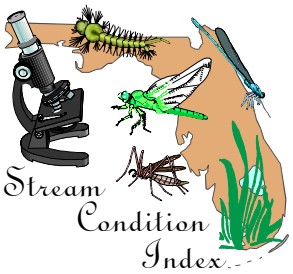
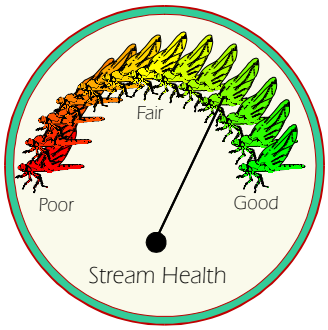
EcoSummary

SCI Report





Soldier Creek Downstream of SR 419
Black Hammock, Seminole County
9 July 1996

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 Soldier 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

Also known as Soldier's Creek, this stream enters Lake Jesup at its far western edge, where it joins with its sister stream, Gee Creek. Residential development accounts for roughly 60% of land use in the Soldier Creek drainage basin. However, fairly extensive wetlands are also present, especially in the downstream section of the stream, a large portion of which is contained within Seminole County's Soldier's Creek Park.

Results

Soldier Creek received a Stream Condition Index rating of 25, putting it in the "good" category. Of the 24 macroinvertebrate taxa collected at this site, three were members of the EPT group. A Florida Index score of 7 was determined for the stream. As seen in other streams in the area, the dominant species present was the riffle beetle *Microcylloepus pusillus*. The second most abundant was the larva of the blackfly, *Simulium*.

On the whole, nutrient values were slightly high in water samples taken from the creek. Total ammonia, unionized ammonia, and nitrate/nitrite were at the 50th percentile level or higher compared with other Florida streams. The total phosphorus reading was quite high at 0.21 mg/L, or in the 80th percentile. However, chlorides, sulfates, and total Kjeldahl nitrogen were comparatively lower in concentration. Fecal coliform counts were high (620 colonies/100 mL), but did not exceed state standards. All physicochemical parameters measured were within normal ranges.

The habitat assessment yielded a score of 131 out of a possible 145 points. Minor habitat smothering due to some bank instability prevented it from receiving a perfect score.

Significance

The elevated nutrient and coliform bacteria levels recorded at Soldier Creek do not appear to have had substantial effects on the macroinvertebrate community. Results of the biological assessment were good. The extensive wetlands present in the lower reaches of this stream serve as filters to remove a considerable portion of the nonpoint runoff that is collected in the upper reaches.

Suggestions

Suggestions for the improvement of the environmental health of Soldier 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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Published by the Florida Department of Environmental Protection, Tallahassee, FL, 1997.