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National Water Program
A Partnership of USDA CSREES & Land Grant Colleges and Universities

USDA-CSREES 2007 National Water Quality Conference

Biological Assessment of Three Watersheds in North Alabama: A Preliminary Study of Benthic Macroinvertebrates

Biological communities are excellent indicators of water quality and the overall ecological health of rivers and streams. Their abundance and diversity provide reliable measures of long-term effects of pollution and stream degradation. This study was conducted to determine the diversity and abundance of benthic macroinvertebrates in three major watersheds of north Alabama, namely, Flint River, Indian Creek and Flint Creek. These bodies of water drain into the Tennessee River which is the major source of drinking water for residents of Madison County and nearby areas. Three sampling sites were selected for each watershed. Monthly sampling of aquatic invertebrates was done following modified Rapid Bioassessment Protocols (EPA, 1996) using leaf pack, kick net, surber and dip net sampling methods. Indices used to determine benthic community structure were % EPT abundance and richness, contribution of dominant taxon, EPT/Chironomidae and EPT/[Chironomidae+EPT]abundance ratios. Our preliminary results showed variation in dominant groups among watersheds. Ephemeroptera was most dominant in Flint River, Elmid beetles in Flint Creek, and Trichopterans in Indian Creek. Chironomid fly larvae comprised the majority of Dipterans collected in all watersheds. Landuse, riparian habitat, and stream conditions were also examined for all study sites.

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