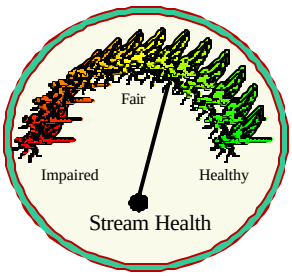
EcoSummary

Blue Spring
10/17/00



Background

Florida DEP's Division of Recreation and Parks selected Blue Spring, 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 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 (0.11 mg/L) at the sampling site were relatively low for spring systems in the state, but still higher than those found in 50% of Florida streams (0.1 mg/L); see Figure 2. Urban land use dominates the recharge area with some agricultural land uses. Relatively low nitrate-nitrite levels can probably be attributed to silviculture Best Management Practices, which have been shown to minimize disturbances to local surface waters. Ammonia (0.093 mg/L) concentrations were above background conditions (above 50%) for Florida streams. Total Kjeldahl nitrogen (0.3 mg/L) and total phosphorus (0.093 mg/L) concentration were below 30% of other streams in the state (see figure 2). The overall habitat assessment score (111) was in the suboptimal range (100-120). Habitat availability was poor (only 3%) due to low water levels exposing root habitat and periphyton smothering of woody debris. *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 15 for Blue Spring was in the "poor" range, mainly due to lack of habitat. The periphyton community was dominated by diatoms with some blue-green taxa. The particular taxa found were indicative of eutrophic conditions.

In conclusion, lack of habitat in Blue Spring appeared to be the main stressor of invertebrate populations and a relatively low quality of algal community was present due to moderate nutrient enrichment.

Figure 1: Overview Map of Area

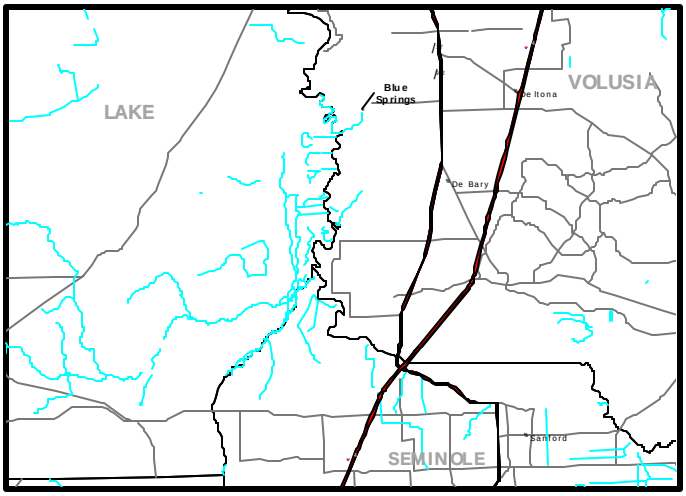


Figure 2: Data Table

BLUE SPRINGS			
Station		Blue Springs	
Station Nick Name		BLUESPGS	
STORET		SPRINGS005	
Sampling Date		10/17/00	
Macroinvertebrate Parameters		**Periphyton Parameters**	
SCI	15	Number of Taxa	28
SCI Evaluation	poor	% Bacillariophyceae	94.16
SCI Region	peninsula	% Chlorophyceae	0.94
Number of Taxa	18	% Cyanophyceae	4.9
Number of Ephemeroptera	0	% Dinophyceae	0
Number of Plecoptera	0	% Dominant Taxon	38.23
Number of Trichoptera	0	**Physical-Chemical Data**	
EPT Index	0	Habitat Assessment	111
% Dominant Taxon	27.01	Sample Depth (m)	0.8
Florida Index	1	Specific Conductivity (umho/cm)	198
% Diptera	15.33	Dissolved Oxygen (mg/L)	2.3
Number of Chironomidae	1	pH (SU)	7.6
Number of Orthocladiinae	3	Temperature (deg. C)	22.8
Total Number of Chironomidae	4	**Chemistry Data**	
% Filter-Feeders	2.92	Ammonia (mg/L)	0.093
Bacteria Parameters		Nitrate-Nitrite (mg/L)	0.11
Enterococci (col/100 mL)	26 Q	TKN (mg/L)	0.3
Escherichia coli (col/100 mL)	2 Q	Total Phosphorus (mg/L)	0.093
Fecal Coliforms (col/100 mL)	10 Q	Color (PCU)	5
Total Coliforms (col/100 mL)	40 Q	Turbidity (NTU)	0.15

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

FOR MORE INFORMATION, CONTACT:
Amy Bennett, FDEP Environmental Assessment Section
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 921-9730 Amy.Bennett@dep.state.fl.us