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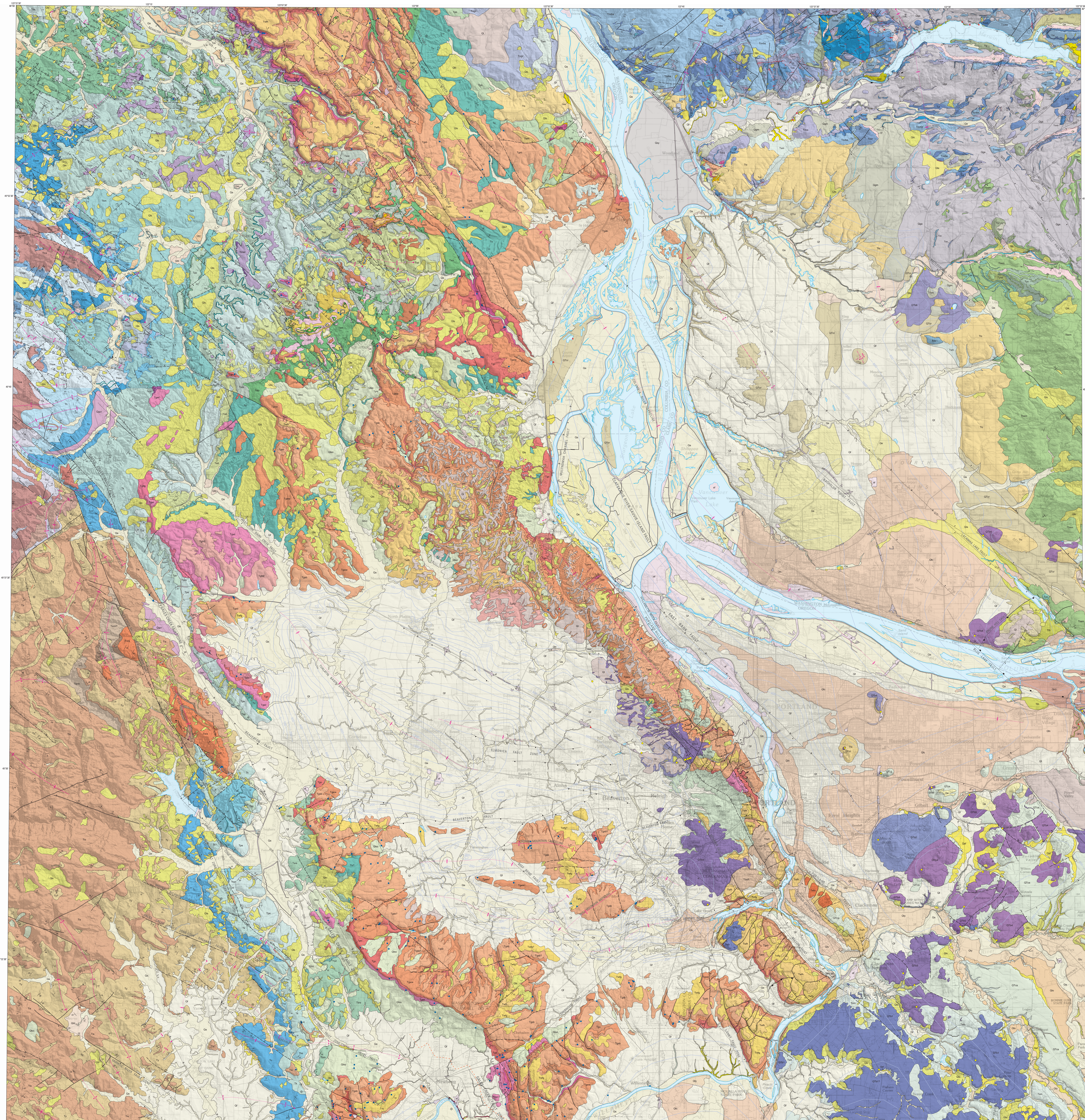
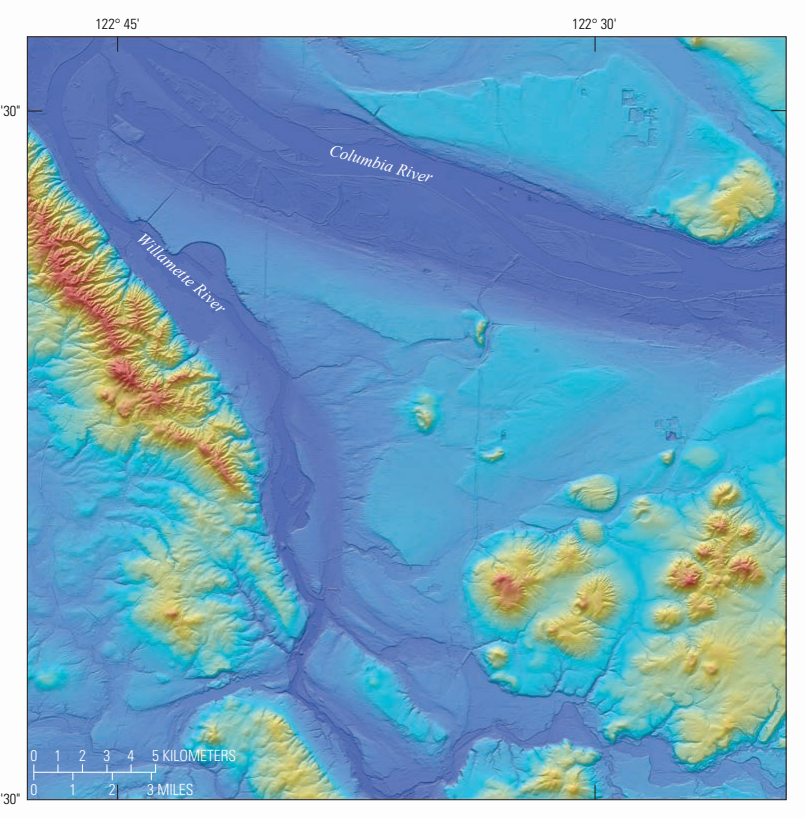
U.S. Department of the Interior
U.S. Geological Survey

