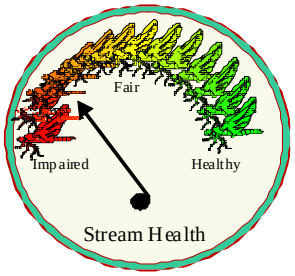


EcoSummary

Silver River Springs

11/29/2006



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). The Silver River, which flows into the Ocklawaha River, is a Floridan Aquifer-dominated system known for its recreational and aesthetic qualities.

Samples were collected from Silver River Springs on November 29, 2006. 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 and benthic invertebrate Stream Condition Index (SCI) sampling were also conducted.

Figure 1: Map of the Silver Springs Area



Results

The nitrate-nitrite concentration (1.3 mg/L) at the sampling site was higher than the values found in 95% of Florida streams (1.05 mg/L or less). Elevated nitrate-nitrite levels in Silver River Springs are related to nitrogen loading in the recharge basin. Ammonia and TKN concentrations were below method detection limits. Total phosphorus was below the practical quantitation limit.

Enterococci and *Escherichia coli* counts complied with the EPA single-sample guideline values of 61 CFU/100 mL and 235 CFU/100 mL, respectively, for "designated beach areas." The total and fecal coliform counts 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, two separate groups of 150 individuals are now 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. In Figure 3, the new thresholds have been retroactively applied to the scores acquired before this date.

The SCI score of 23 was in the "impaired" range. The Habitat Assessment score (121) was in the "optimal" range, although algal smothering was an issue of concern. Low dissolved and elevated conductivity (both of natural origin) were probably the main stressors associated with the reduced SCI score.

In conclusion, elevated nitrate-nitrite levels and an poor invertebrate community were the main issues of concern in Silver Springs.

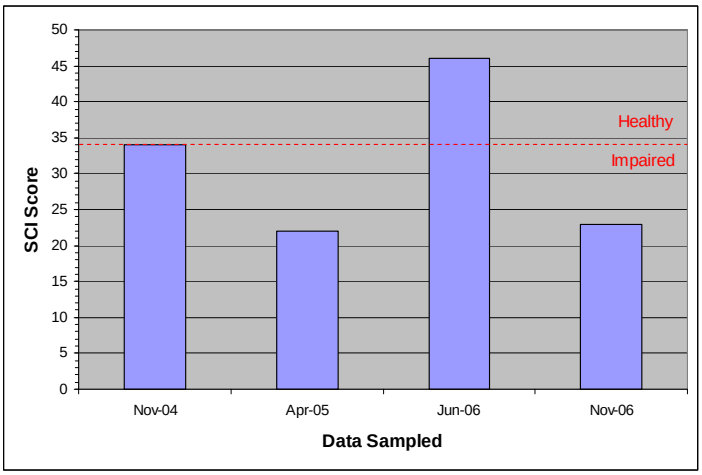
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Figure 2: Data Table

SILVER RIVER SPRINGS			
Sampling Date	11/29/2006	**Field Data**	
Macroinvertebrate Data		Habitat Assessment Score	121
SCI Score	23 A	Temperature (deg. C)	23.6
SCI Evaluation	Impaired	pH	7.2
Chemistry Data		Dissolved Oxygen (mg/L)	3.3
Turbidity (NTU)	0.15	Specific Conductance (umhos/cm)	488
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.010 U	*Escherichia coli* (col/100 mL)	148 BQ
Nitrate-Nitrite (mg/L)	1.3	*Enterococci* (col/100 mL)	44 Q
TKN (mg/L)	0.080 U	Fecal Coliforms (col/100 mL)	242 BQ
Total Phosphorus (mg/L)	0.033 I	Total Coliforms (col/100 mL)	306 BQ

"I"=Below practical quantitation limit; "Q"=Outside of holding time; "U"=Below method detection limit; "B"=Based on colony counts outside acceptable range; "A"= Value reported is the mean of two or more determinations

Figure 3: SCI Scores Over Time



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