EcoSummary

Cow House Creek, Hillsborough County.
Tampa Bay EMA
September 15, 1998

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 Florida.

Introduction

Cow House Creek, located in north-western Hillsborough County, is a first order, ephemeral wetland stream that flows into the Hillsborough River just north of Fowler Rd in Temple Terrace. Prior to entering the Hillsborough, it widens and slows. Emergent vegetation (Hydrocotyl) typically thrives there in the summer months. The drainage basin consists primarily of natural wetland and urban development, with some cattle pasture. Cow House Creek was placed on the 303(d) list for previous violations of Class III water quality Standards for dissolved oxygen, as well as elevated nutrients, coliform bacteria, turbidity and TSS. Waterbodies on the 303(d) list are required by EPA to have a Total Maximum Daily Load (TMDL) study performed on them. The purpose of the TMDL is to determine the amount of pollution reduction needed to restore the system to a condition suitable for its designated use. In this case, the designated use is for recreation and maintenance of a healthy, well-balanced aquatic community. DEP?s SW District was asked to provide current data on those waterbodies placed on the 303(d) list because the observations used were either outdated or too few. On 9/15/98, EMWQAS (Ecosystem Management Water Quality Assessment Section) collected water samples in Cow House Creek. Stream Condition Index and Biorecon biological assessments were performed on 10/7/98. Standard methodology developed by the Surface Water Ambient Monitoring Program (SWAMP) were utilized (DEP, 1994). All field collections followed the appropriate DEP Standard Operating Procedures.

Results and Discussion

The water was at least 1 meter deep, reaching the top of the banks, and velocity was 0.33 m/s. The habitat score was 134 out of 160, in the low optimal range. In-stream substrates were plentiful, but not diverse. Physicochemical parameters and water chemistry results are shown in the table below. Dissolved oxygen was below the State Standard of 5.0 mg/l. The TN concentration (o.91 mg/l) was relatively low as compared to typical values of Florida stream (Hand and Friedmann); in the 30th percentile. The TP measurement was in the 70th percentile. TP values can be higher in south-central Florida than in streams from other areas of the state, because of the naturally occurring phosphatic deposits here, and this value may not be considered excessively high. Total suspended solids were very low (1.0 mg/l); in the 10th percentile. Coliform levels were within daily standards; totals were in

the 50th percentile, while fecals were in the 20th percentile (980 and 264 colonies/100 ml, respectively). The SCI was 23, indicating a fairly good quality invertebrate community. The biorecon results indicated a borderline ecological rating. The community was quite diverse (24 species, threshold is 18), with an acceptable EPT (5, threshold is 4), but the Florida Index was one point shy of the threshold (9, threshold is 10). However, this may have been due to the ephemeral nature of the stream, resulting in the absence of species with longer life cycles.

Conclusions

Cowhouse Creek may be a candidate for delisting due to the following rationale: All parameters of concern were within state standards and/or relatively ambient levels, with the exception of DO. However, a level of 4.07 mg/l may not be unusual for an ephemeral wetland stream at summer temperatures in South Florida. The SCI rated the benthic macroinvertebrate community as good, although the biorecon indicated borderline, which again may be due to the ephemeral nature of the stream. References FDEP 1994. SOP manual: Biological Assessment. FDEP, Tallahassee Friedemann and Hand, 1989. Typical water quality values for Florida?s lakes, streams and estuaries. FDEP, Standards and Monitoring Section, Bureau of Surface Water Management, Tallahassee

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