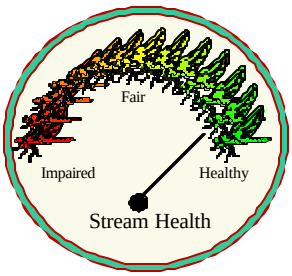


EcoSummary

Juniper Springs

10/14/2002

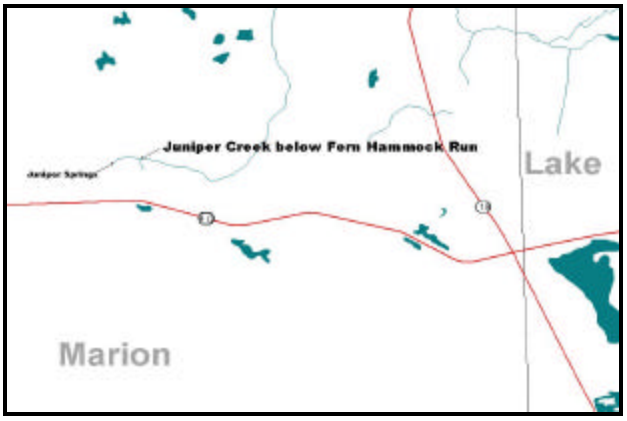


Background

Florida DEP's Division of Water Resource Management selected Juniper 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. Juniper Springs Recreation Area is located in Marion County, Florida, in the Ocala National Forest; see Figure 1.

Samples were collected from Juniper Springs in Juniper Creek downstream from the confluence with Fern Hammock Spring Run on October 14, 2002. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, other chemical parameters, *Escherichia coli*, *Enterococci*, fecal coliform, and total coliform 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 Juniper Springs Area



Results

Nitrate-nitrite (0.075 mg/L) and total phosphorus (undetected) 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 Juniper Springs represents "reference" conditions for nutrients in Florida springs; see Figure 2

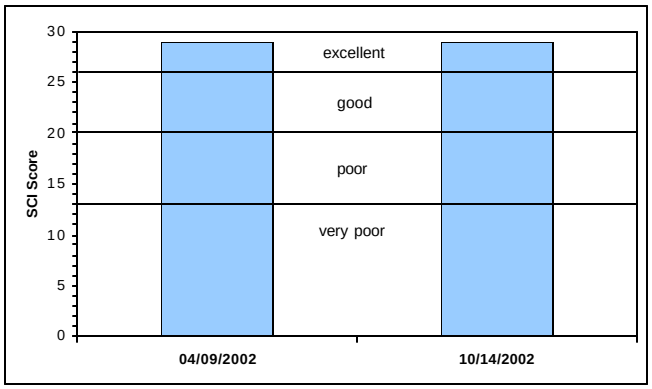
The overall habitat assessment score (142) was in the "optimal" range. *Enterococci* concentration (200 CFU/100 mL) was above the EPA single-sampling guideline value of 61 CFU/100mL for "designated beach areas." Some species of *Enterococci* are known to be free-living in warm waters; the applicability of the above guideline in Florida waters is currently under investigation. *Escherichia coli* concentration (440 CFU/100 mL) was above the EPA designated beach guideline of 235 CFU/100 mL. Fecal and total coliform levels complied with Class III water quality standards. The SCI score of 29 for Juniper Springs was in the "excellent" range. The periphyton community contained diatoms indicative of good water quality. In conclusion, *Enterococci* and *Escherichia coli* were the only parameters of potential concern in Juniper Springs.

Figure 2: Data Table

JUNIPER SPRINGS			
Sampling Date		10/14/2002	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	29	% Bacillariophyta	97.87
SCI Evaluation	excellent	% Cyanophycophyta	0.97
Number of Taxa	34	% Chlorophycota	1.16
EPT Index	9	Dominant Taxon	Cocconeis diminuta/ Cocconeis neodiminuta
Florida Index	22	% Dominant Taxon	25.53
% Dominant Taxon	13.73	**Physical-Chemical Data**	
% Diptera	29.41	Total Habitat Assessment Score	142
Total Number of Chironomidae	10	Temperature (deg. C)	22.41
% Filter-Feeders	3.92	pH	7.97
Chemistry Data		Dissolved Oxygen (mg/L)	9.72
Turbidity (NTU)	0.4	Specific Conductance (umhos/cm)	127
Color (PCU)	5	**Bacteria Data**	
Ammonia (mg/L)	0.01 U	*Escherichia Coli* (col/100 mL)	440 Q
Nitrate-Nitrite (mg/L)	0.075	*Enterococci* (col/100 mL)	200 Q
TKN (mg/L)	0.071 I	Fecal Coliforms (col/100 mL)	450 Q
Total Phosphorus (mg/L)	0.029 I	Total Coliforms (col/100 mL)	1200 Q

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

Figure 3: Stream Condition Index Scores Over Time



FOR MORE INFORMATION, CONTACT:
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