



EXPLANATION OF MAP UNITS

Mass Movement Hazards
PHls Prehistoric complex landslide
PHb Prehistoric slide block or slump
PHr Prehistoric rock or soil flow
PAIs Potentially active complex landslide
PAbs Potentially active slide block or slump
Als Active complex landslide
Abs Active slide block or slump

Shoreline Geology
Artificial fill
Qal Alluvium
S Vegetated dune sand
Qc Dune-covered alluvium
Qmt Colluvium
Tmcd Marine terrace deposits
Tmcd Cape Fearweather Basalt
Tmwc Sandstone of Whale Cove
Tmcd Cape Bay Basalt
Tmcd Astoria Formation
Tmcd Nye Mudstone
Tmcd Yaquina Formation (mudstone)
Tmcd Yaquina Formation (sandstone)
Tmcd Basalt of Cascade Head
Tmcd Neocoma Formation
Tmcd Intrusive basalt

MAP SYMBOLS

--- Contact -- Approximately located contact between formations or areas of differing type or age of mass movement -- Approximately located.
--- Contact between areas of mass movement and other areas -- Approximately located. Outlines a general area of mass movement of one or several ages and types.
--- Zone of particularly active landslides and slide blocks -- Area vulnerable to episodic loss of large amounts (1-40 feet) of headwall in back of landslides or slide blocks.
--- Fault zones -- Arrow showing dip; bar and ball on downthrown side; dashed where approximate; dotted where concealed; diamond-headed arrow showing strike; vertical offset of marine terrace in feet in parentheses.
--- Boundary of slide block within larger slide block -- Approximately located; bar and square on downthrown side.
--- Rock fall hazard -- Areas of major rock fall hazard at high-use beaches.
--- (Qmt) Rock unit label within a prehistoric slide block or slump -- Parentheses differentiate formation labels within a prehistoric slide block from the mass movement label PHb.
--- [Toys] Rock unit label for unit making up less than 3 ft of the sea cliff -- Brackets are utilized to indicate that the rock unit has little control on sea cliff erosion.
--- ? Uncertainty -- Question mark used to indicate uncertainty about a mass movement label because the area was examined only by aerial photo analysis or had ambiguous field information.
--- Erosion rate transects -- Points where shoreline erosion rates were examined for entry into the database of Open-File Report O-94-11; spacing on straight shorelines is about 150 feet; every tenth is labeled for reference to the database.
--- Generalized erosion rates -- Feet per year of erosion (negative sign = erosion); mean is in parentheses; range separated by a small arrow; applicable to the shoreline segment marked by the arrows perpendicular to the shoreline.
--- Shoreline protection structures -- Sea walls or riprap.
--- 25 Strike and dip of bedding.

* Oregon Department of Geology and Mineral Industries Open-File Report O-94-11 should be utilized with this map to provide detailed information on the hazard mapping techniques and appropriate use of the information. Data from summarizing erosion rates, geologic data, and mass movement hazards at each transect are listed in a digital database included with Open-File Report O-94-11.

Erosion rates estimated from data in Open-File Report O-94-11

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Scale 1:4800

Horizontal datum: 1983 North American Datum
Vertical datum: National Vertical Datum of 1929
Contour interval: 5 feet

Base map is a 1993 orthophotograph; photography was produced from a geostationary controlled light in the late summer of 1993; the light was conducted by Spencer B. Gross, Inc. in cooperation with Bergman Photographic Services, both of Portland, Oregon.

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DISCLAIMER The Oregon Department of Geology and Mineral Industries is publishing this paper because the subject matter is consistent with the mission of the Department. To facilitate timely distribution of information, this report has not been edited to our usual standards.