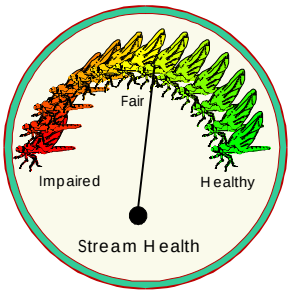
EcoSummary

BioRecon Report

Jumping Gully Creek
3/30/99



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

Purpose and Background

Jumping Gully Creek above Jumping Gully Road, was sampled in Lowndes County, Georgia. The creek empties into the Withlacoochee River, flowing into Hamilton County, Florida. Located in the Tifton Upland/Tallahassee Hills (65h) Subecoregion, land use within the drainage basin is mainly cropland and pastures.

Jumping Gully Creek has been placed on the 303(d) list for suspected violations of dissolved oxygen, turbidity, 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 then field picked, and finally 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. Jumping Gully Creek surpassed the threshold for all three metrics, indicating a healthy macroinvertebrate community (31 total taxa, 23 Florida Index points, 10 EPT taxa).

Habitat assessment results indicate "optimal" habitat quality. Of the eight habitat parameters measured, only substrate availability fell below the "optimal" or "suboptimal" ranges.

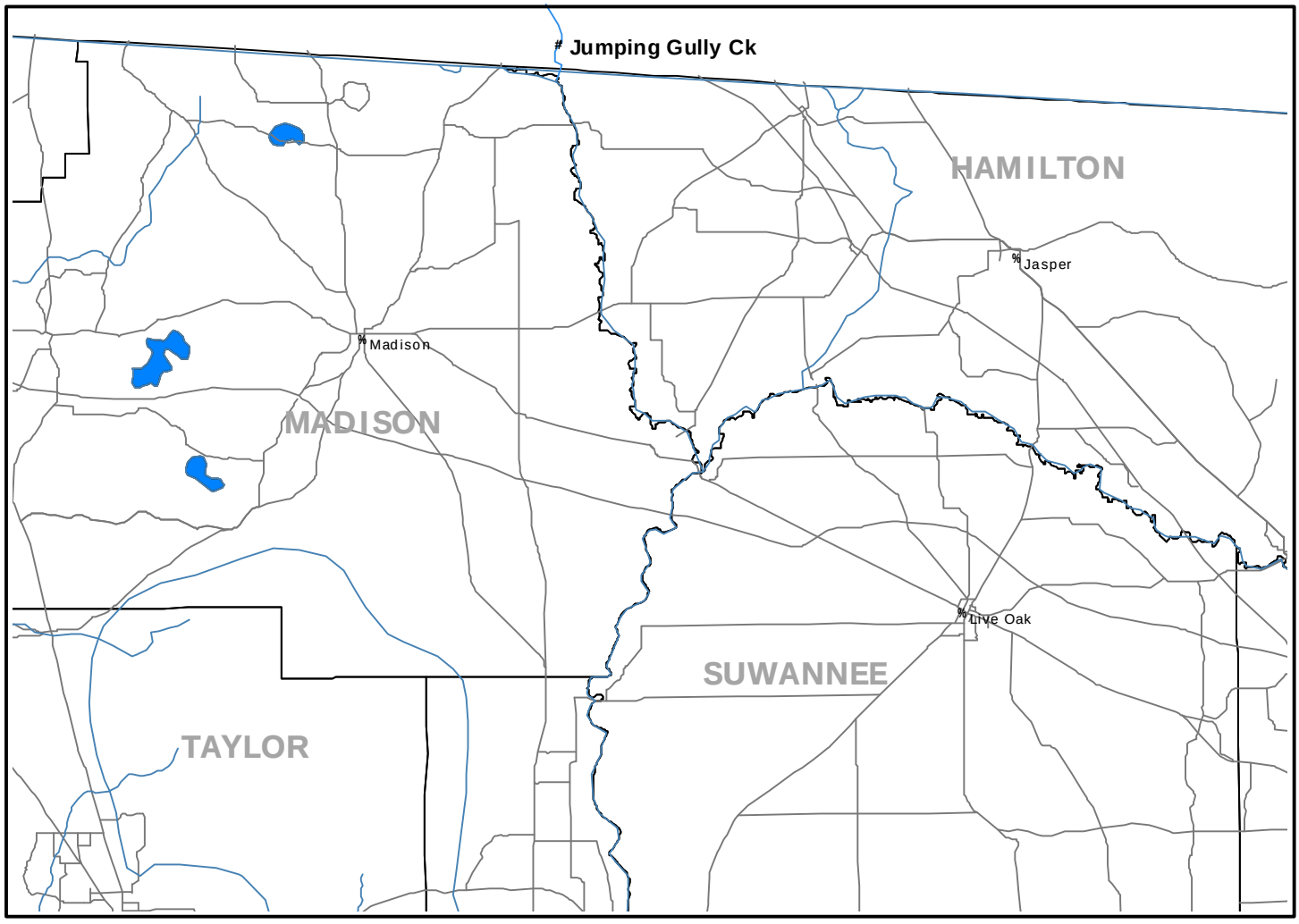
Measured physical/chemical parameters and water quality variables at Jumping Gully did not meet all of the acceptable criteria for the state. Turbidity levels (40 NTU's) were in possible violation of the state standard of 29 NTU's above background (usually 3 NTU's). Nitrite-nitrate levels (0.32 mg/L) were higher than 80% of other Florida streams. Total phosphorus levels (0.3 mg/L) were also elevated, falling above 75% of other streams in Florida. The dissolved oxygen concentration (7.6 mg/L) was acceptable, well above the Class III standard of 5.0 mg/L. Fecal coliform counts (480 colonies/100mL) also complied with the Class III standard of 800colonies/100 mL. Similarly, total coliforms for this sampling date (2000 colonies/100 mL) were below the Class III standard of 2400 colonies/100 mL. Ammonia (0.078 mg/L) and total Kjeldahl nitrogen (0.97 mg/L) were within the acceptable range (below the 50th percentile) for other Florida streams.

Suggestions

The aquatic macroinvertebrate commmunities in Jumping Gully Creek are healthy as exhibited by it passing all three biological parameters. Habitat was in the "optimal" category. However, turbidity levels were in violation of state standards, and both nitrite-nitrate and total phosphorus levels were greater than 75% of other streams in the state. Ammonia, and total Kjeldahl nitrogen were within the acceptable range for other Florida streams. Fecal and total coliforms were also within state standards. Dissolved oxygen levels exceeded the Class III surface water standard. Due to elevated turbidity, nitrite-nitrate and total phosphorus levels, it is recommended that Jumping Gully Creek above Jumping Gully Road remain on the 303(d) list.

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Figure 1: Overview Map of Jumping Gully Creek above Jumping Gully Road



Station	Date	#Taxa	Florida Index	EPT	pH (std units)	TEMP (C)	NH3 (mg/L)	NOx (mg/L)	TKN (mg/L)	TP (mg/L)	Fecal coliforms (col/100 ml)	Total coliforms (col/100ml)	Turbidity (NTU)
Jumping Gully Creek	03/30/1999	31	23	10	6.4	16	0.078	0.32	0.97	0.3	480	2000	40

Figure 2: Data for Selected Parameters

Storet Code	Date	Depth (ft)	Width (ft)	Area (ft^2)	Velocity (ft/s)	Flow (cfs)	DO (mg/L)	Cond. (uhms/cm^2)
21010042	03/30/1999	0.5	6.2	2.995	0.648	1.94	7.63	50.8

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