EcoSummary

Ichetucknee Springs

8/28/02

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 known for its recreational and aesthetic qualities.

In August 2002, 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; see Figure 2. Habitat assessment, qualitative periphyton, and benthic invertebrate stream condition index (SCI) sampling were also conducted. Samples were collected approximately two miles south of the boil within the park limits.

Results

The nitrate-nitrite concentration continued to be elevated (0.41 mg/L), exceeding the values found in 85% of other Florida streams; see Figure 2. The total phosphorus (0.073 mg/L) was relatively low, measuring lower than roughly 65% of other Florida streams. Ammonia, and total Kjeldal nitrogen concentrations remain below detection limit (see figure 2). As found in previous samplings, the density of *Enterococci* (80 CFU/100mL) was above the EPA single-sampling guideline value of 61 col/100mL for "designated beach areas". However, it has decreased from the April 2002 value of 102 CFU/100mL. Some species of *Enterococci* are known to be free-living in warm waters; the applicability of the above guideline in Florida waters is currently under investigation. *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 (150) was in the optimal range (>120). However, the SCI score (17) was in the "poor" range, decreasing from the last sampling event (see figure 3). Diatoms with some blue-green taxa dominated the periphyton community in Ichetucknee Springs. The particular taxa found were indicative of eutrophic conditions.

In conclusion, monitoring results continue to indicate that Ichetucknee Springs remains characterized by moderately high *Enterococci* densities, and a periphyton community representing eutrophic conditions. It is not currently known why the SCI scores have declined in recent samplings.

Figure 1: Overview Map of the Ichetucknee Springs Area

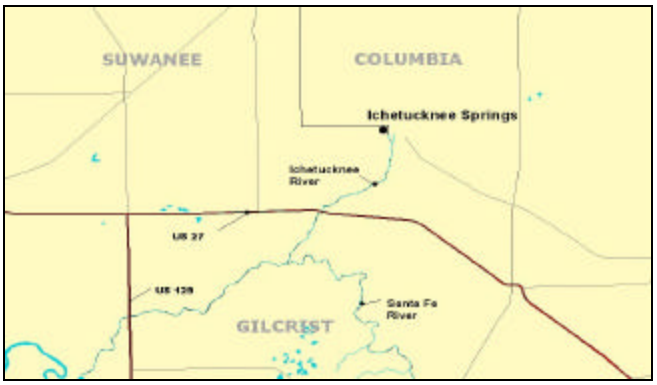
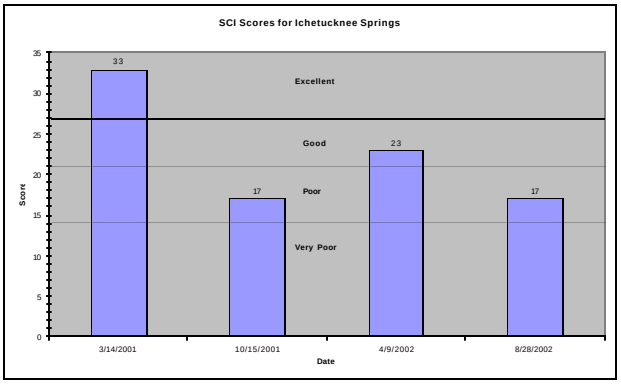


Figure 2: Data Table

Ichetucknee Springs			
Sampling Date		8/28/2002	
Macroinvertibrate Parameters		**Periphyton Parameters**	
SCI	17	% Bacillariophyceae	98.31
SCI Evaluation	Poor	% Cyanophyceae	1.13
Number of Taxa	19	% Chlorophyceae	0.56
EPT Index	2	Dominant taxon	*Diatomaceae/Fragilariaceae*
FL Index	9	Percent Dominant taxon	25.33
% Dominant Taxon	35.79	**Physical-Chemical Data**	
% Diptera	16.84	Habitat Assessment	150
Total number of Chironomidae	8	Specific Conductivity (umhos/cm)	303
% Filter-Feeders	2.63	Dissolved Oxygen (mg/L)	4.35
Chemistry Data		pH (SU)	7.56
Ammonia (mg/L)	0.013 I	Temperature (deg C)	21.82
Nitrate-Nitrite (mg/L)	0.41	**Bacteria Parameters**	
TKN (mg/L)	0.06 U	*Enterococci* (col/100mL)	80 Q
Total Phosphorus (mg/L)	0.073	*Escherichia coli* (col/100mL)	34 Q
Color (PCU)	5 U	Fecal Coliforms (col/100 mL)	30 Q
Turbidity (NTU)	0.2	Total Coliforms (col/100mL)	1200 Q

"U"- Below Detection Limit; "I"- Below Quantitation Limit; "Q"- Beyond Holding Time

Figure 3: SCI Scores



FOR MORE INFORMATION, CONTACT:
Shannon Gerardi, FDEP Environmental Assessment Section
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 245-8071 shannon.gerardi@dep.state.fl.us