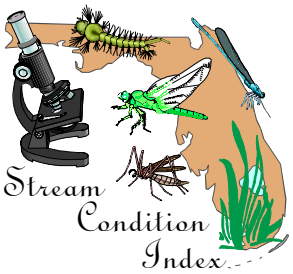
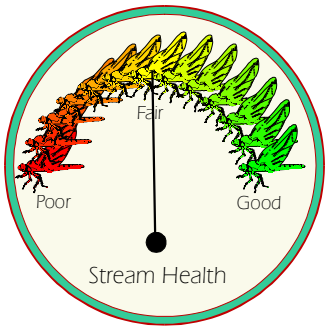
EcoSummary

SCI Report





Sweetwater Creek @ Deleon Street
Black Hammock, Seminole County
12 August 1997

Stream Condition Index (SCI): *The standardized biological assessment tool used by FDEP biologists to indicate ecosystem health and identify impairment as compared to reference (natural) conditions of streams within the various ecoregions of the State of Florida*

Purpose

Sweetwater Creek and other streams flowing through Black Hammock have the potential to carry large loads of agricultural nonpoint-source pollution to Lake Jesup downstream. It is therefore important to monitor the health of these water bodies. This site was chosen for the dual purposes of providing information to persons and agencies involved in restoration efforts being undertaken on Lake Jesup (spearheaded by St. Johns River Water Management District) and for the continuing development of FDEP stream bioassessment methodology.

Basin Characteristics

Originating in downtown Oviedo, Sweetwater Creek flows through residential and wetland areas before reaching Black Hammock, where it has been modified into a roadside ditch which drains north into Lake Jesup almost due south of Bird Island. The 2.5 square miles of land area that it drains is 50% urban development, with the remainder about evenly divided between agriculture, upland forests, and wetlands. Sweetwater Creek (as well as the other Black Hammock creeks) does not flow from or through any lakes, but apparently is fed by groundwater surfacing in wetlands, and by runoff.

Results

Fifteen macroinvertebrate taxa were collected at Sweetwater Creek: nine dipterans, three oligochaetes, one mollusk, and two odonates. There were no mayflies or caddisflies (*i.e.*, zero EPT) collected at this site. The Florida Index score was eight. The hydrobiid snail *Pyrgophorus platyrachis* was the dominant taxon, making up 52% of the individuals collected. SCI assessment ranked the site as suboptimal, placing it low in the "good" category. Nutrients were very high at this site. Concentrations of total ammonia, unionized ammonia, nitrate/nitrite, and total phosphorus were all in the 90th percentile range or higher. Alkalinity, total Kjeldahl nitrogen, chloride, and sulfate concentrations all ranged between the 75th and 80th percentiles. Fecal coliforms were also quite high, showing counts of 740 colonies per 100 mL. In none of these cases, however, was a current water quality standard violated.

Habitat quality at Sweetwater Creek was suboptimal. A lack of riparian buffer zone on one side, substantial erosion and habitat smothering, and a poor quality streamside plant community contributed to a score of 76 out of a possible 145 points, or 52%.

Significance

Monitoring at Sweetwater Creek revealed a depressed biological community, high nutrients and fecal coliforms, and highly altered and degraded instream and riparian zone habitat. The main ecological problem with Sweetwater Creek and other streams in Black Hammock has to do with agriculture. All have been altered, channelized to function as drainage ditches for the agricultural operations prevalent in this area. Water laden with nutrients and probably pesticides flows into these ditches, which in turn flow due north into Lake Jesup.

Suggestions

We believe that the Black Hammock area is an ideal candidate for an Ecosystem Management effort. Farmers in the area could be educated about current problems and offered suggestions for more environmentally sound and hopefully financially feasible alternative methods. The establishment of better land management practices in the area should help to improve the water quality in Sweetwater Creek and other streams, as well as Lake Jesup downstream.

For more information, contact Dana Denson, FDEP Cental District, 3319 Maguire Blvd, Suite 232, Orlando, FL 32803 (407)893-3313 or SunCom 325-3313, e-mail: denson_d@orl1.dep.state.fl.us

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