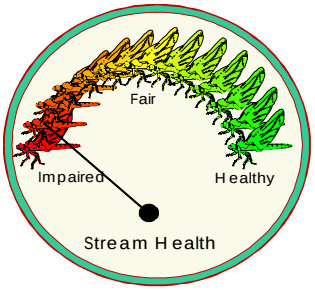


EcoSummary

BioRecon Report

Little River @ Hwy 90
04/27/99



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

Purpose and Background

The Little River at Highway 90, located in Gadsden County, drains into the Ochlockonee River. Lying within the Tifton Upland/ Tallahassee Hills Subecoregion (65h), the land is predominately a combination of hardwood and pine forest, mixed with longleaf pine and xerophytic oaks. Land use within the basin consists of cropland and pastures.

The Little River has been placed on the 303(d) list for violations of total suspended solids (TSS), coliforms, turbidity, and nutrient levels. 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

Physical/chemical parameters and nutrients were sampled in April of 1999. Macroinvertebrate communities were sampled using 4 discrete dip net sweeps (Bio-Recon). The samples were field picked, then 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 western Panhandle thresholds to determine the community's health. A Bio-Recon is a screening tool that assesses freshwater macroinvertebrate communities based on geographic thresholds. The Little River failed all three macroinvertebrate parameters (18 total taxa, 15 Florida Index points, and 6 EPT taxa) indicating suspected impaiment.

Assessment results indicate that habitat at this site was "suboptimal". Water velocity at the time of sampling was "suboptimal", and both substrate diversity and availability were in the "marginal" category.

Several of the measured physical/chemical parameters and water quality variables did not meet the criteria for Class III waterbodies. Nitrite-nitrate levels (3.1 mg/L) were highly elevated, falling well above 95% of other streams in Florida. Total phosphorus (0.23 mg/L) was also elevated, above 70% of other state streams. Turbidity levels (26 NTU's), while not in violation of Class III standards, were higher than 95% of other Florida streams. Total suspended solid levels were also high, at 24 mg/L. Dissolved oxygen concentrations did surpass the Class III water quality standard of 5.0 mg/L (7.0 mg/L). Ammonia (0.041 mg/L) and total Kjeldahl nitrogen (0.68 mg/L) levels were at acceptable levels, below 50% of other streams in Florida. Fecal coliform (40 colonies/100 ml) and total coliform (700 colonies/100 ml) counts also met state Class III water quality standards.

Suggestions

The aquatic macroinvertebrate community in the Little River is suspected to be impaired as exhibited by the station failing all three biological parameters. Habitat was in the "suboptimal" category at this station, with points taken off for low substrate diversity/availability and water velocity. While dissolved oxygen, ammonia, TKN, and coliform counts surpassed Class III water quality standards, nitrite-nitrate and total phosphorus levels were higher than 70% of other Florida streams. Total suspended solids were high, and turbidity levels, while not in violation of state standards, were above 95% of other streams in the state. Due to the river's poor biological communities and elevated chemical parameters, it is recommended that the Little River remain on the 303(d) list.

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Figure 1: Overview Map of the Little River @ Highway 90

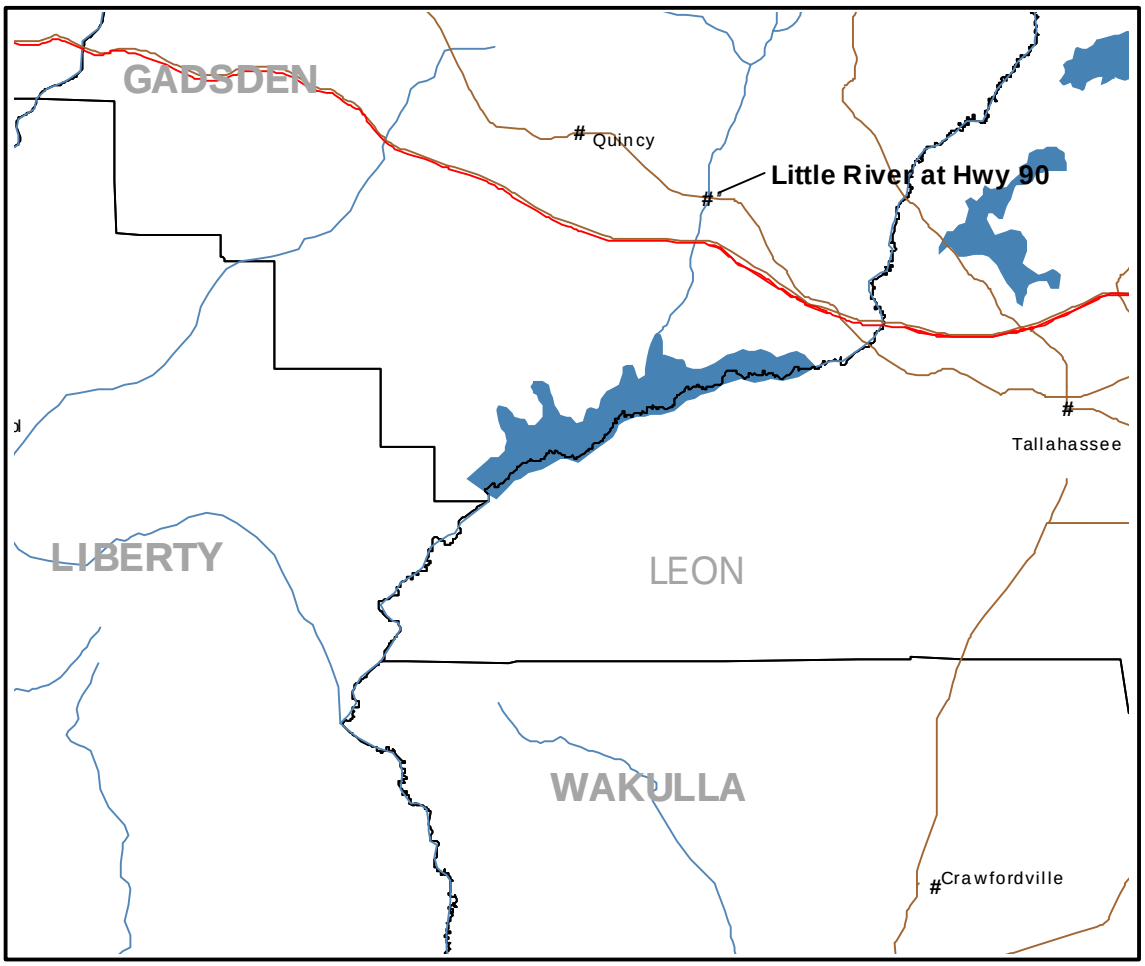


Figure 2: Data for Selected Parameters

Station	Date	# Taxa	Florida index	EPT	pH (Std Units)	Temp (C)	NH_3 (mg/L)	NOx (mg/L)	TKN (mg/L)	TP (mg/L)	Fecal coliforms (col/100 ml)	Total coliforms (col/100 ml)	TSS (mg/L)	Turbidity (NTU)
Little River @ 90	04/27/99	18	15	6	6.7	22.6	0.041	3.1	0.68	0.23	40	700	24	26

Storet Code	Date	Depth (ft)	Width (ft)	Area (ft^2)	Velocity (ft/s)	Flow (cfs)	DO (mg/L)	Cond. (uhms/cm^2)
22020002	04/27/99	1.64	49	80.25	0.54	43.254	6.95	106

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