



Oregon

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House Committee on Agriculture and Land Use Informational Meeting – Channel Migration Zone

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Oregon Department of Geology and Mineral Industries (DOGAMI) Testimony

This presentation provides a snapshot of DOGAMI's channel migration mapping program without addressing potential policy considerations.

Channel migration is a natural process by which a river moves laterally across its floodplain over time

- All rivers migrate over time. This is a natural process that often occurs through a combination of bank erosion and sediment deposition. (Figure 1)
- Local geology and hydrology are the primary factors that determine migration susceptibility
- Many stream management choices can affect channel migration – such as bank armoring, constructing levees or dams, or changing stream bank vegetation, etc.

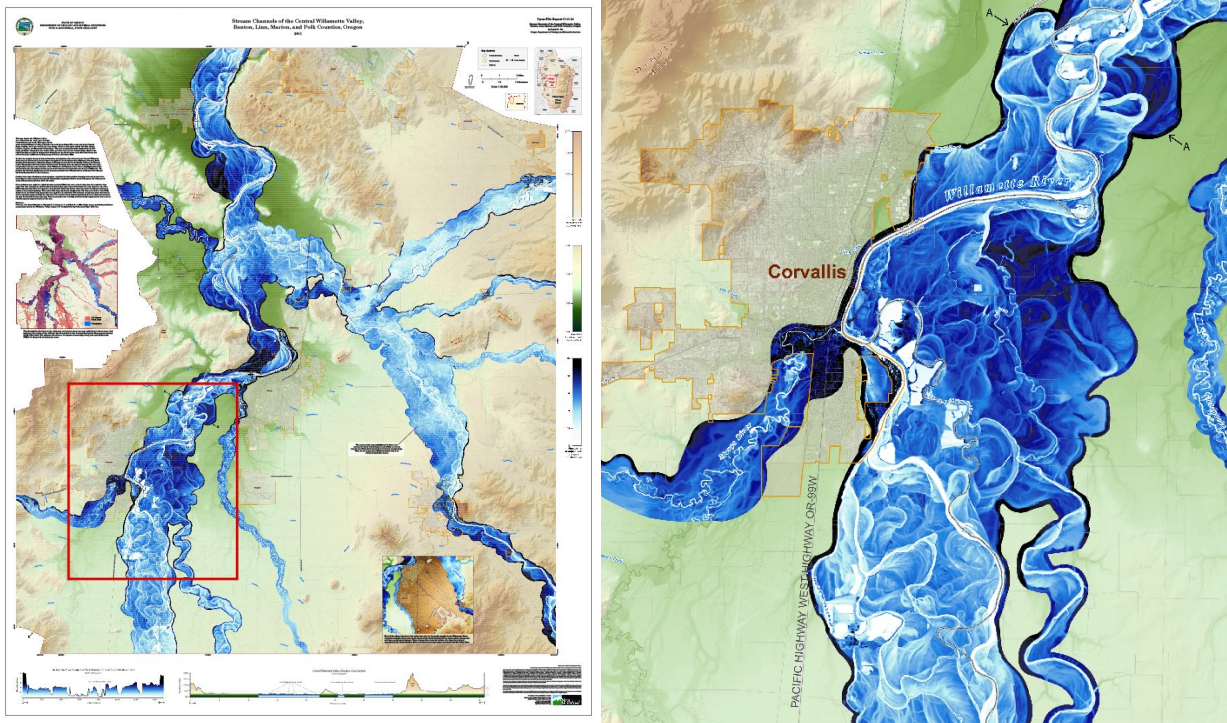


Figure 1: Example of historical channel features visible in lidar imagery. Full image (left) and enlarged excerpt (right) from DOGAMI Open-File Report O-11-14, Stream channels of the Central Willamette Valley, Benton, Linn, Marion, and Polk Counties, Oregon (<https://www.oregongeology.org/pubs/ofr/O-11-14.pdf>)

Channel migration impacts

- Rivers throughout the state can and have migrated rapidly, impacting buildings, roads, railroads, and other infrastructure (*Figure 2*)



Figure 2: Damage to the Port of Tillamook Bay railroad from channel migration of the Salmonberry River (Courtesy Chris Updegrave, 2/9/2008, <https://www.flickr.com/photos/cupdegrave/2253462031/in/photostream/>)

DOGAMI's Channel Migration Mapping Program

1) Statewide screening

- In 2017, DOGAMI published a statewide evaluation of channel migration susceptibility for all of Oregon's major rivers.
- This statewide evaluation is used to guide where DOGAMI will seek funding for detailed mapping to make the science available to communities.
- Major rivers with high susceptibility run through 107 of Oregon's 241 cities

2) Detailed channel migration mapping

- In 2011, DOGAMI produced first channel migration zone maps for Oregon (Clackamas, Coos, and Hood River Co.)
- The channel migration zone maps are based on high precision lidar elevation maps (*Figure 1*)
- DOGAMI recently received federal funding to complete detailed channel migration zone mapping in Benton, Marion, Morrow, and Washington counties, expected to be published in 2020.