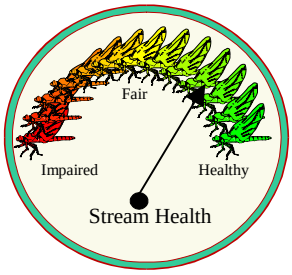


EcoSummary

Rainbow Springs

10/01/2003



Background

Florida DEP's Division of Recreation and Parks selected Rainbow Springs, as well as springs from 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. 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 collected at Rainbow Springs on October 1, 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 (1.3 mg/L) in Rainbow Springs continued to be higher than the values found in 95% of Florida streams (0.97 mg/L); see Figure 2. Ammonia and TKN levels were both 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/100mL and 235 CFU/100 mL, respectively, for "designated beach areas." Fecal and total coliform levels complied with Class III water quality standards.

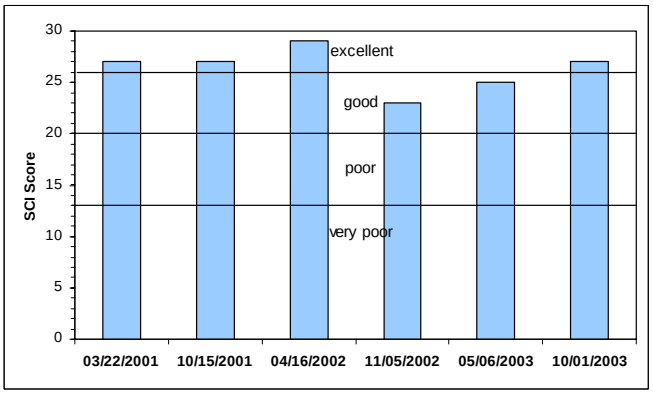
The SCI score of 27 for Rainbow Springs was in the "excellent" range. The overall habitat assessment score (142) was in the "optimal" range. Diatoms, with some blue-green and green algal taxa, dominated the periphyton community. In conclusion, an elevated nitrate-nitrite concentration continued to be an issue of concern in Rainbow Springs.

Figure 2: Data Table

RAINBOW SPRINGS			
Sampling Date		10/01/2003	
Macroinvertibrate Parameters		**Periphyton Parameters**	
SCI Score	27	% Bacillariophyta	71.02
SCI Evaluation	Excellent	% Cyanophycota	28.34
Number of Taxa	24	% Chlorophycota	0.64
EPT Index	6	Dominant Taxon	Fragilariaceae
Florida Index	8	% Dominant Taxon	16.56
% Dominant Taxon	17.92	**Physical-Chemical Data**	
% Diptera	78.30	Habitat Assessment Score	142
Number of Chironomidae	9	Temperature (deg. C)	22.9
% Filter-Feeders	20.28	pH	6.7
Chemistry Data		Dissolved Oxygen (mg/L)	7.0
Turbidity (NTU)	0.2	Specific Conductance (umhos/cm)	225
Color (PCU)	5 U	**Bacteria Parameters**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	20 B,Q
Nitrate-Nitrite (mg/L)	1.3	*Enterococci* (col/100 mL)	16 B,Q
TKN (mg/L)	0.06 U	Fecal Coliforms (col/100 mL)	18 B,Q
Total Phosphorus (mg/L)	0.039 I	Total Coliforms (col/100 mL)	170 B,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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