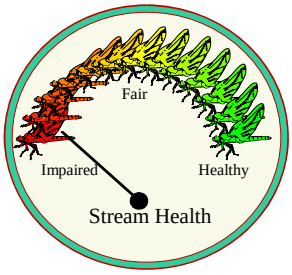


EcoSummary

Alexander Springs
4/19/2005



Background

Florida DEP's Division of Water Resource Management selected Alexander 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. Alexander Springs Recreation Area is located in Lake County, Florida, in the Ocala National Forest; see Figure 1. Alexander Springs flows into the St. John's River and is a popular recreation area.

Samples were collected from Alexander 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.

Figure 1: Overview Map of the Alexander Springs Area



Results

The nitrate-nitrite concentration (0.04 mg/L) in Alexander Springs was lower than the values found in 60% of Florida streams (0.052 mg/L); see Figure 2. Total phosphorus and TKN levels were below the practical quantitation limits. Ammonia concentration was below the detection limit.

The overall habitat assessment score (104) was in the "sub-optimal" range. Habitat smothering and substrate diversity were parameters of concern. *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.

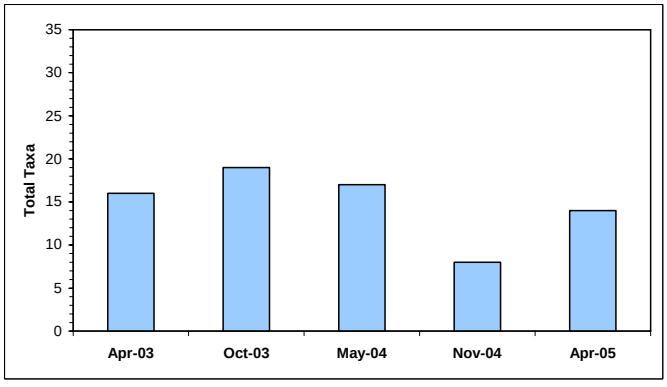
The SCI score of 11 for Alexander Springs was in the "very poor" range; this may have been partially due to the high conductivity at the site (1046 umhos/cm). The high conductivity (somewhat "salty" water) in Alexander Springs is a natural condition. However, this high conductivity will limit the diversity of freshwater organisms that can inhabit the site. In conclusion, a limited macroinvertebrate community, probably related to high conductivity and habitat smothering, continued to be observed in Alexander Springs.

Figure 2: Data Table

ALEXANDER SPRINGS			
Sampling Date	4/19/2005	**Physical-Chemical Data**	
Macroinvertebrate Data		Habitat Assessment Score	104
SCI Score	11	Temperature (deg. C)	23.9
SCI Evaluation	Very Poor	pH	8.2
Chemistry Data		Dissolved Oxygen (mg/L)	5.4
Turbidity (NTU)	0.10 Q	Specific Conductance (umhos/cm)	1046
Color (PCU)	5 U,Q	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	2 K,Q
Nitrate-Nitrite (mg/L)	0.04	*Enterococci* (col/100 mL)	2 B,Q
TKN (mg/L)	0.088 I	Fecal Coliforms (col/100 mL)	2 B,Q
Total Phosphorus (mg/L)	0.04 I	Total Coliforms (col/100 mL)	2 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



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