

The Benefit of using Geomorphic Assessments to Mitigate Impacts of Extreme Flood Events: Case study of the Poultney and Mettowee Watersheds post- Tropical Storm Irene, August 28, 2011.

Jurij Homziak, Lake Champlain Sea Grant
Hilary Solomon, Poultney Mettowee Natural Resources Conservation District

Opportunities for Action Update , February 2013

Summary: Geomorphology Assessments are a valuable tool that identifies stream areas vulnerable to flood and erosion hazards, and provides data that can be effectively used to mitigate these hazards. Infrastructure projects for flood and erosion prevention on the Poultney-Mettowee rivers that used Geomorphology Assessment data successfully withstood the flooding caused by Tropical Storm Irene. Where the recommendations made in the Geomorphology Assessments for structural improvements but were not implemented, significant flood and erosion damage was reported.

Full Comment: With assistance and support from the Rutland Regional Planning Commission (RRPC), Lake Champlain Sea Grant (LCSG), and the Vermont Department of Environmental Conservation (DEC), the Poultney Mettowee Natural Resources Conservation District (PMNRCD) conducted Phase 1 Stream Geomorphology Assessments (mapping and digital resources with a quick field verification) on the entire main stem and many of the tributaries of the Poultney and Mettowee Rivers. Additionally, Phase 2, or field-level assessments, have been conducted on the main stem and select tributaries within these watersheds. These assessments were completed prior to the impact of Tropical Storm Irene.

The goal of these assessments was to understand and promote long-term stream stability to decrease phosphorus transport to Lake Champlain. Each geomorphic assessment posits a number of predictions about stream stability and probable future adjustments and makes recommendations for compatible stream corridor projects and infrastructure management.

Post TS Irene, the PMNRCD, in partnership with Lake Champlain Sea Grant, reviewed projects that used the recently developed geomorphic data in their design, and evaluated how well actual performance under flood conditions matched predicted performance. The study also examined sites where recommendations for structural changes were made based on geomorphic data, but were not implemented prior to TS Irene.

The projects using this geomorphic data developed in the assessment process withstood the floodwaters of Tropical Storm Irene. Where recommendations were made but not implemented, the failure rate for those structures was high. The projects that used geomorphic data in their design withstood the historic levels of flooding that resulted from Tropical Storm Irene and prevented additional amounts of phosphorus from flowing to Lake Champlain.