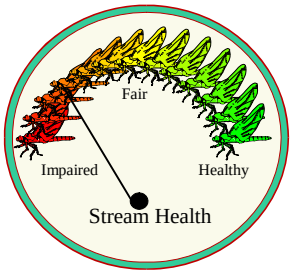


EcoSummary

Ponce de Leon Springs

6/22/2006



Background

Florida DEP's Division of Recreation and Parks selected Ponce de Leon Springs, as well as several other springs from state parks, for biological and water quality monitoring. Data from these efforts will be used for documenting conditions within each park and for making resource protection decisions. Ponce de Leon Springs State Recreation Area is located in Holmes County, Florida (Figure 1). Ponce de Leon Springs flows into Sandy Creek, which in turn flows south into the Choctawhatchee River. Ponce de Leon Springs is a Floridan Aquifer-dominated system and is known for its recreational and aesthetic qualities.

Samples were taken at Ponce de Leon Springs in June, 2006. 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 also conducted.

Results

The nitrate-nitrite concentration (0.25 mg/L) at the sampling site was similar to previous sampling events and continues to remain somewhat elevated above background levels (Figure 2). However, nitrate-nitrite at Ponce de Leon Springs is lower than the concentrations found in most Florida springs. Ammonia and total Kjeldahl nitrogen concentrations were below minimum detection limits (Figure 2). The total phosphorus concentration (0.026 mg/L) was below the practical quantitation limit. The overall habitat assessment score (114) was in the suboptimal range (>120). The stream condition index (SCI) score of 32 placed Ponce de Leon Springs in the "Poor" range for this sampling event. The low SCI score remains unexplained, and regular monitoring will attempt to determine potential causes.

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.

In conclusion, the SCI score for Ponce de Leon has remained in the "Poor" category. The SCI evaluations will continue, and future sampling will attempt to determine potential causes for the "Poor" scores. Meanwhile, the habitat assessment of the site remains in good condition, which may imply the low SCI score might be attributed to a non-evaluated water quality parameter or in correlation with some other undetermined factor.

Figure 1: Overview Map of the Ponce de Leon Springs Area

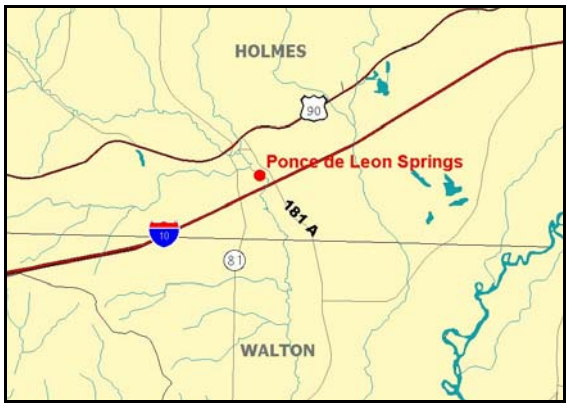
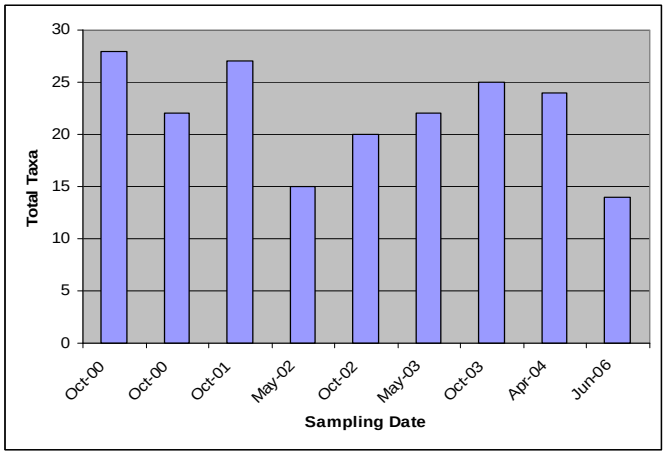


Figure 2: Data Table

PONCE DE LEON SPRINGS			
Sampling Date	6/22/2006	**Physical-Chemical Data**	
Macroinvertebrate Data		Habitat Assessment Score	114
SCI Score	32	Temperature (deg. C)	20.7
SCI Evaluation	Poor	pH	7.2
Chemistry Data		Dissolved Oxygen (mg/L)	7
Turbidity (NTU)	1.4	Specific Conductance (umhos/cm)	213
Color (PCU)	5	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia coli* (col/100 mL)	2 A,K,Q
Nitrate-Nitrite (mg/L)	0.25	*Enterococci* (col/100 mL)	26 A,B,Q
TKN (mg/L)	0.08 U	Fecal Coliforms (col/100 mL)	2 A,K,Q
Total Phosphorus (mg/L)	0.026 I	Total Coliforms (col/100 mL)	86 A,Q

"U"- Minimum Detection Limit; "Q"- Held Beyond Normal Holding Time; "A"- Mean of Two or More Determinations, "I"- Below practical quantitation limit, "K"- Actual Value is Known to be Less Than the Value Given, "B"- Based on colony counts outside the acceptable range.

Figure 3: Total taxa over time



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