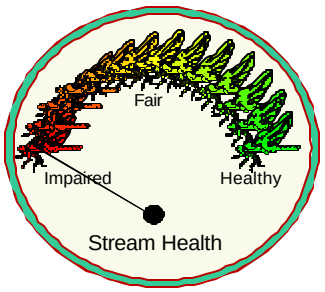
EcoSummary

BioRecon Report

St. Augustine's Branch
@ Railroad Ave
3/17/99



BioReconnaissance Report (BioRecon): A rapid, cost effective screening mechanism for identification of biological impairment.

Purpose and Background

St Augustine Branch at Railroad Ave, located in Leon County, was once a natural stream through the city of Tallahassee. Now, it is an artificially channeled drainage canal that empties into Munson Slough and finally into Lake Munson. Land use within the drainage basin is mainly residential, commercial, and industrial.

St Augustine Branch has been placed on the 303(d) list for violations of turbidity, coliform, total suspended solid (TSS), biological oxygen demand (BOD), and nutrient limits. Waterbodies on this list are required by EPA to have a Total Maximum Daily Load (TMDL) study performed on them. The purpose of the TMDL is to determine the amount of pollution reduction needed to restore the system to a condition suitable for its designated use. In this case, the designated use is for recreation and maintenance of a healthy, well-balanced aquatic community.

DEP's Environmental Assessment Section was requested to assess the status of selected waterbodies on the TMDL list that were placed on the list with limited data. The data available for these selected waterbodies consisted of less than 10 observations in the storet database, somewhat dated, pre-1990 information, or qualitative non-point source survey data only.

Results

Benthic macroinvertebrate communities, physical/chemical parameters, and nutrients were sampled in March of 1999. Macroinvertebrates were sampled using 4 discrete dip net sweeps (Bio-Recon). The samples were field picked, and brought back to the laboratory for identification under a dissecting microscope. Three metrics, total taxa richness, Florida Index, and total EPT (Ephemeroptera, Plecoptera, and Trichoptera; larval mayflies, stoneflies, and caddisflies), were calculated and compared to existing eastern Panhandle thresholds to determine the community's health. Munson Slough failed to meet the threshold for all three metrics, indicating impairment. Habitat assessment results indicate that this site scored in the "marginal" range. The site had been artificially channelized in the past; leading to highly altered instream habitat. This, in addition to poor substrate diversity and availability due to lack of riparian buffer zone, limited macroinvertebrates.

Nitrite-nitrate levels (0.4 mg/L) were higher than those found in 85% of other Florida streams, indicating excessive nutrient enrichment. Dissolved oxygen (9.2 mg/L) complied with the Class III standard of 5.0 mg/L. The Biological Oxygen Demand (BOD) value was in the acceptable range (0.3). Fecal coliform counts (176 colonies/100mL) complied with the Class III standard of 800 colonies/100 mL. Similarly, total coliforms for this sampling date (475 colonies/100 mL) complied with the Class III standard of 2400 colonies/100 mL. Ammonia (0.06 mg/L), total Kjeldahl nitrogen (0.11 mg/L), total phosphorus (0.045 mg/L), and turbidity (1.5 NTU's) were all within the acceptable range (below the 50th percentile) for other Florida streams. Total suspended solids were not measured at this date.

Suggestions

St. Augustine Branch at Railroad Ave. failed all three Bio-recon parameters, indicating biological impairment. Habitat was in the "marginal" category due to "poor" substrate diversity/availability, riparian buffer width/quality, and degree of artificial channelization. Nitrite-nitrate levels were higher than those found in 85% of other streams in the State. Due to the depauperate biological community and elevated nitrite-nitrate levels, it is recommended that Munson Slough remain on the 303(d) list.

