

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

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The mission of the Oregon Department of Geology and Mineral Industries is to provide earth science information and regulation to make Oregon safe and prosperous.

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New report looks at coastal erosion in southern Clatsop County

Portland, Oregon: The Oregon Department of Geology and Mineral Industries (DOGAMI) has released **Open-File Report O-09-06: Coastal Erosion Hazard Zones in Southern Clatsop County, Oregon: Seaside to Cape Falcon**, by Robert C. Witter, Oregon Department of Geology and Mineral Industries, Thomas Horning, Horning Geosciences, and Jonathan C. Allan, Oregon Department of Geology and Mineral Industries.

The coast of southern Clatsop County, Oregon has a notorious history of large deep seated landslides that have severely impacted coastal development. In February 1961, heavy precipitation destabilized a 3,000-foot-long by 1,000-foot-wide landslide that closed Ecola State Park. Perhaps more famous is the February 3, 1974, Silver Point landslide that involved over 2 million cubic yards of material, that vertically displaced U.S. Highway 101 by 35 feet and laterally shifted houses near the landslide 50 to 80 feet westward.

The active-hazard zone for southern Clatsop County encompasses areas of dune and bluff-backed shorelines, and coastal bluffs and dunes undergoing active erosion, whether by extreme wave erosion, near-shore sediment transport, gradual erosion, or mass wasting processes.

Areas of particular concern include active landslides within Ecola State Park; the area west of Tolovana Hill, including the S-Curves landslide in Cannon Beach; landslides at Silver Point; areas at the southern end of Arcadia Beach north of Hug Point; and the entire Falcon Cove community.

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Chronic erosion and landsliding along Cove Beach, near Cape Falcon, has required many homeowners to modify or move houses away from retreating sea cliffs.

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The results of mapping historically active landslides and those that failed pre-historically, as well as studying the coastal processes that lead to shoreline change and contribute to chronic bluff erosion, can be used to forecast the impacts of future erosion and potential slope failure. This report describes the methods and results used to develop a GIS (Geographic Information System) map database that delineates the coastal geology of southern Clatsop County and defines coastal erosion hazard zones for use by county and local planners.

Open-File Report O-09-06: Coastal Erosion Hazard Zones in Southern Clatsop County, Oregon: Seaside to Cape Falcon includes on CD-ROM:

A digital GIS database, maps depicting four erosion hazard zones;

A 1:4,800-scale geologic map compiled from existing geologic maps and mapping completed for this study;

Digitized landslide-related scarps mapped by Ross, and;

Polylines that locate the top edge and base of coastal bluffs mapped on the basis of GPS surveys, field reconnaissance, and interpretation of stereo-paired aerial photographs.

Open File Report O-09-06 is available on CD-ROM for \$15. It can be purchased from the Nature of the Northwest Information Center (NNW), 800 NE Oregon Street, Suite 965, Portland, Oregon, 97232. You may also call NNW at (971) 673-2331 or order online at <http://www.naturenw.org>. There is a \$4 shipping and handling charge for all mailed items.

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<http://www.oregongeology.org>

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