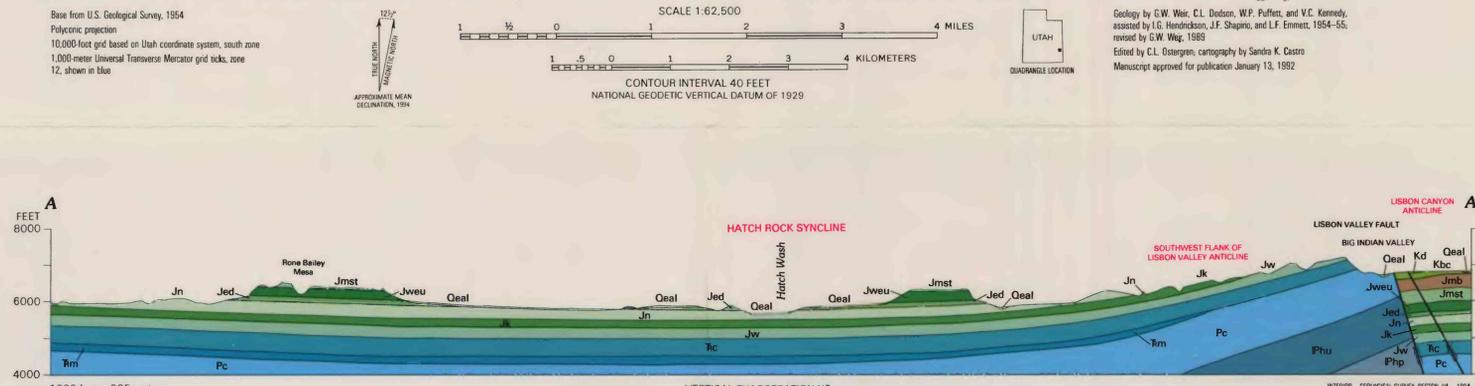


- ### DESCRIPTION OF MAP UNITS
- Oeal** Lowland eolian and alluvial sand and silt (Holocene and Pleistocene)—Yellowish-gray and light to moderate-brown sand and silt in wind- and water-worked thin sheets covering plateaus and mesas; grades into stream deposited sand, silt, and gravel in valley bottoms. Small patches of silt and sand on Navajo Sandstone generally not mapped.
 - Oeau** Upland eolian and alluvial silt and sand (Holocene and Pleistocene)—Dark-red to moderate-brown silt and sand in thin patches on high plateau near south and southeast borders of quadrangle.
 - Og** Gravel (Holocene and Pleistocene)—Alluvial gravel bordering modern stream valleys, composed chiefly of rounded cobbles and pebbles of Jurassic and Cretaceous sedimentary rocks and Tertiary igneous rocks.
 - Ql** Landslide deposits (Holocene and Pleistocene)—Irregular hummocky rubble and thin patchy sheets of mass-moved material, largely made up of small to large blocks of sandstone in a mudstone matrix. Includes talus near heads of landslides below cliffs of Cretaceous rocks.
 - Qt** Talus (Holocene or Pleistocene)—Slide-rock of sandstone in cone-shaped heap on southwest side of Rone Bailey Mesa. Small patches of sandstone rubble below cliffs of Wingate Sandstone not mapped.
 - Tro** Old rubble (Pliocene?)—Irregular heaps and patches of mass-moved blocks composed chiefly of resistant sandstone and chert.
 - Kd** Dakota Sandstone (Upper Cretaceous)—Brown and yellowish-brown sandstone and conglomerate interbedded with greenish-gray to black carbonaceous mudstone; basal conglomerate includes pebbles to boulders of Burro Canyon Formation.
 - Kbc** Burro Canyon Formation (Lower Cretaceous)—Grayish-brown and light-brown sandstone and conglomerate, commonly silicified, greenish- and purplish-gray mudstone, and minor thin-bedded, gray micrograined limestone. Base covered by talus and landslide deposits.
 - Jmb** Brushy Basin Member of Morrison Formation (Upper Jurassic)—Gray and reddish-gray bentonitic mudstone, minor brown sandstone, and zone of lenses of dark-brown conglomeratic sandstone at base.
 - Jmst** Salt Wash and Tidwell Members of the Morrison Formation (Upper Jurassic)—Salt Wash Member: light-brown, fine- to medium-grained sandstone interbedded with grayish-red mudstone. Lower part locally intertongues with Tidwell Member. Tidwell Member: grayish-red mudstone and siltstone and minor light-brown, fine-grained, silty sandstone and thin-bedded, cherty, gray micrograined limestone.
