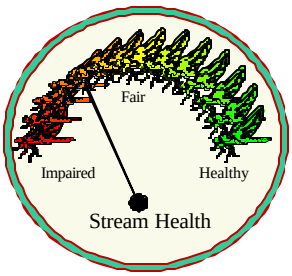


EcoSummary

Blue Hole Spring

10/08/2001

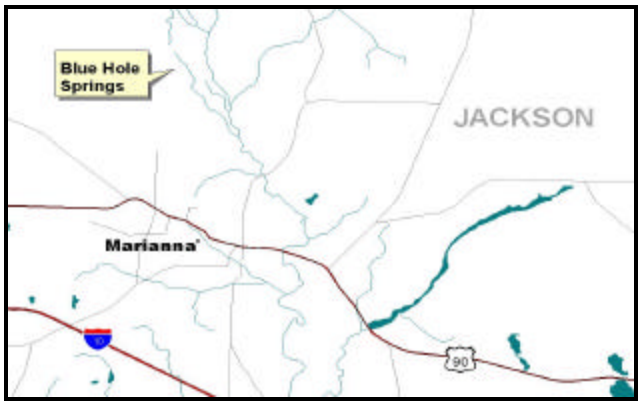


Background

The Florida Department of Environmental Protection's Division of Recreation and Parks selected Blue Hole Springs along with many other springs from 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 Hole Springs is located in Florida Caverns State Park in Jackson County; see Figure 1. Blue Hole Springs Run flows into the Chipola River.

Samples were collected from Blue Hole Springs on October 8, 2002. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, other chemical parameters, *Escherichia coli*, *Enterococci*, fecal coliform, and total coliform analyses; see Figure 2. Habitat assessment, qualitative periphyton sampling, and benthic macroinvertebrate stream condition index (SCI) sampling were conducted.

Figure 1: Overview Map of the Blue Hole Springs Area



Results

The nitrate-nitrite concentration (0.48 mg/L) in Blue Hole Springs was higher than the values found in 80% of Florida streams; see Figure 2. This value is slightly increased from the previous sampling event (0.41 mg/L) in October 2001. The TKN level (0.26 mg/L) was lower than is found in 90% of Florida streams. Ammonia and total phosphorus concentrations were both below the practical quantitation limits.

The total habitat assessment score (132) was in the optimal range; habitat smothering received a marginal score. *Enterococci* and *Escherichia coli* concentrations complied with the EPA single-sample guideline values of 61 CFU/100mL and 235 CFU/100 mL, respectively, for "designated beach areas." Fecal and total coliform levels complied with Class III water quality standards.

The stream condition index (SCI) score of 19 for Blue Hole Springs was in the poor range. This score is considerably lower than the score of 27 (in the excellent range) for this site in October 2001. There were no readily obvious reasons for this decline. The periphyton community was dominated by diatoms, with some blue-green and green algal taxa. Based on species level data, the algal community present was indicative of nutrient enriched conditions.

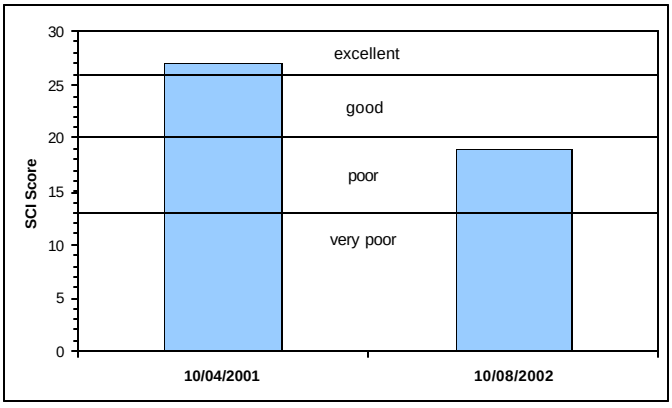
In conclusion, the poor quality benthic macroinvertebrate community, a eutrophic algal community, and an elevated nitrate-nitrite level were issues of concern in Blue Hole Springs. Continued sampling will be performed to monitor the ecological condition of Blue Hole Springs.

Figure 2: Data Table

BLUE HOLE SPRINGS			
Sampling Date		10/08/2002	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	19	% Bacillariophyta	89.39
SCI Evaluation	poor	% Cyanophycota	10.20
Number of Taxa	27	% Chlorophycota	0.41
EPT Index	1	Dominant Taxon	*Cocconeis placentula*
Florida Index	13	% Dominant Taxon	42.04
% Dominant Taxon	34.62	**Physical-Chemical Data**	
% Diptera	28.85	Total Habitat Assessment Score	132
Total Number of Chironomidae	10	Temperature (deg. C)	22.52
% Filter-Feeders	5.29	pH	7.65
Chemistry Data		Dissolved Oxygen (mg/L)	5.21
Turbidity (NTU)	1.5	Specific Conductance (umhos/cm)	271
Color (PCU)	20	**Bacteria Data**	
Ammonia (mg/L)	0.017 I	*Escherichia Coli* (col/100 mL)	16
Nitrate-Nitrite (mg/L)	0.48	*Enterococci* (col/100 mL)	18
TKN (mg/L)	0.26	Fecal Coliforms (col/100 mL)	16
Total Phosphorus (mg/L)	0.033 I	Total Coliforms (col/100 mL)	100

"I" = Below practical quantitation limit

Figure 3: Stream Condition Index Scores Over Time



FOR MORE INFORMATION, CONTACT:
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