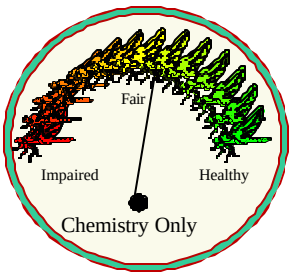


EcoSummary

Orange Grove Sink
at Peacock Springs
05/15/2002



Background

Florida DEP's Division of Recreation and Parks selected 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). Water quality characteristics vary from spring vent to spring vent, so a sampling location in the spring run was selected to document overall effects.

Orange Grove Sink is part of the Peacock Springs system; it is directly connected to Peacock Spring #1 through a system of underground caves. Samples were taken from Orange Grove Sink in May 2002. 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 (see Figure 2). Qualitative periphyton samples were also collected.

Results

The nitrate-nitrite level at Orange Grove Sink (1.9 mg/L) is elevated, higher than that found in 95% of Florida streams; see Figure 2. Ammonia and total Kjeldahl nitrogen were below the quantitation limit (see figure 2). The total phosphorus concentration (0.035 mg/L) was in the good range, measuring lower than what is found in 90% of state streams. *Enterococci* and *E. coli* concentrations comply with the EPA "designated beach area" guidelines of 61 CFU/100mL and 235 CFU/100mL, respectively. Fecal and total coliform levels are in compliance with the Class III water quality standards (800 CFU/100mL and 2400 CFU/100mL, respectively). Turbidity (0.6 NTU) was lower than is found in 95% of state streams. The periphyton community in Orange Grove Sink was dominated by diatoms with some blue-green taxa. The particular taxa found were indicative of eutrophic conditions.

In conclusion, this sampling indicated that elevated nitrate-nitrite levels and a relatively low-quality algal community exist in Orange Grove Sink. This conclusion is in-line with what was found at Peacock Spring #1 in October 2001. Continued sampling will monitor conditions and establish a thorough overview of the health of the ecosystem.

Figure 1: Overview Map of the Peacock Springs Area



Figure 2: Data Table

Orange Grove Sink at Peacock Springs			
Sampling Date		5/15/2002	
Macroinvertibrate Parameters		**Periphyton Parameters**	
SCI	-	% Bacillariophyceae	82.79
SCI Evaluation	-	%Cyanophyceae	16.36
Number of Taxa	-	% Chlorophyceae	0.85
EPT Index	-	Dominant taxon	*Cocconeis placentula*
FL Index	-	Percent Dominant taxon	46.66
% Dominant Taxon	-	**Physical-Chemical Data**	
% Diptera	-	Habitat Assessment	-
Total number of Chironomidae	-	Specific Conductivity (umhos/cm)	370
% Filter-Feeders	-	Dissolved Oxygen (mg/L)	6.29
Chemistry Data		pH (SU)	7.23
Ammonia (mg/L)	0.019 I	Temperature (deg C)	23.2
Nitrate-Nitrite (mg/L)	1.9	**Bacteria Parameters**	
TKN (mg/L)	0.15 I	*Enterococci* (col/100mL)	8
Total Phosphorus (mg/L)	0.035 I	*Escherichia coli* (col/100mL)	12
Color (PCU)	5 U	Fecal Coliforms (col/100 mL)	16
Turbidity	0.6	Total Coliforms (col/100mL)	240

"U"- Value Reported is the Minimum Detection Limit; "I"- Value Reported is Less Than the Minimum Quantitation Limit, and Greater Than or Equal to the Minimum Detection Limit

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