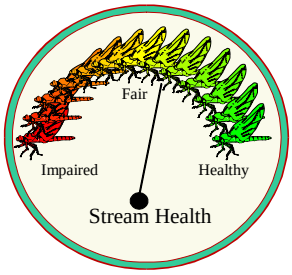


EcoSummary

Blue Hole Springs

10/09/2003

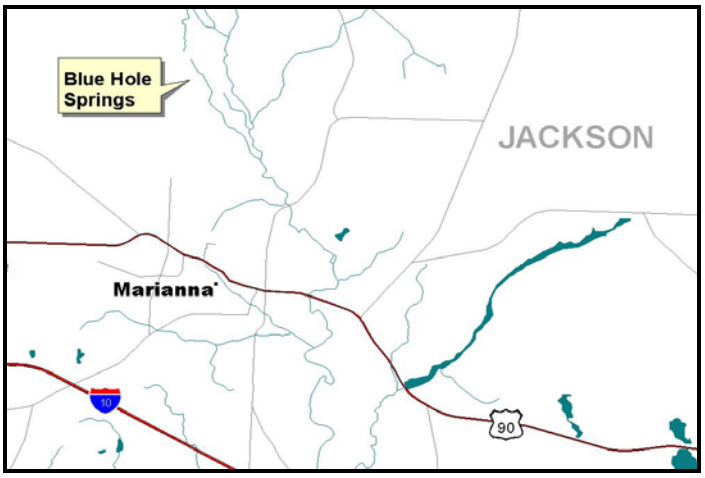


Background

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 9, 2003. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, *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 (0.44 mg/L) in Blue Hole Springs was higher than the values found in 80% of Florida streams (0.35 mg/L or lower); see Figure 2. The total phosphorus level was below the practical quantitation limit. Ammonia and TKN concentrations were below detection limits.

The total habitat assessment score (121) was near the lower end of the "optimal" range. Habitat smothering was problematic. *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.

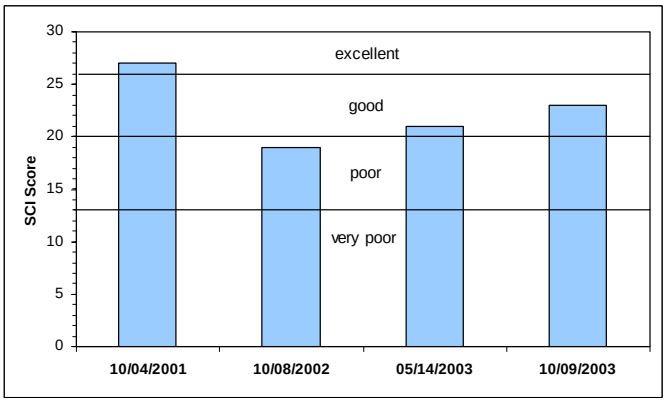
The stream condition index (SCI) score of 23 for Blue Hole Springs was in the "good" range. The periphyton community was dominated by diatoms, with some blue-green and green algal taxa. In conclusion, nitrate-nitrite and smothering of macroinvertebrate habitats were the parameters of concern in Blue Hole Springs.

Figure 2: Data Table

BLUE HOLE SPRINGS			
Sampling Date		10/09/2003	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	23	% Bacillariophyta	95.82
SCI Evaluation	Good	% Cyanophycota	3.54
Number of Taxa	23	% Chlorophycota	0.64
EPT Index	4	Dominant Taxon	*Cocconeis placentula*
Florida Index	14	% Dominant Taxon	39.23
% Dominant Taxon	52.94	**Physical-Chemical Data**	
% Diptera	25.49	Habitat Assessment Score	121
Number of Chironomidae	7	Temperature (deg. C)	20.2
% Filter-Feeders	17.65	pH	6.8
Chemistry Data		Dissolved Oxygen (mg/L)	7.2
Turbidity (NTU)	2.2	Specific Conductance (umhos/cm)	3.8
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	2 B,Q
Nitrate-Nitrite (mg/L)	0.44	*Enterococci* (col/100 mL)	40 Q
TKN (mg/L)	0.06 U	Fecal Coliforms (col/100 mL)	6 B,Q
Total Phosphorus (mg/L)	0.033 I	Total Coliforms (col/100 mL)	700 Q

"U"=Below detection limit; "I"=Below practical quantitation limit; "Q"=Outside of holding time; "B"=Results based on colony counts outside the acceptable range

Figure 3: Stream Condition Index Scores Over Time



FOR MORE INFORMATION, CONTACT:
Amy Wheeler, FDEP Environmental Assessment Section
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 245-8070 Amy.Wheeler@dep.state.fl.us