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

EcoSummary

Silver River upstream of boat ramp canal

September 4, 2001

EXCELLENT

ECOREG REF STREAMS

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



Silver River is the spring run of what is arguably the largest spring system in the world, Silver Springs. The discharge of Silver Springs, including the head spring and the numerous smaller springs immediately downstream, is approximately 500 million gallons per day[1] . The Silver Springs park has long been a top Florida tourist attraction. The river and 2300 acres of land surrounding it make up Silver Springs State Park. The river has been designated as an Outstanding Florida Water (OFW), affording it special protection from water quality degradation. Silver River is a major tributary of the Ocklawaha River, dramatically improving the water quality and enhancing the flow of the Ocklawaha. The difference in the two rivers is apparent at the confluence, where the crystal clear water of the Silver River joins (seemingly unwillingly at first) the dark, turbid water of the upper Ocklawaha. (For an Ecosummary report on the upper Ocklawaha River, refer to the website http://www.dep.state.fl.us/water/bioassess/ecoced.htm.) Silver River is an FDEP Central District biological reference site used in the development of biological criteria. For all of these reasons, it is important to monitor the health of this unique and important water body.

1 Ferguson, G.E. *et al*. 1947. Springs of Florida. Geological Bulletin No. 31, Florida Geological Survey, 196 pp.

Watershed Characteristics

Originating at Silver Springs, the river flows in a generally easterly direction for approximately five miles to its confluence with the Ocklawaha River. Although the spring system itself is surrounded by the attraction and the city of Silver Springs, the area surrounding the Silver River is largely undeveloped. Seventy-four percent of the Silver River watershed, which is approximately 175 square miles in area, is undeveloped uplands and wetlands. Urban development and utilities account for 12% of the land use. Rangeland makes up 9%, and agriculture 4%, of the remaining land usage. A considerable portion of the cities of Ocala and Silver Springs lay within the Silver River drainage basin.

Results

The results of the Stream Condition Index indicate that the Silver River is in excellent biological health. It achieved a score of 29 on the SCI, which places in the "very good" category. Twenty-four different macroinvertebrate taxa were collected. Of these, seven were members of the sensitive EPT (larval mayflies, stoneflies, and caddisflies) group. Fifteen points were scored on the Florida Index, which is based on the number of pollution-intolerant taxa present at a given site. The most common macroinvertebrate species collected was the larval caddisfly *Cheumatopsyche*, followed by the midge *Polypedilum flavum* (formerly known as *P. convictum* group).

Water chemistry results were mostly good. All nutrient levels were low or moderate, with the exception of nitrate/nitrites, which were very high (1.0 mg/L). A trend toward elevated nitrate levels has become apparent in many springs throughout the state in recent years. It is believed that this is a result of the effect of past agricultural practices on the Floridan aquifer. Much work is being done by the state's Springs Task Force to ascertain the nature and sources of elevated nitrate in springs and seek solutions to the problem. As one would expect, turbidity and water color were extremely low in Silver River.

Silver River received a very high score of 146 out of a possible 160 points (91.25%) on the habitat assessment. The assessment placed it in the optimal category on all measures except substrate diversity. It was judged suboptimal in this category due to the presence of only three productive habitat types.

Significance

These results suggest that the ecological health of the Silver River has remained good. The excellent biological community, water chemistry values (with the exception of nitrates), and habitat assessment are evidences of a healthy system. Elevated nitrates are a continuing concern for Florida springs, and it is hoped that ongoing research will help to solve the problem.

Suggestions

Because of its importance as a source of clean water to the Ocklawaha, its popularity as a

recreation area, its uniqueness and history, and its value as a biological reference site, it is vital that the ecological health of the Silver River be monitored, and maintained. People living near the river should reduce non-point source runoff into the river by minimizing impervious surfaces and reducing (or even eliminating) the use of pesticides, herbicides, and inorganic fertilizers on their properties. Septic and sewer systems in the area should be properly maintained to reduce nutrient and bacterial contamination of the river.

For more information, please contact
Dana R. Denson
Central District Office
3319 Maguire Blvd., Suite 232, Orlando, FL 32803
(407) 894-7555 x 2355 (Suncom 325-2355)
E-mail: dana.denson@dep.state.fl.us

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