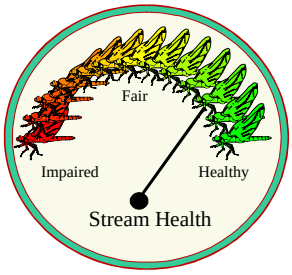


EcoSummary

Wekiwa Springs

4/21/04



Background

Florida DEP's Division of Recreation and Parks selected Wekiwa Springs for biological and water quality monitoring. Data from these efforts will be used for documenting conditions within the 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; see Figure 2. Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

Results

The nitrate-nitrite concentration (1.1 mg/L) at the sampling site was higher than the values found in 95% 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 and ammonia concentrations were below quantitation limits while ammonia concentrations were below the minimum detection limit (Figure 2). The total phosphorus concentration (0.15 mg/L) was lower than 50% of other Florida streams.

The *Enterococci* concentration (74 CFU/100 mL) was above the EPA single-sampling guideline value of 61 CFU/100mL for "designated beach areas." Some species of *Enterococci* are known to be free-living in warm waters; the applicability of the above guideline in Florida waters is currently under investigation. The *Escherichia coli* concentration (20 CFU/100 mL) was below the EPA designated beach guideline of 235 CFU/100 mL. Fecal and total coliform levels complied with Class III water quality standards. The stream condition index (SCI) score of 29 for Wekiwa Springs ranked it as "excellent". The overall habitat assessment score (125) was in the optimal range (>120). Substrate availability and habitat smothering were habitat parameters of concern. The periphyton community in Wekiwa Springs was dominated by diatoms with some blue-green taxa.

In conclusion, elevated nitrate-nitrate levels in Wekiwa Springs continue to be a main stressor, however, the SCI was in the excellent category.

Figure 1: Overview Map of the Wekiwa Springs Area

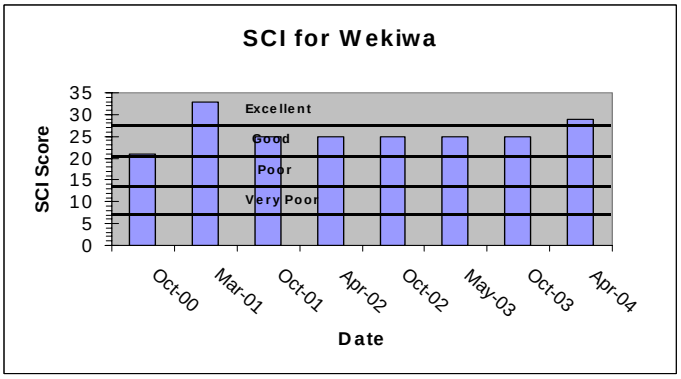


Figure 2: Data Table

Wekiwa Springs			
Sampling Date		4/21/2004	
Macroinvertibrate Parameters		Periphyton Parameters	
SCI	29	% Bacillariophyceae	95.2
SCI Evaluation	excellent	% Cyanophyceae	2.9
Number of Taxa	32	% Chlorophyceae	1.6
EPT Index	5	Percent Dominant taxon	37.1
FL Index	15	Physical-Chemical Data	
% Dominant Taxon	20.6	Habitat Assessment	126
% Diptera	45.1	Specific Conductivity (umhos/cm)	340
Total number of Chironomidae	17	Dissolved Oxygen (mg/L)	4.4
% Filter-Feeders	12.3	pH (SU)	7.9
Chemistry Data		Temperature (deg C)	23.2
Ammonia (mg/L)	0.01 U	Bacteria Parameters	
Nitrate-Nitrite (mg/L)	1.1	*Enterococci* (col/100mL)	74 Q
TKN (mg/L)	0.067 I	*Escherichia coli* (col/100mL)	20 BQ
Total Phosphorus (mg/L)	0.15	Fecal Coliforms (col/100 mL)	17 BQ
Color (PCU)	5 Q	Total Coliforms (col/100mL)	104 Q
Turbidity (NTU)	0.5 Q		

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

Figure 3. SCI Evaluations



FOR MORE INFORMATION, CONTACT:
Thomas Deck, FDEP Environmental Assessment Section
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 245-8074 thomas.deck@dep.state.fl.us