FLORIDA AMBIENT

EcoSummary

SUSPECT

Mare Creek Ford East River Road, Okaloosa County

February 9, 2000

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



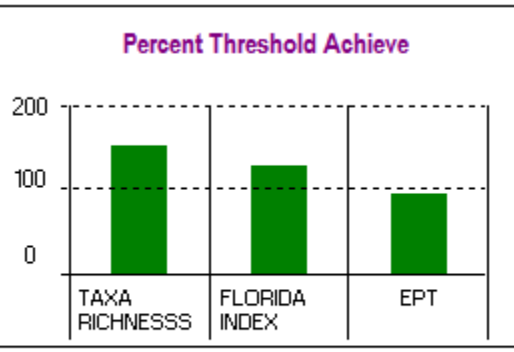
A BioRecon was conducted at this site to assess the impacts of dirt road runoff to the biota and wildlife habitat in Mare Creek. This bioassessment was a partnership with the Blackwater River State Forest (BRSF) and the Gulf Coastal Plain Ecosystem Partnership (GCPEP). Continuous erosion from East River Road, a dirt road with clay fill that forded Mare Creek, resulted in turbidity smothering fish and wildlife habitat.
BRSF has received a Section 319 federal grant through the Florida Department of Environmental Protection to erect a bridge over Mare Creek and its riparian zone. The bridge will replace the stream ford to reduced sediment impacts to waters within the Pensacola Bay basin. Mare Creek, a fourth order stream at the
sample reach (STORET # 33030109) drains the Southern Pine

Plains and Hills subecoregion 65f. The sample site (Latitude 30 degrees 54 minutes 14.8 seconds North, Longitude 86 degrees 42 minutes 59.1 seconds West) is located about 8 miles northwest of Crestview. Mare Creek is a tributary to the Blackwater River, which is classified as Outstanding Florida Waters (OFW) under the Florida Water Quality Standards. The Blackwater River flows into Pensacola Bay via the Blackwater and East Bays. The Yellow River Marsh Aquatic Preserve, also listed as an OFW, is located along Blackwater Bay.

Results

The BioRecon indicated some impairment to the biological community. Only two of three biometric indicators met thresholds established for healthy aquatic ecosystems.

Biometrics	Value	Threshold
TAXA RICHNESS	36	>= 24
FLORIDA INDEX	28	>= 22
EPT	16	>= 17



Values and Percent Threshold Attained for Panhandle West BioRecon Metrics

Although the sample passed two and barely missed the third biometric, the site's wildlife productivity was limited by habitat smothering. Filter feeding blackflies and tolerant midges were the only taxa found in abundant numbers because of the marginal amount of substrate available as habitat. The EPT's number of individuals was limited by sediment runoff. The EPT (mayflies, stoneflies, caddisflies) is the strongest measure of stream health and declines in relation with human disturbance. A film of clay smothered 83% of woody debris, leaf pack/mat, and undercut banks/roots substrate. The habitat assessment rated a suboptimal 61% from marginal substrate availability, bank stability, and riparian zone buffer width and the poor habitat smothering rating. On the plus side, water velocity, artificial channelization, and riparian zone vegetation quality rated optimal. The site's potential habitat rating should be excellent after minimizing local road sediment input. The riparian zone is a mature Atlantic white cedar forest with mountain laurel understory, which now are rare in Florida. The sample reach's mature riparian forest provided more potential woody debris stream habitat than found in the typical panhandle sites. The 36% coverage of snags and logs at this stream site approached that reported by the University of Georgia studies. Research by J.B. Wallace and A.C. Benke found around 40% woody debris in relatively unaltered Southeastern Coastal Plain streams. Wood habitat is the major stable substrate in area sand-bottom streams and the site of high invertebrate diversity and productivity. Wood is also important to fishes, providing habitat for an abundant invertebrate food source, as well as cover and habitat. Most Florida panhandle streams now have less than 10% woody debris habitat because of the historical logging and modern silviculture practices.

Conclusions

Because of habitat smothering from East River Road runoff, this Mare Creek site 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. With the installation of a metal Bailey bridge and elimination of the road ford, the Mare Creek site's stream health is expected to be rapidly restored once sediment runoff is minimized. Mare Creek's location in the Blackwater River State Forest can afford its mature riparian forest protection from cutting, facilitating the restoration and preservation of Mare Creek. This restoration project will enhance the stream reach's fish and wildlife, in addition to improving recreational opportunities as the Wire Grass Hiking Trail crosses the Mare Creek in the sample reach.

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