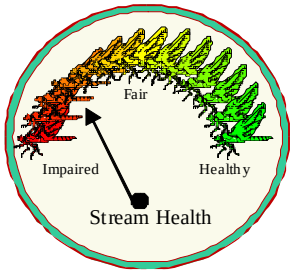


EcoSummary

Silver Glen Springs

5/16/2007



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 May, 2007. 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 Asessment and benthic invertebrate Stream Condition Index (SCI) sampling were also conducted.

Figure 1: Map of the Silver Glen Springs Area



Results

The nitrate-nitrite concentration (0.033 mg/L) in Silver Glen Springs was below average for typical Florida streams and much lower than values found in most Florida springs. The TKN concentration was very low compared to typical values found in Florida streams. The total phosphorus and ammonia concentrations were below the method detection limits.

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 thresholds for interpreting the Stream Condition Index values have recently been revised according to the EPA Biological Condition Gradient (BCG) conceptual model. In addition, the laboratory methodology used to evaluate the macroinvertebrate samples taken for the SCI was also revised to reduce uncertainty associated with SCI results. In the SCI 2004 method, a single group of 100 individuals was sub-sampled, identified, and scored, while in the new SCI 2007 method, two separate groups of 150 individuals are 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 19 for Silver Glen Springs was in the "Impaired" range. The high conductivity (somewhat "salty" water) in Silver Glen Springs is a natural condition; however, this high conductivity will limit the diversity of freshwater organisms that can inhabit the site. The Habitat Assessment score (132) was in the "Optimal" range, but substrate diversity and availability were suboptimal.

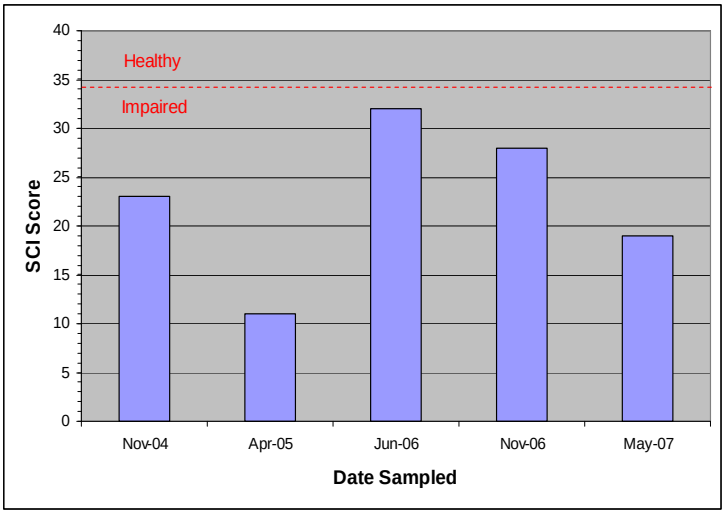
In conclusion, impaired benthic macroinvertebrate community health was the main issue of concern in Silver Glen Springs.

Figure 2: Data Table

SILVER GLEN SPRINGS			
Sampling Date	5/16/2007	**Physical-Chemical Data**	
Macroinvertebrate Data		Habitat Assessment Score	132
SCI Score	19 A	Temperature (deg. C)	24.24
SCI Evaluation	Impaired	pH	7.24 J
Chemistry Data		Dissolved Oxygen (mg/L)	4.46 J
Turbidity (NTU)	0.25	Specific Conductance (umhos/cm)	1930
Color (PCU)	5	**Bacteria Data**	
Ammonia (mg/L)	0.010 U	*Escherichia coli* (col/100 mL)	2 UQ
Nitrate-Nitrite (mg/L)	0.033	*Enterococci* (col/100 mL)	16 ABQ
TKN (mg/L)	0.23	Fecal Coliforms (col/100 mL)	2 UQ
Total Phosphorus (mg/L)	0.020 U	Total Coliforms (col/100 mL)	2 BQ

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

Figure 3: SCI Scores Over Time



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