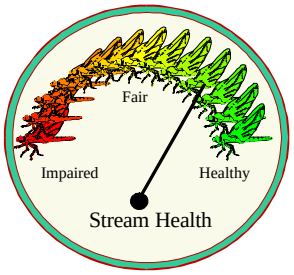


EcoSummary

Wekiva Springs
10/16/00



Background

Florida DEP's Division of Recreation and Parks selected Wekiva 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. Wekiva Springs State Park is located in Seminole County, Florida; see Figure 1. Wekiva Springs forms the Wekiva River at the confluence with Rock Springs Run and flows for 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 river system and its recharge area from encroaching development in the watershed.

Baseline samples were taken at all eight park locations in October 2000. 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; see Figure 2. Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

Results

Nitrate-nitrite concentrations (1.1 mg/L) at the sampling site were higher than those found in 95% of Florida streams (1.05 mg/L); see Figure 2. Elevated nitrate-nitrite levels in Wekiva Springs are related to nitrogen loading in the recharge basin (mostly inorganic fertilizers applied to agricultural lands). Ammonia (0.015 mg/L) concentrations were below background conditions for Florida streams. The total Kjeldahl nitrogen concentration (0.1 mg/L) was lower than the values found in 95% of streams in Florida. The total phosphorus (0.12 mg/L) concentration was relatively average for a Florida stream (see figure 2). The overall habitat assessment score (142) was in the optimal range (above 120). Habitat smothering from decomposing organic matter was the only parameter of concern, scoring in the "marginal" range. *Enterococci* and *Escherichia coli* levels were below the EPA single-sampling guideline values for "moderate full body contact recreation areas." Fecal and total coliform levels complied with Class III water quality standards. The stream condition index (SCI) score of 21 for Wekiva Springs was in the "good" 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 Wekiva Springs appeared to be the main stressor, as indicated by the moderately low quality of algal community present.

Figure 1: Overview Map of Area

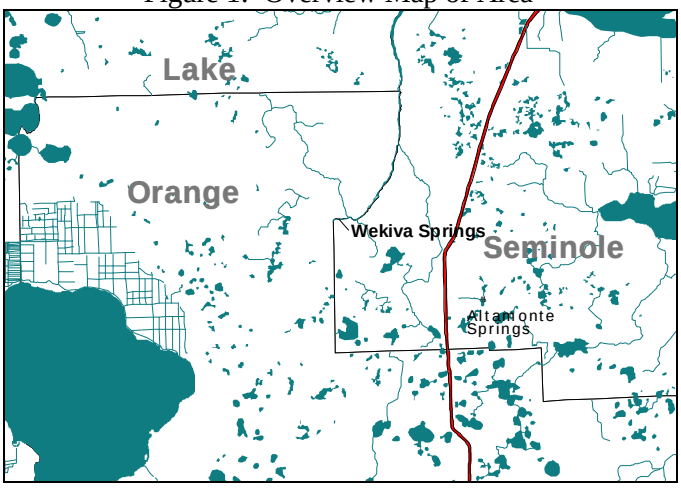


Figure 2: Data Table

Wekiva Springs			
Station		Wekiva Springs	
Station Nick Name		ABROCKSPG	
STORET		SPRINGS006	
Sampling Date		10/16/00	
Macroinvertebrate Parameters		**Periphyton Parameters**	
SCI	21	Number of Taxa	22
SCI Evaluation	good	% Bacillariophyceae	95.77
SCI Region	peninsula	% Chlorophyceae	0.38
Number of Taxa	22	% Cyanophyceae	3.85
Number of Ephemeroptera	3	% Dinophyceae	0
Number of Plecoptera	0	% Dominant Taxon	40.58
Number of Trichoptera	2	**Physical-Chemical Data**	
EPT Index	5	Habitat Assessment	142
% Dominant Taxon	42.67	Sample Depth (m)	0.7
Florida Index	8	Conductivity (umho/cm)	328.0
% Diptera	10	Dissolved Oxygen (mg/L)	3.8
Number of Chironomidae	1	pH (SU)	7.45
Number of Orthocladiinae	4	Temperature (deg. C)	23.6
Total Number of Chironomidae	5	**Chemistry Data**	
% Filter-Feeders	1.33	Ammonia (mg/L)	0.015 I
Bacteria Parameters		Nitrate-Nitrite (mg/L)	1.1
Enterococci (col/100 mL)	68 Q	TKN (mg/L)	0.1 I
Escherichia coli (col/100 mL)	16 Q	Total Phosphorus (mg/L)	0.12
Fecal Coliforms (col/100 mL)	12 Q	Color (PCU)	5 Q
Total Coliforms (col/100 mL)	200 Q	Turbidity (NTU)	0.1 Q

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

FOR MORE INFORMATION, CONTACT:
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