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

EcoSummary

Orange Creek upstream of SR 21

August 15, 2000

ECOREG REF STREAMS

EXCELLENT

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



Orange Creek 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 health of Orange Creek, and will also be a part of the continuing refinement of FDEP's Stream Condition Index (SCI) bioassessment methodology.

Watershed Characteristics

Originating in 8468-acre Orange Lake in the southeastern corner of Alachua County, Orange Creek flows in a more or less northeasterly direction for about 15 miles before joining the Ocklawaha River near the town of Orange Springs in extreme northern Marion County. Land use in the 40+ square mile watershed is generally light. There are large areas of forest regeneration (timberland), as well as natural pine flatwoods, swamps, and lakes, plus some pasture land, and a limited amount of agriculture. Residential development is largely confined to the town of Orange Springs, and is low-density in nature.

Results

Orange Creek received a very good rating on the SCI. There were 40 different macroinvertebrate taxa found in the subsample. Of these, twelve were members of the sensitive EPT group (larval mayflies, stoneflies, and caddisflies). A Florida Index score of 18 was calculated, based on the presence of a number of pollution-intolerant species. The most abundant macroinvertebrate in the sample was the riffle beetle *Microcylloepus pusillus*, accounting for approximately 18% of the sample.

Water chemistry results were fairly good at Orange Creek. Nutrient levels were at median levels compared to other Florida streams. *In situ* physicochemical measurements of dissolved oxygen, pH, specific conductance, and temperature were all normal. Turbidity was low. Coliform bacteria, however, were present at high concentrations. Fecal coliforms, in particular, were especially high, measuring 995 colonies/100 mL, which represents a violation of state standards for Class III waterbodies.

The habitat assessment results were good. Orange Creek scored 134 out of a possible 160 points, or 83.75%. Somewhat limited macroinvertebrate habitat availability, low water velocity, and some habitat smothering prevented it from receiving a very high score.

Significance

These results demonstrate that Orange Creek at SR 21 remains in good ecological health. A diverse and healthy macroinvertebrate community, good habitat assessment results, and overall good water chemistry measurements suggest that the stream is in good shape. The high fecal coliform readings might be a reason for some concern. Recent sampling events, however, have not shown high fecal coliform readings at Orange Creek. It might be that this was an isolated incident, and is not characteristic of the overall trend for fecal coliforms at this site.

Suggestions

To help preserve the ecological health and vitality of this system, additional agricultural, residential, or other development in the watershed - especially in close proximity to the stream - should be discouraged. Those who own property near the stream should maintain adequate riparian buffer zones between upland developments and the creek. Septic and sewer systems on properties adjacent to the stream should be maintained to reduce the introduction of bacterial and other contaminants into Orange Creek. Future sampling should include fecal coliform analysis to determine whether or not this is an ongoing problem.

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