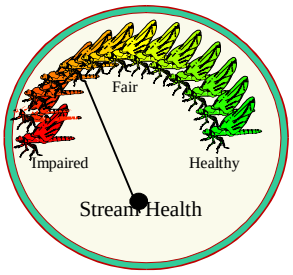


EcoSummary

Silver River Springs
11/8/2004



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

Results

The nitrate-nitrite concentration (1.4 mg/L) at the sampling site was higher than the values found in 95% of Florida streams (Figure 2). Elevated nitrite-nitrate levels in Silver River Springs is related to nitrogen loading in the recharge basin. Ammonia and total Kjeldal nitrogen were below minimum detection limits.

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 (129) was in the "optimal" range. Substrate diversity and habitat smothering were habitat parameters 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.

Elevated nitrate-nitrate levels appeared to be the main stressor in Silver River Springs. The SCI was in the upper portion of the "poor" range, potentially related to lack of substrate diversity and algal smothering.

Figure 1: Overview Map of the Silver Springs Area

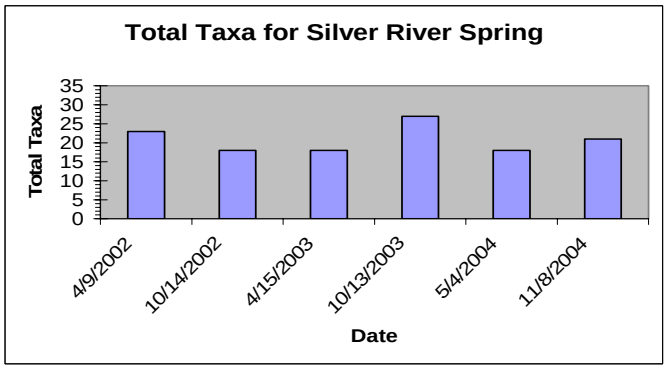


Figure 2: Data Table

Silver River Springs			
Sampling Date		11/8/2004	
Macroinvertibrate Parameters		Physical-Chemical Data	
SCI	34	Habitat Assessment	129
SCI Evaluation	poor	Specific Conductivity (umhos/cm)	511
		Dissolved Oxygen (mg/L)	5.8
		pH (SU)	7.2
Chemistry Data		Temperature (deg C)	23.6
Ammonia (mg/L)	0.01 U	Bacteria Parameters	
Nitrate-Nitrite (mg/L)	1.4	*Enterococci* (col/100mL)	28 BQ
TKN (mg/L)	0.06 U	*Escherichia coli* (col/100mL)	34 Q
Total Phosphorus (mg/L)	0.039 I	Fecal Coliforms (col/100 mL)	22 BQ
Color (PCU)	5 U	Total Coliforms (col/100mL)	68 Q
Turbidity (NTU)	0.1 Q		

"I"- Less than the minimum quantitation limit; "Q"- Information Only, "U"-Below minimum detection limit; "B" –Based On Colony Counts Outside Acceptable Range

Figure 3. Total Taxa for Silver River Spring



FOR MORE INFORMATION, CONTACT:
Thomas Deck, FDEP Environmental Assessment Section
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 245-8074 thomas.deck@dep.state.fl.us