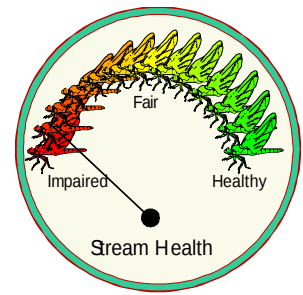


EcoSummary

BioRecon Report

**Manuel Branch Above McGregor
Blvd., Ft Myers**

22 July 1998



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

Introduction

Manuel Branch, located in Lee County, drains portions of the City of Ft. Myers into the Caloosahatchee River. The drainage basin consists of downtown and suburban Ft. Myers. The stream is a canal for most of its length. The predominant land-use in the area is medium density residential, encompassing approximately 75% of the drainage basin. Commercial, transportation, and industrial uses make up the other 25%. Manuel Branch 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



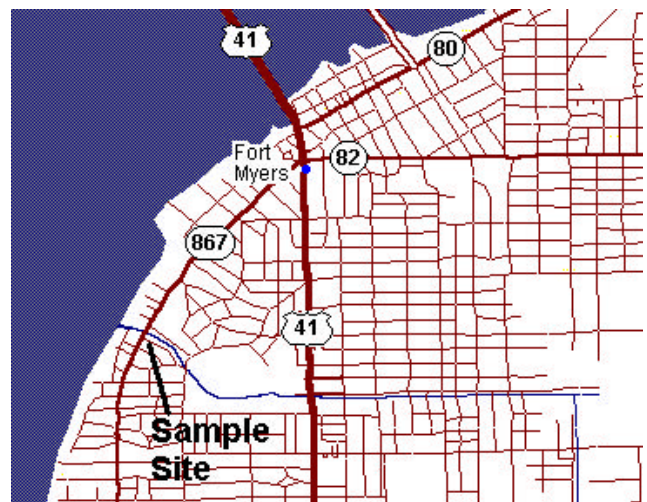
for recreation and maintenance of a healthy, well-balanced aquatic community.

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 July 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. Manuel Branch failed to meet any of the three thresholds, indicating the site is impaired. Factors contributing to the poor BioRecon scores included lack of productive habitat and a very narrow riparian buffer zone.

Some measured physical/chemical parameters and water quality variables did not meet the acceptable criteria for Class III waterbodies. Dissolved oxygen met the Class III standard at 5.2 mg/L. Nitrite-nitrate levels (0.51 mg/L) exceeded the values found in over 80% of other Florida streams

Conclusions

Manuel Branch failed all three of the BioRecon metrics. Although lack of habitat may have reduced the BioRecon scores, water quality problems could also be responsible. Nutrients (especially nitrite-nitrate) were elevated compared to other Florida streams. It is recommended that Manuel Branch remain on 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	14	number
Florida Index	2	points
EPT taxa	1	number
Habitat score	100	points (160 maximum)

Physical and Chemical Data

Parameter	Value	Units
Sample depth	0.2	meters
Temperature	26.0	⁰ C
pH	7.4	standard units
Dissolved oxygen	5.2	mg/l
Conductivity	416	µmho/cm
Secchi depth	0.5 v. o. b.	meters
Turbidity	8.8	NTU
Color	80	pt-co units
Ammonia	0.11	mg/l
Total Kjeldahl nitrogen	0.84	mg/l
Nitrate-nitrite	0.51	mg/l
Total phosphorus	0.14	mg/l

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



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