EcoSummary

Ichetucknee Springs
07/31/03

Background

Florida DEP's Division of Recreation and Parks selected Ichetucknee Springs for biological and water quality monitoring. This data will help document conditions within each park and assist in 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 July 2003, water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen, total phosphorus, color, turbidity, Enterococci, Escherichia coli, fecal coliform, and total coliform analysis. Qualitative periphyton, and benthic invertebrate stream condition index (SCI) sampling were also conducted. Samples were collected approximately two miles south of the headspring within the park limits. See Figure 2 for all the sampling results.

Figure 1: Overview Map of the Ichetucknee Springs Area



Results

The nitrate-nitrite concentration (0.39 mg/L) remains elevated, exceeding the values found in 80% of other Florida streams. Total phosphorus (0.068 mg/L) remains the same as previous sampling events. Total Kjeldahl nitrogen (0.13 mg/L) is just above the minimum detection limit. Ammonia was measured to be 0.072 mg/L, an increase since the June 2003 value of 0.012 mg/L. Samples for ammonia, TKN, nitrate-nitrite and total phosphorus were improperly preserved so these results may not be accurate.

Enterococci (82 CFU/100 mL) density has increased since June 2003, exceeding 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 the single sampling guideline in Florida waters is currently under investigation. Escherichia coli density (70 CFU/100 mL) meets the EPA single-sampling guideline value for a designated beach area. The fecal and total coliform levels complied with Class III water quality standards.

The stream condition index (SCI) score of 37 continues the upswing that keeps Ichetucknee Springs in the "excellent" category. The stream condition index (SCI) is an indication of the benthic macroinvertebrate community health and diversity. See Figure 3 for the trend in SCI scores at Ichetucknee Springs. Diatoms dominate the periphyton community at Ichetucknee Springs.

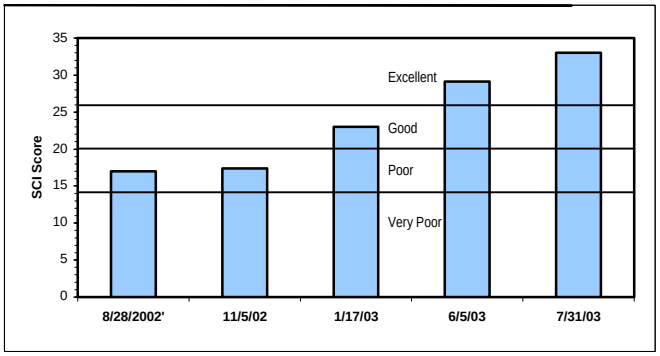
In conclusion, Ichetucknee Springs has high nitrate-nitrite and ammonia nutrient levels. The periphyton community indicates that eutrophic conditions exist at Ichetucknee Springs. Ichetucknee Springs will continue to be monitored quarterly as part of the Springs Monitoring program.

Figure 2: Data Table

Ichetucknee Springs			
Sampling Date		July 31, 2003	
Macroinvertebrate Parameters		Periphyton Parameters	
SCI Score	33	% Bacillariophyceae	100
SCI Evaluation	Excellent	% Chlorophyceae	0
Number of Taxa	31	% Cyanophyceae	0
EPT Index	7	Dominant Taxon	Cocconeis placentula
Florida Index	18	% Contribution Dominant Taxon	16.87
% Contribution Dominant Taxon	10.91	Physical-Chemistry Parameters	
% Diptera	32.73	Habitat Assessment Score	
Total Number Chironomidae Taxa	10	Specific Conductance (umhos/cm)	324
%Filter-Feeders	16.36	Dissolved Oxygen (mg/L)	6.7
Chemistry Data		pH (SU)	7.4
Ammonia (mg N/L)	0.072 Y	Temperature (deg C)	21.8
Nitrate-Nitrite (mg N/L)	0.39 Y	Bacteria Parameters	
TKN (mg/L)	0.13 IY	Enterococci (colonies/100ml)	82 Q
Total Phosphorus (mg P/L)	0.068 Y	Eschericia coli (colonies/100ml)	70 Q
Color (PCU)	5 UQ	Fecal Coliforms (colonies/100ml)	66 Q
Turbidity (NTU)	0.55 Q	Total Coliforms (colonies/100ml)	760 Q

"Y"- Sample Improperly Preserved; "I"- Below Quantitation Limit and Greater Than Detection Limit; "Q"- Beyond Holding Time

Figure 3: SCI Scores Over Time



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