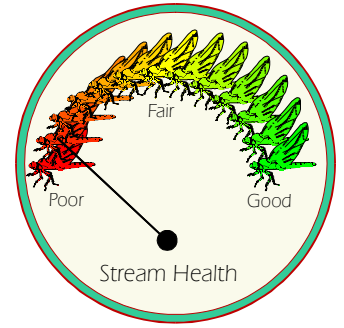


EcoSummary

SCI Report



Black Sweetwater Creek @ Howard Avenue, Black Hammock, Seminole County 24 September 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

Black 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

Identified on some maps as Sweetwater Creek (though a separate stream entirely from a nearby stream of the same name), Black Sweetwater Creek is basically a network of ditches which drain farmland in Black Hammock. Originating at the outskirts of Oviedo near SR 426, it drains 3.6 square miles of land, roughly 60% of which is undeveloped wetlands and upland forest. Agriculture accounts for 23% of the land use, with most of the rest being devoted to urban development.

Results

Black Sweetwater Creek scored very low on the biological assessment. It received an SCI score of 15, placing it in the "poor" category. Of the 19 macroinvertebrate taxa collected, there was only one EPT, the mayfly *Caenis diminuta*. Only six Florida Index points were scored. The hydrobiid snail *Pyrgophorus platyrachis* was dominant, making up 73% of the sample. The results suggest a poor and imbalanced macroinvertebrate community.

The results of water chemistry sampling were generally also poor. Levels of unionized ammonia (calculated) and total phosphorus were fairly high. As expected due to saline groundwater input, the chloride and sulfate measurements were also quite high.

The dissolved oxygen level here, 1.89 mg/L, was well below the state standard for Class III fresh waters (5.0 mg/L). This is an oxygen concentration at which many aquatic organisms cannot survive.

In addition, the fecal coliform concentration in the water taken at this site was 1300 colonies per 100mL. This is an exceedence

of the allowable threshold under state standards, which is 800 colonies/100mL.

The habitat assessment at Black Sweetwater Creek was equally poor. Because the channelized stream had extensive silt smothering, very low water velocity (0.06 m/s), and a riparian zone plant community that lacked diversity and contained a number of exotic species, the habitat assessment score was 65 out of 145 possible points. This gave it a rating of "marginal."



Significance

Black Sweetwater Creek is a severely degraded water body. Sampling revealed a depressed biological community, very high nutrients and fecal coliforms, and highly altered and degraded instream and riparian zone habitat. The main ecological problem with Black Sweetwater Creek and other streams in Black Hammock has to do with agriculture. All have been 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 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 Black Sweetwater Creek and other streams, as well as Lake Jesup downstream.

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