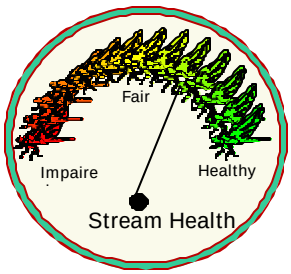
EcoSummary

Hunter Creek @ State Road 135
10/02/01



BioReconnaissance Report (BioRecon): A rapid, cost effective screening mechanism for identification of biological impairment.

Background

Hunter Creek is located in Hamilton County, north of Lake City, Florida (see Figure 1). Hunter Creek is in the Southern Coastal Plains Ecoregion and is a part of the Okefenokee Swamps and Plains Subregion (75e). This area is characterized predominantly by flat plains, swamp forests, and poorly drained pine flatwoods. Land use is mainly silviculture, with agriculture, natural forest, and wetlands.

The Florida DEP sampled Hunter Creek in conjunction with a 5th Year Bioassessment of local phosphate company (PCS). Benthic invertebrates were sampled via DEP's Biological reconnaissance (Biorecon) methods. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen, total phosphorus, color, total suspended solids (TSS), and total organic carbon (TOC) analysis; see Figure 2. A habitat assessment was also conducted.

Results

The ammonia concentration for Hunter Creek was very low compared with other Florida streams; see Figure 2. The nitrate-nitrite concentration (0.16 mg/L) was higher than the values found in 65% of Florida streams. Total phosphorus was elevated (0.4 mg/L), measuring higher than 80% of state streams. The total Kjeldahl nitrogen concentration was fairly average (0.78 mg/L). Color, total suspended solids (TSS) and total organic carbon (TOC) concentrations were measured to be 60 PCU, 4 mg/L, and 15 mg/L, respectively. The overall habitat assessment score (126) was in the lower range of the optimal category. Substrate availability, riparian buffer zone width, and vegetation quality were somewhat reduced.

Benthic invertebrate communities were sampled using the FDEP BioRecon methodology, consisting of 4 discrete dip net sweeps. The samples were field picked, then brought back to the laboratory for identification under a dissecting microscope. Three metrics; total taxa richness, Florida Index, and total EPT (larval Ephemeroptera, Plecoptera, and Trichoptera; mayfly, stonefly, and caddisfly respectively), were calculated and compared to existing Northeastern thresholds to determine the community's health. Hunter Creek passed all three macroinvertebrate parameters (32 total taxa, 14 Florida index, and 8 EPT taxa), indicating that healthy conditions prevailed.

At the time of sampling, Hunter Creek contained elevated levels of nitrate-nitrite and total phosphorus. However, the invertebrate community scored "healthy" on the BioRecon, suggesting the nutrient enrichment was not adversely affecting the invertebrates. Additionally, the site was scored to be "optimal" on the habitat assessment.

Figure 1: Overview Map of the Hunter Creek Area

Figure 2: Data Table for Selected Parameters

Hunter Creek @ SR 135			
Station		Hunter Creek	
Station Nickname		PCSTST2	
STORET		21020063	
Sampling Date		10/2/01	
Macroinvertebrate Parameters		**Chemistry Data**	
Biorecon results	Healthy	Ammonia (mg/L)	0.043
Bioregion	Northeast	Nitrate-Nitrite (mg/L)	0.16
Number of Taxa	32	TKN (mg/L)	0.78
Number of Ephemeroptera	4	Total Phosphorus (mg/L)	0.4
Number of Plecoptera	0	Color (PCU)	60[Q]
Number of Trichoptera	4	TSS (mg/L)	4[U]
EPT Index	8	TOC (mg/L)	15
Florida Index	14	**Physical-Chemical Data**	
Number of Diptera Taxa	3	Habitat Assessment	126
Number of Chironomidae Taxa	1	Sample Depth (m)	0.33
Number of Orthocladiinae Taxa	1	Specific Conductivity (umho/cm)	169
Total Number of Chironomidae	2	Dissolved Oxygen (mg/L)	7.5
		pH (SU)	6.4
		Temperature (deg. C)	16.04

"Q"- Information only.

"U"- Below detection limits.

FOR MORE INFORMATION, CONTACT:
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