EcoSummary

Manatee Springs

7/31/2003

Background

Florida DEP's Division of Recreation and Parks selected Manatee Springs, as one of the state parks and national forests, for biological and water quality monitoring. Data from this effort 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 Floridian Aquifer-dominated system, known for its recreational and aesthetic qualities.

Samples were collected from Manatee Springs on July 31, 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. Sampling results are shown in Figure 2. Qualitative periphyton sampling and benthic invertebrate stream condition index (SCI) sampling were also conducted. The SCI trend is shown in Figure 3.

Results

TKN and ammonia levels remain at minimum detection values. Total phosphorus (0.041 mg/L) was relatively low. The nitrate-nitrite concentration (1.7 mg/L) remains elevated, exceeding the values found in 95% of Florida streams (0.97 mg/L). These elevated nitrate-nitrite levels are related to nitrogen loading in the recharge basin. Samples for ammonia, TKN, nitrate-nitrite and total phosphorus were improperly preserved so these results are considered as estimated values.

The *Enterococci* (40 CFU/100 mL) and *Escherichia coli* (26 CFU/100 mL) densities meet the EPA single-sampling for "designated beach areas." Fecal coliform (68 CFUl/100 ml) and total coliform (200 CFU/100 ml) results comply with Class III water quality standards.

The stream condition index (SCI) in both June and July 2003 is 17. Historically, Manatee Springs is in the "poor" or "very poor" category (see Figure 3). The SCI measures factors that affect the health and diversity of the benthic macroinvertebrate community.

The periphyton community at Manatee Springs was dominated by diatoms, with some blue-green and green algae taxa present. The particular taxa found are tolerant of nutrient enriched conditions.

In conclusion, the nitrate-nitrite level remains elevated at Manatee Springs. The Stream Condition Index was in the poor category. Manatee Springs will continue to be monitored quarterly as part of the Springs Monitoring program.

Figure 1: Overview Map of the Manatee Springs Area

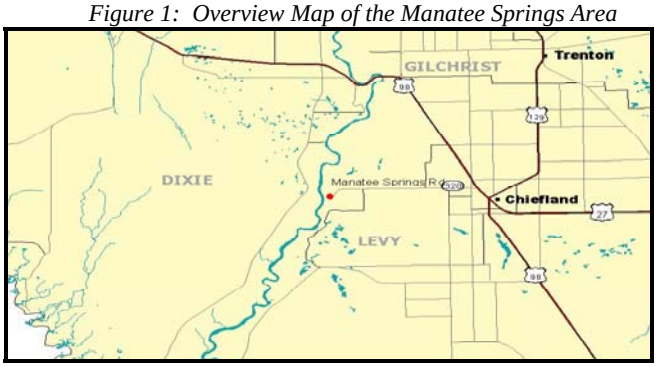
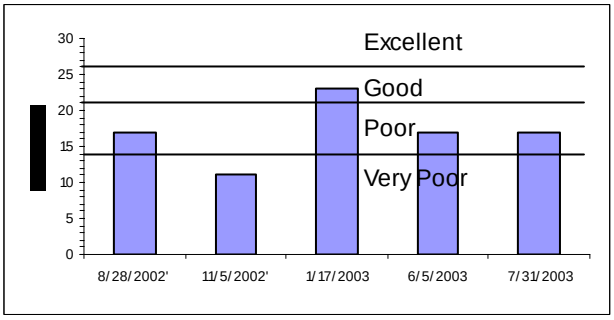


Figure 2: Data Table

Manatee Springs			
Sampling Date		July 31, 2003	
Macroinvertebrate Parameters		Periphyton Parameters	
SCI Score	17	% Bacillariophyceae	83.33
SCI Evaluation	Poor	% Chlorophyceae	4.9
Number of Taxa	27	% Cyanophyceae	11.76
EPT Index	3	Dominant Taxon	Fragilariaceae
Florida Index	5	% Contribution Dominant Taxon	23.53
% Contribution Dominant Taxon	14.71	Physical-Chemistry Parameters	
% Diptera	27.45	Habitat Assessment Score	
Total Number Chironomidae Taxa	8	Specific Conductance (umhos/cm)	478
%Filter-Feeders	3.43	Dissolved Oxygen (mg/L)	4.6
Chemistry Data		pH (SU)	7.1
Ammonia (mg N/L)	0.01 UY	Temperature (deg C)	22.5
Nitrate-Nitrite (mg N/L)	1.8 Y	Bacteria Parameters	
TKN (mg/L)	0.12 UY	Enterococci (colonies/100ml)	40
Total Phosphorus (mg P/L)	0.041 Y	Eschericia coli (colonies/100ml)	26 BQ
Color (PCU)	5 UQ	Fecal Coliforms (colonies/100ml)	68
Turbidity (NTU)	0.5 Q	Total Coliforms (colonies/100ml)	200

"U"- Below Detection Limit; "Y"- Sample Improperly Preserved;
"Q"- Beyond Holding Time; "B"- Counts Outside Acceptable Range, Estimated Count

Figure 3: SCI Scores Over Time



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