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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.

Battle Rock fault zone (Class A) No. 896

Last Review Date: 2002-05-31

citation for this record: **Personius, S.F., compiler, 2002, Fault number 896, Battle Rock fault zone, 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 03:15 PM.**

Synopsis	The north-northwest-striking Battle Rock fault zone is part of a major right-lateral shear zone mapped in Mesozoic bedrock in the northern Klamath Mountains part of the Cascadia subduction zone. The fault zone is coincident with boundaries between Jurassic through Cretaceous accreted terranes and predates the Eocene assemblage of southern coastal Oregon. The fault zone is mapped as a high angle fault with down-east sense of displacement in Quaternary deposits. The fault may represent Quaternary reactivation of a dextral slip fault zone, but no evidence of strike slip faulting in Quaternary deposits has been described. The fault zone offsets the less than or equal to 200 ka Indian Creek marine terrace surface approximately 20 m, but does not laterally offset the backedge of the 105 ka Pioneer marine terrace; it does not appear to vertically offset the Pioneer wave cut platform. As with other folds and faults located in the Cascadia forearc, it is unknown if coseismic displacements on this fault are

	always related to great megathrust earthquakes on the subduction zone, or whether some displacements are related to smaller earthquakes in the North American plate.
Name comments	The Battle Rock fault zone apparently was informally named by Kelsey (1990 #4107) after nearby Battle Rock; faulting in this area is included in the Port Orford shear zone (Koch and others, 1961 #4105; Koch, 1966 #4114; Dott, 1971 #4160). Blake and others (1985 #4103), Kelsey (1990 #4107) and Geomatrix Consultants, Inc. (1995 #3593) correlate this fault with the Whaleshead fault zone [897] to the south. Herein we retain the Battle Rock fault zone as a separate structure, because most maps show no physical connection between the Battle Rock and Whaleshead [895] fault zones (Dott, 1971 #4160; Beaulieu and Hughes, 1976 #4161; Ramp and others, 1977 #4146), and because of differences in sense of slip. **Fault ID:** This fault is included in fault number 39 of Pezzopane (1993 #3544), and is fault number 19a of Geomatrix Consultants, Inc. (1995 #3593).
County(s) and State(s)	CURRY COUNTY, OREGON
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Poor Compiled at 1:250,000 scale. *Comments:* The northern part of the fault trace is from 1:135,000-scale (approximate) figure 10 of Kelsey (1990 #4107) and 1:250,000-scale mapping of Dott (1971 #4160); the southern part of the fault trace is from 1:62,500-scale mapping of Beaulieu and Hughes (1976 #4161).
Geologic setting	The north-northwest-striking Battle Rock fault zone is part of a major right-lateral shear zone mapped in Mesozoic bedrock in the northern Klamath Mountains part of the Cascadia subduction zone [781]. The shear zone is coincident with boundaries between Jurassic through Cretaceous accreted terranes, and predates the Eocene assemblage of southern coastal Oregon (Blake and others, 1985 #4103; Bourgeois and Dott, 1985 #4106). As with other folds and faults located in the Cascadia forearc, it is unknown if coseismic displacements on this fault are always related to great

	megathrust earthquakes on the subduction zone, or whether some displacements are related to smaller earthquakes in the North American plate.
Length (km)	48 km.
Average strike	N16°W
Sense of movement	Normal *Comments:* The fault zone is mapped as a high angle fault with down-east sense of displacement; the fault may represent Quaternary reactivation of a dextral slip fault zone, but no evidence of strike slip faulting in Quaternary deposits has been described (Kelsey, 1990 #4107).
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	The Battle Rock fault zone offsets the Indian Creek marine terrace surface approximately 20 m near Port Orford (Kelsey, 1990 #4107). The fault does not laterally offset the backedge of the Pioneer marine terrace, and within the resolution of available well data, does not vertically offset the Pioneer wave cut platform (Kelsey, 1990 #4107). Quaternary displacement has only been described along a short section of the fault near Port Orford, but the fault trace has been extended 6 km north to bedrock faults at Blacklock Point (Dott, 1971 #4160; Kelsey, 1990 #4107) and >15 km south to bedrock faults near Sisters Rocks (Beaulieu and Hughes, 1976 #4161).
Age of faulted surficial deposits	The Battle Rock fault zone offsets the Indian Creek marine terrace surface; this terrace has been correlated with a less than or equal to 200 ka sea level highstand (Kelsey, 1990 #4107).
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* The Battle Rock fault zone vertically offsets the less than or equal to 200 ka Indian Creek marine terrace surface approximately 20 m, but does not appear to offset the 105 ka Pioneer marine terrace (Kelsey, 1990 #4107). The fault is inferred

