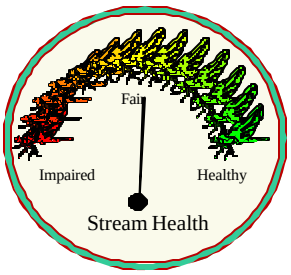


EcoSummary

De Leon Springs

4/16/02



Background

Florida DEP's Division of Recreation and Parks selected De Leon Springs 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 State Park is located in Volusia County, Florida; see Figure 1. De Leon Springs flow into Spring Garden Lake. De Leon Springs is a Floridan Aquifer-dominated system and is known for its recreational and aesthetic qualities.

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; see Figure 2. Qualitative periphyton sampling was also conducted.

Results

Nitrate-nitrite concentrations (1.1 mg/L) at the sampling site continued to be (when compared to 12/6/01sampling) higher than the concentrations found in 95% of Florida streams (1.05 mg/L); see Figure 2. Elevated nitrite-nitrate levels in DeLeon Springs are related to nitrogen loading in the recharge basin (*e.g.*, inorganic fertilizer applications, septic tank leachate, etc). Ammonia, and total Kjeldal nitrogen concentrations (0.025 mg/L, and 0.25 mg/L respectively) were lower than 80% of Florida streams (0.04 mg/L, and 0.56 mg/L respectively).

Enterococci and Eschericia coli densities complied with the EPA single-sample guideline value of 61 CFU/100mL and 235 CFU/mL, respectively, for "designated beach areas." Fecal and total coliform levels complied with he Class III water quality standards. The periphyton community in De Leon Springs was dominated by diatoms with some blue-green taxa. The particular taxa found were indicative of eutrophic conditions, which was not surprising given the continued nutrient enrichment in De Leon Springs.

In conclusion, elevated nitrate-nitrite levels in De Leon Springs continue to be the main stressor associated with a relatively low quality algal community.

Figure 1: Overview Map of the De Leon Springs Area

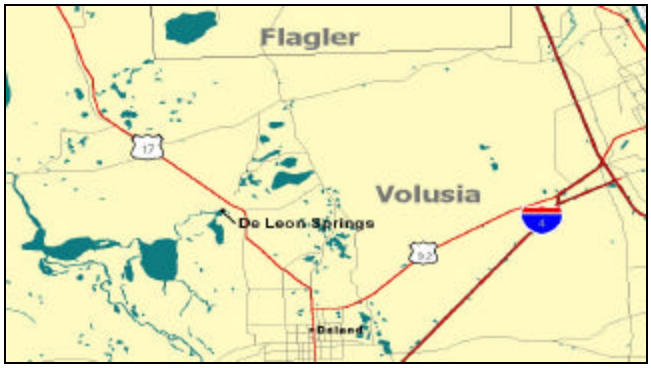
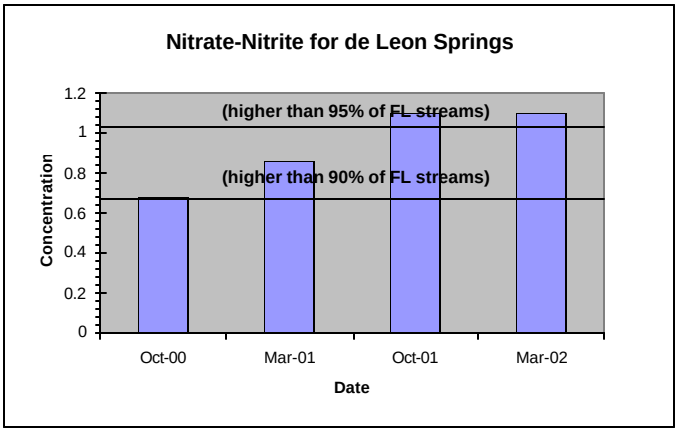


Figure 2: Data Table

De Leon			
Sampling Date		4/16/2002	
Chemistry Data		Periphyton Parameters	
Ammonia (mg/L)	0.025 A	% Bacillariophyceae	88.52
Nitrate-Nitrite (mg/L)	1.1 J	% Cyanophyceae	10.26
TKN (mg/L)	0.25	% Chlorophyceae	1.22
Total Phosphorus (mg/L)	0.061	Dominant taxon	Fragilariaceae
Color (PCU)	5 U	Percent Dominant taxon	32.7
Turbidity (NTU)	0.4	Physical-Chemical Data	
Bacteria Parameters		Habitat Assessment	NA
Enterococci (col/100mL)	64 Q	Specific Conductivity (umhos/cm)	774
Escherichia coli (col/100mL)	56 Q	Dissolved Oxygen (mg/L)	5.7
Fecal Coliforms (col/100 mL)	64 Q	pH (SU)	7.5
Total Coliforms (col/100mL)	180 Q	Temperature (deg C)	22.9

"A"- Average; "J"- Estimated Value; "Q"- Information Only, "U"-Below minimum detection limit

Figure 3. Nitrate-Nitrite Evaluation



FOR MORE INFORMATION, CONTACT:
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