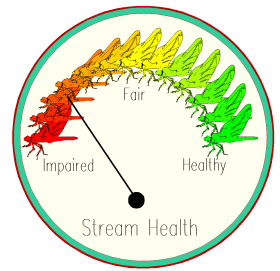


EcoSummary

BioRecon Report



Little Pine Barren Creek CR99 in Escambia County July 20, 1998

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

Purpose

A BioRecon was performed at this site (Lat. 30° 53' 29.9" Long 87° 26' 48.6") as part of a TMDL study in the Escambia River. This bioassessment was used to determine the health of Little Pine Barren Creek's biota and habitats from the impact of agriculture, pasture, dirt roads and residential development.

Background

Little Pine Barren Creek is located in Escambia County north of Walnut Hill. This tributary to the Escambia River flows to Pensacola Bay. This subcoregion 65F watershed drains predominantly agriculture and pasture in the headwaters with silviculture land use downstream. Dirt roads, road/highways, low density residential, mining, and impoundments were other land uses within the drainage. Much of watershed wetlands have been converted to row crop and pasture. French drains were observed discharging high concentrations of nutrients, sediments, and coliform bacteria from agricultural fields during July 1997 (biochemical oxygen demand 13 mg/l, total suspended solids 24 mg/l, turbidity 80 NTU, and fecal coliform 6,000 mg/l). Coliform bacteria and turbidity were nonpoint pollution concerns, which placed Little Pine Barren 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. Little Pine Barren Creek is designated Class III waters for recreation and maintenance of a healthy, well-balanced aquatic community.



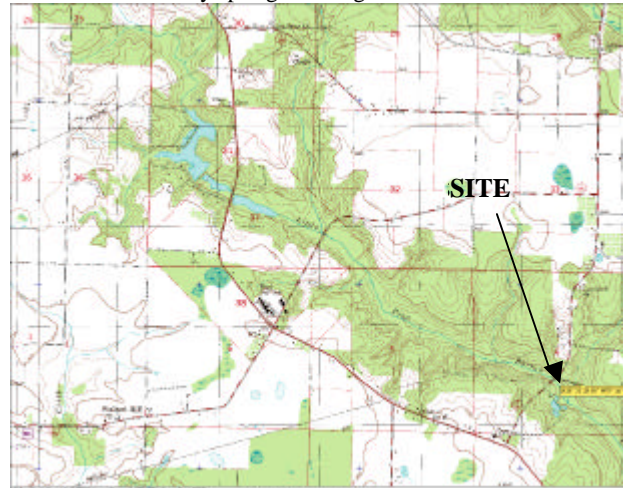
Results

Macroinvertebrate communities were sampled on 07/20/98 from in-stream habitats by the FDEP BioRecon method above County Road 99. 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. Little Pine Barren Creek failed to meet all 3 biometric thresholds indicating impairment at the site.

| Biometrics | Value | Threshold |
|---------------|-------|-----------|
| Taxa Richness | 23 | > 24 |
| Florida Index | 21 | > 22 |
| EPT | 10 | > 17 |

Total and fecal coliform bacteria counts (840 and 70 colonies / 100 ml) were within the water quality standard (2,400 colonies /

100ml) during this non-runoff period. Turbidity was low due to lack of rain however, the water turned muddy after disturbing substrates. A local thundershower occurred while leaving the site and turned the creek to an opaque brown color from agriculture row crop runoff. Nitrite-nitrate concentrations were elevated (0.80 mg/l) compared to other subcoregion 65F streams. Alligator weed, a nutrient indicator was observed growing in the stream. 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 a musty odor with much iron/sulfur bacteria growth. This area had a record drought during the May/June period and hot with scattered showers for July. The habitat assessment of the site was 71% of the % similarity to the reference score. A score of 65% is an interim biometric threshold. Substrate availability and diversity scored low suboptimal, and habitat smothering rated poor from a 80% coverage of habitats with 77% sand 2% mud, muck, silt, and 1% gravel. The available substrates were covered with a layer of silt. The stream banks were moderately unstable with areas of erosion. The stream channel was braided from sedimentation. The north bank riparian zone was filled with sand and gravel sediments from early spring flooding. Invasive exotic



vegetation (Chinese privet and tallow, and alligator weed) was common in this watershed.

Suggestions

Physical/chemical parameters such as habitat smothering and nutrient enrichment are from anthropogenic disturbances. Sources of these problems include agriculture, silviculture, mining, and dirt roads. Coliform bacteria sources include agriculture with dairy operations a major source of coliform bacteria. The presence of turbidity was rainfall dependent. It is recommended that Little Pine Barren 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