EcoSummary

Ichetucknee Springs

10/15/01

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 Suwanee and Columbia Counties (Figure 1).

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 (Figure 2). Habitat assessment, qualitative periphyton, and benthic invertebrate stream condition index (SCI) sampling were conducted. The sampling station was situated approximately 800 m upstream from US 27.

Results

The nitrate-nitrite (0.43 mg/L) concentration exceeded the values found in 70% of other Florida streams (Figure 2). Total phosphorus (0.056 mg/L) was relatively low compared with other Florida streams. Ammonia, and total Kjeldal nitrogen concentrations were below detection limit (Figure 2). As found in previous samplings, the density of *Enterococci* (130 CFU/100mL) was above the EPA single-sample guideline value of 61 CFU/100mL for "designated beach areas." It is possible that the source of the *Enterococci* may be from self-reproducing populations in the sediments or from wildlife input. *Escherichia coli* densities 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 overall habitat assessment score (149) was in the optimal range (>120), however, during this sampling, the SCI score (17) was in the poor range. The SCI score has decreased substantially when compared with the last two sampling events (Figure 3). Low dissolved oxygen (4.0 mg/L) measured during the most recent sampling is one possible explanation for the low SCI score, however, other unidentified factors may also be responsible. The periphyton community in Ichetucknee Spring was dominated by diatoms with some blue-green taxa. The particular taxa found were indicative of eutrophic conditions.

In summary, the Ichetucknee continues to be characterized by elevated nitrates, moderately high Entercocci densities, and a periphyton community representing eutrophic conditions. These recent (poor) SCI results are surprising, and future follow up sampling is recommended.

Figure 1: Overview Map of the Rainbow Springs Area

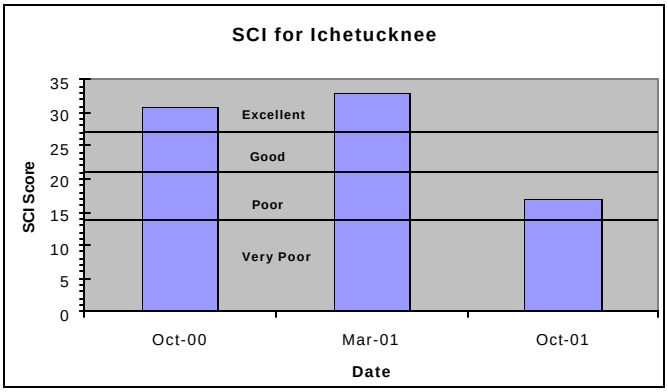


Figure 2: Data Table

Ichetucknee Springs			
Sampling Date		10/15/2001	
Macroinvertibrate Parameters		Periphyton Parameters	
SCI	17	% Bacillariophyceae	74.74
SCI Evaluation	Poor	% Cyanophyceae	24.37
Number of Taxa	16	% Chlorophyceae	0.89
EPT Index	3	Dominant taxon	Cocconeis placentula
FL Index	11	Percent Dominant taxon	21.84
% Dominant Taxon	44	Physical-Chemical Data	
% Diptera	8	Habitat Assessment	149
Total number of Chironomidae	4	Specific Conductivity (umhos/cm)	284
% Filter-Feeders	11	Dissolved Oxygen (mg/L)	4
Chemistry Data		pH (SU)	7.53
Ammonia (mg/L)	0.01 U	Temperature (deg C)	21.1
Nitrate-Nitrite (mg/L)	0.43	Bacteria Parameters	
TKN (mg/L)	0.06 U	*Enterococci* (col/100mL)	130
Total Phosphorus (mg/L)	0.056	*Escherichia coli* (col/100mL)	170
Color (PCU)	5U	Fecal Coliforms (col/100 mL)	210
Turbidity (NTU)	0.2	Total Coliforms (col/100mL)	540

"U"- Below Detection Limit; "I"- Below Quantitation Limit; "Q"- Information Only; "J"- Estimated Value

Figure 3. Nitrate-Nitrite Evaluation



FOR MORE INFORMATION, CONTACT:
Thomas Deck, FDEP Environmental Assessment Section
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 245-8074 thomas.deck@dep.state.fl.us