EcoSummary

Orange River at the Hendry Property

April 26, 2005

TMDL STUDIES

FAIR

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



A single Stream Condition Index sampling was performed at this site in order to examine the water quality in the stream and document the organisms that inhabit a potentially impacted but best-available stream in this geographical area. This is important because streams that are affected by human activities do not necessarily have poor water quality, and the biological standards on which the SCI is based require further refinement.

Watershed Characteristics

The Orange River's drainage basin includes part of Lehigh Acres, a sparsely developed single-family residential area, but with some fairly densely developed parts, multiacre rural residential areas, and pine flatwoods. Residential development is increasing. Most of the residential land use is about three miles upstream of the sample site. Canals draining the over-all area flow north through Hickey Creek and Dog Canal as well as to the Orange River. The area around the sample site is mainly residential/rural on multiacre lots. Downstream is more residential land use, and a discharge of cooling water from the Tice electrical generating plant. The

lower part of the river is estuarine, and flows into the tidal Caloosahatchee River.

Results

The SCI indicated that the Orange River has adequate water quality to support a fairly healthy aquatic insect community. **The stream scored 52 points out of 100 possible, and was rated "Fair". Water chemistry met Class 3 standards for all parameters tested**. The site is located in a forested area, but one side has been cleared.. The riparian (stream bank) zone on one side was open grass, with a narrow fringe of oaks and cabbage palms along the edge. The other side was covered with a mixture of hardwoods and cabbage palm for over 100 meters from the stream. The streambed is a mixture of clay, shell and limestone, with steep shelly banks. The in-stream habitat consisted of "sand" (70%), with patches of roots (9%), snags (8%) silt (6%), rubble (4%), and leaf mats (3%). The "sand" included large areas of shells that were not large enough to be "rubble", but did provide stable habitat. Flow was fairly fast (between 0.3 and 0.4 m/sec). The habitat score was 128 out of 160 possible points.

Significance

These results indicate that this stream has adequate water quality to support a fairly healthy aquatic community, but that the community is significantly different from a completely natural one. The results indicate that the Orange River meets its designated use for support of aquatic life.

Suggestions

Encourage good land use practices in the basin, and maintain a monitoring program to further refine Stream Condition Index standards and to detect effects of changes in local land use. The Orange River is one of the original reference sites used in the development of the Stream Condition Index, and has data going back to 1992. Analysis of this data could provide insight into the effects of increasing development on water quality.

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