EcoSummary

Hurst Branch below concrete road crossing

February 7, 2006

FLORIDA AMBIENT

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



This Hurst Branch BioRecon was performed in Water Body Identification (WBID) 681 to add data to the FDEP Basin Rotation Group 5 (Perdido Basin) monitoring. The Hurst Branch watershed land use was shifting from forest and silviculture operations to residential because of approaching Pensacola urban sprawl. Collection of background biological data was needed to monitor this change and for comparison to the adjacent Wicker Creek watershed. Wicker Creek (WBID 489) had a pending permit application to discharge pulp mill effluent to its wetlands for wastewater treatment.

Watershed Characteristics

Hurst Branch (STORET 33010017) at the bioassessment site (latitude North 30 degrees 28 minutes 51.4 seconds longitude West 87 degrees 21 minutes 45 seconds) was located in the Gulf Coast Flatwoods of subecoregion 75a. Its headwaters drain a steep hillside (elevation over 100 feet) in the Southern Pine Plains and Hills subecoregion 65f. The watershed is designated Class III waters for recreation and maintenance of a healthy, well-balanced aquatic wildlife community and flows into Perdido Bay via Eleven Mile Creek. Land use was wetland hardwood forest, mixed

wetland forest, upland hardwood forest, upland coniferous forest, silviculture, crop/pasture, reservoirs (impoundments), residential, and institutional. The watershed was heavily used for logging and silviculture during the past 100 years.

Results

This Hurst Branch site passed the BioRecon with a score of 6 indicating a borderline healthy condition.

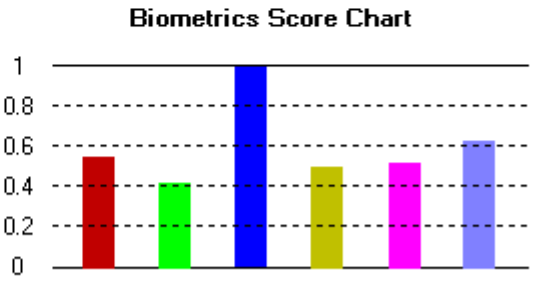
Biometrics	Metric Score
# TOTAL TAXA	0.55
# EPHEMEROPTERA TAXA	0.42
# TRICHOPTERA TAXA	1
# LONG-LIVED TAXA	0.5
# CLINGER TAXA	0.52
# SENSITIVE TAXA	0.63
TOTAL METRIC SCORE :	3.62
/ Correction Factor :	0.6
= BIORECON SCORE :	6

(•) Pass 6 - 10
( ) Fail 0 - 5

HURST BRANCH BELOW CONCRETE ROAD CROSSING OLD RAINWATER PROPERTY

BioRegion : Panhandle West

Sample Date : Feb 07, 2006



Five of the six biometrics were borderline and the sixth, Trichoptera (caddisfly) Taxa with seven caddisfly taxa rated a maximum metric score. Productivity was good with most taxa common or abundant. The mayflies, stoneflies and caddisflies, (EPT), the normal major component of healthy panhandle streams with 17 or more taxa in BioRecons were slightly reduced to 14 taxa found. The EPT are an important fish food and form the basis for a well-balanced aquatic wildlife community. Fish such as d arters, mad toms, and pygmy sunfish, were very common at this Hurst Branch site. Periphyton, aquatic macrophytes (juncus, golden club, pond weed), and red macroalage (Batrachospermum), a clean water indicator, were common. Iron/sulfur bacteria was absent.

The stream habitat assessment score was rated optimal at 87%.
Substrate Diversity, Substrate Availability, Water Velocity, Artificial Channelization, Bank Stability, and right bank Riparian Buffer Zone Width rated optimal. Habitat Smothering (slight sand, slight to moderate silt deposition) and Riparian Zone Vegetation Quality (young, less than 30 years old, only one small (six foot) Atlantic white cedar observed)scored suboptimal. Left bank Riparian Buffer Zone Width rated marginal because of silviculture activities 10 meters from the stream.

The dissolved oxygen (DO) concentration was 8.4 mg/l with a DO saturation of 79%. Water temperature was 12.8 degrees centigrade with a pH of 5.46 standard units. Conductivity was 27 umho/cm, typical of the western panhandle. The water was clear (secchi visible on the bottom at 1.3 meters), had no surface oils and normal odors. Sediment odors were normal except a couple of locations that smelled of hydrogen sulfide.

Significance

This Hurst Branch site was still meeting 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. It is important to protect Hurst Branch's stream health as Pensacola's urban sprawl moves into this formally rural watershed. The streams affected by Pensacola's developed lands are impaired from stormwater runoff. State and local government stormwater and wetland permitting Statutes for urban development of the watershed have not protected panhandle streams from impairment to their designated use for recreation and fish and wildlife habitat.

Suggestions

Preserve Hurst Branch's geomorphology by protecting the wetlands and limit the amount of impervious surfaces added to the watershed. Design existing and future stormwater runoff infrastructure to allow natural detention and water quality treatment before discharging to Hurst Branch. Minimum 18-meter wide riparian buffer zones should be maintained along the stream and its tributaries. For stream crossings, bridges that span the wetland riparian zone should be used instead of culverts, which affect the natural fluvial geomorphology. The Hurst Branch corridor's hydrologic and geomorphic conditions along with the biological and chemical characteristics should be analyzed by local government to make appropriate decisions to protect stream health. Stream Corridor Restoration: Principles, Processes, and Practices is a recommended technical reference manual that details stream corridor protection and restoration techniques that can help prevent and repair degradation from erosion, sedimentation and hydrological modifications. This manual by the Natural Resources Conservation Service,Washington, DC contains field-tested methods and approaches.

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

Hurst Branch below concrete road crossing

