SECTION 1A: STEEP SLOPE OVERVIEW

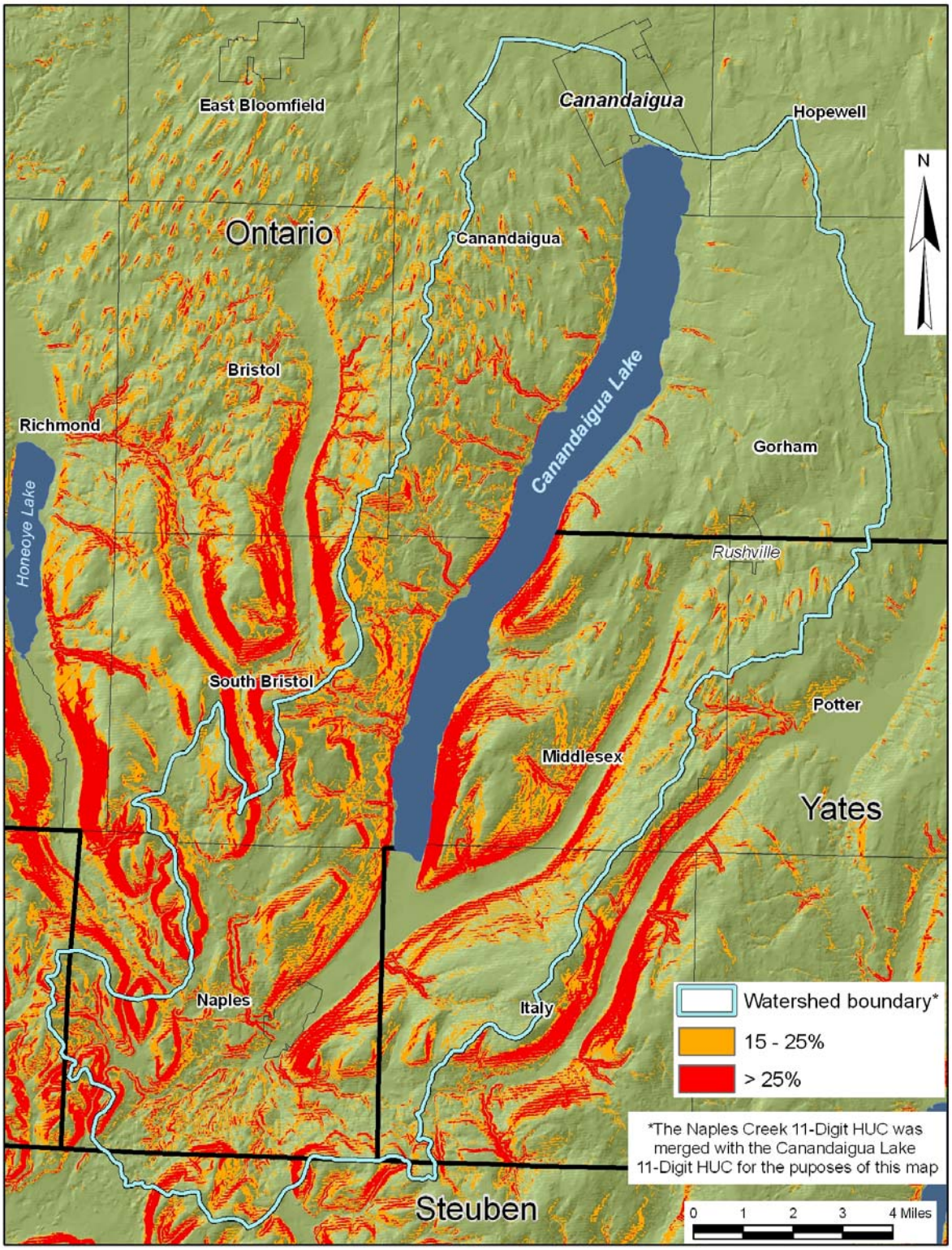
The unique geology of the Finger Lakes has been crucial to its human history. From the settlement patterns of Native Americans around sources of rock salt, to the modern patterns of forests, dairy farms, wineries, and recreational activities, the geological history of the Finger Lakes has profoundly affected where people have lived and what they have done on (and to) the land.

The Finger Lakes consist of eleven long, narrow, roughly parallel lakes, formed over the last two million years by glacial carving of old stream valleys oriented north-south. The southern ends have high walls, cut by steep gorges and gullies. The latest glacial episode was most extensive around 21,000 years ago, when glaciers covered almost the entire state. Around 19,000 years ago, the climate warmed, and the glacier began to retreat, disappearing entirely from New York for the last time around 11,000 years ago.

One of the geological features common to the Finger Lakes, especially towards their southern ends, are steep slopes. Many towns have significant areas of slopes over 25%. Historically, this challenging topography limited activities mostly to agricultural and forestry. "Developed" areas were in small villages or hamlets situated in the level valley floors. Recreational development in the Finger Lakes was focused on small, seasonal cottages.

Scenic and coastal areas across North America face the challenges of development and rising property values, and people seek other areas. This has led, in recent years, to the growth of tourism and recreational development in the Finger Lakes. Rising land prices have lead to development pressures on sites that previously would not have been considered due to their challenging topography. In addition, new homes are often much larger and built for year-round occupancy, in contrast to the historical pattern in the Finger Lakes.

These development pressures—larger, year-round homes on challenging sites, with owners wealthy enough to utilize non-standard building or engineering practices—have lead to concerns amongst citizens and their elected leaders. Increased construction on challenging sites such as steep slopes can quicken the natural erosion and sedimentation system. Erosion and sedimentation often include the loss of topsoil, which can result in the disturbance of habitats, the degradation of the quality of surface water, the alteration of drainage patterns, obstruction of drainage structures, and the intensification of flooding. Steep driveways can limit emergency access and exacerbate stormwater runoff on neighboring properties or public roads. Regulation of development on steep slopes mitigates damage to the natural and human environment and ultimately protects the public health, safety, and general welfare. Regulation allows the reasonable use of private property by encouraging flexible design of development in these critical areas.


East Bloomfield
Canandaigua
Hopewell
N
Ontario
Canandaigua
Bristol
Richmond
Canandaigua Lake
Gorham
Honeoye Lake
Rushville
South Bristol
Potter
Middlesex
Yates
Naples
Italy
Watershed boundary*
15 - 25%
> 25%
*The Naples Creek 11-Digit HUC was merged with the Canandaigua Lake 11-Digit HUC for the puposes of this map
Steuben
0 1 2 3 4 Miles

Slope

Slope is often measured in degrees or in percent rise. A flat region has zero slope. The steeper the surface, the higher the slope. Percent slope is defined as the change in elevation as measured over a 100-foot distance, sometimes called the rise over the run. For example, a one-foot vertical change over 100 feet of horizontal distance is a 1% slope. A rise of 36 feet over 100 feet is a 36% slope. Generally, slopes greater than 15% are considered steep.

Measuring slope as a percentage, and measuring slope as a ratio can be confusing. Many people speak about slope as percent slope, while others speak about it as degrees. These are very different numbers. For example, a 45 degree slope would be a 100 percent slope. For comparison, the maximum slope one would find on a mountain highway would probably be 10 percent or less, which is about 5.8 degrees. Service roads and fire roads in the forest are commonly 15 percent or less, which would be 8.5 degrees. A change of 1 foot elevation for every 4 feet traveled, or a 25 percent slope would be a pretty steep slope, but would be 14 degrees.

Figure 1. Degrees and percent slope