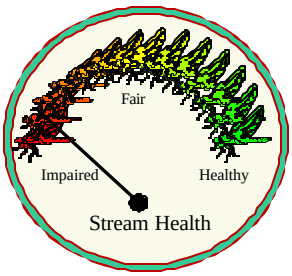


EcoSummary

Manatee Springs

04/16/2002



Background

Florida DEP's Division of Recreation and Parks selected Manatee Springs, as well as springs from many other state parks and national forests, 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. Manatee Springs State Park is located in Levy County, Florida; see Figure 1. Manatee Springs is a Floridan Aquifer-dominated system, known for its recreational and aesthetic qualities.

Samples were collected from Manatee Springs on April 16, 2002, approximately 100 m below the headwaters. 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 invertebrate stream condition index (SCI) sampling were conducted. SCI scores over time are shown in Figure 3.

Figure 1: Overview Map of the Manatee Springs Area



Results

The nitrate-nitrite concentration (1.3 mg/L) was higher than the valuues found in 95% of Florida streams (0.97 mg/L); see Figure 2. Elevated nitrate-nitrite levels in Manatee Springs Run are related to nitrogen loading in the recharge basin. TKN, ammonia, and total phosphorus levels were below quantitation limits.

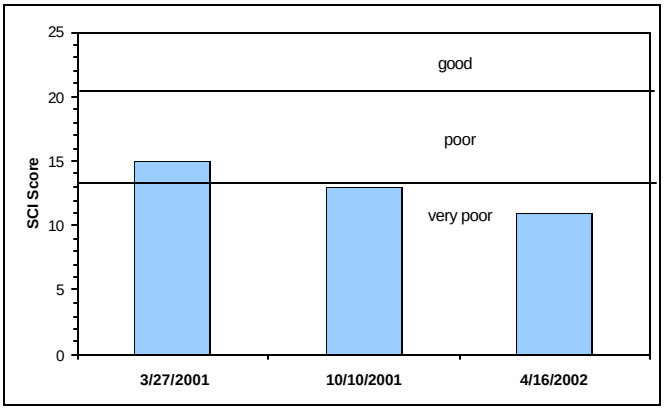
The total habitat assessment score (100) was in the sub-optimal range, with a few parameters receiving poor scores, including the amount of habitat available for organisms. Percent available habitat coverage dropped from greater than 30% in October 2000 to 6-15% in March 2001 to less than 5% in October 2001 and April 2002. *Enterococci* and *Escherichia coli* concentrations were well below the EPA single-sampling guideline value of 61 CFU/100mL and 235 CFU/100 mL, respectively, for "designated beach areas." Fecal and total coliform levels were below the Class III water quality standard values. The SCI score of 11 for Manatee Springs was in the "very poor" range; the SCI scores have been decreasing over the sampling period, potentially related to the habitat declines. The periphyton community was dominated by diatoms, with some blue-green and green taxa . In conclusion, elevated nitrate-nitrite levels, a poor quality macroinvertebrate community, a eutrophic periphyton community, and overall lack of habitat for invertebrates were the parameters of concern in Manatee Springs.

Figure 2: Data Table

MANATEE SPRINGS			
Sampling Date		4/16/2002	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	11	% Bacillariophyceae	82.35
SCI Evaluation	very poor	% Cyanophyceae	15.69
Number of Taxa	14	% Chlorophyceae	1.96
EPT Index	2	Dominant Taxon	Fragilariaceae
Florida Index	6	% Dominant Taxon	47.88
% Dominant Taxon	41.49	**Physical-Chemical Data**	
% Diptera	8.51	Total Habitat Assessment Score	100
Total Number of Chironomidae	4	Temperature (deg. C)	22.9
% Filter-Feeders	3.19	pH	7.3
Chemistry Data		Dissolved Oxygen (mg/L)	4.3
Turbidity (NTU)	0.45	Specific Conductance (umhos/cm)	466
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.012 I	*Escherichia Coli* (col/100 mL)	62 Q
Nitrate-Nitrite (mg/L)	1.3 J	*Enterococci* (col/100 mL)	12 Q
TKN (mg/L)	0.06 U	Fecal Coliforms (col/100 mL)	106 Q
Total Phosphorus (mg/L)	0.031 I	Total Coliforms (col/100 mL)	30 Q

"U"=Below detection limit; "I"=Below practical quantitation limit; "J"=Estimated value; "Q"=Outside holding time

Figure 3: SCI 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