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

EcoSummary

Howell Creek upstream of SR 434

April 15, 2002

TMDL STUDIES

HEALTHY

BioRecon: A rapid, cost-effective screening mechanism for identification of biological impairment

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



A biorecon was performed at Howell Creek to further monitor the health of this stream. In 1996-97, a study was carried out by FDEP Central District biologists to assess the health of the different tributaries flowing into Lake Jesup (see http://www.dep.state.fl.us/water/bioassess/docs/biorepts/otherepts/jessup.pdf.) This bioassessment was designed as a follow-up to that study. In addition, the data obtained will be useful in the further refinement of FDEP's bioassessment protocols.

Watershed Characteristics

Howell Creek originates in a series of small lakes in the vicinity of downtown Orlando. In its upper reaches, the creek is referred to as Howell Branch. 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 8140-acre Lake Jesup, an element of the St. Johns River. The main tributary of Howell Creek is Bear Creek (a.k.a. Bear Gulley Creek), which flows into Howell approximately 1.5 miles above Lake Jesup.

Land use in the 34 square mile watershed is approximately 70% residential development, with most of the remainder being undeveloped land. Residential development, however, is increasing very rapidly in the downstream portion of the watershed. Numerous nonpoint

sources drain into Howell Creek, especially in the older, extensively urbanized upper reaches of the basin. In general, stormwater collection systems are in place in most parts of the lower reaches.

Results

The biorecon results gave Howell Creek a "healthy" rating. There were 33 different macroinvertebrate taxa collected. This number included five members of the sensitive EPT group, which is comprised of larval mayflies, stoneflies, and caddisflies. Howell Creek earned a score of 21 on the Florida Index, based on the considerable number of pollution-intolerant macroinvertebrtae taxa found there. Odonates (larval dragonflies and damselflies) were especially diverse here, with nine different taxa collected. The most common macroinvertebrates collected were the caddisfly *Cheumatopsyche*, midges of the family Chironomidae, and various water mites.

In addition to the biorecon, the level of total coliform bacteria in the water was measured, with a result of 621 colonies/100mL. This value is above average for Florida's streams, but does not constitute a violation of water quality standards.

The habitat assessment results were not especially good. Howell Creek scored 95 out of a possible 160 points, placing it in the suboptimal category. This rating was based on such factors as low substrate diversity and availability, habitat smothering, erosion, riparian zone vegetation removal, and invasive exotic plant species.

Significance

The results suggest that, despite some problems, Howell Creek is in relatively good ecological health. The diverse and robust macroinvertebrate community is an indication that the creek is fairly healthy at this time.

Suggestions

Streamside landowners should help to minimize the amount of pollution entering the system by reducing or eliminating the use of pesticides, herbicides, and inorganic fertilizers, maintaining septic and sewer systems, and controlling invasive exotic plant species on their properties.

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