# EcoSummary

Rock Springs

5/20/2003

## 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 flows into the Wekiva River. Rock 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 (Figure 2). Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

## Results

The nitrate-nitrite concentration (1.7 mg/L) at the sampling site was higher than those found in 95% of Florida streams (1.05 mg/L) (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 0.011 mg/L respectively) were lower than those found in 95% of Florida streams (Figure 2). The total phosphorus concentration was slightly elevated at 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 particular taxa found were indicative of eutrophic conditions, which was not surprising given the nutrient enrichment in Rock Springs. The stream condition index (SCI) score of 21 was in the "good" range, which is improved from the October 2002 "poor" score. With a habitat assessment score in the optimal range (126) the benthic invertebrate community was not limited by habitat availability or quality.

In conclusion, elevated nitrate-nitrate levels, and an algal community indicative of eutrophic conditions were issues of concern in Rock Springs.

Figure 1: Overview Map of the Rock Springs Area

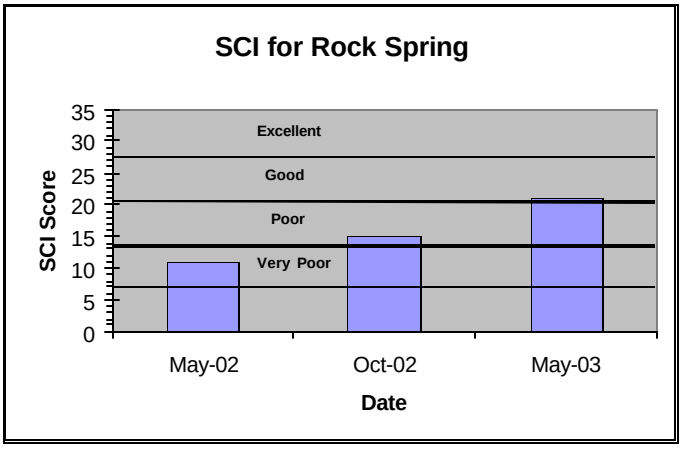



Figure 2: Data Table

| Rock Springs | | | |
|---|---|---|---|
| Sampling Date | | 5/20/2003 | |
| Macroinvertibrate Parameters | | Periphyton Parameters | |
| SCI | 21 | % Bacillariophyceae | 90.0 |
| SCI Evaluation | Good | % Cyanophyceae | 7.6 |
| Number of Taxa | 11 | % Chlorophyceae | 2.3 |
| EPT Index | 1 | Dominant taxon | Fragilariaceae |
| FL Index | 9 | Percent Dominant taxon | 20.3 |
| % Dominant Taxon | 41.9 | Physical-Chemical Data | |
| % Diptera | 10.3 | Habitat Assessment | 126 |
| Total number of Chironomidae | 8 | Specific Conductivity (umhos/cm) | 263 |
| % Filter-Feeders | 2.1 | Dissolved Oxygen (mg/L) | 1.12 |
| Chemistry Data | | pH (SU) | 7.66 |
| Ammonia (mg/L) | 0.011 I | Temperature (deg C) | 23.6 |
| Nitrate-Nitrite (mg/L) | 1.7 | Bacteria Parameters | |
| TKN (mg/L) | 0.06 U | *Enterococci* (col/100mL) | 6 BQ |
| Total Phosphorus (mg/L) | 0.11 | *Escherichia coli* (col/100mL) | 2 BQ |
| Color (PCU) | 5 U | Fecal Coliforms (col/100 mL) | 2 BQ |
| Turbidity (NTU) | 0.25 | Total Coliforms (col/100mL) | 10 BQ |

*"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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