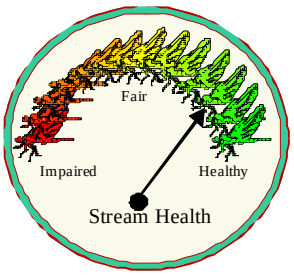


EcoSummary

Ichetucknee Springs

7/19/2006

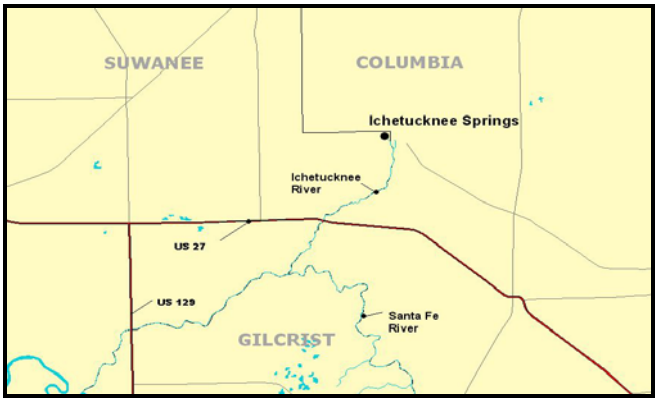


Background

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 the 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.

Samples were collected from Ichetucknee Springs on July 19, 2006. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, *Escherichia coli*, *Enterococci*, fecal coliform, and total coliform analyses; see Figure 2. Habitat assessment and benthic macroinvertebrate Stream Condition Index (SCI) sampling were conducted. Samples were collected approximately two miles south of the head spring, within the park limits.

Figure 1: Map of the Ichetucknee Springs Area



Results

The nitrate-nitrite concentration in Ichetucknee Springs (0.55 mg/L) was higher than the values found in 80% of Florida streams (0.32 mg/L or less). The total phosphorus concentration (0.12 mg/L) was roughly average for a Florida stream. Ammonia (0.01 mg/L) and TKN (0.08 mg/L) concentrations were below the Method Detection Limit indicating no potential problems associated with these parameters.

Enterococci and *Escherichia coli* concentrations complied with the EPA single-sample guideline values and fecal and total coliform levels complied with Class III water quality standards.

The thresholds for interpreting the Stream Condition Index values have recently been revised according to the EPA Biological Condition Gradient (BCG) conceptual model. In addition, the laboratory methodology used to evaluate the macroinvertebrate samples taken for the SCI was also revised to reduce uncertainty associated with SCI results. In addition, the laboratory methodology used to evaluate the macroinvertebrate samples taken for the SCI was also revised to reduce variability associated with SCI results. In the SCI 2004 method, a single sub-sample of 100 individuals was identified and scored, while in the new SCI 2007 method, two separate sub-samples of 150 individuals are analyzed, and the two resulting SCI scores are averaged. The SCI 2007 produces a more robust evaluation since the decision thresholds are based on the BCG, and the examination of two separate aliquots reduces error. Note that the sampling method and the ten metrics used for calculating the score remain exactly the same. The SCI 2007 went into effect August 1, 2006, which was after this sampling event. In Figure 3, the new thresholds have been retroactively applied to the SCI scores, all of which were calculated using the 2004 method.

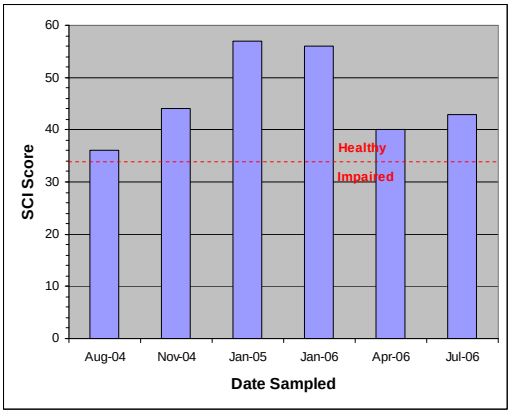
The SCI score of 43 was in the "Healthy" range. The Habitat Assessment score (146) was in the "Optimal" range. In conclusion, the elevated nitrate-nitrite concentration continues to be the main parameter of concern in Ichetucknee Springs.

Figure 2: Data Table

ICHETUCKNEE SPRINGS			
Sampling Date	7/19/2006	**Field Data**	
Macroinvertebrate Data		Habitat Assessment Score	146
SCI 2004 Score	43	Temperature (deg. C)	22.3
SCI Evaluation	Healthy	pH	7.11
Chemistry Data		Dissolved Oxygen (mg/L)	5.95
Turbidity (NTU)	0.6	Specific Conductance (umhos/cm)	312
Color (PCU)	5	**Bacteria Data**	
Ammonia (mg/L)	.01 U	*Escherichia coli* (col/100 mL)	50 AQ
Nitrate-Nitrite (mg/L)	0.55	*Enterococci* (col/100 mL)	28 ABQ
TKN (mg/L)	.08 U	Fecal Coliforms (col/100 mL)	46 AQ
Total Phosphorus (mg/L)	0.12	Total Coliforms (col/100 mL)	70 AQ

"U"=Below Method Detection Limit; "B"=Results based on colony counts outside the acceptable range; "Q"=Outside of holding time; "A"= Value reported is the mean of two or more determinations

Figure 3: SCI Scores over Time



FOR MORE INFORMATION, CONTACT:
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