EcoSummary

East Fork Magnolia Creek above culvert on Owls Head Farm

January 18, 2006

FAIL

NPS BIOASSESSMENTS

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 second post-restoration biological assessment continued monitoring an Ecosystem Restoration Project in East Fork Magnolia Branch conducted jointly by South Walton Utilities Inc., Nokuse Plantation, and the United States Fish and Wildlife. An earthen dam that impounded this stream reach was removed during 2003 and replaced with a large culvert to match bankfull stream channel. Floodplain drain culverts were placed at elevations to allow more natural stream flows. Additionally, sediment runoff from dirt roads was directed away from the stream and bare soils along the stream were vegetated. The pre-existing culvert had impounded the creek above the dirt road, which altered the stream's natural hydrology, impairing the downstream biological community. This BioRecon of the formerly impounded reach documented the condition of the biological community as a measure of stream health approximately two years after the completion of the restoration. In addition, dirt road sediment, organic deposits created by the dam, and soil from dam failures smothered 95% of stream habitat in this reach below the road.

Watershed Characteristics

The sample reach (Latitude 30 degrees 34 minutes 5.8 seconds North, Longitude 86 degrees 4 minutes 45.6 seconds West) is located about 2.5 miles northeast of Freeport in Walton County. This East Fork Magnolia Creek site (STORET # 32010032) is at least a second order stream draining the Gulf Coast Flatwoods of subecoregion 75A, near the border with Southern Pine Plains and Hills subecoregion 65F. East Fork Magnolia Creek is a tributary to Lafayette Creek and flows into Choctawhatchee Bay via LaGrange Bayou.

Results

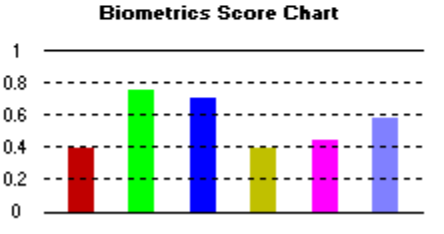
This East Fork Magnolia Creek site declined and failed with a BioRecon Score of 5 out of 10, indicating a impaired condition.

Biometrics	Metric Score
# TOTAL TAXA	0.39
# EPHEMEROPTERA TAXA	0.75
# TRICHOPTERA TAXA	0.71
# LONG-LIVED TAXA	0.4
# CLINGER TAXA	0.45
# SENSITIVE TAXA	0.58
TOTAL METRIC SCORE :	3.28
/ Correction Factor :	0.6
= BIORECON SCORE :	5

○ Pass 6 - 10
◉ Fail 0 - 5

EAST FORK MAGNOLIA CREEK ABV CULVERT ON 1ST AMER FRM AKA OWLS HEAD FARM RESTOR

BioRegion : Panhandle West
Sample Date : Jan 18, 2006



The following biometrics decreased slightly in 2006 from 2005: Total Taxa to 30 from 34, Florida Index 22 from 26, and EPT 15 from 18. Five out of the six biometric scores in the chart above also slightly decreased from 2005. The most probable factor for this drop in the Total Metric Score to 3.28 from 4.07 in 2005 was a small increase in habitat smothering (65% from 60%) in 2006. Organic sediments from the now exposed lake bottom that previously occupied this reach were washed into the stream channel by above normal annual rainfall for 2005 (89.62 inches of rain was second highest ever recorded at Eglin Air Force Base). The stream community changes were minor and stoneflies, the best cleanwater indicator were still not found.

Conclusions

East Fork Magnolia Creek above the road did not meet 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 during this second year after the

restoration activities . Although the stream reach's health decreased slightly, it was just a small change from 2005 when the site scored on the low end of passing. Continued improvement of stream health is expected once the exposed former organic lake bottom is covered and stabilized by vegetation. Riparian forests are excellent buffers for filtering sediment runoff. A complete recovery to the natural aquatic community is not expected until a mature riparian forest re-grows to shade the formerly impounded reach. Native riparian and transitional streamside forest provide food and habitat (woody debris, leaves, root wads, terrestrial wildlife) for the stream's fish and wildlife. Streamside forests also anchor stream banks, contribute large snags that create riffles/pools vital to a healthy stream community, and its canopy cover¿s shade cools the water increasing the dissolved oxygen concentration. An additional post-restoration bioassessment for January 2007 has been requested by the USFWS.

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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

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