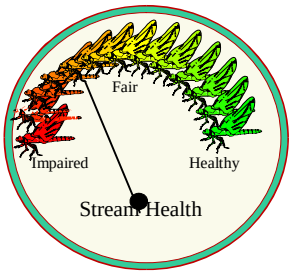


EcoSummary

Silver River Springs
4/20/2005



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.

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 conducted.

Results

The nitrate-nitrite concentration (1.3 mg/L) at the sampling site was much higher than the values found in 95% of Florida streams (0.97 mg/L or lower); see Figure 2. Elevated nitrate-nitrite levels in Silver River Springs are related to nitrogen loading in the recharge basin. Ammonia and TKN were below minimum detection limits; total phosphorus was below the practical quantitation limit.

Enterococci and *Eschericia coli* densities complied with the EPA single-sample guideline value of 61 CFU/100 mL and 235 CFU/100 mL, respectively, for "designated beach areas." The total and fecal coliform concentrations complied with Class III water quality standards.

The overall habitat assessment score (133) was in the "optimal" range. Habitat smothering (from algae) was a habitat parameter of concern.

The SCI was recently recalibrated in order to make it a more effective tool for evaluating ecological health of streams. The sampling method remained the same; only the index calculation was changed. The recalibrated SCI tends to produce a more stringent evaluation, since two poorly performing metrics from the old SCI were discarded (% Diptera and number of Chironomid taxa). Five additional metrics correlated with human disturbance were added, for a new total of ten metrics. The ten metrics are: total taxa, Ephemeroptera taxa, Trichoptera taxa, percent filterers, long-lived taxa, clinger taxa, percent dominance, percent Tanytarsini, sensitive taxa, and percent very tolerant taxa. More details can be found in the FDEP Standard Operating Procedures, LT 7200. The recalibrated SCI went into effect June 8, 2004. SCI samples collected after that time may yield different results from prior evaluations.

The SCI score (22) was in the "poor" range, potentially related to algal smothering. Elevated nitrate-nitrite levels appeared to be the main stressor in Silver River Springs.

Figure 1: Overview Map of the Silver Springs Area

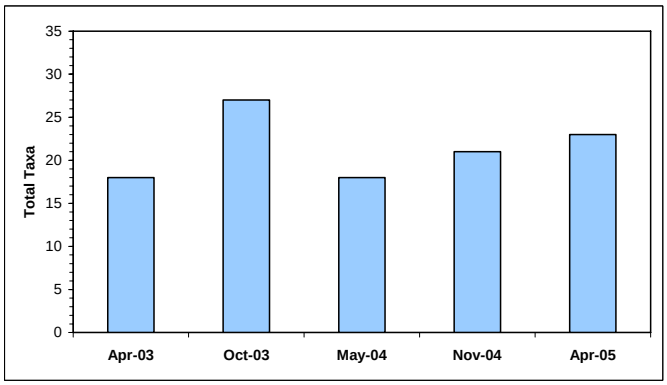


Figure 2: Data Table

SILVER SPRINGS			
Sampling Date	4/20/2005	**Physical-Chemical Data**	
Macroinvertebrate Data		Habitat Assessment Score	133
SCI Score	22	Temperature (deg. C)	23.1
SCI Evaluation	Poor	pH	7.6
Chemistry Data		Dissolved Oxygen (mg/L)	4.2
Turbidity (NTU)	0.10	Specific Conductance (umhos/cm)	466
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	8 B,Q
Nitrate-Nitrite (mg/L)	1.3	*Enterococci* (col/100 mL)	18 B,Q
TKN (mg/L)	0.06 U	Fecal Coliforms (col/100 mL)	10 B,Q
Total Phosphorus (mg/L)	0.037 I	Total Coliforms (col/100 mL)	64 Q

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

Figure 3: Total Taxa for Silver River Springs Over Time



FOR MORE INFORMATION, CONTACT:
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