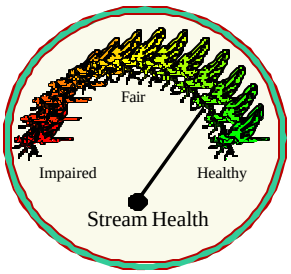


EcoSummary

Merritt's Mill Pond

8/5/2002



Background

Merritt's Mill Pond is a lake formed by the impounded spring run of Blue Springs in Jackson County, Florida; see Figure 1. Florida DEP's Bureau of Laboratories sampled Merritt's Mill Pond for biological and water quality parameters on August 5, 2002. This sampling event was part of the process of evaluating whether or not Merritt's Mill Pond should be included on the planning or verified list for the Total Maximum Daily Load (TMDL) Program. Samples were collected for Lake Condition Index (LCI), phytoplankton, periphyton, bacteria, nutrients, and other physical/chemical analyses; see Figure 2.

Results and Discussion

The nitrate-nitrite concentration in Merritt's Mill Pond (1.8 mg/L) was much higher than the values found in 95% of other Florida lakes (0.147 mg/L or lower); see Figure 2. This elevated nitrate-nitrite level is due to the spring flow from Jackson Blue Spring, which has the second highest nitrate levels of all first magnitude springs in the state. Most Florida springs have high nitrate-nitrite concentrations from human activities (fertilizer use, etc.) in their recharge areas. Ammonia and total Kjeldahl nitrogen (TKN) concentrations were both below practical quantitation limits. The total phosphorus level (0.013 mg/L) was lower than the twentieth percentile value for Florida lakes (0.019 mg/L). Dissolved oxygen (10.9 mg/L) met acceptable criteria for Class III water bodies.

Fecal and total coliform levels complied with Class III water quality standards. Excessive submerged and floating algal mats were observed near the south end of Merritt's Mill Pond, indicating nutrient-induced imbalances of algal communities. The LCI score (41.48), based on 12 Ponar dredges composited throughout the lake, was in the "good" range.

In conclusion, the high nitrate-nitrite concentration in Merritt's Mill Pond appeared to contribute to nuisance algal mats and imbalances of aquatic flora. The invertebrate community was acceptable.

Figure 1. Overview Map of the Merritt's Mill Pond Area

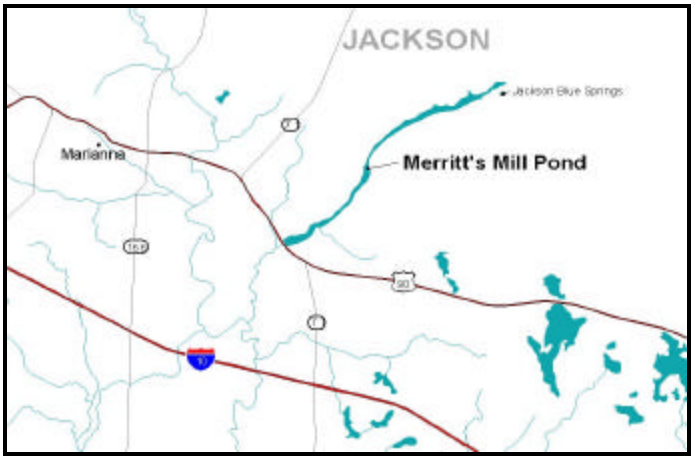


Figure 2. Data Table

MERRITT'S MILL POND			
Station		Merritt's Mill Pond	
Station Nick Name		ARROWTST	
STORET		31020046	
WBID		180A	
Sampling Date		8/5/2002	
Macroinvertebrate Data		**Bacteria Data**	
Panhandle West Bioregion		Fecal Coliforms (col/100 mL)	5 A,Q
LCI Score	41.48	Total Coliforms (col/100 mL)	1 A,Q
LCI Evaluation	Good	**Physical-Chemical Data**	
Phytoplankton Data		Secchi Depth (m)	0.5
% Bacillariophyceae	14.66	Temperature (deg. C)	27.6
% Chlorophyceae	47.84	pH (SU)	7.4
% Cryptophyceae	0	Specific Conductance (umho/cm)	218
% Cyanophyceae	33.89	Dissolved Oxygen (mg/L)	10.9
% Dinophyceae	0.48	**Chemistry Data**	
% Euglenophyceae	0.24	Chlorophyll a (ug/L)	5
% Dominant Taxon	23.08	Algal Growth Potential (mg dry wt/L)	3.67
Periphyton Data		Ammonia (mg/L)	0.017 I
% Bacillariophyceae	25.07	Nitrate-Nitrite (mg/L)	1.8
% Chlorophyceae	7.41	TKN (mg/L)	0.18 I
% Cryptophyceae	0.43	Total Phosphorus (mg/L)	0.013
% Cyanophyceae	56.7	Total Organic Carbon (mg/L)	1.4 I
% Dinophyceae	0	Color (PCU)	5
% Euglenophyceae	0	TSS (mg/L)	4 U
% Dominant Taxon	24.07	Turbidity (NTU)	1

"A"-Average value; "I"-Below practical quantitation limit; "Q"-Outside holding time; "U"-Below detection limit

FOR MORE INFORMATION, CONTACT:
Amy Wheeler, FDEP Environmental Assessment
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 245-8070
amy.wheeler@dep.state.fl.us