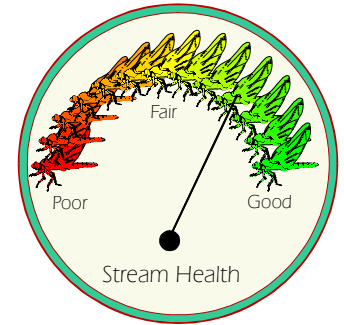


# EcoSummary

SCI Report



## Howell Creek @ SR 434, 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 Howell Creek and 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

Howell Creek originates in a series of small lakes in the vicinity of downtown Orlando. The stream then passes through Lake Howell at the southern edge of the city of Casselberry, and afterwards through the Winter Springs/Tuskawilla area before flowing into Lake Jesup. Land use in the 34 square mile basin is approximately two-thirds urban, with most of the remainder being undeveloped land. Numerous nonpoint sources drain into Howell Creek, especially in the extensively developed upper reaches of the stream.

### Results

Biological and water chemistry sampling results suggest that water quality in Howell Creek is fairly good at this time. The Stream Condition Index (SCI) ranked Howell Creek as "good," with a total of 19 macroinvertebrate taxa collected in the subsample, including three from the EPT (larval mayflies, stoneflies, and caddisflies) group, and 14 points scored for Florida Index (good water quality) animals. The macroinvertebrate fauna was dominated at this site by

finger nail clams (Pisidiidae), followed by the riffle beetle *Microcyloepus pusillus*.

All physical parameters measured were within normal ranges. Water chemistry analyses showed that nutrient levels were not especially high, most being roughly in the 50th percentile range compared with other Florida streams. Fecal coliform bacterial counts were fairly high (320 colonies/100mL), but did not exceed state standards for Class III waters. Habitat quality was good at the site.

### Significance

The somewhat elevated nutrient and coliform bacteria levels recorded at Howell Creek do not appear to have had substantial effects on the macroinvertebrate community. Results of the biological assessment were basically good. Fortunately, modern stormwater retention methods were used in many of the developments in the watershed, leading to a reduction in the amount of



nutrient- and bacteria-laden stormwater that would otherwise enter Howell Creek during storm events. For the time being, Howell Creek seems to be holding its own.

### Suggestions

Suggestions for the improvement of the environmental health of Howell 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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