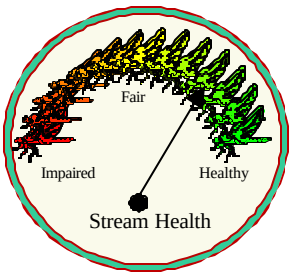


EcoSummary

Rainbow Springs

5/6/2003



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 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 May, 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 remains higher than the values found in 95% of Florida streams; see Figure 2. The ammonia and TKN levels were both below quantitation limits. The total phosphorus concentration (0.031mg/L) was lower than that found in 90% of Florida streams.

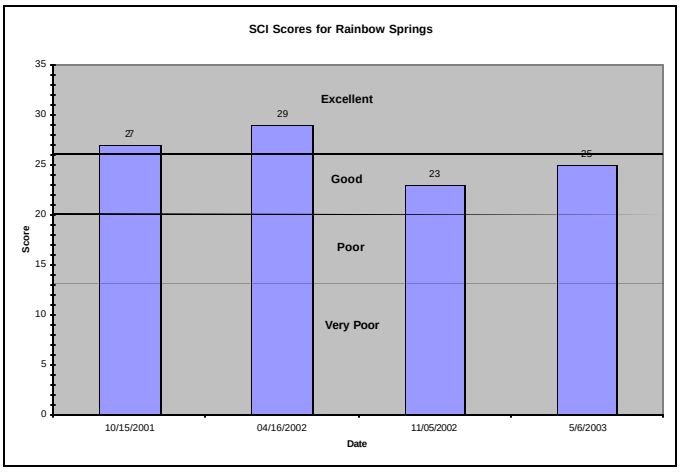
The overall habitat assessment score (145) was in the "optimal" range. *Enterococci* concentrations (8 CFU/100 mL) was below the EPA single-sampling guideline value of 61 CFU/100 mL for "designated beach areas." *Escherichia coli* concentrations (1 CFU/100 mL) was also below the EPA designated beach guideline of 235 CFU/100 mL. Fecal and total coliform levels complied with Class III water quality standards. The SCI score of 25 for Rainbow Springs was in the "good" range. Diatoms, with some blue-green and green algal taxa, dominated the periphyton community. In conclusion, elevated nitrate-nitrite concentrations continue to be a parameter of concern in Rainbow Springs.

Figure 2: Data Table

Rainbow Springs			
Sampling Date		5/6/2003	
Macroinvertibrate Parameters		**Periphyton Parameters**	
SCI	25	% Bacillariophyceae	74.11
SCI Evaluation	Good	% Cyanophyceae	24.4
Number of Taxa	25	% Chlorophyceae	1.49
EPT Index	2	Dominant taxon	*Fragilariaceae*
FL Index	7	Percent Dominant taxon	27.98
% Dominant Taxon	20	**Physical-Chemical Data**	
% Diptera	74.48	Habitat Assessment	145
Total number of Chironomidae	12	Specific Conductivity (umhos/cm)	301
% Filter-Feeders	22.07	Dissolved Oxygen (mg/L)	7.3
Chemistry Data		pH (SU)	7.6
Ammonia (mg/L)	0.013 I	Temperature (deg C)	23.4
Nitrate-Nitrite (mg/L)	1.3	**Bacteria Parameters**	
TKN (mg/L)	0.06 U	*Enterococci* (col/100mL)	8 O
Total Phosphorus (mg/L)	0.031 I	*Escherichia coli* (col/100mL)	1 KQ
Color (PCU)	5 U	Fecal Coliforms (col/100 mL)	2 Q
Turbidity	0.05	Total Coliforms (col/100mL)	20 Q

"U"=Below detection limit; "I"=Below practical quantitation limit; "K"- Actual Value is Less Than Reported Value; "Q"=Outside holding time

Figure 3: SCI Scores Over Time



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