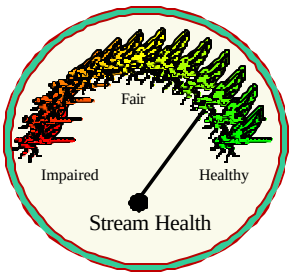


EcoSummary

Ichetucknee Springs
10/05/00



Background

Florida DEP's Division of Recreation and Parks selected Ichetucknee Springs, as well as springs from seven other state parks, 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, Florida; see Figure 1. The Ichetucknee River begins in the park from numerous spring vents and then flows south into the Santa Fe River. Ichetucknee Springs is a Floridan Aquifer-dominated system and is known for its recreational and aesthetic qualities. Water quality characteristics vary from spring vent to spring vent, so a sampling location in the spring run was selected to document overall effects.

Baseline samples were taken at all eight park locations in October 2000. 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 sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

Results

Nitrate-nitrite concentrations (0.54 mg/L) at the sampling site was higher than those found in 85% of Florida streams (0.48 mg/L); see Figure 2. Elevated nitrite-nitrate levels in the Ichetucknee Springs and River are related to nitrogen loadings in the recharge basin (mostly inorganic fertilizers applied to pasture). Ammonia and total Kjeldahl nitrogen concentrations were below quantitation limits (see figure 2). Total phosphorus concentrations (0.075 mg/L) were below those found in 40% of Florida streams. The overall habitat assessment score (146) was in the optimal range (>120). The *Enterococci* concentration (180 colonies/100mL) was three times higher than the EPA single-sample guideline of 61 colonies/100mL for "designated beach areas." The *Escherichia coli* concentration was below the EPA "designated beach" guideline of 235 col/100mL. Fecal and total coliform levels were below the Class III water body threshold values. The stream condition index (SCI) score of 31 for Ichetucknee Springs/River was in the "excellent" range. Diatoms with some blue-green taxa dominated the periphyton community in the springs. The particular taxa found were indicative of eutrophic conditions, which was not surprising given the nutrient enrichment in Ichetucknee Springs. In conclusion, elevated nitrate-nitrate levels in Ichetucknee appeared to be the main stressor associated with a relatively low quality algal community. Additionally, elevated *Enterococci* levels were cause for concern. It is recommended that further study be undertaken to determine the sources of the bacteria and, if necessary, implement corrective action.

Figure 1: Overview Map of the Area

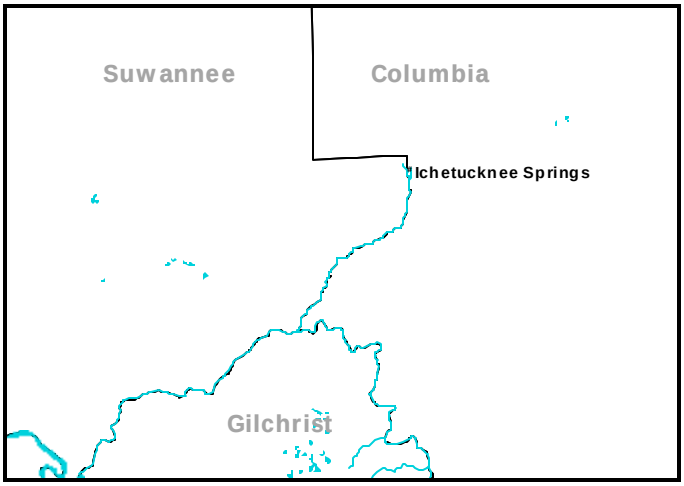


Figure 2: Data Table

ICHETUCKNEE SPRINGS			
Station		Ichetucknee Springs	
Station Nick Name		ICHETUCKN	
STORET		SPRINGS004	
Sampling Date		10/5/00	
Macroinvertebrate Parameters		**Periphyton Parameters**	
SCI	31	Number of Taxa	27
SCI Evaluation	excellent	% Bacillariophyceae	82.13
SCI Region	panhandle	% Chlorophyceae	1.29
Number of Taxa	36	% Cyanophyceae	16.59
Number of Ephemeroptera	1	% Dinophyceae	0
Number of Plecoptera	0	% Dominant Taxon	33.17
Number of Trichoptera	6	**Physical-Chemical Data**	
EPT Index	7	Habitat Assessment	146
% Dominant Taxon	22.5	Sample Depth (m)	0.1
Florida Index	16	Conductivity (umho/cm)	299
% Diptera	31.67	Dissolved Oxygen (mg/L)	5.7
Number of Chironomidae	4	pH (SU)	7.5
Number of Orthocladiinae	7	Temperature (deg. C)	22
Total Number of Chironomidae	11	**Chemistry Data**	
% Filter-Feeders	11.67	Ammonia (mg/L)	0.01 U
Bacteria Parameters		Nitrate-Nitrite (mg/L)	0.54
Enterococci (col/100 mL)	180 O	TKN (mg/L)	0.073 I
Escherichia coli (col/100 mL)	70 Q	Total Phosphorus (mg/L)	0.075
Fecal Coliforms (col/100 mL)	72 Q	Color (PCU)	5
Total Coliforms (col/100 mL)	690 Q	Turbidity (NTU)	0.15

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

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