	as active in the Pliocene or Pleistocene by Goldfinger and others (1992 #464) and as active in the middle and late Quaternary (<700-780 ka) by Pezzopane (1993 #3544), Geomatrix Consultants, Inc. (1995 #3593) and Madin and Mabey (1996 #3575).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Kelsey (1990 #4107) measured 20 m of offset across the less than or equal to 200 Indian Creek marine terrace surface; such data yield a long-term maximum slip rate of 0.1 mm/yr (Geomatrix Consultants Inc., 1995 #3593).
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
References	#4161 Beaulieu, J.D., and Hughes, P.W., 1976, Land use geology of western Curry County, Oregon: State of Oregon, Department of Geology and Mineral Industries Bulletin 90, 148 p., 12 pls., scale 1:62,500. #4103 Blake, M.C., Jr., Engebretson, D.C., Jayko, A.S., and Jones, D.L., 1985, Tectonostratigraphic terranes in southwest Oregon, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific Region: Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, Number 1, p. 147-157. #4106 Bourgeois, J., and Dott, R.H., Jr., 1985, Stratigraphy and sedimentology of Upper Cretaceous rocks in coastal southwest Oregon—Evidence for wrench-fault tectonics in a postulated accretionary terrane: Geological Society of America Bulletin, v. 96, p. 1007-1019. #4160 Dott, R.H., Jr., 1971, Geology of the southwestern Oregon Coast west of the 124th meridian: State of Oregon, Department of Geology and Mineral Industries Bulletin 69, 63 p., 2 pls. #3593 Geomatrix Consultants, Inc., 1995, Seismic design mapping, State of Oregon: Technical report to Oregon Department of Transportation, Salem, Oregon, under Contract 11688, January 1995, unpaginated, 5 pls., scale 1:1,250,000.

#464 Goldfinger, C., Kulm, L.D., Yeats, R.S., Mitchell, C., Weldon, R., II, Peterson, C., Darienzo, M., Grant, W., and Priest, G.R., 1992, Neotectonic map of the Oregon continental margin and adjacent abyssal plain: State of Oregon, Department of Geology and Mineral Industries Open-File Report 0-92-4, 17 p., 2 pls.

#4107 Kelsey, H.M., 1990, Late Quaternary deformation of marine terraces on the Cascadia subduction zone near Cape Blanco, Oregon: Tectonics, v. 9, no. 5, p. 983-1014.

#4114 Koch, J.G., 1966, Late Mesozoic stratigraphy and tectonic history, Port Orford-Gold Beach Area, southwestern Oregon Coast: Bulletin of the American Association of Petroleum Geologists, v. 50, no. 1, p. 25-71.

#4105 Koch, J.G., Kaiser, W.R., and Dott, R.H., Jr., 1961, Geology of the Humbug Mountain State Park Area: The ORE-BIN, v. 23, no. 3, p. 23-30.

#3575 Madin, I.P., and Mabey, M.A., 1996, Earthquake hazard maps for Oregon: State of Oregon, Department of Geology and Mineral Industries Geological Map Series GMS-100, 1 sheet.

#3544 Pezzopane, S.K., 1993, Active faults and earthquake ground motions in Oregon: Eugene, Oregon, University of Oregon, unpublished Ph.D. dissertation, 208 p.

#4146 Ramp, L., Schlicker, H.G., and Gray, J.J., 1977, Geology, mineral resources, and rock material of Curry County, Oregon: State of Oregon, Department of Geology and Mineral Industries Bulletin 93, 79 p., 2 pls.