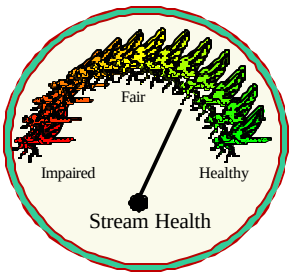


EcoSummary

Rainbow Springs

11/05/2002



Background

Florida DEP's Division of Recreation and Parks selected Rainbow Springs, as well as several 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. Rainbow Springs State Park is located in Marion County, Florida; see Figure 1. The Rainbow Springs River begins in the park from numerous spring vents and then flows south into the Withlacoochee River. Rainbow Springs is a Floridan Aquifer-dominated system and is known for its recreational and aesthetic qualities. Water quality characteristics vary from spring vent to spring vent, so a sampling location in the spring run was selected to document overall effects.

Samples were taken at Rainbow Springs in November 2002. 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 also conducted.

Figure 1: Overview Map of the Rainbow Springs Area



Results

The nitrate-nitrite concentration (1.2 mg/L) in Rainbow Springs was higher than that found in 95% of Florida streams (0.97 mg/L); see Figure 2. The ammonia and TKN levels were both below quantitation limits. The total phosphorus concentration (0.047 mg/L) was lower than that found in 60% of Florida streams (0.056 mg/L).

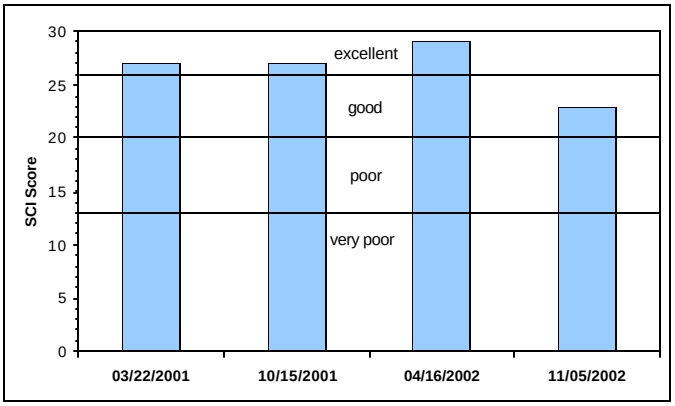
The overall habitat assessment score (145) was in the "optimal" range. *Enterococci* concentration (19 CFUl/100 mL) was below the EPA single-sampling guideline value of 61 CFU/100mL for "designated beach areas." *Escherichia coli* concentration (24 CFU/100 mL) was below the EPA designated beach guideline of 235 CFU/100 mL. Fecal and total coliform levels complied with Class III water quality standards. The SCI score of 23 for Rainbow Springs was in the "good" range. The SCI score at this site was in the "excellent" range for the previous three sampling events. The periphyton community was dominated by diatoms, with some blue-green and green algal taxa. In conclusion, elevated nitrate-nitrite continues to be a parameter of concern in Rainbow Springs.

Figure 2: Data Table

RAINBOW SPRINGS			
Sampling Date		11/5/2002	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	23	% Bacillariophyta	75.73
SCI Evaluation	good	% Cyanophycophyta	22.98
Number of Taxa	18	% Chlorophycota	1.29
EPT Index	1	Dominant Taxon	Diatomaceae/ Fragilariaceae
Florida Index	7	% Dominant Taxon	34.30
% Dominant Taxon	29.70	**Physical-Chemical Data**	
% Diptera	77.23	Total Habitat Assessment Score	145
Total Number of Chironomidae	9	Temperature (deg. C)	22.8
% Filter-Feeders	35.64	pH	7.22
Chemistry Data		Dissolved Oxygen (mg/L)	5.75
Turbidity (NTU)	0.05 U	Specific Conductance (umhos/cm)	296
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.012 I	*Escherichia Coli* (col/100 mL)	24 AQ
Nitrate-Nitrite (mg/L)	1.2	*Enterococci* (col/100 mL)	19 AQ
TKN (mg/L)	0.14 I	Fecal Coliforms (col/100 mL)	11 AQ
Total Phosphorus (mg/L)	0.047	Total Coliforms (col/100 mL)	85 AQ

"U"=Below detection limit; "I"=Below practical quantitation limit; "A"=Average value; "Q"=Outside holding time

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