

# 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](#).

## Cypress Point fault (Class A) No. 146

Last Review Date: 2001-06-05

*citation for this record:* Bryant, W.A., compiler, 2001, Fault number 146, Cypress Point 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 02:05 PM.

<b>Synopsis</b>	Poorly studied dextral reverse fault that offsets Paleocene Carmelo Formation against Mesozoic crystalline basement rocks. Clark (1989 #6148) mapped a coastal terrace he estimated to be 102 ka as offset along the Cypress Point fault. McCulloch and Greene (1990 #5406) mapped undifferentiated Quaternary deposits offset along an offshore trace of the fault. There are no detailed studies along Cypress Point fault. Rosenberg and Clark (1994 #6144) reported an estimated slip rate (vertical only) of 0.01 mm/yr.
<b>Name comments</b>	Fault first mapped by Lawson (1893 #6149), first named by Greene and others (1973 #1323).  <b>Fault ID:</b> Refers to number 231 (Cypress Point fault) of Jennings (1994 #2878).
<b>County(s) and</b>	

<b>County(s) and State(s)</b>	MONTEREY COUNTY, CALIFORNIA (offshore)
<b>Physiographic province(s)</b>	PACIFIC BORDER (offshore)
<b>Reliability of location</b>	<p>Good Compiled at 1:62,500 scale.</p> <p><i>Comments:</i> Locations based on digital revisions to Jennings (1994 #2878) using original mapping by Bowen (1969 #6133) at 1:62,500; mapping by Clark and others (1974 #6136; 1997 #6137) at 1:24,000.</p>
<b>Geologic setting</b>	<p>Generally northwest-striking fault located in the complexly deformed Salinian block bounded by the San Andreas fault zone [1] to the northeast and the San Gregorio fault zone [60] to the southwest. Minor northwest-striking fault extends about 12 km from about 3 km northwest of Cypress Point southeast across Carmel Point to near Palo Corona Ranch on the south side of Carmel Valley. Total displacement is not known, but Clark (1989 #6148) reported that dip-slip separation may be less than 20 m of down to the northeast offset. Exploratory drilling and seismic profiling indicate vertical displacement of as much as 30 m (Staal Gardner and Dunne Inc., 1989 #6150). Total dextral displacement is not known.</p>
<b>Length (km)</b>	12 km.
<b>Average strike</b>	N37°W
<b>Sense of movement</b>	<p>Right lateral</p> <p><i>Comments:</i> Northeast-facing bedrock escarpment suggests vertical component of down-to-northeast displacement. Dip direction is probably steeply southwest, although Clark and others (1974 #6136) observed a surface exposure of the fault dipping 60° to the northeast. Rosenberg and Clark (1994 #6144, based on written communication from Dupre, 1989) postulated that there may be a significant dextral strike-slip component, based on linearity of trace, en echelon character, and earthquake focal mechanisms indicating dextral strike-slip displacement.</p>
<b>Dip</b>	<p>60°</p> <p><i>Comments:</i> Clark and others (1974 #6136)(1974) reported surface</p>

	exposure of fault dipping 60° NE near Abalone Point where fault offsets Tertiary volcanic rocks against Mesozoic crystalline basement rocks. Cross section by Rosenberg and Clark (1994 #6144) shows a near vertical to steeply southwest dipping fault.
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Fault is delineated by an eroded east-facing scarp in crystalline basement rocks (Bryant, 1985 #6135). Geomorphic evidence of late Pleistocene to Holocene offset was not observed by Bryant.
<b>Age of faulted surficial deposits</b>	Fault offsets Mesozoic (Cretaceous?) crystalline basement rocks against Paleocene Carmelo Formation. McCulloch and Greene (1990 #5406) mapped undifferentiated Quaternary deposits offset by an offshore trace of the Cypress Point fault.
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	undifferentiated Quaternary (<1.6 Ma)  <i>Comments:</i> Clark and others (1974 #6136) mapped unfaulted Quaternary terrace deposits across traces of the Cypress Point fault. Clark (1989 #6148) mapped a coastal terrace he estimated to be 102 ka as offset along the Cypress Point fault. McCulloch and Greene (1990 #5406) mapped undifferentiated Quaternary deposits offset along an offshore trace of the fault.
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	Less than 0.2 mm/yr  <i>Comments:</i> Rosenberg and Clark (1994 #6144) reported a late Quaternary vertical slip rate of 0.01 mm/yr, based on a 1 m vertical displaced coastal terrace estimated by Clark (1989 #6148) to be about 102 ka.
<b>Date and Compiler(s)</b>	2001 William A. Bryant, California Geological Survey
<b>References</b>	#6133 Bowen, O.E., Jr., 1969, Geologic map of the Monterey quadrangle: California Division of Mines and Geology open-file map, scale 1:62,500.  #6135 Bryant, W.A., 1985, Faults in the southern Monterey Bay

area, Monterey County, California: California Division of Mines and Geology Fault Evaluation Report 167 (microfiche copy in California Division of Mines and Geology Open-File Report 90-11).

#6148 Clark, J.C., 1989, Geologic analysis of the Cypress Point fault in the vicinity of the lower Carmel River Valley: Monterey Peninsula Water Management District open-file report, 7 p.

#6136 Clark, J.C., Dibblee, T.W., Jr., Greene, H.G., and Bowen, O.E., Jr., 1974, Preliminary geologic map of the Monterey and Seaside 7.5-minute quadrangles, Monterey County, California, with emphasis on active faults: U.S. Geological Survey Miscellaneous Field Studies Map MF-577, scale 1:24,000.

#6137 Clark, J.C., Dupre, W.R., and Rosenberg, L.I., 1997, Geologic map of the Monterey and Seaside 7.5-minute quadrangles, Monterey County, California— A digital database: U.S. Geological Survey Open-File Report 97-30, map scale, scale 1:24,000.

#1323 Greene, H.G., Lee, W.H.K., McCulloch, D.S., and Brabb, E.E., 1973, Faults and earthquakes in the Monterey Bay region, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-518 (U.S. Department of the Interior and U.S. Department of Housing and Urban Development Basic Data Contribution 58), 14 p. pamphlet, 4 sheets.

#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.

#6149 Lawson, A.C., 1893, The geology of Carmelo Bay, California: University of California Publications, Bulletin of the Department of Geological Science, v. 1, p. 1-59, scale 1:31,680.

#5406 McCulloch, D.S., and Greene, H.G., 1990, Geologic map of the central California continental margin, Map No. 5A (Geology), in Green, H.G., and Kennedy, M.P., eds., Geology of the central California continental margin: California Division of Mines and Geology California Continental Margin Geologic Map Series, Area 5 of 7, scale 1:250,000.

#6144 Rosenberg, L.I., and Clark, J.C., 1994, Quaternary faulting of the greater Monterey area, California: Technical report to U.S. Geological Survey, under Contract 1434-94-G-2443, 27 p., scale 1:24,000.

#6150 Staal Gardner and Dunne Inc., 1989, Hydrogeologic investigation, Carmel River aquifer, coastal portion, Monterey County, California: Monterey Peninsula Water management district open-file report, 25 p., 4 sheets, scale 1:2,400.

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