EcoSummary

Manatee Springs

1/17/2003

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 January 17, 2003, 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.

Results

The nitrate-nitrite concentration (1.7 mg/L) remains elevated measuring higher than the values found in 95% of Florida streams; 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 remain low.

The total habitat assessment score (112) was in the optimal range. *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 complied with Class III water quality standards. The SCI score of 25 for Manatee Springs has increased significantly since the October 2002 sampling. This score has placed Manatee Springs in the "good" range for the first time since October 2000. The periphyton community was dominated by diatoms, with some blue-green and green taxa.

In conclusion, nitrate-nitrite levels remain elevated for Manatee Springs. Furthermore, a eutrophic periphyton community continues to exist. However, the health of the macroinvertebrate community has improved in recent months.

Figure 1: Overview Map of the Manatee Springs Area

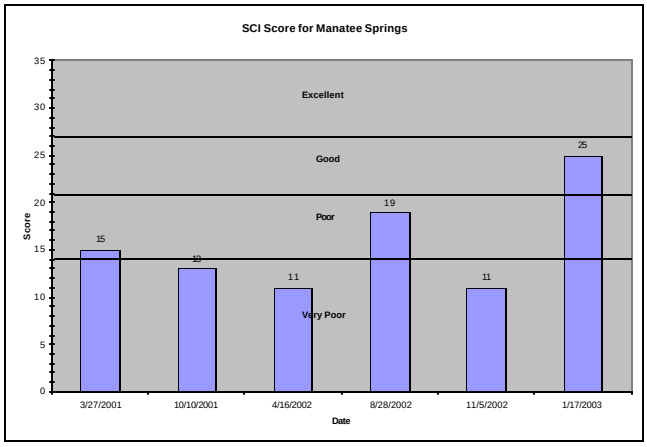


Figure 2: Data Table

Manatee Springs	
Sampling Date	1/17/2003
Macroinvertibrate Parameters	
SCI	25
SCI Evaluation	Good
Number of Taxa	31
EPT Index	2
FL Index	4
% Dominant Taxon	19.13
% Diptera	38.26
Total number of Chironomidae	9
% Filter-Feeders	13.48
Chemistry Data	
Ammonia (mg/L)	0.01 U
Nitrate-Nitrite (mg/L)	1.7
TKN (mg/L)	0.064 I
Total Phosphorus (mg/L)	0.034 I
Color (PCU)	5 UQ
Turbidity	0.35 Q
Periphyton Parameters	
% Bacillariophyceae	69.87
% Cyanophyceae	24.5
% Chlorophyceae	5.63
Dominant taxon	*Diatomaceae/Fragilariaceae*
Percent Dominant taxon	53.97
Physical-Chemical Data	
Habitat Assessment	112
Specific Conductivity (umhos/cm)	484
Dissolved Oxygen (mg/L)	2.2
pH (SU)	7.1
Temperature (deg C)	22.2
Bacteria Parameters	
Enterococci (col/100mL)	1 AKO
Escherichia coli (col/100mL)	14 AQ
Fecal Coliforms (col/100 mL)	21 AQ
Total Coliforms (col/100mL)	95 AQ

"U"- Below Detection Limit; "I"- Below Quantitation Limit; "Q"- Beyond Holding Time; "A"- Mean of Two or More Determinations; "K"- Actual Value is Less Than the Reported Value

Figure 3: SCI Scores



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