EcoSummary

Ichetucknee Springs

10/17/2002

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

In October 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.

Figure 1: Overview Map of the Ichetucknee Springs Area

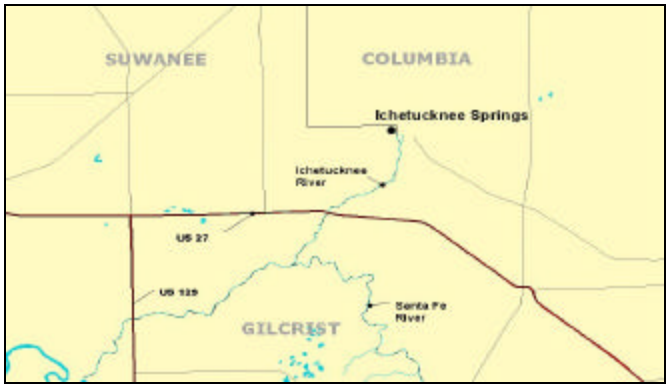


Figure 2: Data Table

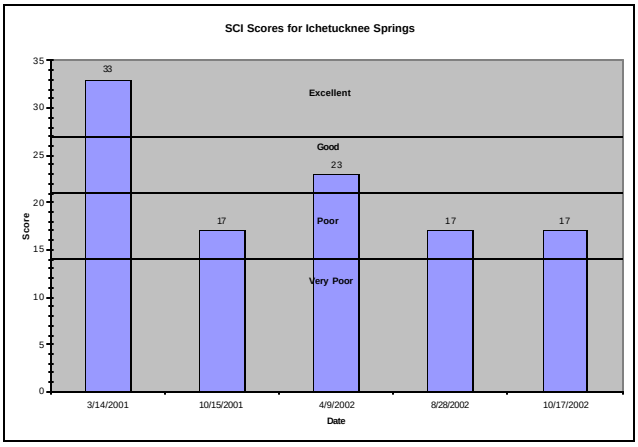
Ichetucknee Springs			
Sampling Date		10/17/2002	
Macroinvertibrate Parameters		**Periphyton Parameters**	
SCI	17	% Bacillariophyceae	88.57
SCI Evaluation	Poor	% Cyanophyceae	10.08
Number of Taxa	22	% Chlorophyceae	1.36
EPT Index	2	Dominant taxon	*Diatomaceae/Fragilariaceae*
FL Index	13	Percent Dominant taxon	13.76
% Dominant Taxon	42.68	**Physical-Chemical Data**	
% Diptera	18.29	Habitat Assessment	153
Total number of Chironomidae	8	Specific Conductivity (umhos/cm)	351
% Filter-Feeders	5.49	Dissolved Oxygen (mg/L)	5.26
Chemistry Data		pH (SU)	6.93
Ammonia (mg/L)	0.011 I	Temperature (deg C)	20.7
Nitrate-Nitrite (mg/L)	0.43	**Bacteria Parameters**	
TKN (mg/L)	0.06 U	*Enterococci* (col/100mL)	70 O
Total Phosphorus (mg/L)	0.062	*Escherichia coli* (col/100mL)	82 Q
Color (PCU)	5 U	Fecal Coliforms (col/100 mL)	60 Q
Turbidity (NTU)	0.65	Total Coliforms (col/100mL)	500 Q

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

Results

The nitrate-nitrite concentration remains elevated (0.43 mg/L), exceeding the values found in 85% of other Florida streams; see Figure 2. The total phosphorus (0.062 mg/L) was relatively low, while ammonia, and total Kjeldal nitrogen concentrations remain below detection limits (see figure 2). As found in previous samplings, the density of *Enterococci* (70 CFU/100mL) was above the EPA single-sampling guideline value of 61 CFU/100mL for "designated beach areas". However, it has decreased from the August 2002 value of 80 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 (153) was in the optimal range (>120). The SCI score (17) has remained the same as the August 2002 sampling, scoring in the "poor" range (see figure 3). There currently is no explanation for these lower than expected SCI results. Diatoms with some blue-green taxa dominated the periphyton community in Ichetucknee Springs. The particular taxa found were indicative of eutrophic conditions.

Figure 3: SCI Scores



In conclusion, monitoring results continue to indicate that Ichetucknee Springs remains characterized by moderately high *Enterococci* densities, high nitrate-nitrite levels, a poor invertebrate community, and a periphyton community representing eutrophic conditions.

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