EcoSummary

Silver River Springs

10/14/2002

Background

Florida DEP's Division of Water Resource Management selected Silver River Spring for biological and water quality monitoring. Data from these efforts will be used for documenting conditions within the spring run and for making resource protection decisions. Silver River Springs is located northeast of Ocala in Marion County, Florida (Figure 1). Silver River Springs flows into Ocklawaha River. Silver River Springs is a Floridan Aquifer-dominated system and is known for its recreational and aesthetic qualities.

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 (Figure 2). Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

Results

The nitrate-nitrite concentrations (1.1 mg/L) at the sampling site were higher than those found in 95% of Florida streams (Figure 2). Elevated nitrite-nitrate levels in Silver River Springs are related to nitrogen loading in the recharge basin. The ammonia concentrations (0.01 mg/L) and total Kjeldal nitrogen concentrations (0.064 mg/L) were below the minimum detection limit.

Enterococci and Eschericia coli densities complied with the EPA single-sample guideline value of 61 CFU/100mL and 235 CFU/mL, respectively, for "designated beach areas." Fecal and total coliform levels were below the Class III water body water standards. The periphyton community in Silver River Springs was dominated by diatoms with some blue-green taxa. The particular taxa found were indicative of eutrophic conditions, which was not surprising given the nutrient enrichment in Silver River Springs. The stream condition index (SCI) score of 23 for Silver River Springs was in the "good" range.

In conclusion, elevated nitrate-nitrate levels in Silver River Springs appeared to be the main stressor associated with a relatively low quality algal community.

Figure 1: Overview Map of the Silver Springs Area

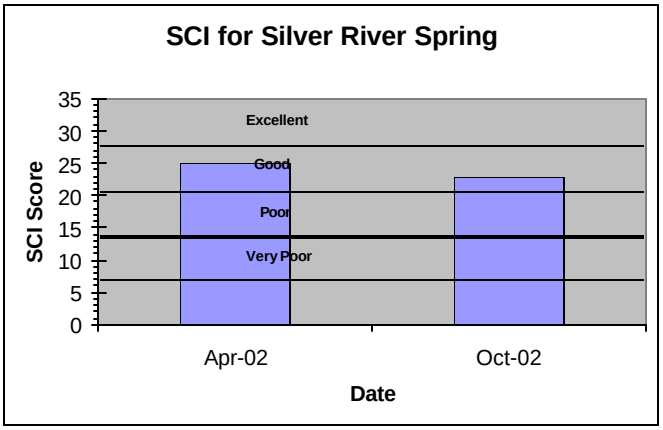


Figure 2: Data Table

Silver River Springs			
Sampling Date		10/14/2002	
Macroinvertibrate Parameters		Periphyton Parameters	
SCI	23	% Bacillariophyceae	74.64
SCI Evaluation	good	% Cyanophyceae	23.91
Number of Taxa	23	% Chlorophyceae	1.45
EPT Index	1	Dominant taxon	Diatomaceae/Fragilariaceae
FL Index	8	Percent Dominant taxon	21.74
% Dominant Taxon	27.13	Physical-Chemical Data	
% Diptera	54.26	Habitat Assessment	133
Total number of Chironomidae	9	Specific Conductivity (umhos/cm)	480
% Filter-Feeders	15.89	Dissolved Oxygen (mg/L)	5.32
Chemistry Data		pH (SU)	7.2
Ammonia (mg/L)	0.01 U	Temperature (deg C)	23.65
Nitrate-Nitrite (mg/L)	1.1	Bacteria Parameters	
TKN (mg/L)	0.06 U	*Enterococci* (col/100mL)	22 Q
Total Phosphorus (mg/L)	0.063	*Escherichia coli* (col/100mL)	42 Q
Color (PCU)	5 U	Fecal Coliforms (col/100 mL)	40 Q
Turbidity (NTU)	0.05 U	Total Coliforms (col/100mL)	200 Q

"I"- Less than the minimum quantitation limit; "Q"- Information Only, "U"-Below minimum detection limit; "K" –Actual value less than given value

Figure 3. SCI Evaluation for Silver River Spring



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