



EcoSummary

Fletcher Creek, Escambia County
March 8, 1999



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

Purpose

A bioassessment of Fletcher Creek was conducted to determine the community structure and health of this 2nd order tributary of Cotton Lake (Escambia River). This bioassessment was conducted to compliment the lake (oxbow of Escambia River) bioassessment. Also, this provides winter index data for comparison to those collected from the BioRecon done in summer 1998.



Background

Fletcher Creek is located in northern Escambia County near Molino. This stream drains an area used primarily for silviculture, crop production and pasture. Approximately two-thirds down from the headwaters it crosses U.S. Highway 29; however, the stream channel could not be found upon inspection and is assumed covered by road construction. The area where it should flow was saturated and the water table above ground. About 1 mi (1.6 km) downstream of U.S. Highway 29 a railroad exists. The area of stream where the trestle crosses has been dug out affecting the flow and habitat of the stream. The lower one-third is in a natural hardwood wetland forest.

Results

Physical and chemical data obtained were typical values for streams in this region. The stream was slightly acidic, clear and tannic. Dissolved oxygen was good while velocity (current speed) was marginal at 0.3 ft/s. The habitat scoring of the 100 m (328 ft) stream reach in this bioassessment resulted in an overall score of 80 %. This tabulation of habitat ratings is composed of two main components. The focus of primary habitat components is on in-stream quality and quantity of habitat

and the important velocity attribute. This primary score was 66 %, with the average corresponding to a suboptimal ranking. Substrate availability ranked in the optimal category while habitat smothering fell to the marginal category. This scoring reflects the sediment load coming from the disturbed soils upstream in the watershed. The lower approximate 0.6 mi of the stream (includes that portion sampled) is the only reach that is undisturbed. This section is within the proclamation boundary of the Northwest Florida Water Management District holdings. The secondary habitat components focuses on more ancillary habitat, principally concerning riparian zone quality and integrity along with related stream bank stability and human-induced alterations to the stream channel, that is canalization. This secondary score was 94 % with the individual component average corresponding to an optimal rating. Bank stability was the one category that was below this ranking; it received a suboptimal rating. Some braiding resulted due to hydrologic alterations from beaver activity. Average water velocity was thus affected and likely had deleterious ramifications on the biotic community. Some of the more important woody species of the riparian zone: red maple; blackgum; water oak; and tulip tree. The macroinvertebrate community reflected the many types of impacts to this stream. Of the three metrics employed to determine stream health, taxa richness met the minimum target threshold. The EPT (mayflies, stoneflies and caddisflies), three orders of insects that are sensitive to human-induced pollution, was below minimum threshold but significantly higher than the summer 1998 BioRecon. While current speed was less than desirable, it had increased three-fold since the last BioRecon. This is a very important physical factor to invertebrates adapted to living in running waters. Current speed is one of the three most important factors in controlling the presence of stream-dwelling insects (Hynes, 1970). The trophic (eating) structure of this macroinvertebrate community included the expected feeding groups.

Significance

This stream is impacted by a myriad of human activities in the watershed. Probably the two impacts of greatest significance are the disruption of the stream continuum compromised by the design of U.S. Highway 29 and the channel/flow alterations as a result of the railroad trestle construction. These data add specific knowledge of the condition of watersheds in the Northwest District (NWD).

Suggestions

Restoring the natural flow regime and channel characteristics to the upper two-thirds of the stream, and at the railroad trestle, would significantly aid in recovery of the biological integrity of this stream. Also, best management practices in the agricultural and silvicultural operations would help protect the watershed. Literature Cited Hynes, H. B. N. 1970. The ecology of running waters. Toronto: University of Toronto Press.

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