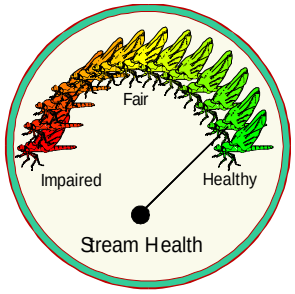
EcoSummary

BioRecon Report

North Prong of Alligator Creek, Near Jones Loop Road

19 August 1998



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

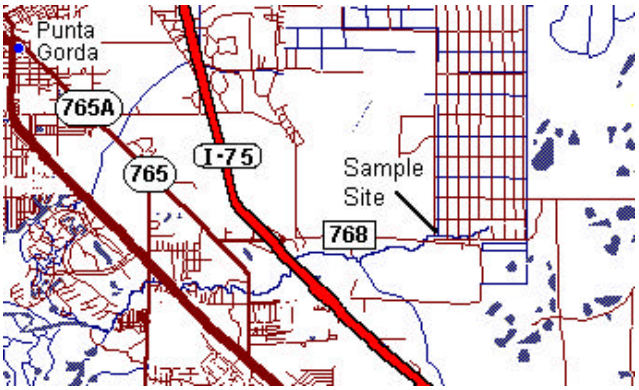
Introduction

The North Prong of Alligator Creek, located in Charlotte County, joins other branches of the creek and drains into Charlotte Harbor. The drainage basin consists of pine flatwoods mixed with a variety of wetland plant communities. The predominant land-use in the area is wildlife management (Cecil Webb WMA), encompassing approximately 70 % of the drainage basin. Low density residential (rural) area and pasture make up the other 30 %. The North Prong has been placed on the 303(d) list due to dissolved oxygen violations, turbidity, and for excessive coliform levels. Waterbodies on the 303(d) 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 South District Biology Section was requested to assess the status of selected waterbodies on the TMDL list that were placed on the list with "limited data". "Limited data" waterbodies were those with less than 10 observations in the STORET database, with the most recent observations occurring prior to 1990, or those with qualitative, non-point source survey data only.

Results and Discussion

Benthic macroinvertebrates communities, physical/chemical parameters, and nutrients were sampled in August of 1998. Macroinvertebrate communities were sampled from in-stream habitats (using 4 discrete dip-net sweeps), field picked, and lab identified (the Biorecon procedure). Three metrics, consisting of total taxa richness, the Florida Index and total EPT taxa (Ephemeroptera, Plecoptera and Trichoptera), were calculated and compared to existing thresholds to determine the community's health. The North Prong exceeded all three of the thresholds by generous margins, indicating a very healthy biological community.



One measured physical/chemical parameter or water quality variable did not meet the acceptable criteria for Class III waterbodies. Dissolved oxygen was 4.2 mg/L, just below the Class III standard of 5.0 mg/L, but typical for streams in the region during the summer. Nutrient concentrations (nitrogen and phosphorus) were all less than the median values for all Florida streams.. A turbidity value of 1.8 NTU's was measured at the North Prong. This is below the median turbidity for Florida streams (2.8 NTUs). Further downstream natural groundwater containing high iron levels enters the stream. Precipitation of the iron results in increased turbidity, but this is a natural phenomenon.

Conclusions

The North Prong exceeded all three of the Biorecon metrics by a wide margin, despite slightly low dissolved oxygen. Other physical/chemical parameters and water quality variables were within Class II standards or had typical values for the region and season.. It is recommended that the North Prong of Alligator Creek be removed from the 303(d) list.

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Biological Data

Parameter	Value	Units
Total number of taxa	37	number
Florida Index	16	points
EPT taxa	11	number
Habitat score	149	points (160 maximum)

Physical and Chemical Data

Parameter	Value	Units
Sample depth	0.6	meters
Temperature	28.1	^{0}C
pH	7.4	standard units
Dissolved oxygen	4.2	mg/l
Conductivity	102	µmho/cm
Secchi depth	1.0	meters
Turbidity	1.8	NTU
Color	50	pt-co units
Ammonia	0.019 I	mg/l
Total Kjeldahl nitrogen	0.99	mg/l
Nitrate-nitrite	0.004 U	mg/l
Total phosphorus	0.036 U	mg/l

v. o. b. - Secchi disk was visible on the bottom of the stream.

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