EcoSummary

Juniper Creek at SR 19, Ocala National Forest

March 12, 2002

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



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

Watershed Characteristics

Located in extreme eastern Marion County within the Ocala National Forest, Juniper Creek (sometimes called Juniper River) is the spring run for second-magnitude Juniper Spring. The head spring, like many of our springs, has long been a favorite recreation site, and is operated as the Juniper Springs Recreational Area by Ocala National Forest. The creek flows by a very tortuous route more or less in a northeasterly direction for approximately ten miles before emptying into 43,400-acre Lake George, an element of the St. Johns River. At least two other springs, second-magnitude Fern Hammock, located near Juniper Spring, and smaller Sweetwater Spring about a half mile upstream of SR 19, add to the flow of the creek. Near-pristine Mormon Branch flows into Juniper Creek from the south about two miles

upstream of Lake George, as does another unnamed tributary about a mile farther downstream.

Land use in the 65 square mile drainage basin of Juniper Creek is almost entirely either natural herbaceous wetlands and scrubby uplands or sustainably managed silviculture within the national forest.

At the sampling site, the creek is broad (approximately 35m wide), open, and fairly shallow, with clear water and a white sand bottom in most spots. The banks are lined with diverse stands of aquatic plants in many places. The water velocity is considerable, at 0.4 m/sec.

Results

Juniper Creek again received an excellent rating on the SCI, based on a score of 31 on the assessment. Thirty-four different macroinvertebrate taxa were collected in the sample, including eight members of the water quality-sensitive "EPT" group (larval mayflies, stoneflies, and caddisflies). The creek earned a Florida Index score of 21, based on the numerous pollution-intolerant macroinvertebrate taxa found there. The most abundant macroinvertebrate taxa collected were amphipods ("scuds") of the genus *Gammarus*, and those from the family Aoridae. Other common taxa were the caddisfly *Cheumatopsyche* and the chironomid midge *Cricotopus bicinctus*. Within this region of the St. Johns River basin there are many areas characterized by saline groundwater. Accordingly, it is not unusual to encounter organisms normally associated with estuarine or marine systems, such as stingrays, blue crabs, and mullet, in streams and lakes in this vicinity. Several of the crustaceans found in Juniper Creek during this bioassessment are generally considered estuarine organisms, including the isopods *Amakusanthura,* Anthuridae, and Sphaeromatidae, as well as amphipods of the family Aoridae.

Water chemistry results were very good. All nutrient levels were quite low. Chloride, sulfate, and specific conductance values were very high, but such levels are natural for a system influenced by saline groundwater.

Coliform bacteria levels, however, were substantially higher than natural background levels. Total coliforms were present at a concentration of 3150 colonies/100 mL. This represents a violation of state water quality standards. Fecal coliforms were high (153 colonies/100 mL), but did not exceed state standards.

The habitat assessment gave Juniper Creek a score of 133 out of a possible 160 points, or about 83%, placing it in the middle of the optimal category. A paucity of productive habitat types relative to unproductive ones was the main factor preventing the creek from receiving a high optimal rating.

Significance

These results demonstrate that Juniper Creek remains in excellent ecological health. The preservation of its watershed is undoubtedly the main reason for this. The very high total coliforms are a potential human health concern, however, as the area sampled is a high-use recreational site (Juniper Wayside). This area is routinely used by people, their pets, wading

birds, and river otters. All of these represent potential coliform bacteria sources.

Suggestions

Continued sampling of Juniper Creek should be carried out to monitor of the health of this unique and ecologically important water body. Since the land use in the watershed is unlikely to change, it should remain healthy indefinitely. Future sampling should include bacteriological analysis to determine if the high total coliform levels seen on this date were an isolated occurrence, or an ongoing problem.

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