EcoSummary

De Leon Springs

10/21/02

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, a Floridan Aquifer-dominated system known for its recreational and aesthetic qualities, flows into Spring Garden Lake.

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 (1.0 mg/L) at the sampling site was elevated, higher than the values found in approximately 95% of Florida streams; 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 (0.038 mg/L and 0.41 mg/L respectively) were lower than the values found in 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 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

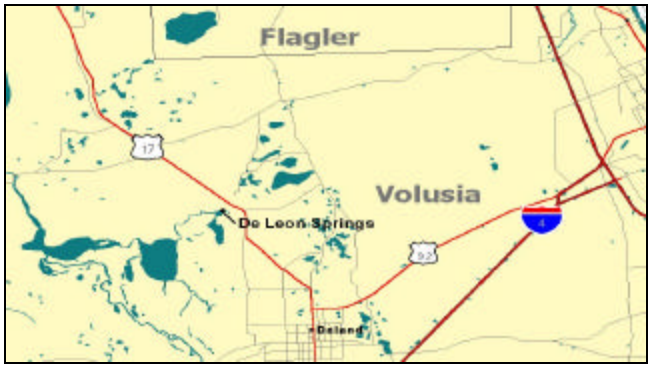
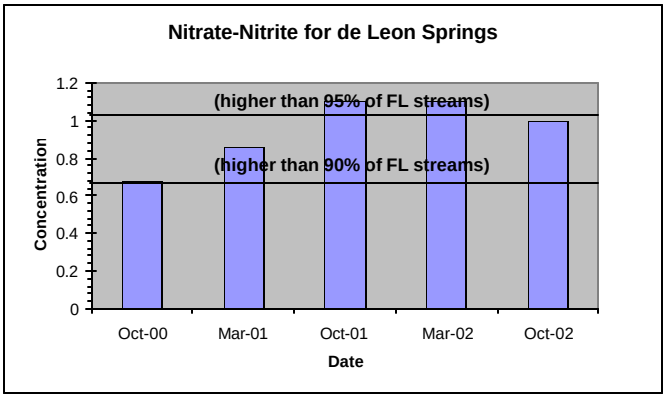


Figure 2: Data Table

deLeon			
Sampling Date		10/21/2002	
Chemistry Data		Periphyton Parameters	
Ammonia (mg/L)	0.038	%Bacillariophyceae	59.22
Nitrate-Nitrite (mg/L)	1.0	%Cyanophyceae	36.25
TKN (mg/L)	0.41	%Chlorophyceae	2.91
Total Phosphorus (mg/L)	0.061 J	Dominant taxon	Synechococcus cedrorum,Cyanodictyon parvum
Color (PCU)	5 Q	Percent Dominant taxon	16.5
Turbidity (NTU)	0.25 Q	Physical-Chemical Data	
Bacteria Parameters		Habitat Assessment	NA
Enterococci (col/100mL)	6 C	Specific Conductivity (umhos/cm)	904
Escherichia coli (col/100mL)	1 KQ	Dissolved Oxygen (mg/L)	3.5
Fecal Coliforms (col/100mL)	2 Q	pH (SU)	7.2
Total Coliforms (col/100mL)	100 Q	Temperature (deg C)	22.8

"K"- Actual value is known to be less than value given; "J"- Estimated Value; "Q"- Information Only, "U"-Below minimum detection limit

Figure 3. Nitrate-Nitrite Evaluation



FOR MORE INFORMATION, CONTACT:
Thomas Deck, FDEP Environmental Assessment Section
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 245-8074 thomas.deck@dep.state.fl.us