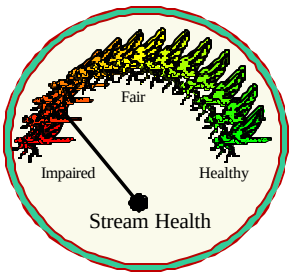


EcoSummary

Fanning Springs

11/07/2002

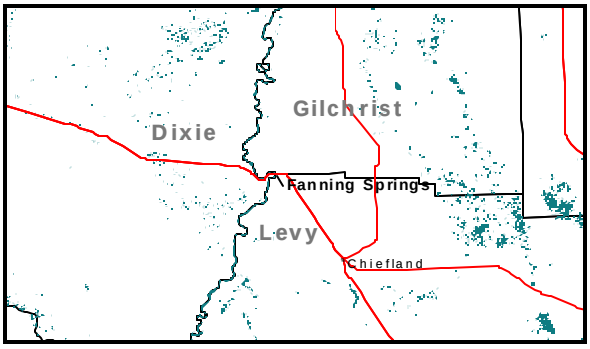


Background

Florida DEP's Division of Recreation and Parks selected Fanning Springs, as well as springs from many other state parks and national forests, 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. Fanning Springs State Park is located in Levy County, Florida; see Figure 1. Fanning Springs, which flows into the Suwannee River, is a Floridan Aquifer-dominated system known for its recreational and aesthetic qualities.

Samples were collected from Fanning Springs on November 7, 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. SCI scores for Fanning Springs over time are shown in Figure 3.

Figure 1: Overview Map of the Fanning Springs Area



Results

Nutrient concentrations in Fanning Springs followed the trend found over the sampling period thus far; see Figure 2. Nitrate-nitrite concentration (4.9 mg/L) was much higher than that found in 95% of Florida streams (0.97 mg/L). This very high concentration of nitrate-nitrite is problematic in that it can promote exotic plant growth,stimulate nuisance algal blooms, and potentially become toxic. Elevated nitrate-nitrite levels in Fanning Springs Run are related to nitrogen loading in the recharge basin. Ammonia and TKN concentrations remained within natural background ranges. The total phosphorus concentration (0.074 mg/L) was slighty higher than in the previous sampling (0.065 mg/L), but this is still not a parameter of concern.

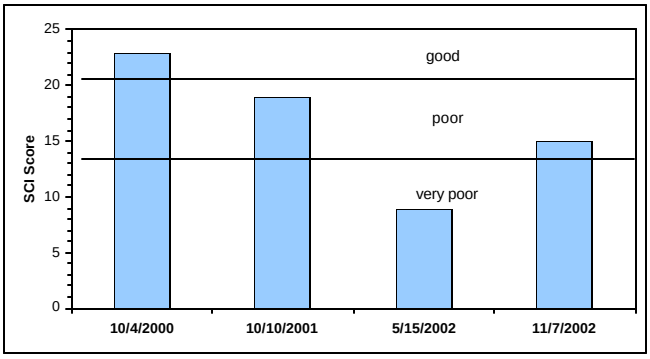
The overall habitat assessment score (94) was in the sub-optimal range; habitat smothering, substrate diversity, substrate availability, and water velocity were parameters of concern. *Enterococci* and *Escherichia coli* concentrations were below the EPA single-sampling guideline values for "designated beach areas. Fecal and total coliform levels complied with Class III water quality standards. The SCI score of 15 for Fanning Springs was in the "poor" range. Although the SCI score improved compared to the previous sampling event, it is still lower than expected in a healthy system. The periphyton community was dominated by diatoms, with some blue-green and green algal taxa. In conclusion, elevated nitrate-nitrite levels, poor quality macroinvertebrate and periphyton communities, and somewhat degraded habitat were the parameters of concern in Fanning Springs.

Figure 2: Data Table

FANNING SPRINGS			
Sampling Date		11/7/2002	
Macroinvertebrate Data		**Periphyton Data**	
SCI Score	15	% Bacillariophyta	81.06
SCI Evaluation	poor	% Cyanophycota	15.28
Number of Taxa	21	% Chlorophycota	3.32
EPT Index	2	Dominant Taxa	Diatomaceae/Fragilariaceae
Florida Index	3	% Dominant Taxon	37.54
% Dominant Taxon	46.09	**Physical-Chemical Data**	
% Diptera	21.74	Total Habitat Assessment Score	94
Total Number of Chironomidae	5	Temperature (deg. C)	22.5
% Filter-Feeders	0.43	pH	6.8
Chemistry Data		Dissolved Oxygen (mg/L)	3.0
Turbidity (NTU)	0.05 U	Specific Conductance (umhos/cm)	472
Color (PCU)	5 U	**Bacteria Data**	
Ammonia (mg/L)	0.012 I	*Escherichia Coli* (col/100 mL)	12 Q
Nitrate-Nitrite (mg/L)	4.9	*Enterococci* (col/100 mL)	1 KQ
TKN (mg/L)	0.1 I	Fecal Coliforms (col/100 mL)	14 Q
Total Phosphorus (mg/L)	0.074	Total Coliforms (col/100 mL)	20 Q

"I"=Below practical quantitation limit; "K"=Actual value is < value given; "Q"=Out of holding time; "U"=Below detection limit

Figure 3: SCI Scores Over Time



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