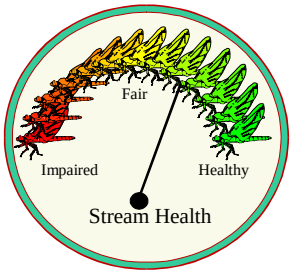


EcoSummary

Wakulla Springs

4/15/2004



Background

The Florida DEP Bureau of Laboratories conducts quarterly sampling of the Wakulla River within the boundaries of Wakulla Springs State Park, at a site located just below the tour boat turn-around area. Data from these efforts is used for documenting conditions within the river and for making resource protection decisions. Wakulla Springs State Park is located in Wakulla County, Florida; see Figure 1. The Wakulla River begins in the park, flows south, and joins the St. Mark's River before flowing into the Gulf of Mexico. Wakulla Springs is a Floridian Aquifer-dominated system and is known for its recreational and aesthetic qualities.

Wakulla Springs was sampled on April 15, 2004 as part of the quarterly monitoring program and to determine the long-term results of Aquathol® herbicide treatments. Water chemistry samples were collected for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, Enterococci, Escherichia coli, fecal coliform, total coliform, and other analyses; see Figure 2. Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were also conducted. See Figure 3 for SCI scores over time.

Figure 1: Overview Map of the Wakulla Springs Area



Results

The nitrate-nitrite concentration in Wakulla Springs (0.65 mg/L) was higher than values found in 90% of Florida streams; see Figure 2. Ammonia and TKN levels were below detection limits. Total phosphorus concentration was below practical quantitation limits. Since the sampling site is about a mile downstream from the spring boil, nutrients are expected to be lower than those at the boil due to uptake by the heavy growth of vegetation in the river.

Enterococci and *Escherichia coli* concentrations were below the EPA single-sample guideline values of 61 CFU/100 mL and 235 CFU/100 mL, respectively, for "designated beach areas." Fecal and total coliform levels complied with Class III water quality standards.

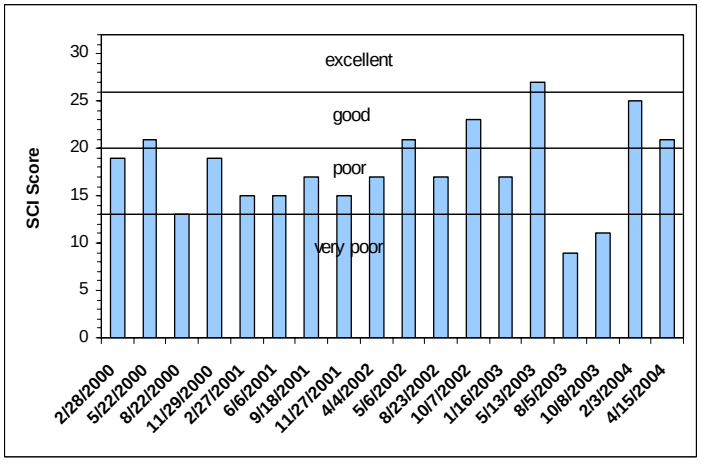
The overall habitat assessment score (137) was in the "optimal" range. Diatoms, with some blue-green and green algal taxa, dominated the periphyton community. The SCI score (21) for Wakulla Springs was in the "good" range. The SCI scores at Wakulla Springs are potentially related to *Hydrilla* density, with better SCI scores associated with times when the *Hydrilla* density is reduced. In conclusion, nitrate-nitrite concentration and *Hydrilla* control continue to be the issues of concern in Wakulla Springs.

Figure 2: Data Table

WAKULLA SPRINGS			
Sampling Date		4/15/2004	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	21	% Bacillariophyta	93.85
SCI Evaluation	Good	% Cyanophycota	4.21
Number of Taxa	16	% Chlorophycota	1.94
EPT Index	2	% Cryptophycophyta	0
Florida Index	12	% Dominant Taxon	12.62
% Dominant Taxon	60.58	**Physical-Chemical Data**	
% Diptera	25.96	Habitat Assessment Score	137
Number of Chironomidae	10	Temperature (deg. C)	21.2
% Filter-Feeders	9.62	pH	8.0
Chemistry Data		Dissolved Oxygen (mg/L)	7.4
Turbidity (NTU)	0.2	Specific Conductance (umhos/cm)	312
Color (PCU)	5	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	2 B
Nitrate-Nitrite (mg/L)	0.65	*Enterococci* (col/100 mL)	7 B
TKN (mg/L)	0.06 U	Fecal Coliforms (col/100 mL)	7 B
Total Phosphorus (mg/L)	0.047 I	Total Coliforms (col/100 mL)	72

"U"=Below detection limit; "I"=Below practical quantitation limit; "Q"=Outside of holding time; "B"=Results based on colony counts outside the acceptable range

Figure 3: SCI Scores Over Time



FOR MORE INFORMATION, CONTACT:
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