EcoSummary

Alligator Creek at SR 100

01/23/01

Background

Florida DEP selected Alligator Creek, as well as five other streams that flow across the Georgia-Florida line, for biological and water quality evaluation. Data from these efforts will be used for documenting potential out-of-state pollution sources for the Total Maximum Daily Load (TMDL) program. Alligator Creek drains swampy portions of Echols County, Georgia, enters Florida in Hamilton County, where it flows into the Alapaha River. (See Figure 1.) The sampling area is near the border between the Tifton Upland/Tallahassee Hills subregion of the Southeastern Plains ecoregion and the Okefenokee Swamps and Plains subregion of the Southern Coastal Plain ecoregion. The watershed is largely forested.

Samples were collected in all six selected interstate streams in January 2001. Water chemistry samples were taken for ammonia, total Kjeldahl nitrogen (TKN), total phosphorus, color, turbidity, total suspended solids (TSS), total organic carbon (TOC), biochemical oxygen demand (5-day, BOD), *Enterococci*, *Escherichia coli*, fecal coliform, and total coliform analysis; see Figure 2. Habitat assessment and benthic invertebrate Biorecon sampling were conducted.

Results

In Alligator Creek, ammonia concentration (0.03 mg/L) was lower than is found in 80% of streams in Florida; see Figure 2. The elevated TKN level (4.4 mg/L) probably reflects swamp runoff. The total phosphorus concentration (0.23 mg/L) was slightly higher than average for a Florida stream. The habitat assessment total score (118) was in the sub-optimal range, with substrate availability and water velocity receiving marginal scores. *Enterococci* and *Escherichia coli* concentrations were both below the EPA single-sampling guideline values for "infrequently used full body contact recreation areas." Fecal and total coliform levels complied with Florida Class III water quality standards. The Biorecon results for Alligator Creek were mixed; with one replicate passing two of the biological metrics for the region and the other replicate not passing any of the three metrics. The absolute values of the metrics for both duplicates were very close to each of the respective threshold values, with some values just above the threshold and others just slightly below the threshold. This resulted in the different evaluations between the duplicates. Follow-up sampling using Stream Condition Index (SCI) methodology is recommended.

Figure 1: Overview Map of Sampling Area

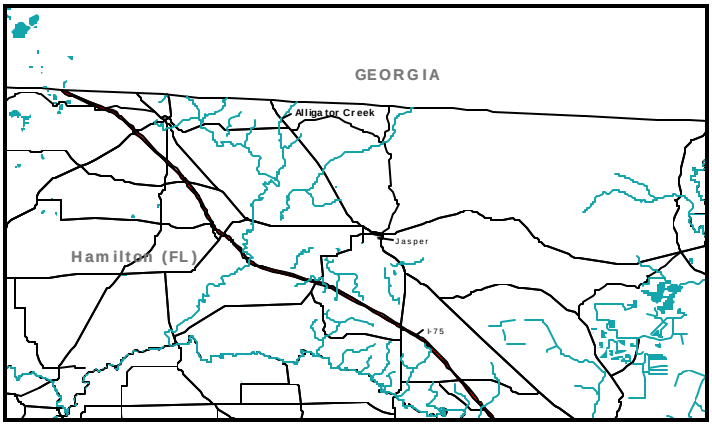


Figure 2: Data Table

Station	Alligator Creek	Alligator Creek - Bio. Dup.
Station Nick Name	ALGTRCRK	ALGTRCRK
STORET	INTRSTATESTRM01	INTRSTATESTRM01
Sampling Date	01/23/01	01/23/01
Macroinvertebrate Parameters		
Biorecon	0 passed	2 passed
Evaluation	impaired	suspect
Number of Taxa	14	16
Number of Ephemeroptera	1	2
Number of Plecoptera	0	0
Number of Trichoptera	0	1
EPT Index	1	3
Florida Index	4	7
Bacteria Parameters		
Enterococci (col/100 mL)	50 A,O	
Escherichia coli (col/100 mL)	51 A,O	
Fecal Coliforms (col/100 mL)	46 A,O	
Total Coliforms (col/100 mL)	160 A,O	
BOD (mg/L)	1.4 A	
Physical-Chemical Data		
Habitat Assessment Total Score	118	
Specific Conductance (umho/cm)	96	
Dissolved Oxygen (mg/L)	10.5	
pH (SU)	3.53	
Temperature (deg. C)	7.3	
Nutrient Data		
Ammonia (mg/L)	0.03	
TKN (mg/L)	4.4	
Total Phosphorus (mg/L)	0.23	
TOC (mg/L)	73	
TSS (mg/L)	4 U	
Color (PCU)	500	
Turbidity (NTU)	0.85	

A = an average value, I = below practcal quantitation limit, J = Estimated value, O = outside holding time, U = below minimum detection limit

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