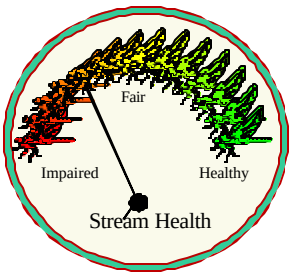


EcoSummary

Blue Springs
3/21/01



Background

Florida DEP's Division of Recreation and Parks selected Blue 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. Blue Springs State Park is located in Volusia County, Florida; see Figure 1. Blue Spring is a Floridan Aquifer-dominated system and has a short (0.25 mile) spring run before it discharges into the St. Johns River. The spring is a popular recreation area and is inhabited by dozens of manatees during winter.

Baseline samples were taken at all eight park locations in March 2001. Water chemistry samples were taken for, 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 also conducted for Blue Spring.

Results

See the analytical data in Figure 2.

Nitrate-nitrite concentrations (0.264 mg/L) at the sampling site were relatively high for spring systems in the state, with a value higher than that found in 70% of Florida streams (0.2 mg/L). Urban land use dominates the recharge area with some agricultural land uses. Total Kjeldahl nitrogen (0.141 mg/L) concentration was below 95% of other state streams. Total phosphorus (0.072 mg/L) concentration was below 60% of other streams in the state. The overall habitat assessment score (89) was in the lower suboptimal range (above 80). Lack of diverse habitat substrate and smothering of the remaining habitat with algal mats were the main detriments observed. *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 17 for Blue Springs was in the "poor" range, mainly due to lack of habitat. 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, as indicated by the moderately low quality of algal community present and lack of habitat appeared to be the main stressors for the Blue Springs system.

Figure 1: Overview Map of Area

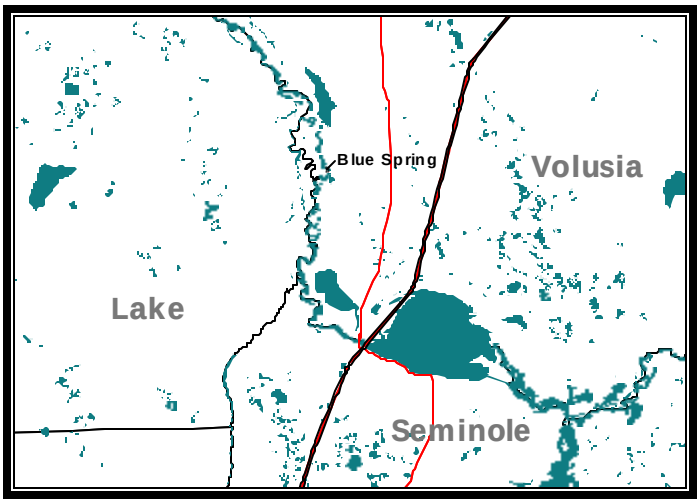


Figure 2: Data Table

Blue Springs			
Station		Blue Springs	
Station Nick Name		BLUESPGS	
STORET		SPRINGS005	
Sampling Date		3/21/01	
Macroinvertebrate Parameters		**Periphyton Parameters**	
SCI	17	Number of Taxa	29
SCI Evaluation	poor	% Bacillariophyceae	93.38
SCI Region	peninsula	% Chlorophyceae	0.92
Number of Taxa	18	% Cyanophyceae	5.7
Number of Ephemeroptera	0	% Euglenophyceae	0
Number of Plecoptera	0	% Dominant Taxon	17.65
Number of Trichoptera	0	**Bacteria Parameters**	
EPT Index	0	*Enterococci* (col/100 mL)	20 Q
% Dominant Taxon	27.11	*Escherichia coli* (col/100 mL)	4 Q
Florida Index	4	Fecal Coliforms (col/100 mL)	1 K,Q
% Diptera	31.93	Total Coliforms (col/100 mL)	10 Q
Number of Chironomidae	1	**Physical Data**	
Number of Orthocladiinae	4	Habitat Assessment	89
Total Number of Chironomidae	5	Sample Depth (m)	0.4
% Filter Feeders	1.81	Specific Conductance (umho/cm)	2019
Chemistry Data		Dissolved Oxygen (mg/L)	2.2
Nitrate-Nitrite (mg/L)	0.264	pH (SU)	7.5
TKN (mg/L)	0.141	Temperature (deg. C)	23
Total Phosphorus (mg/L)	0.072	Color (PCU)	10
Sulfate (mg/L)	55	TDS (mg/L)	1010
Chloride (mg/L)	483	TSS (mg/L)	5 U
Alkalinity (mg CaCO3/L)	143.9	Turbidity (NTU)	0.3
TOC (mg/L)	1.67		

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

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