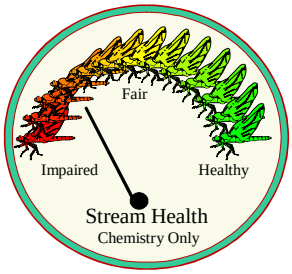


EcoSummary

Jackson Blue Spring

4/18/2002

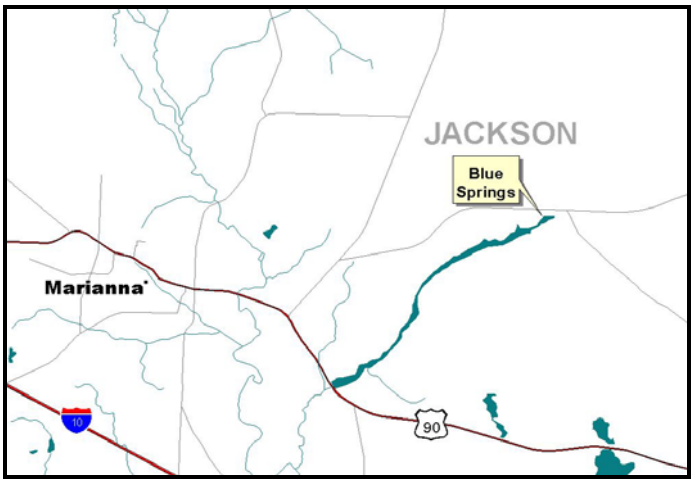


Background

When conducting a visual bioassessment on Jackson Blue Spring (part of the Springs Initiative), samplers noticed that despite very high nitrate levels (over 3.0 mg/L), there were no nuisance algae or unusual plant growth in first 100 m of the spring run. A sampling trip was then scheduled to investigate the possiblity of pesticides in the spring inhibiting vegetative growth.

Jackson Blue Spring is located in Jackson County, Florida; see Figure 1. Jackson Blue flows into Merritts Mill Pond, a popular boating and fishing area. Samples were collected on April 18, 2002. Water samples were collected at two locations: over the spring boil and approximately 50 m downstream of the boil. Sediment samples were collected in a depositional area at two locations along the fence that encloses the swimming area. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), total phosphorus, and pesticide analyses; see Figure 2. Sediment samples were taken for pesticide analyses.

Figure 1: Overview Map of the Jackson Blue Springs Area



Results

Nitrate-nitrite concentration was estimated to be 3 mg/L at both water sampling locations; this value is higher than those found in 95% of Florida streams (0.9685 mg/L). Ammonia and total phosphorus concentrations were below practical quantitation limits at both water sampling sites; see Figure 2. The TKN concentration was below detection limits at both locations.

A full pesticide scan was run on the water and sediment samples from Jackson Blue Springs. Hexazinone was detected in the water column at both water sites, but each concentration (0.037 and 0.038 ug/L) was below the practical quantitation limit. Hexazinone [3-cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4(1H,3H)-dione] is a common nitrogen-phosphorus pesticide used for weed and underbrush control in agriculture. No other pesticides were detected in the water column. No pesticides were detected in the sediments from either sediment site. Hexazinone, at the observed concentrations, is probably not the reason for reduced algae and plant growth in Jackson Blue Springs. Previous physical removal of vegetative material in the swimming area or phosphorus limitation are possible factors, but the phenomenon is not yet fully explained.

Figure 2: Data Table

Jackson Blue Springs				
Sampling Date	4/18/2002			
	Water Site 1	Water Site 2	Sediment Site 1	Sediment Site 2
Dissolved Oxygen (mg/L)	8.2	8.2	-	-
pH (SU)	7.4	7.4	-	-
Specific Conductance (umhos/cm)	227	227	-	-
Temperature (deg. C)	22.4	22.4	-	-
Sample Depth (m)	0.4	0.4	-	-
Ammonia (mg/L)	0.013 I	0.016 I	-	-
Nitrate-Nitrite (mg/L)	3 J	3 J	-	-
TKN (mg/L)	0.06 U	0.06 U	-	-
Total Phosphorus (mg/L)	0.023 I	0.023 I	-	-
Hexazinone	0.037 ug/L I	0.038 ug/L I	14 ug/kg U	10 ug/kg U

"U"=Below detection limit; "I"=Below practical quantitation limit; "J"=Estimated value

FOR MORE INFORMATION, CONTACT:
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