 - Jw** Wanakah Formation and Slick Rock Member and Moab Tongue of Entrada Sandstone (Middle Jurassic)—Wanakah Formation: light-yellowish brown, fine-grained sandstone and minor grayish-red mudstone; this northward to near zero at north edge of quadrangle. Slick Rock Member of Entrada Sandstone: grayish-yellow and light-brown, mostly crossbedded, in part planar-bedded, fine-grained sandstone; forms bulk of map unit. Moab Tongue of Entrada Sandstone: crossbedded, light-grayish-yellow, fine-grained sandstone; merges southward into Slick Rock Member near Rone Bailey Mesa. See figure 1 for stratigraphic relations.
 - Jed** Dewey Bridge Member of Entrada Sandstone (Middle Jurassic)—Red and minor yellowish-brown, planar-bedded siltstone and fine-grained sandstone; basal layer of dark- to medium-yellowish-brown, fine-grained sandstone containing granules and pebbles of gray to white chert reworked from underlying Navajo Sandstone.
 - Jn** Navajo Sandstone (Lower Jurassic)—Light-grayish yellow, crossbedded, fine-grained sandstone and a few thin lenses of gray cherty limestone.
 - Jk** Kayenta Formation (Lower Jurassic)—Grayish- and purplish-red, fine- to coarse-grained, crossbedded sandstone irregularly interbedded with grayish-red siltstone. Formation contacts locally indefinite and arbitrary in gradational and intertonguing sequences.
 - Jw** Wingate Sandstone (Lower Jurassic)—Grayish-orange to reddish-brown, crossbedded, fine-grained sandstone.
 - Tc** Chinle Formation (Upper Triassic)—Shown undivided in cross section; on map divided into:
 - Tcu** Upper member—Red, purplish-red, and greenish-gray mudstone interbedded with lesser amounts of red, brown, and gray sandstone and limestone-pebble conglomerate. Basal contact locally indefinite and arbitrary in a gradational and intertonguing sequence.
 - Tcl** Lower member—Light-brown and gray sandstone and limestone-pebble conglomerate interbedded with lesser amounts of grayish-green mudstone.
 - Tm** Moenkopi Formation (Middle? and Lower Triassic)—Brown to reddish-brown, thin-bedded mudstone, siltstone, and very fine grained sandstone. Not exposed; shown only in cross section.
 - Pc** Cutler Formation (Lower Permian)—Grayish-yellow, red, and purple arkosic sandstone and conglomerate; reddish- and purplish-gray mudstone and minor thin beds of brown and reddish-gray, silty and cherty limestone.
 - Phu** Upper member of Hermosa Formation (Upper Pennsylvanian)—Gray, fossiliferous marine limestone interbedded with brown and reddish-brown, fine- to coarse-grained sandstone and reddish-, yellowish-, and greenish-gray mudstone. Not exposed; shown only in cross section.
 - Php** Paradox Member of the Hermosa Formation (Middle Pennsylvanian)—Thick evaporite sequence consisting of salts and minor black shale. Not exposed; shown only in cross section.



GEOLOGIC MAP OF THE HATCH ROCK QUADRANGLE, SAN JUAN COUNTY, UTAH

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