

6.2.4 Surficial Geology

Data on the surficial geology of the Lake Tahoe Basin included a digital geologic map of the basin. This digital map, represented by a vector layer, contained detailed descriptions of geology grouped into four main rock types: volcanic, glacial, granitic and alluvial. The erodibility value assigned to each of these simple geologic types are listed in Table 6-5 while the spatial distribution is shown in Figure 6-4.

Table 6-5. Geology-erodibility classes.

Geology	Assigned erodibility class
Granite	1
Metamorphic	2
Glacial	3
Alluvium	4
Volcanic Breccias	5

Granites, granodiorites and metamorphics predominate in most of the east, southeast and parts of the southwest slopes of the basin and have been assigned the lowest erodibility index. Glacial terrains that cover the northwest and part of the south of the basin along the Upper Truckee River Watershed have an intermediate erodibility index. Alluvium, mostly concentrated at the lowlands and outlets of most watersheds principally in the south where they cover an extensive area, the northwest and the north parts of the lake were assigned a higher erodibility potential. Volcanic breccia mostly present in the slopes of Ward, Blackwood, the southernmost tip of Upper Truckee River watersheds and several other watersheds in the north and northeast parts of the basin were assigned the highest erodibility index. This determination was based on suspended-sediment yields from headwater areas of Ward Creek (10336670) that contain unvegetated slopes of this material, and because it has been suggested that they are an important contributor of sediment in Ward and Blackwood watersheds (Stubblefield, 2002).

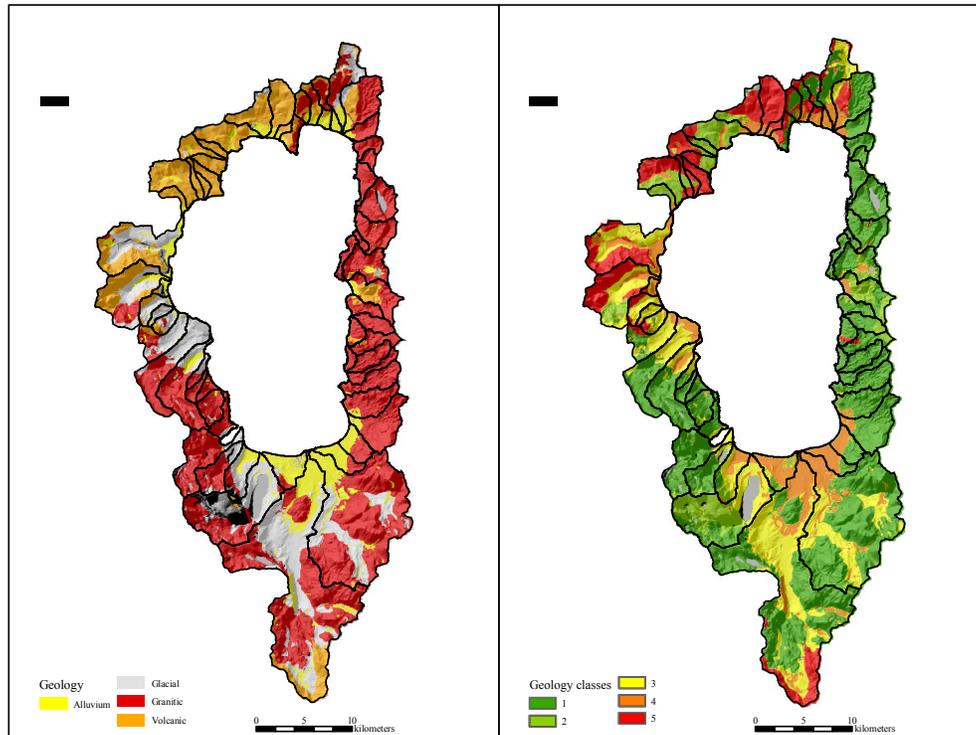


Figure 6-4. Distribution of surficial geology (left) and assigned class values for potential erodibility based on the characteristics shown in Table 6-5 (right).

6.2.5 Slope Steepness

A raster layer that represents topography in the Lake Tahoe Basin was created from a 10 by 10 m resolution USGS digital elevation model (DEM). The units of the digital elevation model showed elevation in feet and were converted to meters to be consistent with the technical literature and the use of metric units in this study. The new metric DEM was used to produce the slope raster used in the analysis (Figure 6-5). Values of elevation of the new raster varied from approximately 1875 to 3320m. Slope was derived from the DEM with angles that ranged from 0 to 72.5 degrees (Table 6-6).

Table 6-6. Slope classes for the Lake Tahoe Basin.

Slope intervals (degrees)	Assigned slope erodibility class
0-14.5	1
14.5-29.0	2
29.0-43.5	3
43.5-58.0	4
58.0-72.5	5