EcoSummary

BioRecon Report

Turkey Creek SR 2A in Walton County
July 21, 1998

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

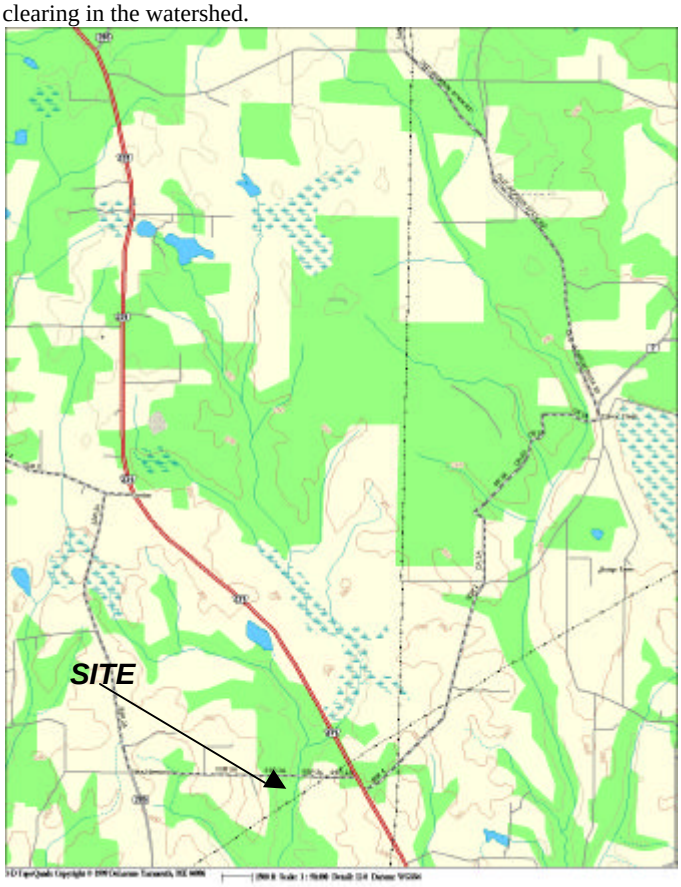
Introduction

Turkey Creek is located in northwest Walton County with its headwaters about 2 miles southeast of Paxton. This subecoregion 65F stream is close to the highest point in Florida near Lakewood. Turkey Creek flows to Pensacola Bay via the Shoal River, Yellow River, Blackwater and East Bays. The watershed land use includes agriculture, silviculture, range, mining, commercial, residential, impoundment, dirt road, and highways. Fecal and total coliform bacteria and turbidity were nonpoint pollution concerns, which placed Turkey 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. Turkey Creek is designated Class III waters for recreation and maintenance of a healthy, well-balanced aquatic community.

Turkey Creek below SR 2A channel impacted by watershed clearing and riparian wetland removal.

Results and Discussion

Macroinvertebrate communities were sampled on 07/21/98 from in-stream habitats by the FDEP BioRecon method below SR 2A (STORET 33040054). 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. Turkey Creek passed all 3 biometric thresholds indicating a healthy condition at the site. However, stoneflies, a clean water indicator and major component of 65f subecoregion stream communities were conspicuously rare, represented only by 2 specimens. The biochemical oxygen demand of 1.3 mg/l was elevated for a 65f subecoregion stream (normally less than 0.36 mg/l). Total and fecal coliform bacteria counts (incubator malfunction and 130 colonies/100ml) were within the water quality standard (2,400 colonies & 800 /100ml) during this non-runoff period. The turbidity was low due to a lack of rain however, the water turned muddy after disturbing substrates. The suspended solids (20 mg/l) exceeded ~ 80% of other Florida streams. The water and sediments had a musty blue-green algae odor. This area experienced a record drought during the May/June period with hot temperatures and scattered showers for July. The habitat assessment of the site was 62% of the % similarity to the reference score. A score of 65% is an interim biometric threshold. Habitat smothering rated poor from 93% coverage of habitats with 42% sand, 1-% gravel, and 50% mud/muck/silt. The substrate diversity and availability rated marginal with only 2 productive habitats with 7% coverage. The available substrates were covered with a thick layer of silt. The stream channel was historically down cut, which isolated wetland riparian zones along the stream. The stream channel down cutting was probably due to land clearing in the watershed.



Conclusions

Turkey Creek passed all three BioRecon metrics, indicating a healthy condition at this site. Habitat smothering was an observed anthropogenic disturbance. Turbidity sources include agriculture, silviculture, mining, an dirt road runoff. Coliform bacteria sources include agriculture runoff. The presence of coliform bacteria and turbidity were rainfall dependent. This sample was collected after a record drought so sediment and bacteria concerns were not adequately monitored for this watershed. It is recommended that Turkey Creek be monitored during and after significant rainfall events. This would determine turbidity and bacteria effects on recreational activities for Shoal and Rivers along with shellfish harvesting in East Bay's Class II waters. **For more information, contact Donald Ray, FDEP Northwest District, 160 Governmental Center, Pensacola, FL 32501 (850) 595-8300 x1126 or SC 695-8300**