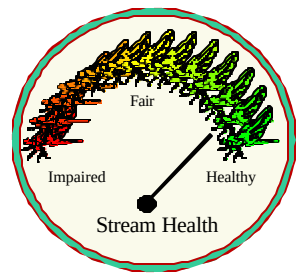




EcoSummary

Hunter's Creek at County Road 135

03/14/00



Background

Florida DEP's Division of Resource Assessment and Management sampled Hunter's Creek for biological and water quality monitoring as part of a Fifth Year Inspection of the PCS Phosphate Chemical Complex and Mines. Hunter's Creek is located in Hamilton County in the Northeastern part of Florida; see Figure 1, and is a part of the Okefenokee Swamps and Plains Subregion of the Southern Coastal Plains Ecoregion. Hunter's Creek was sampled in order to identify possible non-point source impacts of local mining operations.

Water chemistry samples were taken for ammonia, nitrate-nitrite, organic nitrogen, total Kjeldahl nitrogen (TKN), total nitrogen, ortho-phosphates, total phosphorus, fecal coliform, and total coliform analysis; see Figure 2. Habitat assessment, qualitative periphyton, phytoplankton, and benthic invertebrate stream condition index (SCI) sampling were conducted.

Results

The nitrate-nitrite and total phosphorus concentration (0.28 mg/L and 0.65 mg/L, respectively) at the sampling site were elevated, measured to be higher than the values found in 70% of Florida streams for NOx (0.20 mg/L) and 80% for TP (0.39 mg/L); see Figure 2. Ammonia concentrations were below detection limits. The total Kjeldahl nitrogen (TKN) concentration (0.64 mg/L) was typical for a Florida stream. The overall habitat assessment score (118) was in the upper "suboptimal" category; with water velocity, habitat smothering, and riparian buffer zone width on the left bank contributing to lowering the score. Fecal coliform levels (810 col/100mL) were exceeded the Class III Water Quality criteria for fresh water systems (800 col/100mL). Total coliform levels (1400 col/100mL), however, complied with the standard of 2400 col/100mL. The stream condition index (SCI) score of 31 for Hunter's Creek was in the "excellent range". The Algal Growth Potential (AGP) (12.8 mg dry wt/L) exceeded the 5 mg dry wt/L "problem threshold" for fresh water systems in Florida, which was consistent with the moderately elevated nutrients at the site.

In conclusion, moderately elevated levels of nitrite-nitrate (0.28 mg/L) and total phosphorus (0.65 mg/L) were found at Hunter's Creek at County Road 135. The periphyton population was indicative of eutrophic conditions, with four of the five dominant taxa being known to thrive in nutrient enriched

waters. Potentially due to other mitigating factors (light penetration, water retention time), the invertebrate community was not affected by the nutrient enrichment, as the site scored an "excellent" on the SCI, indicating good invertebrate community health.

Figure 1: Overview Map of the Hunter's Creek Area

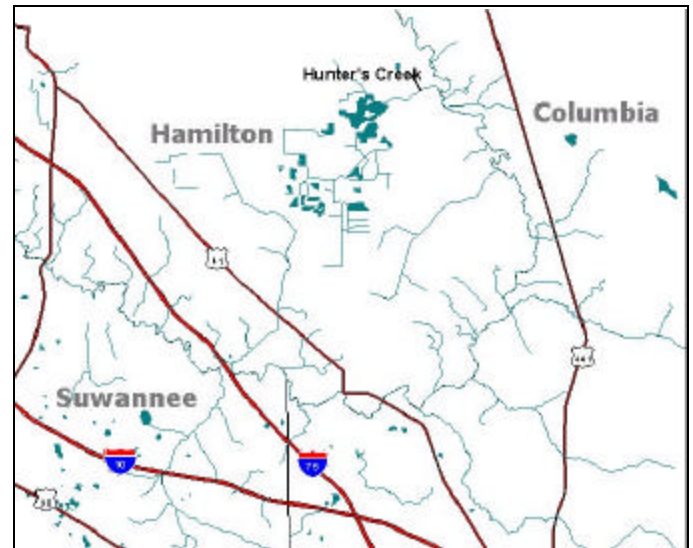


Figure 2: Data Table

Hunter's Creek at County Road 135			
Station		Hunter's Creek	
Station Nick Name		PCSTST12	
STORET		21020063	
Sampling Date		3/13/00	
Macroinvertebrate Parameters		Bacteria Parameters	
SCI	31	Fecal Coliforms (col/100mL)	810 B
SCI Evaluation	Excellent	Total Coliforms (col/100mL)	1400 B
SCI Region	Northeast	Periphyton Parameters	
Number of Taxa	48 A	Number of Taxa	23
Number of Ephemeroptera	2	Chlorophyll a (mg/m2)	22
Number of Plecoptera	0	Algal Density (#/cm2)	347,191
Number of Trichoptera	4	% Bacillariophyceae	90.44
EPT Index	6	% Chlorophyceae	3.68
% Dominant Taxon	9.4	% Cyanophyceae	5.15
Florida Index	22	Phytoplankton Parameters	
% Diptera	66.7	Number of Taxa	20
Number of Chironomidae	3	Algal Density (#/mL)	61,269
Number of Orthocladinae	19	% Bacillariophyceae	34.4
Total Number Chironomidae	22	% Chlorophyceae	37.9
% Filter-Feeders	30.8	% Cyanophyceae	6.4
Chemistry Data		Physical Chemical	
Ammonia (mg/L)	0.017 I	Habitat Assessment	118
Nitrate-Nitrite (mg/L)	0.28	Sample Depth (ft)	1.0
TKN (mg/L)	0.64 A	Specific Conductivity (umhos/cm)	201
Ortho-phosphates (mg P/L)	0.63	Dissolved Oxygen (mg/L)	7.94
Total Phosphorus (mg/L)	0.65 A	pH (SU)	7.12
Organic Nitrogen (mg/L)	0.62	TSS (mg/L)	1.0
Total Nitrogen (mg/L)	0.92	Temperature (deg C)	13
		AGP (mg dry wt/L)	12.8

"B"- Results based on colony results outside the acceptable range; "I"- Below Quantitation Limit; "A"- Average; "K"- Actual value known to be less than value given



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