A site map can be viewed by clicking on the report site name.

TMDL STUDIES

EcoSummary

Ocklawaha River at SR 316 near Eureka

August 6, 2002

GOOD

Stream Condition Index (SCI): The standardized biological assessment tool used by FDEP biologist to indicate ecosystem health and identify impairment as compared to reference (natural) conditions of streams within the various ecoregions of Florida

For samples collected before June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures and met FDEP quality assurance/quality control standards.
For samples collected on or after June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures (SOPs) and met DEP quality assurance/quality control standards.

Purpose



The Ocklawaha River at Eureka is one of the streams used by Central District biologists as a "best attainable condition" reference site for comparison with other streams in this portion of the state. The results of this bioassessment will be used to monitor the continuing health of the Ocklawaha, and will also be a part of the ongoing refinement of FDEP's Stream Condition Index (SCI) bioassessment methodology.

Watershed Characteristics

On of the main tributaries of Florida's longest river, the St. Johns, the Ocklawaha River begins at 9320-acre Lake Griffin in the western part of Lake County. It flows generally northward along the west side of the Ocala National Forest for roughly 50 miles before turning east to flow into the St. Johns south of the city of Palatka. The upper watershed of the Ocklawaha has suffered for many years from the effects of intense agriculture, physical alteration, wetland drainage, and flood control projects. Restoration of the upper Ocklawaha is now underway by the St. Johns River Water Management District (see http://sjr.state.fl.us/programs/index.html), but this will take many years to accomplish. The lower Ocklawaha (northern part), on the other hand, is much less degraded. Largely unaltered and strongly

influenced by the addition of some 183 billion gallons per year of clean, clear water from Silver Springs near Ocala (see ecosummary on Silver River at http://www.dep.state.fl.us/water/bioassess/ecoced.htm), the lower Ocklawaha is in far better shape. The reach under consideration in this report lies within this downstream portion.

The Eureka Lock and Dam is a part of the now-defunct Cross Florida Barge Canal Project. This effort, begun in 1964, would have connected the Gulf of Mexico to the Atlantic by linking via canals the (southern) Withlacoochee and Ocklawaha Rivers, thus allowing passage into the St. Johns and out to the ocean at Jacksonville. Due to environmental outcry, the project was halted in 1976. The lock and dam at Eureka was never completed. The sampling site is a short distance upstream of this structure.

Land use in this portion of the river is not intense. The Ocala National Forest lies to the east of the river. Pine silviculture, low-density residential development, and natural lands make up the large majority of land use in this part of the Ocklawaha watershed.

Results

Sampling conditions in August 2002 were not ideal. Recent heavy rains had raised the water level substantially, and macroinvertebrate sampling was very difficult. Probably due to this, the SCI ranking for the Ocklawaha River at Eureka was "good", rather than the "excellent" rating which had been seen heretofore. There were 29 different macroinvertebrate taxa collected in the subsample, including seven which are members of the sensitive EPT group (larval mayflies, stoneflies, and caddisflies). The most common macroinvertebrates collected were the amphipod *Hyalella azteca*, the snail *Elimia*, and mayflies of the family Leptohyphidae.

The habitat assessment was quite good. The site received a score of 141 out of a possible 160 points, or 88%, on the assessment, placing it well into the optimal category.

Nutrient levels were all low or moderate, with the exception of nitrate/nitrites, which were high, at 0.61 mg/L. This is most likely due to the influence of Silver Springs. Elevated nitrates have become very common in many of Florida's springs (including Silver) in recent years. Intense study of the problem is currently being undertaken.

Fecal coliforms bacteria were present at low levels (49 colonies/100 mL), but total coliforms were high (748 colonies/100 mL). This total coliform reading is above the statewide average of 400 colonies, but does not constitute a violation of state water quality standards.

Significance

It is likely that the less-than-optimal results seen in this bioassessment are an artifact of difficult sampling conditions, and not a reflection of declining water quality. The diversity of the macroinvertebrate community was high (Shannon diversity = 4.22), the habitat assessment was very good, and the water chemistry results (other than the high nitrates) were also good. Coupling these factors with the low-intensity land use in the local watershed, it seems reasonable to assume that the Ocklawaha River at Eureka has not been degraded.

Suggestions

Future SCI sampling should be carried out when conditions do not preclude effective and representative sampling. Additional samples should be taken in the near future to ensure that water quality conditions have not, in fact, declined.

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Published by the Florida Department of Environmental Protection
Tallahassee, Florida
For more information on the DEP Bioassessment programs, please visit our web site at http://www.dep.state.fl.us/water/bioassess

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