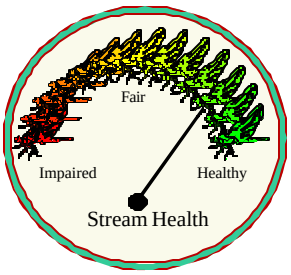
EcoSummary

Smith Creek

1/10/2002



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.

Smith Creek is a reference stream located in Wakulla County, Florida; see Figure 1. Florida DEP's Bureau of Laboratories sampled Smith Creek for biological and water quality monitoring on January 10, 2002. A stream habitat assessment was conducted. Duplicate 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 Smith Creek was below the practical quantitation limit for both replicates; see Figure 2. The total phosphorus level was below the practical quantitation limit for one of the replicates, and very low (0.04 mg/L) in the other. TKN concentrations (0.39 mg/L and 0.35 mg/L) were also non-problematic. Dissolved oxygen met acceptable criteria for Class III water bodies.

Fecal and total coliform levels complied with Class III water quality standards. The *Escherichia coli* concentration was below the recommended standard; *Enterococci* concentration was elevated in comparison to recommended standards. The applicability of these two bacteria indicators in warm Florida waters is still under investigation. The habitat assessment total score for Smith Creek (118) was just two points below the optimal category; habitat quality was not a severely limiting factor for the benthic macroinvertebrate community. The SCI scores for the two replicates (33 and 25) were in the excellent and good ranges, respectively. The "poor" SCI scores in the past were due to inappropriate hydrologic conditions for SCI sampling; see Figure 3. Smith Creek is an overall healthy system.

Figure 1. Overview Map of the Smith Creek Area

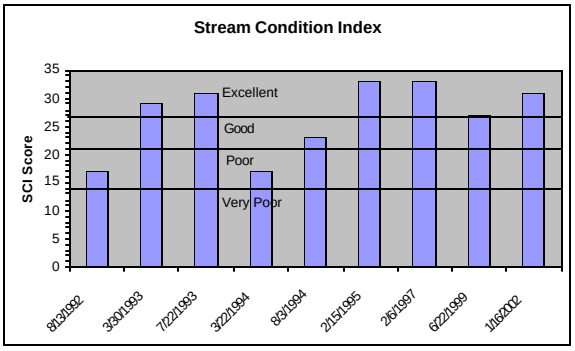


Figure 2. Data Table

SMITH CREEK				
Station	Smith Creek @ HWY 375			
Station Nick Name	SMITHREF			
STORET	22020064			
Sampling Date	1/10/2002			
Macroinvertebrate Data			**Chemistry Data**	
	Replicate #1	**Replicate #2**		**Replicate #1**	**Replicate #2**
SCI Score	33	25	Nitrate-Nitrite (mg/L)	0.007 I	0.004 U
SCI Evaluation	Excellent	Good	TKN (mg/L)	0.39	0.35
SCI Region	Panhandle West		Total Phosphorus (mg/L)	0.043	0.028 I
Number of Taxa	31	25	TSS (mg/L)	8 I	15 I
EPT Index	11	8	Turbidity (NTU)	3.9	4.5
% Dominant Taxon	21.00	35.00	**Bacteria Data**		
Florida Index	21	13	*Enterococci* (col/100 mL)	350 Q	480 A
% Diptera	54.00	14.00	*Escherichia coli* (col/100 mL)	120 Q	190 A
Number of Chironomidae	14	10	Fecal Coliforms (col/100 mL)	210 Q	210 A
% Filter-Feeders	26.50	3.50	Total Coliforms (col/100 mL)	430 Q	415 A
Physical-Chemical Data					
Habitat Assessment	118				
Temperature (deg. C)	8.05				
pH (SU)	5.73				
Specific Conductance (umho/cm)	73				
Dissolved Oxygen (mg/L)	11.6				

"A"-Average value; "I"-Below practical quantitation limit; "Q"-Outside holding time; "U"-Below detection limit

Figure 3. SCI Scores for Smith Creek Over Time



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