

# Quaternary Fault and Fold Database of the United States

As of January 12, 2017, the USGS maintains a limited number of metadata fields that characterize the Quaternary faults and folds of the United States. For the most up-to-date information, please refer to the [interactive fault map](#).

## Southeast Fish Creek Mountains fault (Class A) No. 1147

Last Review Date: 2000-07-07

*citation for this record:* Anderson, R.E., compiler, 2000, Fault number 1147, Southeast Fish Creek Mountains fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, <https://earthquakes.usgs.gov/hazards/qfaults>, accessed 12/14/2020 02:18 PM.

### Synopsis

The southeast Fish Creek Mountains fault is comprised of two isolated groups of faults with contrasting geologic settings and geomorphic expression. The northeast group forms a broad zone of mostly east-side-down, block-bounding faults within the Fish Creek Mountains. They apparently lack scarps on surficial deposits or erosion surfaces. The southwest group is mostly a southeast-side-down intra basin fault, but one fault has a narrow graben along it. These faults are expressed as low scarps on the piedmont slope within Antelope Valley. Between these two groups are several curved lineaments on the Tertiary volcanic bedrock of the southeastern Fish Creek Mountains. These lineaments may reflect poorly expressed faults that connect the two groups. Alternatively, they may be Tertiary volcano-tectonic structures (Class D faults) with no Quaternary history. A very broad range of age estimates is assigned to the short

	<p>discontinuous scarps of the southwestern part. They range from middle to early Pleistocene (0.13-1.6 Ma) to Holocene (0-10 ka), but the Holocene scarp is &lt;1 km long, so the age estimated for it may not be representative of the young history of the larger fault. Neither slip rate nor recurrence times can be reliably estimated.</p>
<p><b>Name comments</b></p>	<p>Name from dePolo (1998 #2845) who applied it to a northeast-striking fault directly south of and southeast of the Fish Creek Mountains. Wallace (1979 #203) referred to these features as the Fish Creek Mountains scarps. As compiled herein, the fault is comprised of two isolated groups of faults separated by a gap of about 12 km. The northeastern group forms a broad zone within the southeastern Fish Creek Mountains, strikes north and northeast, and extends for about 13 km north from Fish Creek. The southwestern group is in northern Antelope Valley and extends northeast for about 11 km directly south of the Fish Creek Mountains.</p> <p><b>Fault ID:</b> Referred to as fault WI13 by dePolo, (1998 #2845).</p>
<p><b>County(s) and State(s)</b></p>	<p>LANDER COUNTY, NEVADA</p>
<p><b>Physiographic province(s)</b></p>	<p>BASIN AND RANGE</p>
<p><b>Reliability of location</b></p>	<p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Some fault traces taken from the 1:125,000-scale map of young fault scarps by Wallace (1979 #203). That map was compiled mostly from a combination of photogeologic and field mapping on 1:60,000 aerial photographs. Other traces are taken from the 1:250,000-scale reconnaissance photogeologic compilation of young faults by Dohrenwend and Moring (1991 #282). That map was produced by photogeologic analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to scale of the photographs. Dohrenwend and Moring (1991 #282) mapped several additional W- to NW-striking faults marked by lineaments and juxtaposition of Quaternary deposits against bedrock in the southeastern Fish Creek Mountains. These faults are compiled separately [1163] owing to their orientation, which is roughly perpendicular to the Southeast Fish Creek Mountains fault.</p>

<b>Geologic setting</b>	The southeast Fish Creek Mountains fault is comprised of two groups of faults with contrasting geologic settings. The northeastern group is an east-side-down block-bounding fault within the Fish Creek Mountains. The southwest group is apparently a southeast-side-down intra basin fault within Antelope Valley. Between these two groups, Wallace (1979 #203) and Dohrenwend and Moring (1991 #282) mapped several curved lineaments (Class C faults) on the Tertiary volcanic bedrock of the southeastern Fish Creek Mountains. These may mark faults that connect the two groups. Alternatively, they may be Tertiary volcano-tectonic structures (Class D faults) with no Quaternary history of movement. Either way, these lineations are not compiled herein. None of the faults in this area were mapped by Ferguson and others (1951 #4355) and only the curved bedrock faults are shown by Stewart and Carlson (1978 #3413).
<b>Length (km)</b>	27 km.
<b>Average strike</b>	N53°E
<b>Sense of movement</b>	Normal
<b>Dip Direction</b>	E; SE
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	The two groups of faults of the southeastern Fish Creek Mountains have contrasting geomorphic expression. The northern group consists of faults located along irregular east- and west-facing bedrock escarpments and some apparently place Quaternary alluvium against bedrock with no scarps formed on Quaternary surficial deposits or erosion surfaces (Dohrenwend and Moring, 1991 #282). The southern group consists of several short (<2 km) low discontinuous scarps on the piedmont slope between the Fish Creek Mountains and Antelope Valley. The scarps face mainly southeast, but some bound a small graben and face northwest. There are no reports detailing the geomorphic expression of the scarps. No basal fault facets were identified by dePolo (1998 #2845).
<b>Age of faulted surficial deposits</b>	Based on reconnaissance photogeologic study, Dohrenwend and Moring (1991 #282) assigned a very broad range of middle to early Pleistocene (0.13-1.6 Ma) to Holocene (0-10 ka) ages to the short discontinuous scarps of the southern group. The Holocene

	scarp is <1 km long and located at the extreme southeastern end of the fault. The Holocene age is not considered well established. Even if valid, it probably only characterizes a very small part of the fault.
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	late Quaternary (<130 ka) <i>Comments:</i> Dohrenwend and Moring (1991 #282) indicate that most of the fault scarps in the southern group are on late Quaternary deposits; however, a short (0.6-km-long) scarp is inferred to be on Holocene age deposits. The late Quaternary age is assigned here due to the uncertainty of the significance of the short young scarp. The northern faults are Quaternary.
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	Less than 0.2 mm/yr <i>Comments:</i> No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 00.01 mm/yr for the fault based on the presence of scarps on alluvium and the absence of basal facets. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
<b>Date and Compiler(s)</b>	2000 R. Ernest Anderson, U.S. Geological Survey, Emeritus
<b>References</b>	#2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p.  #282 Dohrenwend, J.C., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Winnemucca 1° by 2° quadrangle, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2175, 1 sheet, scale 1:250,000.  #4355 Ferguson, H.G., Muller, S.W., and Roberts, R.J., 1951, Geology of the Mount Moses quadrangle, Nevada: U.S. Geological Survey Geologic quadrangle Map GQ-0012, 1 sheet,

scale 1:125,000.

#3413 Stewart, J.H., and Carlson, J.E., 1978, Geologic map of Nevada: U.S. Geological Survey, Special Geologic Map, 1, scale 1:500,000.

#203 Wallace, R.E., 1979, Map of young fault scarps related to earthquakes in north-central Nevada: U.S. Geological Survey Open-File Report 79-1554, 2 sheet, scale 1:125,000.

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