EcoSummary

"Sweetwater Gully" Branch South of Munson

July 13, 1999

IMPAIRED

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.

Introduction

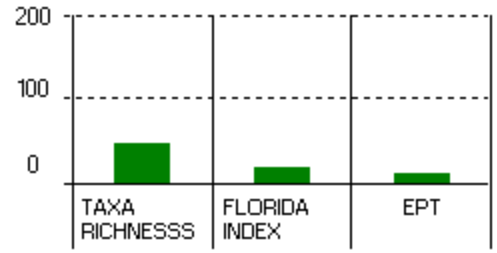


A BioRecon was performed at this site to assess the impacts of sedimentation from a mining pit on the biota and wildlife habitat in "Sweetwater" Gully Branch. This bioassessment was a partnership with the BRSF and the United States Geology Survey. The BRSF planned to restore this severely eroded and gullied strip-mining site located on steep banks along Sweetwater Creek. The mining pit provided clay fill material on Blackwater River State Forest (BRSF) dirt roads. Clay fill is applied to sand roads to support logging vehicles. The 2004 aerial photograph at this report's map link shows the mine pit and sand road to which clay has been added, less than a half-mile to the northeast of the bioassessment site. A bioassessment was planned to monitor the expected improvement to stream health after completing site restoration. Sweetwater Gully Branch (STORET 33030108) at the bioassessment site (N30 49 41.7 W86 52 27.4) is a second order tributary to Sweetwater Creek, which flows to Big Juniper Creek and Blackwater River. The Blackwater River, classified as Outstanding Florida Waters (OFW) under the State Water Quality Standards flows into Pensacola Bay via Blackwater and East Bays. The Yellow River Marsh along Blackwater Bay is a State Aquatic Preserve and also listed as an OFW. Sweetwater Gully Branch drains the southern pine plains and hills of subecoregion 65f.

Result and Discussion

The BioRecon indicated an impaired biological community. All three biological indicators failed thresholds established for healthy aquatic ecosystems.

Biometrics	Value	Threshold
TAXA RICHNESS	11	>= 24
FLORIDA INDEX	4	>= 22
EPT	2	>= 17



Values and Percent Threshold Attained for Panhandle West BioRecon Metrics

Diversity and productivity of the macroinvertebrates (fish food) population was very low for this sediment-impaired site. Low order tributaries like Sweetwater Gully Branch provide invertebrate biomass to feed the fish and wildlife populations downstream in Sweetwater and Big Juniper Creeks and Blackwater River. Severely eroded soil in this area of steep topographical relief smothered most wildlife habitats in the stream and a sediment plume was observed in Sweetwater Creek below the confluence with Sweetwater Gully Branch. The Habitat Assessment barely rated suboptimal at 52% due to poor conditions for Substrate Availability, Habitat Smothering, and Bank Stability, with marginal conditions for Artificial Channelization. Substrate Diversity and Water Velocity rated suboptimal. Riparian Buffer Zone Width, and Riparian Zone Vegetation Quality rated optimal.

Conclusions

Sweetwater Gully Branch did not meet Class III State Water Quality Standards 62-302 for recreation and propagation and maintenance of a healthy well-balanced population of fish and wildlife. Eroded soils and sediment runoff from the mine pit caused this site to not meet State designated use. Sediment deposition smothered habitat, which impaired the stream's fish and wildlife nursery function. However, its intact Riparian Buffer Zone Width, and Riparian Zone Vegetation Quality should speed recovery after BRSF stabilizes and restores the mining pit. Continued stream corridor management maintaining an undisturbed riparian buffer zone width of at least 18-meters would facilitate the restoration and preservation Sweetwater Gully Branch. Its location in the Blackwater River State Forest has the potential to afford managerial riparian forest protection. Sediment runoff in Blackwater River basin has been a major problem and has impeded navigation affecting recreational boaters and the canoe livery business. The post-restoration bioassessment has not been performed as of July 2005. Hillside erosion was still observed at the last site visit in 2004 due to incomplete sediment control measures.

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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

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