Bio-Reconnaissance

EcoSummary

BioRecon Report

Sikes Creek CR179 in Walton County
July 28,1998

BioRecon: A rapid, cost-effective screening mechanism for identification of biological impairment

Introduction

Sikes Creek located in Holmes County north of Caryville, is a tributary of Choctawhatchee River and flows to Choctawhatchee Bay. This subecoregion 65G watershed drains predominantly agriculture and pasture in the headwaters with a dominance of silviculture in the rest of the area. Dirt roads, road/highways, low-density residential land, and impoundments are also within the drainage. Much of watershed wetlands have been converted to pine plantations. This is a rural watershed with little urbanization or development.

Coliform bacteria dissolved oxygen, total suspended solids, and turbidity were nonpoint pollution concerns, which placed Sikes Creek on the 303(d) list for TMDL study. 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. Sikes Creek is designated Class III waters for recreation and maintenance of a healthy, well-balanced aquatic community.

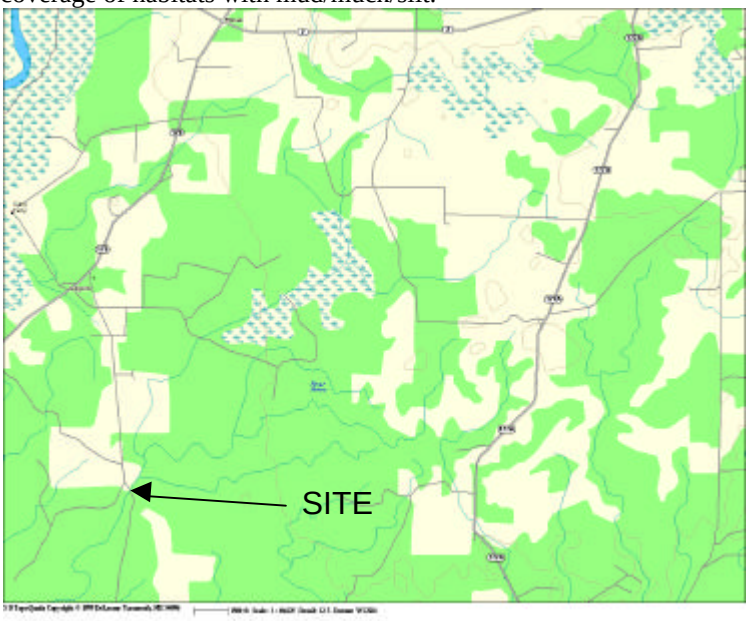
Results and Discussion

Macroinvertebrate communities were sampled on 07/28/98 from in-stream habitats by the FDEP BioRecon method above County Road 179 (STORET 32020114). The sample reach was above an area dredged by FDOT.

Three metrics, consisting of total taxa richness, the Florida Index, and total EPT taxa were calculated and compared to existing thresholds to determine the community's health. Sikes Creek failed to meet all 3 biometric thresholds indicating impairment at the site.

The dissolved oxygen concentration of 2.96 mg/l was below the Class III standard of 5.0 mg/l. The biochemical oxygen demand of 1.7 mg/l was elevated for this type of stream (normally less than 0.36 mg/l). Nutrient enrichment was not apparent at this time as nitrogen and phosphate compounds compared other subecoregion streams. The water had a musty blue green algae odor with an abundant growth of periphyton and iron/sulfur bacteria. A surface sheen was present from the iron/sulfur bacteria. The sediments had an anaerobic odor with much iron/sulfur bacteria growth. This area experienced a record drought during the May/June period. With this resulting low flow stage, much of nonpoint pollution load had settled out of the water column resulting in a very muddy bottom substrate.

The habitat assessment of the site was 62% of the % similarity to the reference score. A score of 65% is an interim biometric threshold. Substrate availability was marginal, water velocity poor (due to historic channelization upstream to drain wetlands for pine plantations), and habitat smothering rated poor from 94% coverage of habitats with mud/muck/silt.



Conclusions

Sikes Creek failed all three BioRecon metrics, indicating impairment at this site. Physical/chemical parameters such as depressed dissolved oxygen and elevated biochemical oxygen demand and habitat smothering with fine organic matter due to the absence of flow indicated upstream anthropogenic disturbances. Coliforms, total suspended solids and turbidity would not be expected during this sampling due to the record drought of the past few months. It is recommended that Sikes Creek remain on the 303(d) list. **For more information, contact Donald Ray, FDEP Northwest District, 160 Governmental Center, Pensacola, FL 32501 (850) 595-8300 x1126 or SC 695-8300**