EcoSummary

Welaunee Creek

1/16/2002

Background

Since 1992, minimally disturbed reference streams have been sampled throughout Florida for the purpose of establishing biological community expectations and identifying specific thresholds for assessing stream health. The Stream Condition Index (SCI) has been the primary assessment method, which consists of collecting 20 D-frame dipnet sweeps (0.5 m in length) of the most productive habitats in a 100 m reach of stream. The organisms are sub-sampled, sorted, and identified to the lowest practical taxonomic level. Seven measurements of invertebrate health are calculated and compared with the expectations established by the reference site sampling. These reference streams are sampled periodically to maintain accurate expectations to which other streams in the same ecoregion are compared.

Welaunee Creek is a reference stream for bioassessment located in Jefferson County, Florida, south of US 27; see Figure 1. Florida DEP's Bureau of Laboratories sampled Welaunee Creek for biological and water quality monitoring on January 16, 2002. A stream habitat assessment was conducted. Samples were collected for SCI, bacteria, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, total suspended solids (TSS), and turbidity analyses; see Figure 2.

Results and Discussion

The nitrate-nitrite concentration in Welaunee Creek (0.19 mg/L) was relatively average compared with other Florida streams; see Figure 2. The total phosphorus level (0.089 mg/L) was also fairly typical of streams throughout the state, while TKN was low. The dissolved oxygen concentration (10.7 mg/L) met acceptable criteria for Class III water bodies.

The fecal coliform level complied with the Class III water quality standard, however, the total coliform concentration (3200 CFU/100 mL) was above the standard of 2400 CFU/100 mL. *Enterococci* and *Escherichia coli* concentrations were elevated in comparison to recommended standards, but the applicability of these indicators in warm Florida waters is still under investigation. Moderately elevated turbidity (5.4 NTU) may be associated with bacterial concentrations. Soil erosion Best Management Practices should be adhered to in the basin.

The habitat assessment total score for Welaunee Creek (133) was in the optimal category; habitat quality was not a limiting factor for the benthic macroinvertebrate community. The SCI score (33) was in the excellent range, suggesting Welaunee Creek continues to be a healthy biological system.

Figure 1. Overview Map of the Welaunee Creek Area

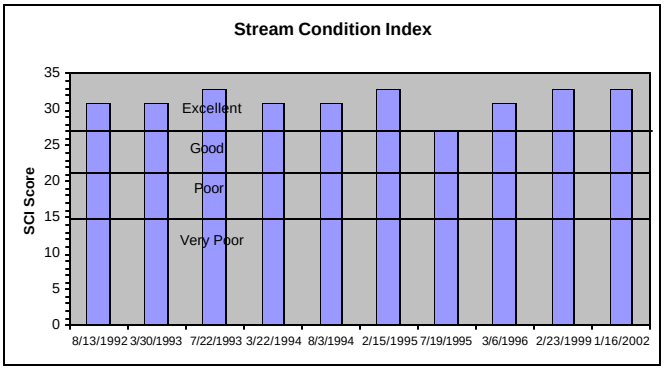


Figure 2. Data Table

WELAUNEE CREEK			
Station		Welaunee Creek	
Station Nick Name		WELREF	
STORET		22040022	
Sampling Date		1/16/2002	
Macroinvertebrate Data		**Chemistry Data**	
SCI Score	33	Nitrate-Nitrite (mg/L)	0.19 J
SCI Evaluation	Excellent	TKN (mg/L)	0.58
SCI Region	Panhandle East	Total Phosphorus (mg/L)	0.089
Number of Taxa	50	TSS (mg/L)	5 I
EPT Index	9	Turbidity (NTU)	5.4
% Dominant Taxon	19.46	**Bacteria Data**	
Florida Index	25	*Enterococci* (col/100 mL)	840
% Diptera	56.76	*Escherichia coli* (col/100 mL)	830
Number of Chironomidae	18	Fecal Coliforms (col/100 mL)	740
% Filter-Feeders	30.27	Total Coliforms (col/100 mL)	3200
Physical-Chemical Data			
Habitat Assessment	133		
Temperature (deg. C)	8.3		
pH (SU)	6.5		
Specific Conductance (umho/cm)	57		
Dissolved Oxygen (mg/L)	10.7		

"I"-Below practical quantitation limit; "J"-Estimated value

Figure 3. SCI Scores for Welaunee Creek Over Time



FOR MORE INFORMATION, CONTACT:
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