

Cumulative Effects of Mining on Hydrology, Water Quality, and Vegetation. Howard G. Halverson, Project Leader, Northeastern Forest Experiment Station, Berea, Kentucky and Roy C. Sidle, Project Leader, Intermountain Research Station, Logan, UT.

Evaluating the cumulative effects of mining and other land disturbances at the watershed-scale poses a challenge to researchers and practitioners. Off-site cumulative effects may arise as a result of multiple mining disturbances occurring simultaneously within a watershed or from the interaction of mining activities with adjacent land uses (e.g., grazing, residential development, recreation, timber harvest). Progressive surface and underground mining may generate on-site cumulative effects by modifying soil and vegetation composition, slope stability and surface erosion potential. In addition, this temporal sequence, typical of many coal mining operations in the East and gold mining operations in the West, can impact off-site resources such as water chemistry, channel sedimentation, riparian vegetation, aquatic habitat, and peak flows. To address these important cumulative effects issues we need to apply our knowledge of physical, chemical, and ecological processes to the temporal and spatial scales at which these activities occur.

ADDITIONAL KEY WORDS: multiple land-use; peak flows; weathering processes; erosion; aquatic habitat.

