EcoSummary

Ichetucknee Springs

09/30/03

Background

Florida DEP's Division of Recreation and Parks selected Ichetucknee Springs 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. Ichetucknee Springs State Park is located in Suwannee and Columbia Counties; see Figure 1. Ichetucknee Springs is a Floridan Aquifer-dominated system and is known for its recreational and aesthetic qualities.

In September 2003, water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen, total phosphorus, color, and turbidity, *Enterococci*, *Escherichia coli*, fecal coliform, and total coliform analysis. Qualitative periphyton and benthic invertebrate stream condition index (SCI) sampling were also conducted. Duplicate samples were collected approximately two miles south of the boil within the park limits. Results of all testing is shown in Figure 2.

Results

The nitrate-nitrite concentration remains elevated (0.38 mg/L in the primary sample and 0.38 mg/L in the duplicate sample), exceeding the values found in 80% of other Florida streams. The total phosphorus (0.074 and 0.066 mg/L) and total Kjeldahl nitrogen (0.085 and 0.079 mg/L) concentrations exceed the values of 50% of other Florida streams. Ammonia (0.01 mg/L) remains very low.

The density of *Enterococci* (82 and 98 CFU/100 mL) exceeded the EPA single-sampling guideline (61 CFU/100 mL) for "designated beach areas". Some species of *Enterococci* are free-living in warm waters. The applicability of the above guideline in Florida waters is currently under investigation. *Escherichia coli* densities (58 and 60 CFU/100 mL) were below the EPA single-sampling guideline value for "a designated beach area". Fecal and total coliform levels complied with Class III water quality standards.

The stream condition index (SCI) score (29 and 25) is in the "good" to "excellent" range. The SCI score is used to indicate the health and diversity of the benthic invertebrate community in Ichetucknee Springs. See Figure 3 for the trend in SCI scores.

Diatoms, with some blue-green algae taxa dominate the periphyton community in Ichetucknee Springs. These particular taxa found are indicative of eutrophic conditions.

In conclusion, monitoring results indicate that Ichetucknee Springs remains characterized by high nitrate-nitrite levels and a periphyton community representing eutrophic conditions. The invertebrate community indicates healthy conditions prevail.

Figure 1: Overview Map of the Ichetucknee Springs Area

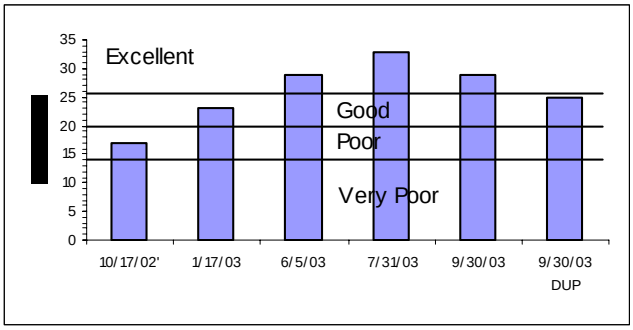


Figure 2: Data Table

Ichetucknee Springs				
Sampling Date			September 30, 2003	
Macroinvertebrate Parameters			Periphyton Parameters	
SCI Score	29	25	% Bacillariophyceae	80.51	78.8
SCI Evaluation	Excell	Good	% Chlorophyceae	0.64	1.9
Number of Taxa	33	31	% Cyanophyceae	18.85	19.3
EPT Index	4	5	Dominant Taxon	Cocconeis placentula / Nitzschia	
Florida Index	16	15	% Contribution Dominant Taxon	15.34	14.24
% Contribution Dominant Taxon	16.35	25.96	Physical-Chemistry Parameters		
% Diptera	51.92	75	Habitat Assessment Score		
Total Chironomidae Taxa	14	16	Specific Conductance (umhos/cm)	315	315
%Filter-Feeders	22.6	37	Dissolved Oxygen (mg/L)	6.26	6.27
Chemistry Data			pH (SU)	7.38	7.38
Ammonia (mg N/L)	0.01 U	0.01 U	Temperature (deg C)	21.27	21.27
Nitrate-Nitrite (mg N/L)	0.38	0.38	Bacteria Parameters		
TKN (mg/L)	0.085 I	0.079 I	Enterococci (colonies/100ml)	82 Q	98 Q
Total Phosphorus (mg P/L)	0.074	0.066 A	Eschericia coli (colonies/100ml)	70 Q	58 Q
Color (PCU)	5 Q	5 Q	Fecal Coliforms (colonies/100ml)	66 Q	102 Q
Turbidity (NTU)	0.35	0.2	Total Coliforms (colonies/100ml)	760 Q	400 Q

"A"- Mean of Two or More Determinations; "Q"- Beyond Holding Time; "U"- Below Detection Limit; "I"- Below Quantitation Limit and Greater Than Detection Limit

Figure 3: SCI Scores Over Time



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