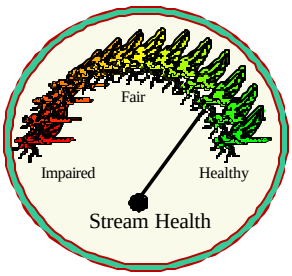


# EcoSummary

Alexander Springs

10/15/2002

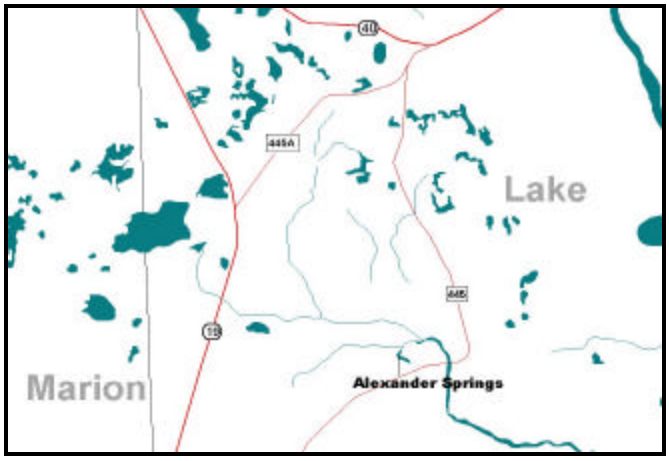



## Background

Florida DEP's Division of Water Resource Management selected Alexander Springs for biological and water quality monitoring as part of the Springs Initiative. Data from these efforts will be used for documenting conditions within springs throughout Florida and for making resource protection decisions. Alexander Springs Recreation Area is located in Lake County, Florida, in the Ocala National Forest; see Figure 1. Alexander Springs flows into the St. John's River and is a popular recreation area.

Samples were collected from Alexander Springs on October 15, 2002. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, other chemical parameters, and bacterial analyses; see Figure 2. Habitat assessment, qualitative periphyton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

Figure 1: Overview Map of the Alexander Springs Area




## Results

Nitrate-nitrite (0.043 mg/L) and total phosphorus (0.068 mg/L) levels in Alexander Springs were lower than the concentrations found in the majority of Florida streams. TKN and ammonia concentrations were below detection limits. These low nutrients, related to the benign land uses in its recharge basin, suggests that the water quality of Alexander Springs represents "reference" conditions for nutrients in Florida springs; see Figure 2.

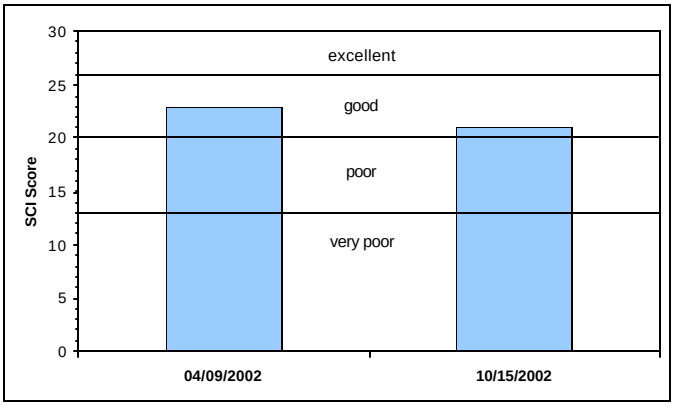
The overall habitat assessment score (115) was in the "sub-optimal" range; substrate diversity, water velocity, and habitat smothering were the parameters of concern. The *Enterococci* and *Escherichia coli* concentrations were below the EPA single-sampling guideline values. Fecal and total coliform levels complied with Class III water quality standards. The SCI score of 21 for Alexander Springs was in the "good" range. The periphyton community was dominated by diatoms, with blue-green and green algal taxa also present. Despite the low nutrients, algal coverage on benthic habitats was observed to be excessive. In conclusion, low water velocity and algal smothering of macroinvertebrate habitats were the parameters of concern in Alexander Springs, although the SCI was still in the "good" range.

Figure 2: Data Table

| ALEXANDER SPRINGS | | | |
|---|---|---|---|
| Sampling Date | | 10/15/2002 | |
| **Macroinvertebrate Data** | | **Periphyton Data** | |
| SCI Score | 21 | % Bacillariophyta | 85.10 |
| SCI Evaluation | good | % Cyanophycophyta | 12.42 |
| Number of Taxa | 24 | % Chlorophycota | 2.48 |
| EPT Index | 1 | Dominant Taxon | Diatomaceae/ Fragilariaceae |
| Florida Index | 6 | % Dominant Taxon | 38.91 |
| % Dominant Taxon | 16.38 | **Physical-Chemical Data** | |
| % Diptera | 36.21 | Total Habitat Assessment Score | 115 |
| Total Number of Chironomidae | 7 | Temperature (deg. C) | 23.26 |
| % Filter-Feeders | 2.59 | pH | 7.62 |
| **Chemistry Data** | | Dissolved Oxygen (mg/L) | 2.60 |
| Turbidity (NTU) | 0.1 | Specific Conductance (umhos/cm) | 1148 |
| Color (PCU) | 5 U | **Bacteria Data** | |
| Ammonia (mg/L) | 0.01 U | *Escherichia Coli* (col/100 mL) | 14 Q |
| Nitrate-Nitrite (mg/L) | 0.043 | *Enterococci* (col/100 mL) | 6 O |
| TKN (mg/L) | 0.14 I | Fecal Coliforms (col/100 mL) | 4 Q |
| Total Phosphorus (mg/L) | 0.068 | Total Coliforms (col/100 mL) | 100 Q |

*"U"=Below detection limit; "I"=Below practical quantitation limit; "Q"=Outside holding time*

Figure 3: Stream Condition Index Scores Over Time




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