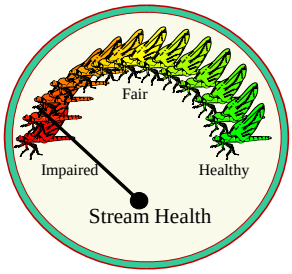


EcoSummary

Silver Glen Springs
4/20/2005



Background

Florida DEP's Division of Water Resource Management selected Silver Glen Springs for biological and water quality monitoring as part of the Springs Initiative. Data from these efforts will be used for documenting conditions within springs throughout Florida and for making resource protection decisions. Silver Glen Springs Recreation Area is located in Marion and Lake Counties, Florida, in the Ocala National Forest; see Figure 1. Silver Glen Springs flows into Lake George and is a popular location for boaters to gather.

Samples were collected from Silver Glen Springs in April 2005. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, *Escherichia coli*, *Enterococci*, fecal coliform, and total coliform analyses; see Figure 2. Habitat assessment and benthic invertebrate stream condition index (SCI) sampling were conducted.

Results

The nitrate-nitrite concentration (0.026 mg/L) in Silver Glen Springs was lower than the values found in 70% of Florida streams (0.04 mg/L); see Figure 2. TKN concentration was below the practical quantitation limit. Ammonia and total phosphorus concentrations were below detection limits.

The overall habitat score (108) was in the "sub-optimal" range. Habitat smothering and low water velocity continued to be problematic in the spring run. *Enterococci* and *Escherichia coli* concentrations complied with 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 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, when the FDEP Quality Assurance Rule was finalized. SCI samples collected after that time may yield different results from prior evaluations.

The SCI score of 11 for Silver Glen Springs was in the "very poor" range, probably related to the "lake-like" water velocity conditions and algal smothering of habitat . In conclusion, despite low nitrate-nitrate levels in Silver Glen Spring, benthic macroinvertebrate community health and algal smothering of macroinvertebrate habitats were the issues of concern in Silver Glen Springs.

Figure 1: Overview Map of the Silver Glen Springs Area

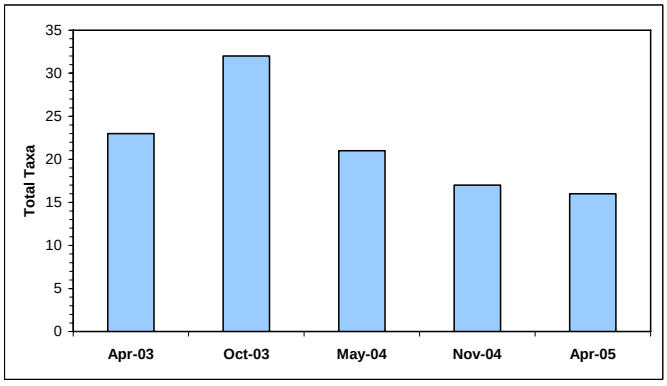


Figure 2: Data Table

SILVER GLEN SPRINGS			
Sampling Date	4/20/2005	**Physical-Chemical Data**	
Macroinvertebrate Data		Habitat Assessment Score	108
SCI Score	11	Temperature (deg. C)	23.9
SCI Evaluation	Very Poor	pH	8.1
Chemistry Data		Dissolved Oxygen (mg/L)	7.3
Turbidity (NTU)	0.15	Specific Conductance (umhos/cm)	1845
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	2 K,Q
Nitrate-Nitrite (mg/L)	0.026	*Enterococci* (col/100 mL)	2 B,Q
TKN (mg/L)	0.16 I	Fecal Coliforms (col/100 mL)	2 K,Q
Total Phosphorus (mg/L)	0.02 U	Total Coliforms (col/100 mL)	10 B,Q

"U"=Below detection limit; "I"=Below practical quantitation limit; "B"=Based on colony counts outside the acceptable range; "K"=Actual value is known to be less than value given; "Q"=Outside of holding time

Figure 3: Total Number of Macroinvertebrate Taxa Over Time



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