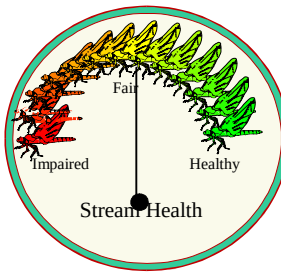


EcoSummary

Ponce de Leon Springs

10/9/2003

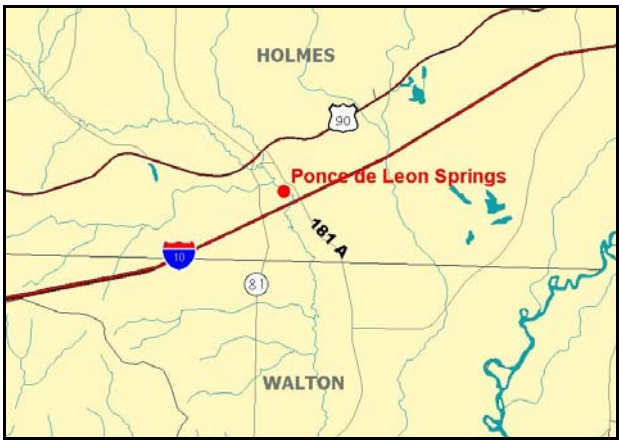


Background

Florida DEP's Division of Recreation and Parks selected Ponce de Leon Springs, as well as 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 May 2003. 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.

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



Results

The nitrate-nitrite concentration (0.27 mg/L) at the sampling site was similar to previous sampling events, and continues to remain elevated (Figure 2). Ammonia, and total Kjeldahl nitrogen concentrations were below minimum detection limits (Figure 2). Total phosphorus concentration (0.035 mg/L) was lower than the values found in 90% of Florida streams. *Enterococci* and *E. coli* concentrations again complied with the EPA single-sample guideline values, 61 CFU/100mL and 235 CFU/100mL, respectively, for "designated beach areas". Fecal and total coliform levels also complied with Class III water quality standards. The overall habitat assessment score (117) was in the suboptimal range (>91). However, the stream condition index (SCI) score of 23 placed Ponce de Leon Springs in the "Good" range for this sampling event, which is higher than the last SCI score of 17. The fluctuating SCI score is still unexplained, and regular monitoring will attempt to determine potential causes. Diatoms continue to dominate the periphyton community in Ponce de Leon Springs. The particular taxa found were indicative of eutrophic conditions.

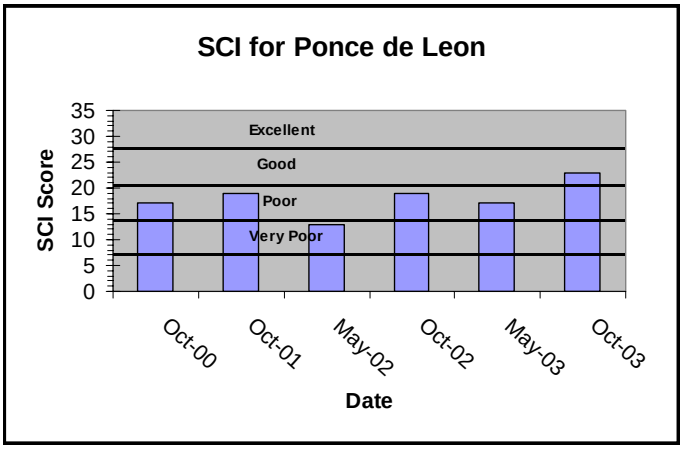
In conclusion, the SCI score for Ponce de Leon has risen into the "Good" category since the last evaluation in May 2003. Meanwhile, the habitat assessment of the site remains in good condition. Elevated nitrate-nitrite levels in De Leon Springs continue to be the main stressor associated with a relatively low quality an algal community.

Figure 2: Data Table

Ponce de Leon Springs			
Sampling Date		10/9/2003	
Macroinvertibrate Parameters		**Periphyton Parameters**	
SCI	23	% Bacillariophyceae	91.3
SCI Evaluation	Good	% Cyanophyceae	6.8
Number of Taxa	25	% Chlorophyceae	1.9
EPT Index	5	Dominant taxon	Fragilariaceae
FL Index	10	Percent Dominant taxon	28
% Dominant Taxon	24.8	**Physical-Chemical Data**	
% Diptera	38.1	Habitat Assessment	117
Total number of Chironomidae	6	Specific Conductivity (umhos/cm)	216
% Filter-Feeders	14.3	Dissolved Oxygen (mg/L)	6
Chemistry Data		pH (SU)	6.8
Ammonia (mg/L)	0.01 U	Temperature (deg C)	20.1
Nitrate-Nitrite (mg/L)	0.27	**Bacteria Parameters**	
TKN (mg/L)	0.06 U	*Enterococci* (col/100mL)	10 BQ
Total Phosphorus (mg/L)	0.035 I	*Escherichia coli* (col/100mL)	2 BQ
Color (PCU)	5 U	Fecal Coliforms (col/100 mL)	4 BQ
Turbidity	0.4	Total Coliforms (col/100mL)	16 BQ

"U"- Minimum Detection Limit; "Q"- Held Beyond Normal Holding Time; "A"- Mean of Two or More Determinations

Figure 3: SCI Scores Graph



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