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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.

Cabrillo fault, Onshore section (Class A) No. 129a

Last Review Date: 1998-10-01

citation for this record: **Treiman, J.A., and Lundberg, M., compilers, 1998, Fault number 129a, Cabrillo fault, Onshore section, 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 02:15 PM.**

Synopsis	**General:** The fault trace is not well defined except at a few localities. Onshore exposures are discontinuous and offshore location is based on a "zone of disruption" up to 500 m wide imaged by standard marine geophysical techniques. Holocene activity is identified offshore. Published slip-rate estimates (<1 mm/yr) onshore and offshore are based on opposite senses of vertical separation with no assessment of probable lateral component. **Sections:** This fault has 2 sections.
Name comments	**General:** **Section:** Cabrillo fault originally mapped and named onshore by Woodring and others (1946 #6125) based on discontinuous exposures and geomorphic expression.

	Fault ID: Refers to number 438 (Cabrillo fault) of Jennings (1994 #2878); Fault ID 4 (Cabrillo fault) of Hecker and others (1998 #6118); number 37 (Cabrillo fault) of Ziony and Yerkes (1985 #5931).
County(s) and State(s)	LOS ANGELES COUNTY, CALIFORNIA
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Good Compiled at 1:24,000 scale. *Comments:* Fault location from 1:12,000-scale map of Cleveland (1976 #6128), 1:24,000-scale map of Bryant and Raub (1986 #6127), and 1:24,000-scale map of Woodring and others (1946 #6125) at southeastern end.
Geologic setting	Normal fault (east side down) with probable dextral component trends northwesterly across Palos Verdes Hills. The fault is presumed to be related to the Palos Verdes fault, and may be secondary to that fault.
Length (km)	This section is 10 km of a total fault length of 21 km.
Average strike	N44°W
Sense of movement	Normal *Comments:* Normal separation interpreted by Bryant and Raub (1986 #6127); Hecker and others (1998 #6118). Dextral component is inferred from probable association with the Palos Verdes fault zone [128] and inference of lateral component offshore (Hecker and others, 1998 #6118).
Dip	50-55° *Comments:* Reported dip of the fault is from a bluff exposure at Cabrillo Beach (Woodring and others, 1946 #6125) and site study that exposed a fault inferred to be the Cabrillo fault (Bryant and Raub, 1986 #6127).
Paleoseismology	

studies	
Geomorphic expression	Possible NE-facing fault-line scarp along portion of fault, otherwise marked by saddles, swales and possible graben.
Age of faulted surficial deposits	Pleistocene marine terraces and colluvial deposits (Woodring and others, 1946 #6125; Darrow and Fischer, 1983 #6116; Bryant and Raub, 1986 #6127; Muhs and others, 1992 #6129).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Thickening and possible offset of Pleistocene terrace deposits reported by Bryant and Raub (1986 #6127); Pleistocene colluvial deposits reported faulted at northwestern end of mapped fault (Leighton and Associates, 1990 #6120); lowest marine terrace reported offset (Darrow and Fischer, 1983 #6116, p. 4-37).
Recurrence interval	
Slip-rate category	Between 0.2 and 1.0 mm/yr *Comments:* Vertical slip rate of 0.2 mm/yr is reported by Muhs as cited by Hecker and others (1998 #6118). Published slip rate is for the vertical component only, with no control on lateral component, if present. Due to long timeframe, the rate may not represent current rate. Other uncertainties are detailed by Hecker and others (1998 #6118).
Date and Compiler(s)	1998 Jerome A. Treiman, California Geological Survey Matthew Lundberg, California Geological Survey
References	#6127 Bryant, M.E., and Raub, M.L., 1986, The Cabrillo fault—A structural problem, Palos Verdes Peninsula, *in* Baldwin, E.J., ed., Geology and landslides of Palos Verdes Hills, California: Guidebook, National Association of Geology Teachers, Far Western Section, Spring 1986, p. 64-68. #6128 Cleveland, G.B., 1976, Geology of the northeast part of the Palos Verdes Hills, Los Angeles County, California: California Division of Mines and Geology Map Sheet 27, scale 1:12,000. #6116 Darrow, A.C., and Fischer, P.J., 1983, Activity and

earthquake potential of the Palos Verdes fault: Technical report to U.S. Geological Survey, Reston, Virginia, under Contract 14-08-0001-19786, February 25, 1983, 90 p.

#6118 Hecker, S., Kendrick, K.J., Ponti, D.J., and Hamilton, J.C., 1998, Fault map and database for southern California, Long Beach 30'x60' quadrangle: U.S. Geological Survey Open-File Report 98-129, http://quake.wr.usgs.gov/research/seismology/scfaults/lb/index.html.

#2878 Jennings, C.W., 1994, Fault activity map of California and adjacent areas, with locations of recent volcanic eruptions: California Division of Mines and Geology Geologic Data Map 6, 92 p., 2 pls., scale 1:750,000.

#503 Jennings, C.W., compiler, 1962, Geologic map of California, Olaf R. Jenkins edition, Long Beach sheet: `, California Division of Mines and Geology, 2 sheets, scale 1:250,000.

#6120 Leighton and Associates, 1990, Technical appendix to the safety element of the Los Angeles County general plan, hazard reduction in Los Angeles County: Technical report to Los Angeles County Department of Regional Planning, 2 vols.

#6129 Muhs, D.R., Miller, G.H., Whelan, J.F., and Kennedy, G.L., 1992, Aminostratigraphy and oxygen isotope stratigraphy of marine-terrace deposits, Palos Verdes Hills and San Pedro areas, Los Angeles County, California, *in* Fletcher, C.H., and Wehmiller, J.F., eds., Quaternary coasts of the United States—Marine and lacustrine systems: SEPM Special Publication 48, p. 363-376.

#6125 Woodring, W.P., Bramlette, M.N., and Kew, W.S.W., 1946, Geology and paleontology of Palos Verdes Hills, California: U.S. Geological Survey Professional Paper 207, 145 p.

#5931 Ziony, J.I., and Yerkes, R.F., 1985, Evaluating earthquake and surface faulting potential, *in* Ziony, J.I., ed., Evaluating earthquake hazards in the Los Angeles region—An earth-science perspective: U.S. Geological Survey Professional Paper 1360, p. 43–91.