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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.

unnamed offshore faults (Class A) No. 785

Last Review Date: 2002-04-19

citation for this record: **Personius, S.F., compiler, 2002, Fault number 785, unnamed offshore 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 03:16 PM.**

Synopsis	This group of faults offset accretionary wedge sediments that underlie the continental shelf and slope in the forearc of the Cascadia subduction zone [781]; some faults also offset the overlying sedimentary section and the underlying oceanic basalts of the subducting Juan de Fuca Plate. These faults are mapped as left-and right-lateral strike-slip faults and normal and reverse faults, but most have strikes oblique to the Cascadia deformation front, suggesting a strong lateral component of slip. No detailed information on age of offset deposits is available, but similarities with better-studied offshore faults suggest latest movement in the latest Quaternary on most of these structures. 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 independent displacements are related to smaller earthquakes in the overriding North American Plate.

Name comments	This is a group of faults mapped by Goldfinger and others (1992 #464) offshore Oregon; none of these faults have been named in the literature. **Fault ID:** Some of these structures are included in fault number 21 of Pezzopane (1993 #3544).
County(s) and State(s)	CLATSOP COUNTY, OREGON (offshore) TILLAMOOK COUNTY, OREGON (offshore) LINCOLN COUNTY, OREGON (offshore)
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Poor Compiled at 1:500,000 scale. *Comments:* The fault traces are from 1:500,000-scale mapping of Goldfinger and others (1992 #464).
Geologic setting	This group of faults offset accretionary wedge sediments that underlie the continental shelf and slope in the forearc of the Cascadia subduction zone [781]; some faults offset the overlying sedimentary section and the underlying oceanic basalts of the subducting Juan de Fuca Plate (Goldfinger and others, 1992 #446; Goldfinger and others, 1992 #464; Goldfinger, 1994 #3972; Goldfinger and others, 1996 #4088; Goldfinger and others, 1997 #4090). 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 independent displacements are related to smaller earthquakes in the overriding North American Plate (Goldfinger and others, 1992 #446; Goldfinger, 1994 #3972; Goldfinger and others, 1997 #4090; McNeill and others, 1998 #4089).
Length (km)	280 km.
Average strike	N11°W
Sense of movement	Left lateral, Right lateral, Normal, Reverse *Comments:* These faults are mapped as left-and right-lateral strike-slip faults, and normal and reverse faults; most have strikes oblique to the Cascadia deformation front, suggesting a strong

	lateral component of slip (Goldfinger and others, 1992 #446; Goldfinger and others, 1992 #464; Goldfinger, 1994 #3972; Goldfinger and others, 1997 #4090).
Dip Direction	Unknown *Comments:* Sense of slip data suggest that most of these faults have steep dips (Goldfinger and others, 1992 #464).
Paleoseismology studies	
Geomorphic expression	No detailed information on the geomorphic expression of these faults has been published, but similar offshore structures form scarps, offset channels, and deform Quaternary sediments in seismic-reflection profiles (Goldfinger and others, 1992 #464; Goldfinger, 1994 #3972; Goldfinger and others, 1997 #4090).
Age of faulted surficial deposits	No detailed information on the ages of faulted deposits has been published, but similar offshore structures offset late Pleistocene and Holocene sediments (Goldfinger and others, 1992 #464; Goldfinger, 1994 #3972; Goldfinger and others, 1997 #4090).
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* No detailed information on the ages of most recent movement has been published, but similar offshore structures offset late Pleistocene and Holocene sediment, and thus have been active in the latest Quaternary (Goldfinger and others, 1992 #464; Goldfinger, 1994 #3972; Goldfinger and others, 1997 #4090). Most of these faults are mapped as active in the Holocene or late Pleistocene, but some are mapped as active in the middle and late Quaternary (<700-780 ka) or as Pliocene-Pleistocene (Goldfinger and others, 1992 #464; Pezzopane, 1993 #3544; Geomatrix Consultants Inc., 1995 #3593; Madin and Mabey, 1996 #3575).
Recurrence interval	
Slip-rate category	Between 1.0 and 5.0 mm/yr *Comments:* No detailed information on the slip rates associated

	with these faults has been published, but similar offshore structures have slip rates of 1-5 mm/yr (Goldfinger, 1994 #3972; Goldfinger and others, 1996 #4088; Goldfinger and others, 1997 #4090).
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
References	#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. #3972 Goldfinger, C., 1994, Active deformation of the Cascadia Forearc—Implications for great earthquake potential in Oregon and Washington: Oregon State University, unpublished Ph.D. dissertation, 246 p., http://hdl.handle.net/1957/36664. #446 Goldfinger, C., Kulm, L.D., Yeats, R.S., Appelgate, B., MacKay, M.E., and Moore, G.F., 1992, Transverse structural trends along the Oregon convergent margin—Implications for Cascadia earthquake potential and crustal rotations: Geology, v. 20, p. 141-144. #4088 Goldfinger, C., Kulm, L.D., Yeats, R.S., Hummon, C., Huftile, G.J., Niem, A.R., and McNeill, L.C., 1996, Oblique strike-slip faulting of the Cascadia Submarine Forearc—The Daisy Bank fault zone off central Oregon, *in* Bebout, G.E., Scholl, D.W., Kirby, S.H., and Platt, J.P., eds., Subduction top to bottom: Geophysical Monograph 96, p. 65-74. #4090 Goldfinger, C., Kulm, L.D., Yeats, R.S., McNeill, L., and Hummon, C., 1997, Oblique strike-slip faulting of the central Cascadia submarine forearc: Journal of Geophysical Research, v. 102, no. B4, p. 8217-8243. #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. #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. #4089 McNeill, L.C., Goldfinger, C., Yeats, R.S., and Kulm, L.D., 1998, The effects of upper pl. deformation on records of prehistoric Cascadia subduction zone earthquakes, *in* Stewart, I.S., and Vita-Finzi, C., eds., Coastal tectonics: Geological Society Special Publication No. 146, p. 321-342. #3544 Pezzopane, S.K., 1993, Active faults and earthquake ground motions in Oregon: Eugene, Oregon, University of Oregon, unpublished Ph.D. dissertation, 208 p.