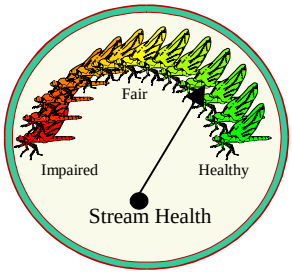


EcoSummary

Rainbow Springs

4/29/2004



Background

Florida DEP's Division of Recreation and Parks selected Rainbow Springs for biological and water quality monitoring. Data from these efforts will be used for documenting conditions within the 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 conditions.

Samples were collected at Rainbow Springs on April 29, 2003. 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 continued to be higher than the values found in 95% of Florida streams; see Figure 2. The TKN concentration (0.25 mg/L) was non-problematic, while the ammonia level was below detection limits. The total phosphorus concentration was below the practical quantitation limit.

Enterococci and *Escherichia coli* concentrations were below the EPA single-sample guideline values of 61 CFU/100 mL and 235 CFU/100 mL, respectively, for "designated beach areas." Fecal and total coliform levels complied with Class III water quality standards.

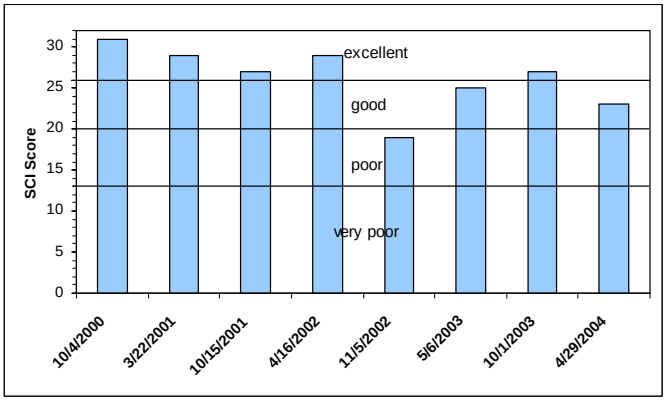
The SCI score of 23 for Rainbow Springs was in the "good" range. The overall habitat assessment score (127) was near the lower end of the "optimal" range. Diatoms, with some blue-green and green algal taxa, dominated the periphyton community. In conclusion, an elevated nitrate-nitrite concentration continued to be an issue of concern in Rainbow Springs, however, the invertebrate community continues to be ranked as "good".

Figure 2: Data Table

RAINBOW SPRINGS			
Sampling Date		4/29/2004	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	23	% Bacillariophyta	85.33
SCI Evaluation	Good	% Cyanophycota	11.33
Number of Taxa	21	% Chlorophycota	3.33
EPT Index	3	% Cryptophycophyta	0
Florida Index	7	% Dominant Taxon	24.00
% Dominant Taxon	43.93	**Physical-Chemical Data**	
% Diptera	77.57	Habitat Assessment Score	127
Number of Chironomidae	8	Temperature (deg. C)	22.9
% Filter-Feeders	33.64	pH	7.6
Chemistry Data		Dissolved Oxygen (mg/L)	7.4
Turbidity (NTU)	0.55	Specific Conductance (umhos/cm)	273
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	2 B,Q
Nitrate-Nitrite (mg/L)	1.2	*Enterococci* (col/100 mL)	28 B,Q
TKN (mg/L)	0.25	Fecal Coliforms (col/100 mL)	2 B,Q
Total Phosphorus (mg/L)	0.033 I	Total Coliforms (col/100 mL)	200 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: SCI Scores Over Time



FOR MORE INFORMATION, CONTACT:
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