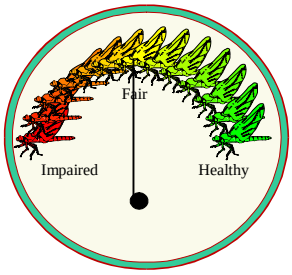


EcoSummary

Peacock Spring #1 and Orange Grove Sink at Peacock Springs
10/28/2003



Background

Florida DEP's Division of Recreation and Parks selected Peacock Spring #1 and Orange Grove Sink at Peacock Springs, as well as several other springs from state parks, 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. Peacock Springs State Recreation Area is located in Suwannee County; a few miles north of the Suwannee River; see Figure 1.

Peacock Spring #1 and Orange Grove Sink are directly connected to each other through a system of underground caves. Both sites are part of the Peacock Springs system. Samples were taken from Peacock Spring #1 and Orange Grove Sink on October 28, 2003. Samples were collected for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, *Enterococci*, *Escherichia coli*, fecal coliform, total coliform, and qualitative periphyton analyses; see Figure 2.

Figure 1: Overview Map of the Peacock Springs Area



Results

Nitrate-nitrite concentrations at Peacock Spring #1 (2.3 mg/L) and Orange Grove Sink (2.1 mg/L) continued to be much higher than the values found in 95% of Florida streams (0.97 mg/L or lower); see Figure 2. Ammonia concentrations were below detection limits at both sites. TKN levels were below practical quantitation limits at both sites. The total phosphorus level at Orange Grove Sink (0.069 mg/L) was lower than those found in 50% of Florida streams (0.077 mg/L); total phosphorus concentration was below the practical quantitation limit at Peacock Spring #1.

At both sites, *Enterococci* and *Escherichia coli* concentrations complied with the EPA "designated beach area" guidelines of 61 CFU/100mL and 235 CFUl/100mL, respectively. Fecal and total coliform levels complied with the Class III water quality standards (800 CFU/100mL and 2400 CFU/100mL, respectively) at both locations. The periphyton communities in Peacock Spring #1 and Orange Grove Sink were dominated by diatoms, with some blue-green and green taxa.

In conclusion, very elevated nitrate-nitrite levels continued to exist at Peacock Spring #1 and Orange Grove Sink. Continued sampling will monitor conditions at both locations in Peacock Springs State Recreation Area.

Figure 2: Data Table

Peacock Spring #1 and Orange Grove Sink at Peacock Springs		
	Peacock Spring #1	Orange Grove Sink
Sampling Date	10/28/2003	10/28/2003
Chemistry Data		
Turbidity (NTU)	0.55	0.85
Color (PCU)	5 U	5
Ammonia (mg/L)	0.01 U	0.01 U
Nitrate-Nitrite (mg/L)	2.3	2.1
TKN (mg/L)	0.095 I	0.13 I
Total Phosphorus (mg/L)	0.051 I	0.069
Periphyton Parameters		
% Bacillariophyta	79.94	77.10
% Cyanophycota	13.59	13.87
% Chlorophycota	6.47	8.71
Dominant Taxon	*Diadesmis confervacea*	Fragilariaceae
% Dominant Taxon	28.16	14.52
Physical-Chemical Data		
Temperature (deg. C)	21.7	21.6
pH	7.4	7.7
Dissolved Oxygen (mg/L)	2.6	2.2
Specific Conductance (umhos/cm)	381	379
Bacteria Parameters		
Escherichia coli (col/100 mL)	32 B	28 B
Enterococci (col/100 mL)	58	44
Fecal Coliforms (col/100 mL)	48	54
Total Coliforms (col/100 mL)	510	330

"U"=Below detection limit; "I"=Below practical quantitation limit; "B"=Results based on colony counts outside the acceptable range

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