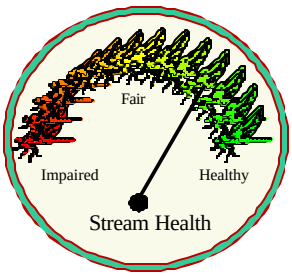


EcoSummary

Wekiwa Springs
03/21/01



Background

Florida DEP's Division of Recreation and Parks selected Wekiwa Springs, as well as springs from seven 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 Seminole County, Florida; see Figure 1. Wekiwa Springs forms the Wekiwa River at the confluence with Rock Springs Run, reaching more than twenty miles before it discharges into the St. Johns River. The spring is in part bordered by conservation lands purchased to protect the spring and its recharge area from encroaching development in the watershed and river corridor.

Baseline samples were taken at all eight park locations in March 2001. Water chemistry samples were taken at Wekiwa Springs by the SJRWMD in February of 2001 for Inorganic analysis. DEP collected samples for *Enterococci*, *Escherichia coli*, fecal coliform, and total coliform analysis in March 2001. The combined results are shown in Figure 2. Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted in March 2001.

Results

Nitrate-nitrite concentrations (0.89 mg/L) at the sampling site were relatively high for spring systems in the state, compared to that found in 95% of Florida streams (1.05 mg/L); see Figure 2. Elevated nitrate-nitrite levels in Wekiwa Springs are related to nitrogen loading in the recharge basin (mostly inorganic fertilizers applied to agricultural lands). Ammonia (0.031 mg/L) concentrations were near background conditions for Florida streams. Total Kjeldahl nitrogen (<0.084 mg/L) was lower than 95% of Florida streams. Total phosphorus (0.11 mg/L) concentration was below that in 60% of other streams in the state (see figure 2). The overall habitat assessment score (143) was in the optimal range (above 120). The only parameter of concern was habitat smothering, which scored in the "marginal" category. *Enterococci* and *Escherichia coli* levels were below the EPA single-sampling guideline values for "designated beach areas." Fecal and total coliform levels were below the Class III water body threshold values. The stream condition index (SCI) score of 33 for Wekiwa Springs was in the "excellent" range. The periphyton community was dominated by diatoms with some blue-green taxa. Some of the taxa found were indicative of eutrophic conditions. In conclusion, nitrate-nitrite nutrient enrichment in Wekiwa Springs appeared to be the main stressor, as indicated by the moderately low quality of algal community present.

Figure 1: Overview Map of Area

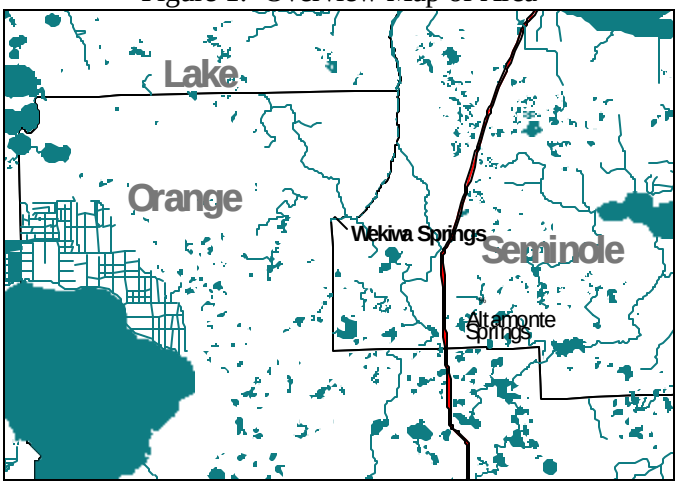


Figure 2: Data Table

WEKIWA SPRINGS			
Station		Wekiwa Springs	
Station Nick Name		ABROCKSPG	
STORET		SPRINGS006	
Sampling Date		3/21/01	
Macroinvertebrate Parameters		**Periphyton Parameters**	
SCI	33	Number of Taxa	23
SCI Evaluation	excellent	% Bacillariophyceae	88.08
SCI Region	peninsula	% Chlorophyceae	0.44
Number of Taxa	36	% Cyanophyceae	11.48
Number of Ephemeroptera	2	% Euglenophyceae	0
Number of Plecoptera	0	% Dominant Taxon	36.37
Number of Trichoptera	4	**Physical-Chemical Data**	
EPT Index	6	Habitat Assessment	143
% Dominant Taxon	16.67	Sample Depth (m)	0.1
Florida Index	20	Specific Conductivity (umho/cm)	348
% Diptera	50	Dissolved Oxygen (mg/L)	4.1
Number of Chironomidae	2	pH (SU)	7.5
Number of Orthocladiinae	13	Temperature (deg. C)	22.4
Total Number of Chironomidae	15	**Chemistry Data (Feb 2001)**	
% Filter-Feeders	22.84	Ammonia (mg/L)	0.031
Bacteria Parameters		Nitrate-Nitrite (mg/L)	0.89
Enterococci (col/100 mL)	80 Q	TKN (mg/L)	0.084 I
Escherichia coli (col/100 mL)	20 Q	Total Phosphorus (mg/L)	0.11
Fecal Coliforms (col/100 mL)	30 Q	Sulfate (mg/L)	19.2
Total Coliforms (col/100 mL)	260 Q	Chloride (mg/L)	13.7
		Alkalinity (mg CaCO3/L)	123
Note: Chemistry data from SJRWMD		TDS (mg/L)	187

"U"- Below Detection Limit; "I"- Below Quantitation Limit; "Q"- Information Only

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