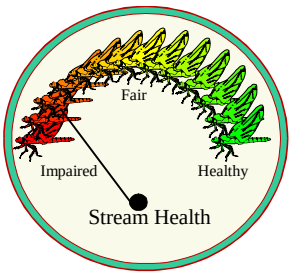


EcoSummary

Manatee Springs

4/29/2004



Background

Florida DEP's Division of Recreation and Parks selected Manatee 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. Manatee Springs, a Floridan Aquifer-dominated system, known for its recreational and aesthetic qualities, is located in Levy County, Florida; see Figure 1.

Samples were collected from Manatee Springs on April 29, 2004, 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 (1.8 mg/L) remained 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. The ammonia concentration was below detection limits. TKN and total phosphorus levels were below practical quantitation limits.

The total habitat assessment score (101) for Manatee Springs was in the "sub-optimal" range. Habitat parameters of concern were substrate availability and habitat smothering. *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.

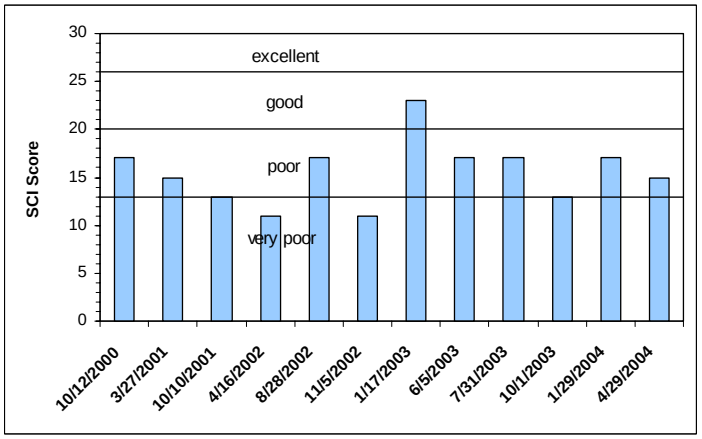
The SCI score of 15 for Manatee Springs was in the "poor" range. The periphyton community was dominated by diatoms, with some blue-green and green taxa. In conclusion, elevated nitrate-nitrite levels, habitat smothering, and poor macroinvertebrate community health continue to be parameters of concern in Manatee Springs.

Figure 2: Data Table

MANATEE SPRINGS			
Sampling Date		4/29/2004	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	15	% Bacillariophyta	95.19
SCI Evaluation	Poor	% Cyanophycota	3.70
Number of Taxa	16	% Chlorophycota	1.11
EPT Index	2	% Cryptophycophyta	0
Florida Index	6	% Dominant Taxon	32.96
% Dominant Taxon	41.18	**Physical-Chemical Data**	
% Diptera	16.67	Habitat Assessment Score	101
Number of Chironomidae	6	Temperature (deg. C)	22.5
% Filter-Feeders	2.94	pH	7.3
Chemistry Data		Dissolved Oxygen (mg/L)	5.3
Turbidity (NTU)	0.5	Specific Conductance (umhos/cm)	436
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	3 B,Q
Nitrate-Nitrite (mg/L)	1.8	*Enterococci* (col/100 mL)	56 Q
TKN (mg/L)	0.092 I	Fecal Coliforms (col/100 mL)	7 B,Q
Total Phosphorus (mg/L)	0.037 I	Total Coliforms (col/100 mL)	250 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



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