

The Early Geologic History of the Tuolumne River Watershed

Four major formational events caused the evolution of this complex watershed, rich with diverse rocks, energetic tectonics, and subsequent social and economic importance...

- 1. Late Precambrian - Middle Paleozoic (600 MA - 300 MA)**

Tectonic spreading along the west coast of North America caused a shallow sea to form over California and deposit sediment and accumulate sandstone, mudstone, and limestone.

- 2. Middle Paleozoic (300 MA - 145 MA)**

Transition from a spreading to collision boundary led to intense subduction and the formation of fault terranes. Increased heat and pressure from subduction led to metamorphism of the igneous and sedimentary rocks to form the Foothills Metamorphic Belt.

- 3. Late Jurassic (165 MA - 145 MA)**

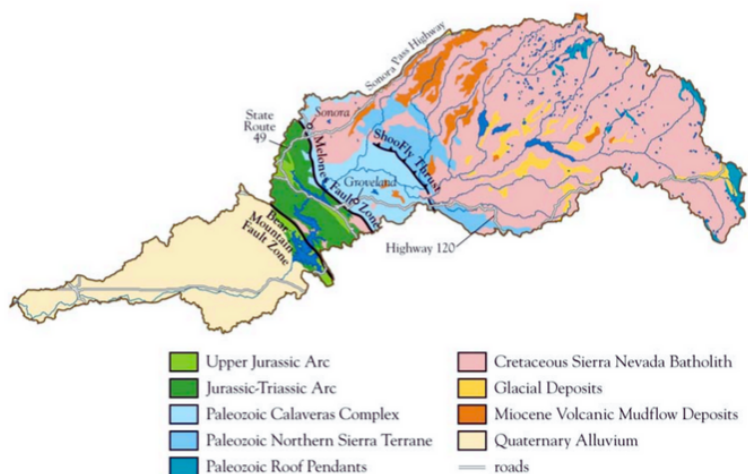
Significant westward collision of tectonic plates led to the formation of the Sierra Nevada Granite Magna bodies accumulated deep in the earth as plutons and rose to the surface while joining with other plutons to form a magmatic batholith.

- 4. Cretaceous (145 MA - 85 MA)**

Increased subduction along the coast caused deep melting to occur and form an island arc, which uplifted the Sierra Nevada Batholith, deposited gold along fault lines, and ruptured terranes.

Since the deposition of rocks in the watershed, glaciation in the last 820 KA has contributed to the carving and movement of geologic material!

Created by Kira Waldman,
Graduate Student at the
University of California, Davis.
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Granite

Over 50% of the rocks in the watershed!

Igneous rock that is the product of subsurface cooling of magma and subsequent exposure through weathering and glaciation.

Dominated by coarse-grained, large, interlocking crystals of quartz, feldspar, micas, and amphibole minerals.