FOR MORE INFORMATION, CONTACT:
Tom Frick, FDEP Environmental Assessment Section
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 413-0247 Thomas.frick@dep.state.fl.us

Figure 1: Overview Map of St. Augustine's Branch@ Railroad Ave

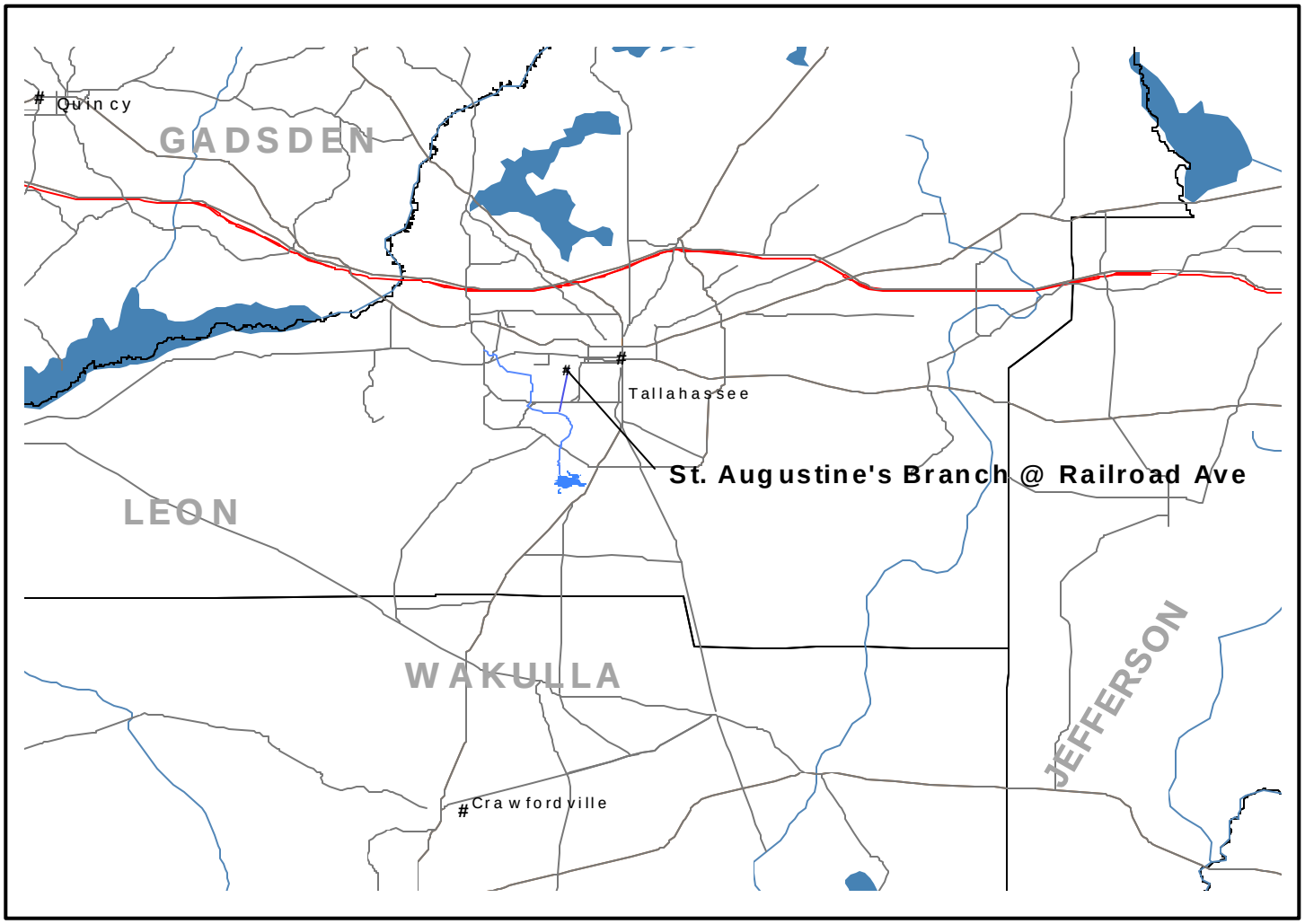


Figure 2: Data for Selected Parameters

Station	Date	# Taxa	Florida Index	EPT	pH (Std. Units)	Temp. (deg. C)	NH3 (mg/L)	NOx (mg/L)	TKN (mg/L)	TP (mg/L)	Fecal Coliforms (col/100 mL)	Total Coliforms (col/100 mL)
St. Augustine's Branch @ Railroad Ave.	03/17/99	12	5	1	7.48	15	0.06	0.4	0.11	0.045	176	475

STORET Code	Date	Average Depth (ft)	Width (ft)	Area (sq. ft)	Velocity (ft/s)	Flow (cfs)	DO (mg/L)	Cond. (umhos/cm)
302555084172400	03/17/99	0.43	15	6.52	0.194	1.264	10.85	252

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