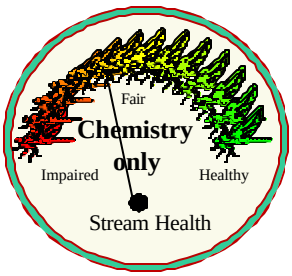


EcoSummary

De Leon Springs
3/21/01



Background

Florida DEP's Division of Recreation and Parks selected De Leon Springs, as well as springs from seven other 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. De Leon Springs is located in Volusia County, Florida; see Figure 1. De Leon Springs is a Floridan Aquifer-dominated system and is used mainly as a bathing area. De Leon Springs flows directly into Spring Garden Lake and water quality sampling was conducted at the outflow.

Baseline samples were taken at all eight locations in March 2001. Water chemistry samples were taken for nitrate-nitrite, total Kjeldahl nitrogen, total phosphorus, color, turbidity, *Enterococci*, *Escherichia coli*, fecal coliform, and total coliform analysis; see Figure 2. Habitat assessment and benthic invertebrate stream condition index (SCI) sampling was not conducted at this park because of the lake-like conditions.

Results

See the analytical data in Figure 2.

Nitrate-nitrite concentrations (0.86 mg/L) at the sampling site were relatively high for spring systems in the state, compared to that found in 90% of Florida streams (0.64 mg/L); see Figure 2. Elevated nitrate-nitrite levels in De Leon Springs are related to nitrogen loading in the recharge basin (mostly inorganic fertilizers applied to agricultural lands). Total Kjeldahl nitrogen (0.34 mg/L) was lower than 90% of Florida streams (0.39 mg/L). Total phosphorus (0.068 mg/L) concentration was below that in 60% of other streams in the state (0.10 mg/L). A habitat assessment was not performed during this sampling event. *Enterococci* and *Escherichia coli* levels were below the EPA single-sampling guideline values for "designated beach areas". Fecal and total coliform levels were below the Class III water body threshold values. Invertebrate communities were not sampled at the spring due to hydrologic modifications. Diatoms with some blue-green taxa dominated the periphyton community. Many of the taxa found at De Leon Springs were indicative of eutrophic conditions.

In conclusion, nitrate-nitrite nutrient enrichment in De Leon Springs appeared to be the main stressor associated with a relatively low quality of algal community present.

Figure 1: Map of De Leon Springs Area

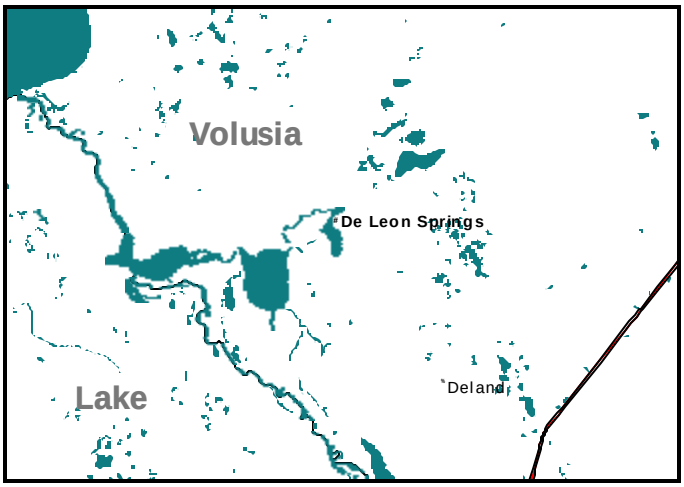


Figure 2: Data Table

De Leon Springs			
Station	De Leon Springs		
Station Nick Name	DELEON		
STORET	SPRINGS007		
Sampling Date	3/21/01		
Periphyton Parameters		**Bacteria Parameters**	
Number of Taxa	23	*Enterococci* (col/100 mL)	42 O
% Bacillariophyceae	94.54	*Escherichia coli* (col/100 mL)	24 O
% Chlorophyceae	0.38	Fecal Coliforms (col/100 mL)	24 O
% Cyanophyceae	5.08	Total Coliforms (col/100 mL)	200 O
% Euglenophyceae	0	**Chemistry Data**	
% Dominant Taxon	38.1	Nitrate-Nitrite (mg/L)	0.86
Physical-Chemical Data		TKN (mg/L)	0.34
Habitat Assessment		Total Phosphorus (mg/L)	0.068
Sample Depth (m)	0.5	Sulfate (mg/L)	24
Specific Conductance (umho/cm)	722	Chloride (mg/L)	130
Dissolved Oxygen (mg/L)	6.3	Alkalinity (mg CaCO3/L)	120
pH (SU)	7.8	TOC (mg/L)	2.2 I
Temperature (deg. C)	21.6	Color (PCU)	15
Macroinvertebrate Parameters		TDS (mg/L)	369
SCI	not sampled	TSS (mg/L)	4 U
SCI Region	peninsula	Turbidity (NTU)	0.55

"U"- Below Detection Limit; "I"- Below Quantitation Limit; "Q"- Information Only

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