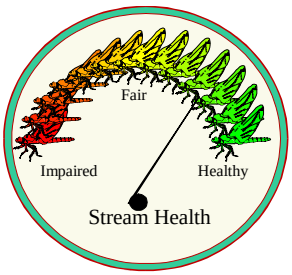


EcoSummary

Rock Springs

4/21/04



Background

Florida DEP's Division of Water Resource Management selected Rock Springs for biological and water quality monitoring. Data from these efforts will be used for documenting conditions within the spring run and for making resource protection decisions. Rock Spring is located inside Kelly Park in Orange County, Florida (Figure 1). Rock Spring, which flows into Wekiva River, is a Floridan Aquifer-dominated system 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 (Figure 2). Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

During the October 15th, 2003 sampling of Rock Springs an additional sampling location was established due to concerns that human activity in the upper reach of Rock Spring run was artificially lowering the stream condition index (SCI) score. A site was established down stream of the swimming area that appeared to receive less traffic from people using the spring run for recreation.

Results

The nitrate-nitrite concentrations (1.3 mg/L) at both sampling sites were higher than those found in 95% of Florida streams (Figure 2). Elevated nitrite-nitrate levels in Rock Springs are related to nitrogen loading in the recharge basin. The total Kjeldal nitrogen and ammonia concentrations (0.06 mg/L and 0.01 mg/L, respectively) were below the minimum detection limits on the upper and lower sites (Figure 2). Total phosphorus concentrations were relatively average at the upper and lower stations of Rock Spring (0.11 mg/L)

Enterococci and Eschericia coli densities complied with the EPA single-sample guideline value of 61 CFU/100 mL and 235 CFU/100 mL, respectively, for "designated beach areas." Fecal and total coliform levels complied with Class III water quality standards. The periphyton community in Rock Springs was dominated by diatoms with some blue-green taxa. The stream condition index (SCI) score for the upper station (17) fell back into the "poor" category while the upper station (29) moved into the "excellent" category. Habitat assessment scores were both in the "optimal" category wit the upper reach scoring 131 and the lower reach scoring 144.

In conclusion, elevated nitrate-nitrate was of concern in Rock Springs. Due to the continued "poor" scoring in the upper site, future sampling will occur the lower reach. This decision is based on the premise that physical disturbance from recreational traffic in the upper reach (wading, swimming) is producing conditions which are not representative of the spring run in general.

Figure 1: Overview Map of the Rock Springs Area

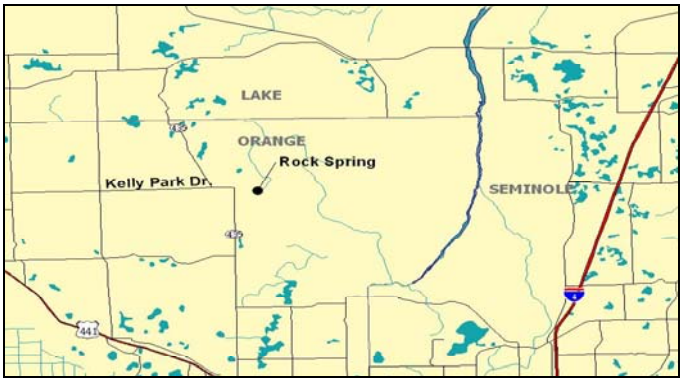
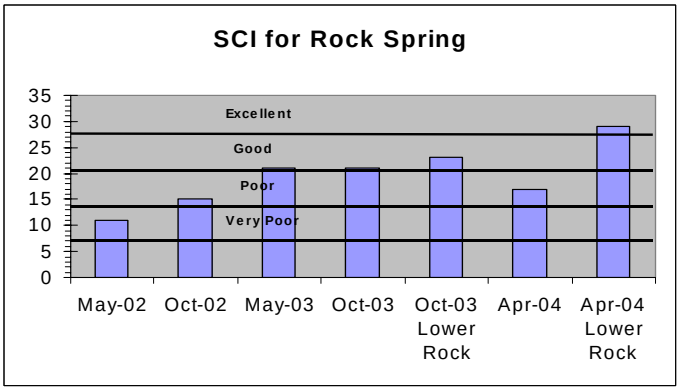


Figure 2: Data Table

Upper and Lower Rock Springs					
Sampling Date			4/21/2004		
Macroinvertibrate Parameters	Upper Rock	Lower Rock	Periphyton Parameters	Upper Rock	Lower Rock
SCI	17	29	% Bacillariophyceae	64.1	89.2
SCI Evaluation	Poor	Excellent	% Cyanophyceae	30.7	10.1
Number of Taxa	17	31	% Chlorophyceae	5.2	0.7
EPT Index	1	7	Percent Dominant taxon	18.6	23.5
FL Index	6	20	Physical-Chemical Data	Upper Rock	Lower Rock
% Dominant Taxon	37.6	14	Habitat Assessment	131	144
% Diptera	13.8	48	Specific Conductivity (umhos/cm)	257	256
Total number of Chironomidae	6	12	Dissolved Oxygen (mg/L)	1.74	5.24
% Filter-Feeders	1.4	14	pH (SU)	7.6	7.7
Chemistry Data	Upper Rock	Lower Rock	Temperature (deg C)	23.7	23.9
Ammonia (mg/L)	0.01 U	0.01 U	Bacteria Parameters	Upper Rock	Lower Rock
Nitrate-Nitrite (mg/L)	1.3	1.3	*Enterococci* (col/100mL)	3 BQ	23 BQ
TKN (mg/L)	0.06 U	0.06 U	*Escherichia coli* (col/100mL)	1 KQ	18 BQ
Total Phosphorus (mg/L)	0.11	0.11	Fecal Coliforms (col/100 mL)	1 KQ	15 BQ
Color (PCU)	5 Q	5 Q	Total Coliforms (col/100mL)	20 BQ	120 Q
Turbidity (NTU)	0.1 Q	0.2 Q			

"B'-Based on colony counts outside the acceptable range; "Q"- Information Only, "U"-Below minimum detection limit; "I" –Value between method detection limit and practical quatitation limit

Figure 3. SCI Evaluation for Rock Spring



FOR MORE INFORMATION, CONTACT:
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