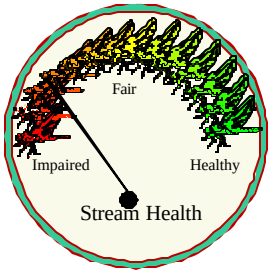


EcoSummary

Volusia Blue Spring

10/21/02



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 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 (0.9 mg/L) has increased since the April 2002 sampling (0.58 mg/L) in Volusia Blue Spring. This nitrate-nitrite is higher than the values found in 90% of other Florida streams. Elevated nitrite-nitrate levels at the spring are related to nitrogen loading in the recharge basin. The total phosphorus concentration (0.057 mg/L) was relatively average for a Florida stream. The Total Kjeldahl nitrogen concentration (0.21 mg/L) was low (Figure 2). The overall habitat assessment score (114) was in the sub-optimal range. Lack of substrate availability and diversity 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 Voulsia Blue Spring 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 15 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

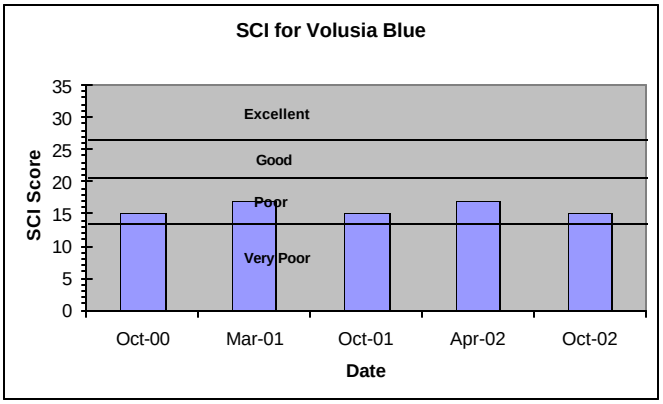


Figure 2: Data Table

Volusia Blue			
Sampling Date		10/21/2002	
Macroinvertibrate Parameters		Periphyton Parameters	
SCI	15	% Bacillariophyceae	68.09
SCI Evaluation	poor	% Cyanophyceae	29.48
Number of Taxa	22	% Chlorophyceae	2.43
EPT Index	2	Dominant taxon	Diatomaceae/Fragilariaceae
FL Index	1	Percent Dominant taxon	17.93
% Dominant Taxon	70.41	Physical-Chemical Data	
% Diptera	12.24	Habitat Assessment	114
Total number of Chironomidae	4	Specific Conductivity (umhos/cm)	878
% Filter-Feeders	2.55	Dissolved Oxygen (mg/L)	1.43
Chemistry Data		pH (SU)	7.07
Ammonia (mg/L)	0.022	Temperature (deg C)	23.2
Nitrate-Nitrite (mg/L)	0.9	Bacteria Parameters	
TKN (mg/L)	0.21	*Enterococci* (col/100mL)	6 Q
Total Phosphorus (mg/L)	0.067 J	*Escherichia coli* (col/100mL)	1 KQ
Color (PCU)	5 UQ	Fecal Coliforms (col/100 mL)	1 KQ
Turbidity (NTU)	0.15 Q	Total Coliforms (col/100mL)	40 Q

"U"- Below Detection Limit; "K"- Actual value is known to be less than value given ; "Q"- Information Only; "J"- Estimated Value

Figure 3. SCI Evaluation



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



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