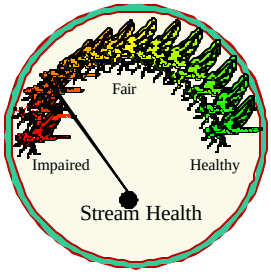


EcoSummary

Volusia Blue Spring

4/17/02



Background

Florida DEP's Division of Recreation and Parks selected Blue Spring, 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. Blue Spring State Park is located in Volusia County, Florida (Figure 1). Blue Spring Run flows south for approximately 1000m into the St. Johns River. Blue Spring 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

Nitrate-nitrite concentration (0.58 mg/L) at the sampling site was equal to what is found in 80% of Florida streams and was slightly lower than the October 2001 sampling (0.64 mg/L). Elevated nitrite-nitrate levels at Blue Spring are related to nitrogen loading in the recharge basin. The Total Kjeldahl nitrogen concentrations (0.25 mg/L) were below what is found in 95 % of Florida Streams (Figure 2). The total phosphorus concentration (0.072 mg/L) was relatively average for a Florida stream. The overall habitat assessment score (97) was in the sub-optimal range. Lack of substrate availability and algal smothering of habitats were elements contributing to the low score. *Enterococci*, and *Escherichia coli* concentrations complied with the EPA single-sampling guideline values of 61 CFU/100mL and 235 CFU/100mL, respectively, for "designed beach area." Fecal and total coliform levels complied with Class III water quality standards. The periphyton community in Blue 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 continued nutrient enrichment in Blue Spring. The stream condition index (SCI) score of 17 for Blue Spring was in the "poor" range.

In conclusion, elevated nitrate-nitrate levels, an algal community indicative of eutrophic conditions, and a poor SCI score were issues of concern in Volusia Blue Spring.

Figure 1: Overview Map of the Blue Springs Area

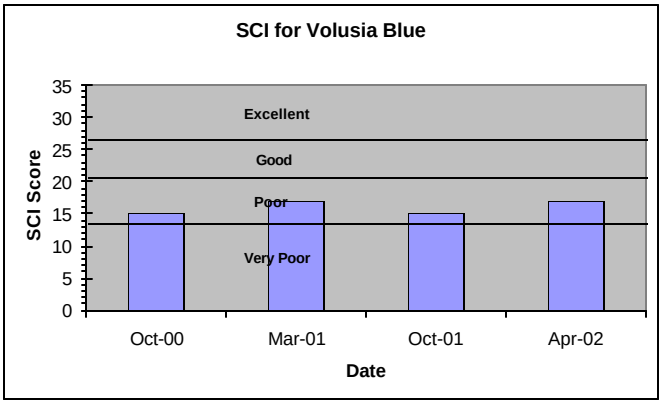


Figure 2: Data Table

Volusia Blue			
Sampling Date		4/17/2002	
Macroinvertibrate Parameters		Periphyton Parameters	
SCI	17	% Bacillariophyceae	83.44
SCI Evaluation	poor	% Cyanophyceae	11.69
Number of Taxa	18	% Chlorophyceae	1.95
EPT Index	1	Dominant taxon	Fragilariaceae
FL Index	1	Percent Dominant taxon	30.52
% Dominant Taxon	26.67	Physical-Chemical Data	
% Diptera	45	Habitat Assessment	97
Total number of Chironomidae	5	Specific Conductivity (umhos/cm)	1381
% Filter-Feeders	13.33	Dissolved Oxygen (mg/L)	2.6
Chemistry Data		pH (SU)	7.1
Ammonia (mg/L)	0.018 I	Temperature (deg C)	23.2
Nitrate-Nitrite (mg/L)	0.58 J	Bacteria Parameters	
TKN (mg/L)	0.25	*Enterococci* (col/100mL)	32 Q
Total Phosphorus (mg/L)	0.072	*Escherichia coli* (col/100mL)	12 Q
Color (PCU)	5 U	Fecal Coliforms (col/100 mL)	2 Q
Turbidity (NTU)	0.1	Total Coliforms (col/100mL)	90 Q

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

Figure 3. SCI Evaluation



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