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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.

Overton Arm faults (Class A) No. 1119

Last Review Date: 1999-05-03

citation for this record: **Anderson, R.E., compiler, 1999, Fault number 1119, Overton Arm faults, 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 02:17 PM.**

Synopsis	The Overton Arm faults strike generally north, are probably down to the west, and may form the structural boundary between the basin beneath Overton Arm and the South Virgin Mountains. Their Quaternary history is essentially unstudied and unknown. Scarps are shown mostly as west facing, with some facing east, possibly defining graben structures along the fault. Only along limited sections does the fault mark the margin of steep bedrock ridges or blocks. Elsewhere it is mapped as scarps and lineaments developed on piedmont slope deposits west of the irregular west flank of the Virgin Mountains. No scarp-profile data are reported, and there is no reported general description of the scarps. Based on photogeologic reconnaissance and photogeologic study and an aerial overflight, the latest displacement is probably late Quaternary. Recurrence and slip rate is not known.
Name	Name given by Anderson and O'Connell (1993 #1440) to faults

comments	on the east side of the Overton Arm part of Lake Mead west of the Virgin Mountains. They discussed these faults together with faults they referred to as Echo Bay faults, but those faults are compiled as a Class B feature [1732]. Mayer (1982 #2090) referred to the Overton Arm faults as the Quail Creek graben, whereas dePolo (1998 #2845) refers to them as the Eastern Overton Arm fault system. **Fault ID:** Refers to fault number LV25 (Eastern Overton Arm fault system) of dePolo (1998 #2845).
County(s) and State(s)	MOHAVE COUNTY, ARIZONA CLARK COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Faults were mapped in photogeologic reconnaissance at scale of 1:250,000 by Dohrenwend and others (1991 #288) and on the basis of analysis of aerial photos and aerial overflights by Anderson and O'Connell (1993 #1440).
Geologic setting	Faults strike generally north and may represent the structural boundary between the basin beneath Overton Arm on the west and the South Virgin Mountains on the east, but the western margin of the South Virgin Mountains is very irregular and only along limited sections does the fault appear to be a range-bounding structure.
Length (km)	65 km.
Average strike	N6°E
Sense of movement	Normal *Comments:* There are no slip data reported, but a normal sense is assumed because of its orientation and tectonic setting in the Basin and Range province. Campagna (1990 #5838) documents local evidence for strike-slip movement.
Dip Direction	W *Comments:* Possibly steep to the west as is common for north-

	striking faults bounding basins on the east. Scarps are shown as mostly facing west with some facing east, possibly defining graben structures along the fault.
Paleoseismology studies	
Geomorphic expression	Only along limited sections does the fault mark the margin of steep bedrock ridges or blocks. Elsewhere it is mapped as scarps and lineaments developed on piedmont slope deposits west of the irregular west flank of the Virgin Mountains. No scarp-profile data are reported, and there is no reported general description of the scarps. Campagna (1990 #5838) notes that a "Recent [Holocene] alluvial fan coming from the mountain front is offset three to four meters by a down-to-the-west normal fault" along the western front of the Virgin Mountains.
Age of faulted surficial deposits	Mayer (1982 #2090) noted that the fault might cut deposits that are late Pleistocene in age. On the basis of photogeologic reconnaissance, Dohrenwend and others (1991 #288) show most to the fault traces as scarps and lineaments formed on early to middle Pleistocene and possibly on late Pleistocene surfaces or deposits, but one short (<5 km) scarp is mapped as developed on late Pleistocene (10-130 ka) surfaces or deposits. On the basis of an analysis of aerial photos and an aerial overflight, Anderson and O'Connell (1993 #1440) suggested that none of the faults appear to displace latest Pleistocene or Holocene deposits.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Based on photogeologic reconnaissance by Dohrenwend and others (1991 #288) and photogeologic study and an aerial overflight (Anderson and O'Connell, 1993 #1440).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No scarp-profile data are reported, and there is no reported general description of the scarps. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.01 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.
Date and Compiler(s)	1999 R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#1440 Anderson, L.W., and O'Connell, D.R., 1993, Seismotectonic study of the northern portion of the lower Colorado River, Arizona, California, and Nevada: U.S. Bureau of Reclamation Seismotectonic Report 93-4, 122 p., 3 sheets. #5838 Campagna, D.J., 1990, The Lake Mead fault system and the Las Vegas Valley shear zone—Strike-slip faulting and associated deformation in the Basin and Range, southeastern Nevada: Lafayette, Indiana, Purdue University, unpublished Ph.D. dissertation, 79 p. #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. #288 Dohrenwend, J.C., Menges, C.M., Schell, B.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Las Vegas 1° by 2° quadrangle, Nevada, California, and Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-2182, 1 sheet, scale 1:250,000. #2090 Mayer, L., 1982, Quantitative tectonic geomorphology with applications to neotectonics of northwestern Arizona: Tucson, University of Arizona, unpublished Ph.D. dissertation, 213 p.