

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](#).

East South Slough faults (Class A) No. 889

Last Review Date: 2002-05-31

citation for this record: Personius, S.F., compiler, 2002, Fault number 889, East South Slough 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 03:14 PM.

Synopsis	The north-northwest-striking faults on the east side of South Slough are a group of steeply dipping, north-down reverse (?) faults that offset Eocene bedrock and marine terrace sediments in the central Oregon Coast Range. Given their orientation, they may be tear faults with significant oblique (strike-slip) component; this sense of slip would be consistent with the east-west orientation of compressive stress in this part of the forearc of the Cascadia subduction zone. These faults offset the less than or equal to 200 ka Metcalf marine terrace, and thus have displacements in the middle and Quaternary. As with other folds and faults located in the Cascadia forearc, it is unknown if coseismic displacements on these faults 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	North-northwest-striking faults on the east side of South Slough were mapped by Duncan (1953 #4121), Madin and others (1995 #4158) and Black and Madin (1995 #4157). Madin and others (1995 #4158) named the northern fault the Joe Nye fault apparently after nearby Joe Nye Slough.

County(s) and State(s)	COOS COUNTY, OREGON
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Good Compiled at 1:24,000 scale. <i>Comments:</i> Location of fault from ORActiveFaults (http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/Map8 downloaded 06/02/2016) attributed to 1:24,000-scale mapping of Madin and others (1995 #4158) and Black and Madin (1995 #4157).
Geologic setting	The north-northwest-striking faults on the east side of South Slough are a group of steeply dipping faults that offset Eocene bedrock and marine terrace sediments. From their orientation, these may be tear faults (Black and Madin, 1995 #4157) with significant oblique (strike-slip) component. This sense of slip would be consistent with the east-west orientation of compressive stress in this part of the forearc of the Cascadia subduction zone (McInelly and Kelsey, 1990 #4102; Madin and others, 1995 #4158). As with other folds and faults located in the Cascadia forearc, it is unknown whether coseismic displacements on these faults 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)	8 km.
Average strike	N70°W
Sense of movement	Reverse, Left lateral <i>Comments:</i> The north-northwest-striking faults on the east side of South Slough offset Eocene bedrock and marine terrace sediments. They are mapped as steeply dipping down-north reverse (?) faults (Black and Madin, 1995 #4157; Madin and others, 1995 #4158), but the east-west orientation of compressive stress in this part of the forearc of the Cascadia subduction zone (McInelly and Kelsey, 1990 #4102; Madin and others, 1995 #4158) suggests that these may be tear faults (Black and Madin, 1995 #4157) with significant oblique (strike-slip) component. Map patterns suggest some left-lateral displacement.
Dip Direction	NE
Paleoseismology studies	
Geomorphic	These faults are mapped on the basis of offset bedrock and marine-terrace sediments.

expression	(Black and Madin, 1995 #4157; Madin and others, 1995 #4158). Black and Madin (1995 #4157) describe uplifted Pleistocene estuarine deposits along the north bank of Davis Slough that may be deformed along the southern unnamed fault in this group.
Age of faulted surficial deposits	The north-northwest-striking faults on the east side of South Slough offset Eocene bedrock and the Metcalf marine terrace (Madin and others, 1995 #4158); this marine terrace platform is thought to correlate with a less than or equal to 200 ka sea level highstand (Kelsey and others, 1996 #4111). Black and Madin (1995 #4157) describe possibly deformed estuarine deposits along the north bank of Davis Slough that are middle or late Pleistocene in age.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) <i>Comments:</i> If the faulted marine terrace sediments described by Madin and others (1995 #4158) are correlative with a less than or equal to 200 ka marine highstand, these faults have displacements in the middle and late Quaternary. Madin and others (1995 #4158) map these faults as active in the late Quaternary, but do not define a specific age designation. These faults are not shown on recent compilations of Quaternary faults in Oregon (Pezzopane, 1993 #3544; Geomatrix Consultants Inc., 1995 #3593; Madin and Mabey, 1996 #3575).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> Vertical offsets of a few hundred meters in Eocene bedrock (Madin and others, 1995 #4158) indicate that slip rates are probably low.
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
References	#4157 Black, G.L., and Madin, I.P., 1995, Geologic map of the Coos Bay quadrangle, Coos County, Oregon: State of Oregon Geological Map Series GMS-97, 1 sheet, scale 1:24,000. #4121 Duncan, D.C., 1953, Geology and coal deposits in part of the Coos Bay Coal Field, Oregon: U.S. Geological Survey Bulletin 982-B, 73 p., 1 pl. #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.

#4111 Kelsey, H.M., Ticknor, R.L., Bockheim, J.G., and Mitchell, C.E., 1996, Quaternary upper pl. deformation in coastal Oregon: Geological Society of America Bulletin, v. 108, no. 7, p. 843-860.

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

#4158 Madin, I.P., McInelly, G.W., and Kelsey, H.M., 1995, Geologic map of the Charleston quadrangle, Coos County, Oregon: State of Oregon Geological Map Series GMS-94, scale 1:24,000.

#4102 McInelly, G.W., and Kelsey, H.M., 1990, Late Quaternary tectonic deformation in the Cape Arago-Bandon region of coastal Oregon as deduced from wave-cut platforms: Journal of Geophysical Research, v. 95, no. B5, p. 6699-6713.

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

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