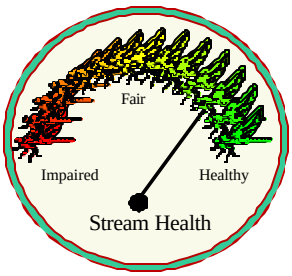


EcoSummary

Wekiwa Springs
10/16/01 and 12/6/01



Background

Florida DEP's Division of Recreation and Parks selected Wekiwa Springs, as well as springs from several other state parks, for biological and water quality monitoring. Data from these efforts will be used for documenting conditions within each park and for making resource protection decisions. Wekiwa Springs State Park is located in Orange County, Florida (Figure 1). The Wekiva River begins in the park and then flows northeast into the St. Johns River. Wekiwa Springs is a Floridan Aquifer-dominated system and is known for its recreational and aesthetic qualities.

Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen, total phosphorus, color, turbidity, *Enterococci*, *Escherichia coli*, fecal coliform, and total coliform analysis (Figure 2). Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

Results

The nitrate-nitrite concentration (0.92 mg/L) at the sampling site was higher than those found in 90% of Florida streams (Figure 2). Elevated nitrite-nitrate levels in Wekiwa River are related to nitrogen loading in the recharge basin. The Total Kjeldahl nitrogen concentration was below the quantitation limit. The total phosphorus concentration (0.14 mg/L) was relatively average for a Florida stream. The ammonia concentration (0.022 mg/L) at the sampling site was lower than those found in the majority of Florida streams.

The overall habitat assessment score (143) was in the optimal range (>120). *Enterococci* and *Escherichia coli* densities complied with the EPA single-sample guideline values of 61 CFU/100mL and 235 CFU/100 mL, respectively, for "designated beach areas." Fecal and total coliform levels complied with Class III water quality standards. The stream condition index (SCI) score of 25 for Wekiwa Springs was in the "good" range. The periphyton community in Wekiwa Springs was dominated by diatoms with some blue-green taxa. The particular taxa found were indicative of eutrophic conditions, which was not surprising given the nutrient enrichment in Wekiwa Springs.

In conclusion, elevated nitrate-nitrate levels in Wekiwa Springs appeared to be the main stressor associated with a relatively low quality an algal community. The Stream Condition Index rated the system in the "good" range, suggesting that relatively healthy conditions continue to prevail.

Figure 1: Overview Map of the Wekiwa Springs Area

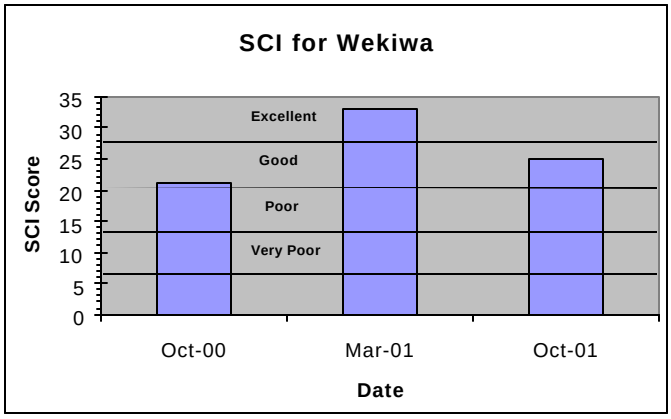


Figure 2: Data Table

Wekiwa Springs			
Sampling Date		10/16/01 &12/6/01	
Macroinvertibrate Parameters		Periphyton Parameters	
SCI	25	% Bacillariophyceae	93.51
SCI Evaluation	Good	% Cyanophyceae	5.26
Number of Taxa	34	% Chlorophyceae	1.23
EPT Index	3	Dominant taxon	Fragilariaceae
FL Index	12	Percent Dominant taxon	28.77
% Dominant Taxon	33.07	Physical-Chemical Data	
% Diptera	53.54	Habitat Assessment	143
Total number of Chironomidae	10	Specific Conductivity (umhos/cm)	307
% Filter-Feeders	20.08	Dissolved Oxygen (mg/L)	2.2
Chemistry Data		pH (SU)	7.28
Ammonia (mg/L)	0.022 A	Temperature (deg C)	23.2
Nitrate-Nitrite (mg/L)	0.92	Bacteria Parameters	
TKN (mg/L)	0.12 I	*Enterococci* (col/100mL)	46 Q
Total Phosphorus (mg/L)	0.14 J	*Escherichia coli* (col/100mL)	8 Q
Color (PCU)	5 U	Fecal Coliforms (col/100 mL)	10 Q
Turbidity (NTU)	0.25	Total Coliforms (col/100mL)	170 Q

"U"- Below Detection Limit; "I"- Below Quantitation Limit; "Q"- Information Only; "J"- Estimated Value; "A"- Average

Figure 3. SCI Evalution



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