Landslide susceptibility in fine-grained sediments

- Slope less than 5 percent.
- Slope equal to or greater than 5 percent.

Landslide susceptibility in other sediments

- Slope less than 5 percent.
- Slope equal to or greater than 5 percent.

Sites of past landslides

The purple area delineates the extent of the landslide and the letter indicates the type of landslide, defined in the diagram entitled Common Types of Landslides in Maine. Two or more letters indicate multiple processes were involved at the site or contributed to landslide morphology. Past landslides were mapped from aerial photo interpretation and field investigations in 2008.

Terrain-related Risk Factors

Slope: Slope is the primary driving force for landslides and earth movements. Slope is defined as the inclined surface of the land. The steeper the slope, the larger the shear stress produced by the weight of the materials and the more susceptible the slope is to failure. For this map, a slope of 5% or greater is considered a risk factor.

Slope aspect: Slope aspect is the direction toward which the surface of the soil faces. South-facing slopes undergo more extensive freeze/thaw cycles in winter months than slopes with other aspects. Repeated freeze/thaw cycles preferentially reduce the shear strength of the soil. As a result, south-facing slopes are more susceptible to failure than other slopes or convex slopes. For this map, concave slopes are considered an additional risk factor.

Local relief (slope height): The thickness of the potential landslide block increases, the shear stresses on the lower section of the block increases, and the block (or slope) becomes more susceptible to failure. As a result, thicker sections of surficial materials will be more susceptible to failure and possibly deeper and larger failures. For this map, local relief greater than 6 meters (approximately 20 feet) is considered an additional risk factor.

Sources of information used to make this map

Terrain-related risk factors were calculated from the National Elevation Dataset 1/3 Arc Second product developed and published by the U.S. Geological Survey. The horizontal resolution of the 1/3 Arc Second dataset is approximately 10 meters. The digital elevation data was collected and processed by the Maine Geological Survey and used as the base for mapping landslides. The slope aspect data was calculated from the digital elevation data.

Common Types of Landslides in Maine


Debris flow - rapid mass movement in which a combination of loose soil, rock, organic matter, air, and water mobilize as a slurry that flows downslope.

Creep (Flow) - the imperceptibly slow downslope movement of soil or rock caused by shear stress sufficient for permanent deformation, but too small to cause shear failure.

Earthflow - a downslope viscous flow of fine-grained materials that have been saturated with water and move under the pull of gravity.

Limitations of the data

This map may be used to identify areas that are susceptible to landslide activity. Based on the risk factor analysis, if a landslide or earth movement does occur, it is very likely to be in the areas containing one or more of the geomorphic risk factors shown on this map, but it is not possible at this time to predict whether a landslide or earth movement will occur.

The landslide site mapping and risk factor analysis were done in 2008. Some mapped landslides have occurred since the photography and digital elevation model were mapped or generated.

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