

# OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

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## New report looks at monitoring Oregon's ever-changing shoreline

**Portland, Oregon:** The Oregon Department of Geology and Mineral Industries (DOGAMI) has released *Open-File Report O-08-15, OREGON BEACH AND SHORELINE MAPPING AND ANALYSIS PROGRAM: 2007-2008 BEACH MONITORING REPORT*, by Jonathan C. Allan and Roger Hart, Oregon Department of Geology and Mineral Industries.

Beaches are among the most dynamic and changeable of all landforms. Because of this, Oregon beaches can be dramatically affected when severe storms hit our coast. Over recent years, intense winter storms have caused major coastal erosion, encroaching on homes built atop dunes and coastal bluffs. In several cases the results have been the destruction of homes, roads and recreation areas.

Sometimes the changes to a beach can be staggering. For example, it is estimated that the beaches in the Rockaway area have lost over 2.6 million cubic yards of sand over the last decade, with most of this loss occurring in a series of storms between 1997 and 2002.

Damaging storms are not new to the Oregon coast, but increased development near beaches and on dunes and coastal bluffs has increased the need for understanding the dynamics of our beaches and shorelines. Beach monitoring is capable of revealing a variety of information concerning these dynamics, including short-term trends in beach stability, such as the seasonal response of a beach to the prevailing wave energy, responses due to individual storms, and hotspot erosion associated with rip embayments.

Over sufficiently long periods, beach monitoring can reveal important insights about the long-term response of a particular coast, such as its seaward advance or landward retreat, attributed to variations in sediment (sand) supply, storminess, human impacts, and ultimately as a result of a progressive increase in mean sea level.

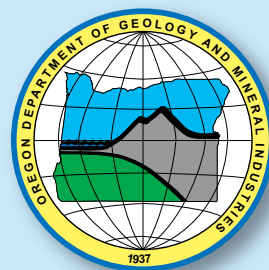
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Erosion during a storm on January 5, 2008 caused part of a riprap wall to fail in the town of Neskowin and came close to completely destroying one home (photo courtesy of the Breakers Condominiums).



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This newly released report describes and documents the Oregon Beach and Shoreline Mapping Analysis Program maintained by the Oregon Department of Geology and Mineral Industries (DOGAMI), with funding from the Northwest Association of Networked Ocean Observing System, the Oregon Department of Land Conservation and Development, and the Oregon Parks and Recreation Department. 46 sites were and are being monitored along 3 beaches: the Clatsop Plains just north of Tillamook Head, Rockaway area beaches, and Neskowin area beaches.

The objective of this monitoring program is to document the response of Oregon's beaches to both short-term climate variability (e.g., El Niños, extreme storms) and longer-term effects associated with the changing climate of the earth (e.g., increasing wave heights, changes to storm tracks, and sea level rise), that will influence the stability or instability of Oregon's beaches over the next century.

As the report outlines, we now have a system in place that can be used to better document and understand the changing beach dynamics, including the tracking of large-scale sand movements within defined beach cells, the effects of future storms, and any post-storm recovery of beaches. In time, such information can be used to further evaluate and refine coastal hazard "setback" zones that are being developed by DOGAMI. Understanding the wide range of responses of our dynamic beaches at the Oregon coast is critical for effectively managing not only public beaches, but also for managing responsible land development, both today and into the future.

**You can learn more about the Oregon Beach and Shoreline Mapping and Analysis Program at: <http://www.oregongeology.com/sub/Nanoos1/index.htm>**

***Open-File Report O-08-15, OREGON BEACH AND SHORELINE MAPPING AND ANALYSIS PROGRAM: 2007-2008 BEACH MONITORING REPORT***, is available on CD-ROM for \$10. The report can be purchased from the Nature of the Northwest Information Center (NNW), 800 NE Oregon Street, Suite 177, Portland, Oregon, 97232. You may also call NNW at (503) 872-2750 or order online at <http://www.naturenw.org>. There is a \$4 shipping and handling charge for all mailed items.

For additional information, please contact the Nature of the Northwest Information Center. Additionally, these items as well as all department maps and publications can be purchased at DOGAMI Field Offices including 5375 Monument Drive, Grants Pass, (541) 476-2496 and 1510 Campbell Street, Baker City, (541) 523-3133.

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.

Learn more about Oregon's fascinating geology by going online at: <http://www.OregonGeology.org>

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