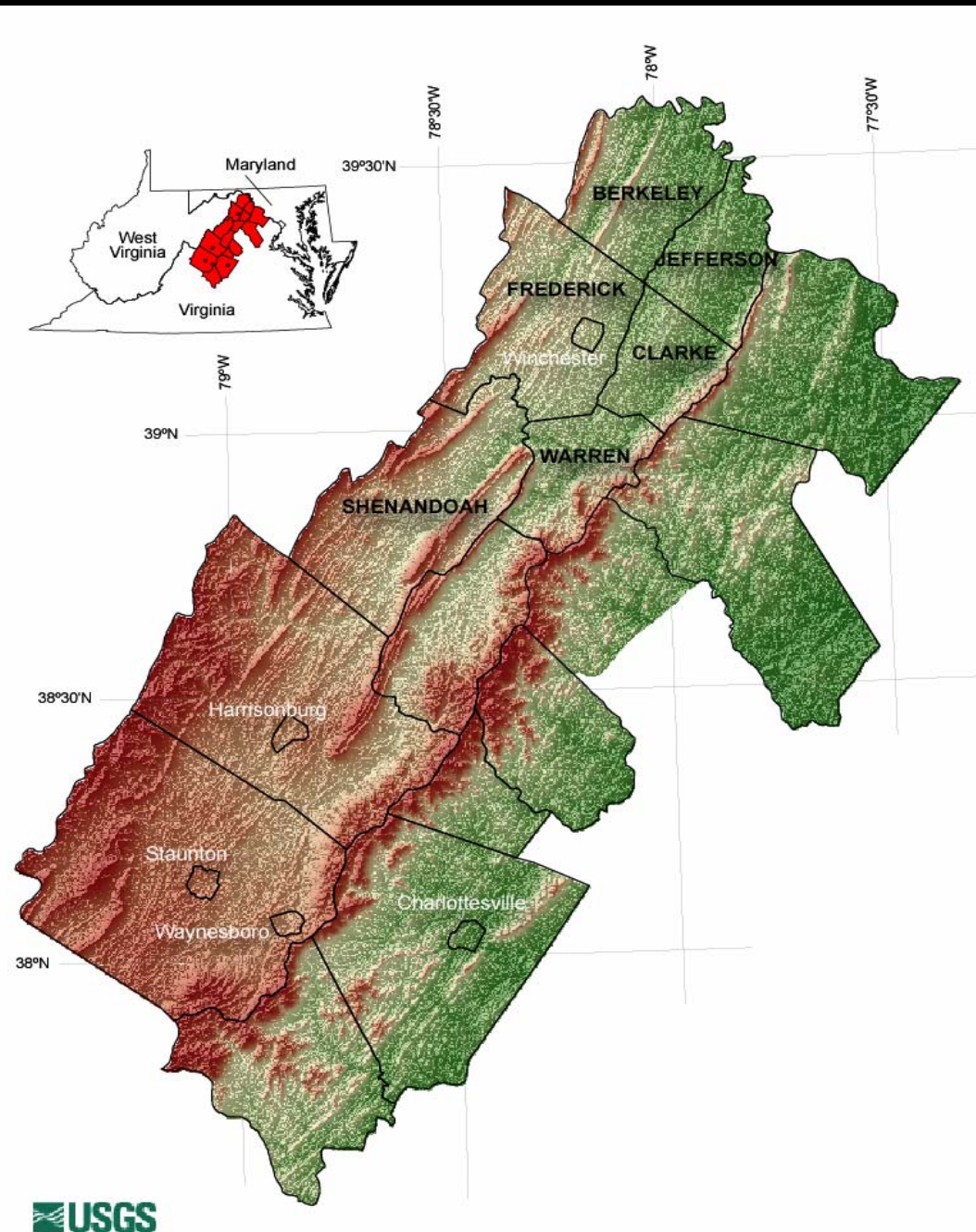


Multidisciplinary Assessment of Karst and Fractured-Rock Hydrogeologic Systems and Water Resources of the Shenandoah Valley Region

Northern Shenandoah Valley

Virginia & West Virginia



A photograph of a stream flowing over rocks in a forest. The water is clear and reflects the surrounding greenery. The rocks are covered in moss and some have fallen branches on them. The background is a dense forest with various trees and foliage.

Problem:

- Resource quantification lacking
- Groundwater/surface water interactions not well defined
- Impacts to water quality
- Impacts to aquatic ecology

Multidisciplinary Assessment of the Northern Shenandoah Valley in Virginia and West Virginia

- The objective of this first integrated regional assessment is to better characterize the aquifer systems in the Northern Shenandoah Valley and provide relevant hydrogeologic information that can be used to guide the development and management of these water resources.
- This regional study of the karst and fractured-rock aquifer systems will use hydrologic, geologic, cartographic, and biologic information to improve the understanding of the aquifer systems, their relationship to surface features, and potential hazards over a multi-county area of Virginia and West Virginia.

A photograph of a small, rustic stone building with a gabled roof and arched windows. The building is constructed from rough-hewn stones and has a white door. It is situated on a concrete foundation next to a small waterfall. The background is filled with lush green trees and foliage.

Study Objectives for Regional System:

- Characterize karst and fractured-rock aquifer systems
- Characterize ground-water/surface water interactions
- Characterize water quality and sources of degradation
- Develop numerical model to simulate the regional ground-water-flow system

Key Work Components:

- Develop and maintain long-term monitoring networks
- Conduct detailed hydrogeologic assessment

- Develop geographic information system coverages of features that depict critical aspects of geologic, hydrologic, and land-surface features within the basin.

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- A photograph of a pond with lily pads in the foreground and a dense forest in the background. The water is calm, reflecting the surrounding greenery. The text is overlaid on the middle of the image.
- Develop and calibrate a series of ground-water-flow models for the Shenandoah Valley Region.