in the lake. Benthic samples taken in the north and south portions of the lake consisted of sand, coarse particulate organic matter and muck. In addition, six of the twelve sites in the south portion also contained clay. Lake Yale North LCI received a Hulbert Index score of 5. Lake Yale South received a Hulbert Index score of 7. 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. The amphipod *Hyalella azteca*, and several Chironomidae including

Tanytarsus limneticus, *Procladius*, and *Pseudochironomus* were present in the Lake Yale benthic samples which are sensitive to pollution. Although there was a fair number of Hulbert Index point species, the lack of EOT species or Ephemeroptera (mayfly), Odonata (dragonfly and damselfly) and Trichoptera (caddisfly) present in the samples caused the overall LCI score to drop and resulted in a poor rating.



A close up view of the head of Tanypodinae *Procladius*

Significance

The water source for Lake Yale is principally ground water and rainfall. Lake Yale drains into Lake Griffin. Over the last several years, the Florida Fish and Wildlife Conservation Commission has worked to improve lake habitat by restoring native aquatic plant communities (such as spatterdock and bulrush) in Lake Yale. Improvement of the aquatic plant community is an important step toward the improvement of the benthic macroinvertebrate community (and resulting LCI scores). The Lake County Water Authority will continue to monitor the macroinvertebrates in Lake Yale in order to assess ecosystem health.



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References

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