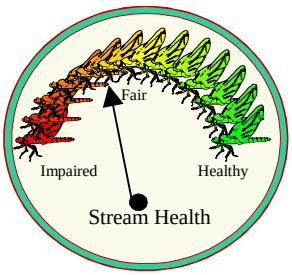


EcoSummary



Manatee Springs
10/1/2003

Background

Florida DEP's Division of Recreation and Parks selected Manatee Springs for biological and water quality monitoring. Data from this effort will be used for documenting conditions within the spring and for making resource protection decisions. Manatee Springs State Park, located in Levy County, Florida (see Figure 1), is a Floridian Aquifer-dominated system known for its recreational and aesthetic qualities.

Samples were collected from Manatee Springs on October 1, 2003, approximately 100 m below the headwaters. Water chemistry samples were taken for ammonia, nitrate-nitrite, TKN, total phosphorus, *Escherichia coli*, *Enterococci*, fecal coliform, and total coliform analyses. A habitat assessment was performed. Qualitative periphyton sampling and benthic invertebrate stream condition index (SCI) sampling were conducted. Sampling results are shown in Figure 2. The SCI trend is shown in Figure 3.

Results

TKN and ammonia levels were below quantitation limits. Total phosphorus (0.04 mg/L) was lower than average for a Florida stream. The nitrate-nitrite concentration (1.7 mg/L) was elevated, exceeding the values found in 95% of Florida streams. Elevated nitrate-nitrite levels are associated with nitrogen loading in the recharge basin.

The *Enterococci* (14 CFU/100 mL) and *Escherichia coli* (24 CFU/100 mL) densities meet the EPA single-sample criterion for "designated beach areas". Fecal coliform (36 CFU/100 mL) and total coliform (290 CFU/100 mL) both complied with Class III water quality standards.

The periphyton community was dominated by diatoms with some blue-green and green taxa. The particular taxa present suggest eutrophic conditions exist in Manatee Springs.

The Stream Condition Index (SCI) measures factors that affect the health and diversity of the benthic macroinvertebrate community. At Manatee Springs, the SCI scored 13 and has moved into the "very poor" category. Historically, the SCI at Manatee Springs is in the "poor" to "very poor" category. The decrease in the SCI may be due to a reduction in habitat availability or quality.

In conclusion, the nitrate-nitrite level remained elevated, and the macroinvertebrate community was in the "poor" range of the SCI. Manatee Springs will continue to be monitored quarterly as part of the Springs Monitoring program.

Figure 1: Overview Map of the Manatee Springs Area

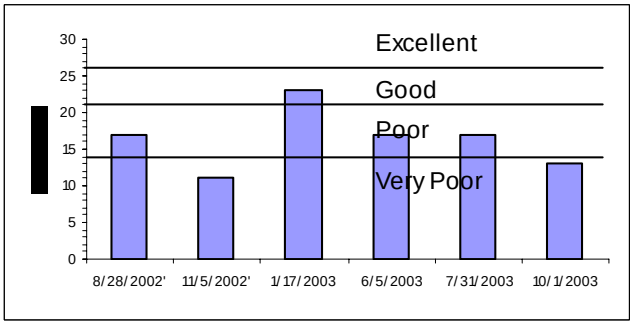


Figure 2: Data Table

Manatee Springs			
Sampling Date		October 1, 2003	
Macroinvertebrate Parameters		Periphyton Parameters	
SCI Score	13	% Bacillariophyceae	79.68
SCI Evaluation	Very Poor	% Chlorophyceae	3.23
Number of Taxa	18	% Cyanophyceae	17.1
EPT Index	2	Dominant Taxon	Fragilariaceae
Florida Index	4	% Contribution Dominant Taxon	13.55
% Contribution Dominant Taxon	55.83	Physical-Chemistry Parameters	
% Diptera	11.67	Habitat Assessment Score	123
Total Number Chironomidae Taxa	4	Specific Conductance (umhos/cm)	462
%Filter-Feeders	5.42	Dissolved Oxygen (mg/L)	2.96
Chemistry Data		pH (SU)	7
Ammonia (mg N/L)	0.01 U	Temperature (deg C)	22.2
Nitrate-Nitrite (mg N/L)	1.7	Bacteria Parameters	
TKN (mg/L)	0.12 I	Enterococci (colonies/100ml)	14 BQ
Total Phosphorus (mg P/L)	0.04 I	Escherichia coli (colonies/100ml)	24 BQ
Color (PCU)	5 U	Fecal Coliforms (colonies/100ml)	36 BQ
Turbidity (NTU)	1	Total Coliforms (colonies/100ml)	290 Q

"B"- Outside Acceptable Range, Estimated; "U"-Below Detection Limit
"I"- Below Quantitation Limit; "Q"- Beyond Holding Time;

Figure 3: SCI Scores



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