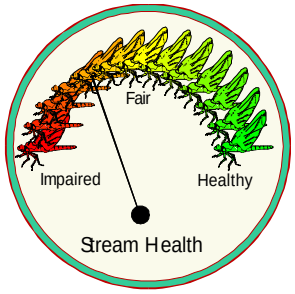
EcoSummary

BioRecon Report

Trout Creek @ SR78, Lee County
2 September 1998



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

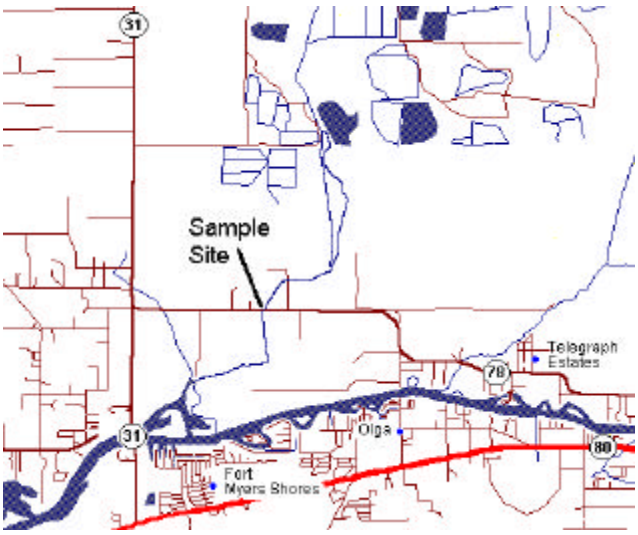
Introduction

Trout Creek, located in Lee County, drains into the Caloosahatchee River. The drainage basin consists of Pine flatwoods and improved pasture. The predominant land-use in the area is low density cattle ranching and rural residential use. Trout Creek has been placed on the 303(d) list due to dissolved oxygen violations, and for excessive nutrient 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 September of 1998. The sample site was at a road crossing, because the property owners on the stream refused permission to sample from their land. The site was deeper than preferred for the Biorecon method, and had suboptimal to marginal habitat quality. 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. Trout Creek (with 24 taxa, 6 Florida Index points, and 4 EPTs) met the Peninsula thresholds for total taxa (18) and EPT (4), but did not meet the Florida Index threshold of 10. These scores indicate that some type of impairment is suspected at the site. Factors contributing to the poor Biorecon scores included low water velocity (less than 0.1 m/s), lack of suitable habitat, and poor sampling conditions.



Measured physical/chemical parameters and water quality variables met the acceptable criteria for Class III waterbodies. Dissolved oxygen was 5.1 mg/L, above the Class III standard of 5.0 mg/L, and relatively high for streams in the region during the summer. Nitrite-nitrate, ammonia, and total phosphorus levels were well below their medians for Florida streams. Total Kjeldahl nitrogen (1.2 mg/L)was somewhat above the median of all other Florida streams, but was not unusually high for streams in the region, especially those with heavily vegetated banks.

Conclusions

Trout Creek met two of three of the Biorecon metrics despite very low flow, poor habitat, and poor sampling conditions. This, along with acceptable physical/chemical parameters, indicates acceptable water quality. It is recommended that Trout Creek be removed from the 303(d) list.

FOR MORE INFORMATION, CONTACT:
Albert S. Walton, Florida DEP South District
7451 Golf Course Blvd. Punta Gorda, FL 33982
(941) 575-5810 Walton_A@ftm1.dep.state.fl.us

Biological Data

Parameter	Value	Units
Total number of taxa	24	number
Florida Index	6	points
EPT taxa	4	number
Habitat score	106	points (160 maximum)

Physical and Chemical Data

Parameter	Value	Units
Sample depth	0.5	meters
Temperature	26.6	^{0}C
pH	7.3	standard units
Dissolved oxygen	5.1	mg/l
Conductivity	205	µmho/cm
Secchi depth	1.4	meters
Turbidity	3.1	NTU
Color	80	pt-co units
Ammonia	0.041	mg/l
Total Kjeldahl nitrogen	1.2	mg/l
Nitrate-nitrite	0.083	mg/l
Total phosphorus	0.050	mg/l

FOR MORE INFORMATION, CONTACT:
Albert S. Walton, Florida DEP South District
7451 Golf Course Blvd. Punta Gorda, FL 33982
(941) 575-5810 Walton_A@ftm1.dep.state.fl.us