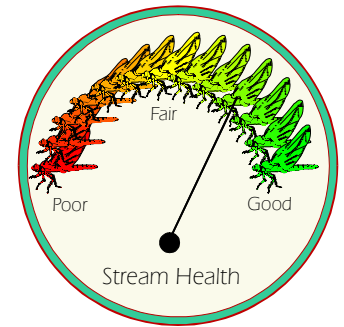


EcoSummary

SCI Report



Gee Creek @ SR 419/434, Seminole County 3 March 1997

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

Purpose

As recently as May 1983, effluents from several municipal wastewater treatment plants directly or indirectly entered Lake Jesup via Gee Creek and a number of other area streams. Although the streams feeding the lake no longer receive WWTP effluents, they have the potential to carry substantial loads of nonpoint source pollution from the sprawling urban development of the northern part of Orange County and surrounding parts of Seminole County into the lake. This site was chosen for the dual purposes of providing information to persons and agencies involved in restoration efforts



being undertaken on Lake Jesup (spearheaded by St. Johns River Water Management District) and for the continuing development of FDEP stream bioassessment methodology.

Basin Characteristics

The eighteen-square-mile drainage area of Gee Creek includes virtually all of the city of Casselberry, plus portions of Longwood and Winter Springs. Approximately 65% of the basin is urban, with the remainder being mostly undeveloped wetlands, forests, and water. Gee Creek proper originates at Lake Kathryn in Casselberry. It flows northward out of the lake through the western part of Winter Springs to unite with Soldier Creek at the extreme western tip of Lake Jesup.

Results

There were 28 different taxa collected at Gee Creek. Of these, three were members of the EPT group. Thirteen Florida Index points were scored. The Stream Condition Index score for this site was 27, placing it in the "very good" category. The dominant macroinvertebrate species was the midge *Polypedilum convictum* group, followed by the riffle beetle *Microcylloepus pusillus*. At the time of sampling, nutrient values, especially the various forms of nitrogen, were fairly high. Most were in the 65th to 70th percentile range. Total Kjeldahl nitrogen, however, was relatively low, only in the 20th percentile range compared to other Florida streams. On the other hand, the calculated value for unionized ammonia was very high, in the 90th percentile. This calculation is

based on temperature, pH, and total ammonia concentration. The pH measured here was quite basic, 8.25, whereas the total ammonia value was 0.05 mg/L, in the 65th percentile. Unionized ammonia is considered toxic to aquatic life in high concentrations, but no evidence of degradation of the aquatic community was seen at this time. The high pH and nutrient values are probably due to algae blooms in upstream lakes. Fish kills due to algae blooms have occurred recently in Lake Kathryn.

Modest concentrations of chlorides and sulfates were found at Gee Creek. Turbidity was also quite low. Alkalinity was relatively high at this site, as were both fecal and total coliform concentrations. However, no violations of surface water quality standards were detected.

The habitat assessment for Gee Creek gave it a score of 111 out of a possible 145, or 77%. Certain areas of erosion and the resulting siltation effect on habitats, along with a reduced riparian buffer zone, detracted somewhat from the overall habitat score for this site.



Significance

The elevated nutrient and coliform bacteria levels recorded at Gee Creek did not appear to have substantial effects on the macroinvertebrate community. Results of the biological assessment were good. The poor condition of Lake Kathryn upstream, however, is a threat to the ecological health of this stream.

Suggestions

Suggestions for the improvement of the environmental health of Gee Creek include appropriate maintenance of stormwater retention systems where they are present, establishment of stormwater management improvements where they are not, active or passive rejuvenation of the riparian zone of lakes and streams within the drainage, and the preservation of remaining wetland areas.

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