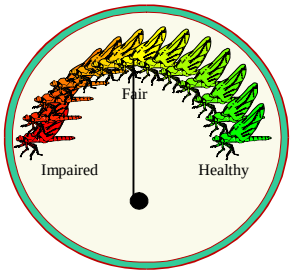


EcoSummary

Peacock Spring #1 and Orange Grove Sink at Peacock Springs 4/23/2004



Background

Florida DEP's Division of Recreation and Parks selected Peacock Spring #1 and Orange Grove Sink at Peacock Springs for biological and water quality monitoring. Data from these efforts will be used for documenting conditions within the 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 April 23, 2004. 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.

Results

Nitrate-nitrite concentrations at Peacock Spring #1 (2.1 mg/L) and Orange Grove Sink (2.2 mg/L) continued to be much higher than the values found in 95% of Florida streams; see Figure 2. Ammonia concentrations were below detection limits at both sites. TKN levels were below practical quantitation or detection limits at both sites. The total phosphorus levels at Peacock Spring #1 (0.074 mg/L) and Orange Grove Sink (0.076 mg/L) were lower than average for Florida streams.

At both sites, *Enterococci* and *Escherichia coli* concentrations complied with the EPA "designated beach area" guidelines of 61 CFU/100mL and 235 CFUl/100 mL, respectively. Fecal and total coliform levels complied with the Class III water quality standards (800 CFU/100 mL and 2400 CFU/100 mL, 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 1: Overview Map of the Peacock Springs Area

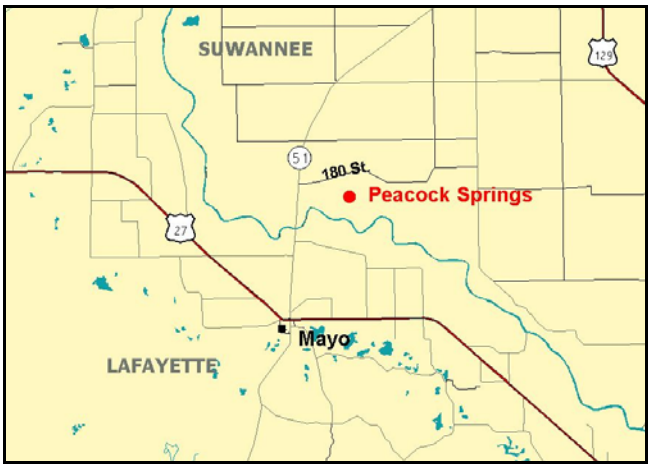


Figure 2: Data Table

Peacock Spring #1 and Orange Grove Sink at Peacock Springs		
	Peacock Spring #1	Orange Grove Sink
Sampling Date	4/23/2004	4/23/2004
Chemistry Data		
Turbidity (NTU)	0.1	0.45
Color (PCU)	5	5
Ammonia (mg/L)	0.01 U	0.01 U
Nitrate-Nitrite (mg/L)	2.1	2.2
TKN (mg/L)	0.06 U	0.16 I
Total Phosphorus (mg/L)	0.074	0.076
Periphyton Parameters		
% Bacillariophyta	84.54	87.25
% Cyanophycota	11.51	10.46
% Chlorophycota	3.62	2.29
% Dominant Taxon	17.43	23.20
Physical-Chemical Data		
Temperature (deg. C)	21.9	21.9
pH	7.6	7.5
Dissolved Oxygen (mg/L)	4.4	4.8
Specific Conductance (umhos/cm)	350	348
Bacteria Parameters		
Escherichia coli (col/100 mL)	10 B	17 B
Enterococci (col/100 mL)	42	52
Fecal Coliforms (col/100 mL)	17 B	12 B
Total Coliforms (col/100 mL)	80	62

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

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