EcoSummary

De Leon Springs

5/19/2003

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 flows 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

The nitrate-nitrite concentration (1.1 mg/L) at the sampling site was elevated, higher than the values found in 95% of Florida streams (1.05 mg/L); see Figure 2. Elevated nitrite-nitrate levels in De Leon Springs are related to nitrogen loading in the recharge basin. Ammonia, and total Kjeldal nitrogen concentrations (0.028 mg/L, and 0.18 mg/L respectively) were lower than 80% of Florida streams (0.04 mg/L, and 0.56 mg/L respectively).

Eschericia coli densities complied with the EPA single-sample guideline value of 235 CFU/mL for "designated beach areas" while *Enterococci* exceeded the EPA guideline value of 61 CFU/mL for "designated beach areas". Fecal and total coliform levels complied with 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 an algal community.

Figure 1: Overview Map of the De Leon Springs Area

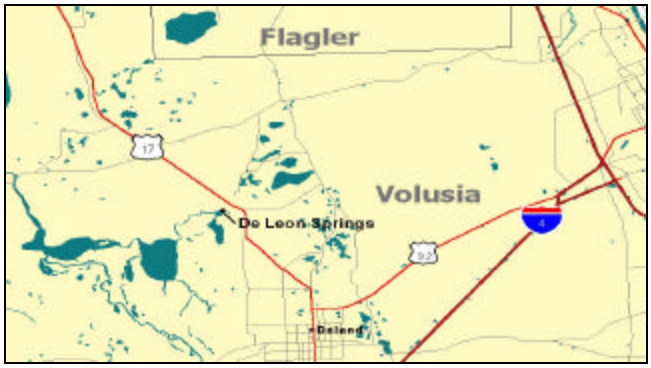
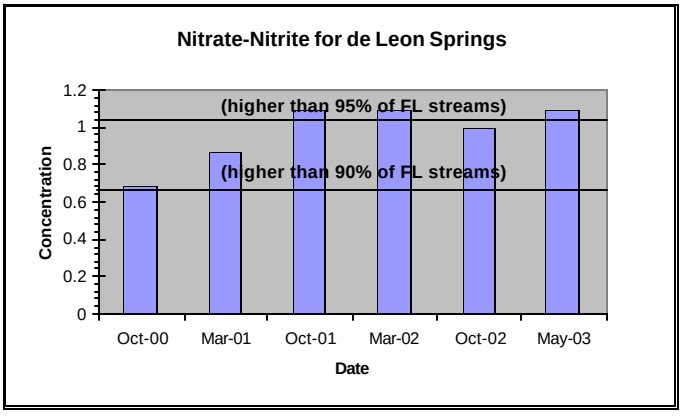


Figure 2: Data Table

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Sampling Date		5/19/2003	
Chemistry Data		Periphyton Parameters	
Ammonia (mg/L)	0.028	%Bacillariophyceae	73.8
Nitrate-Nitrite (mg/L)	1.1	%Cyanophyceae	22.0
TKN (mg/L)	0.18 I	%Chlorophyceae	4.3
Total Phosphorus (mg/L)	0.063	Dominant taxon	Fragilariaceae
Color (PCU)	5 U	Percent Dominant taxon	16.4
Turbidity (NTU)	0.5	Physical-Chemical Data	
Bacteria Parameters		Habitat Assessment	NA
Enterococci (col/100 mL)	134 O	Specific Conductivity (umhos/cm)	987
Escherichia coli (col/100 mL)	158 BQ	Dissolved Oxygen (mg/L)	5.7
Fecal Coliforms (col/100 mL)	200 Q	pH (SU)	7.8
Total Coliforms (col/100 mL)	370 O	Temperature (deg C)	23.0

"B"-Based on colony counts outside acceptable range; "J"- Estimated Value; "Q"- Information Only, "U"-Below minimum detection limit

Figure 3. Nitrate-Nitrite Evaluation



FOR MORE INFORMATION, CONTACT:
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