FLORIDA AMBIENT

EcoSummary

Sourwood Branch South of CR 282 near mouth Northwest of Freeport

May 2, 2006

PASS

BioRecon: A rapid, cost-effective screening mechanism for identification of biological impairment

For samples collected before June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures and met FDEP quality assurance/quality control standards.
For samples collected on or after June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures (SOPs) and met DEP quality assurance/quality control standards.



Purpose

A bioassessment was performed on the biota and wildlife habitat at this site as a background for the Coyote Construction and Demolition Debris Landfill on Swampy Creek. This unnamed Branch is referred to as Sourwood Branch in this report for descriptive purposes (for the large sourwood trees along the stream).

Watershed Characteristics

Sourwood Branch is located just south of County Road 282, about 3 miles northwest ofFreeport in Walton County (Latitude N30 degrees 33 minutes 6.9 seconds; Longitude W86 degrees 11 minutes 9.3 seconds). This background site is situated 3 miles north of Coyote Landfill on Swampy Creek. Sourwood Branch is a second order steephead stream with its headwaters about 2500 feet upstream of the sample site. It flows to Little Alaqua Creek, Alaqua Creek and Bayou before emptying into Choctawhatchee Bay . The watershed drains the Gulf Coast Flatwoods of subecoregion 75a.

Results

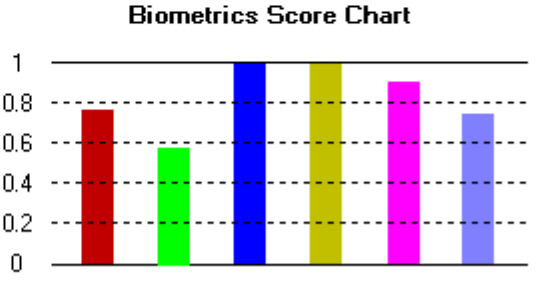
The BioRecon indicated a healthy biological community. The biological indicators passed thresholds established for a healthy aquatic wildlife community:

Biometrics	Metric Score
# TOTAL TAXA	0.76
# EPHEMEROPTERA TAXA	0.58
# TRICHOPTERA TAXA	1
# LONG-LIVED TAXA	1
# CLINGER TAXA	0.9
# SENSITIVE TAXA	0.74
TOTAL METRIC SCORE :	4.98
/ Correction Factor :	0.6
= BIORECON SCORE :	8

(•) Pass 6 - 10
( ) Fail 0 - 5

SOURWOOD BRANCH NEAR MOUTH
NORTHWEST OF FREEPORT

BioRegion : Panhandle West
Sample Date : May 02, 2006



This Sourwood Branch site had a diverse and productive fish and wildlife community. Forty-two Total Taxa were collected with a Florida Index (clean water indicators) of 28 and the EPT (Ephemeroptera, Plecoptera, Trichoptera) 21. The EPT or mayflies, stoneflies, and caddisflies are the basis for a well-balanced stream community. Stoneflies, the most important clean water indicator, were abundant with 5 taxa found. Darters, bass, bream, shiners, lampreys, and salamanders were common.

The stream habitat assessment score was rated optimal at 92%. All habitats (Substrate Availability, Water Velocity, Habitat Smothering, Artificial Channelization, Bank Stability, Riparian Buffer Zone Width, and Riparian Zone Vegetation Quality) rated optimal except for Substrate Diversity, which rated a suboptimal score. Large mature trees like sourwood, white oak, and tulip poplar provided habitat and shade and protected the sandy hillsides from erosion. Some large cut stumps were observed on the hillsides with gullies below them created by skidding logs over 50 years ago. The historical logging was probably the source of the 19% smothering and a few sand point bars observed in the sample reach. Steephead streams do not have the energy to flush sediment since they are almost entirely fed by groundwater. In contrast, streams developed by surface runoff from rainfall are able to flush channel sediment deposits.

Sediment iron/sulfur bacteria and odor were absent in Sourwood Branch, while the bacteria in Swampy Creek were over-abundant and the odor was anaerobic with a

hydrogen sulfide smell . Water odor in Sourwood Branch was normal with no sheen of iron/sulfur bacteria, which were absent. Periphyton was rare. The dissolved oxygen (DO) concentration was 8.6 mg/l (3.1 mg/l Swampy Creek). The percent DO concentration was 94% (35% Swampy Creek). Water temperature was 20 degrees centigrade compared to 22 degrees at Swampy Creek. Sourwood Branch's spring fed summer water temperature stays near 20 degrees because of shade from the riparian forest's canopy. Conductivity was 31 umho/cm at Sourwood Branch, typical of the sand and gravel aquifer's influence on area streams (362 umho/cm at Swampy Creek).

Conclusions

This Sourwood Branch site met Class III State Water Quality Standards 62-302 for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Forest management at this site has conserved the native riparian and transitional zone vegetation, protecting the stream's fish/wildlife diversity and productivity. The greater than 18 meters of riparian buffer zone provided the necessary shade, food and habitat (woody debris/leaf fall) and filtered pollutants to maintain the health of Sourwood Branch's fish and wildlife community. The optimal riparian buffer zone width also preserved the stream's natural hydrology (i.e. flow, depth), enhancing fish and wildlife habitat.

For more information, please contact
Donald H. Ray
Northwest District Office
160 Government Center, Pensacola, FL 32502
(850) 595-8300 (Suncom 695-8300 x 1126)
E-mail: donald.ray@dep.state.fl.us

Published by the Florida Department of Environmental Protection
Tallahassee, Florida
For more information on the DEP Bioassessment programs, please visit our web site at http://www.dep.state.fl.us/water/bioassess

Sourwood Branch South of CR 282 near mouth Northwest of Freeport