Prepared in cooperation with the
Oregon Department of Geology and Mineral Industries and Washington Geological Survey

Scientific Investigations Map 3443
Sheet 1 of 2
Pamphlet accompanies map

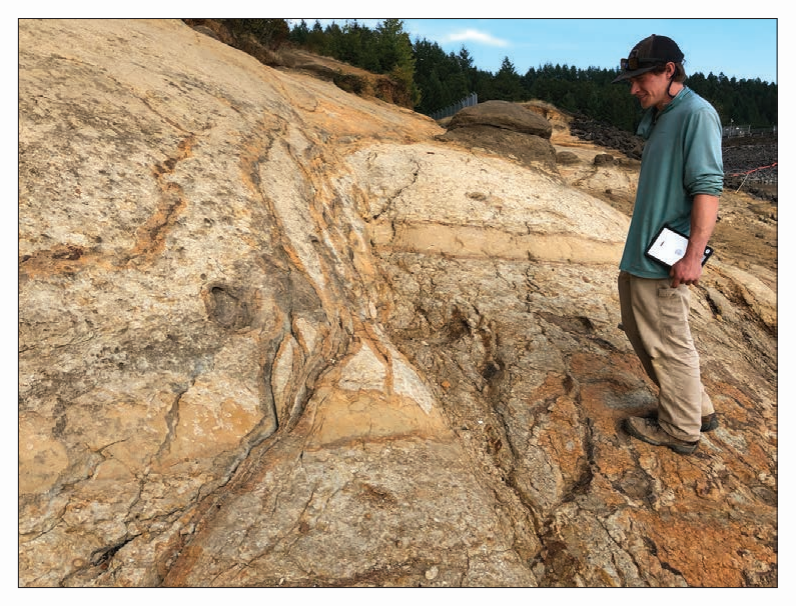

123°22'30"
46°00'
123°15'
123°07'30"
123°00'
122°52'30"
122°45'
122°37'30"
122°30'
122°22'30"
46°00'
45°52'30"
45°45'
45°37'30"
45°30'
45°22'30"
45°15'
NEHALEM GRABEN
NEHALEM RIVER FAULT
ROCKY POINT FAULT
ROCKY POINT ANTICLINE
GALES CREEK FAULT ZONE
WEST FORK DAIRY CREEK FAULT
CLATSKANIE RIVER-SAUVIE ISLAND FAULT
MULTNOMAH CHANNEL FAULT
MEISSNER ROAD FAULT ZONE
WASHINGTON
OREGON
COLUMBIA CO
COWLITZ CO
CLARK CO
MULTNOMAH
Woodland
Hayes
Highland
Yacolt
YACOLT FAULT ZONE
BATTLEGROUND LAKE FAULT ZONE
LACAMAS LAKE FAULT
BLUE LAKE FAULT
BACHELOR POINT FAULT
COLUMBIA RIVER SYNCLINE
Battle Ground
Brush Prairie
Vancouver Lake
Orchards
Pioneer
King Corner
Cherry Grove
Dollar Corner
Scotton Corner
Meadow Glade
Good Hope
Manor
Hockinson
Salmon Creek
Camp Hill
CAMP BONNEVILLE MILITARY RESERVATION
Fern Prairie
Proebstel
Green Mtn
FOURTH PLAIN
WASHINGTON
OREGON
Sand Island
Government Island
McGuire Island
Reed Island
Lady Island
COLUMBIA RIVER
North Plains
Hillsboro
Cornelius
Forest Grove
Beaverton
Aloha
Reedville
Farmington
Hazeldale
Scholls
Midway
Newberg
Sherwood
Tualatin
Wilsonville
Tigard
Raleigh Hills
Errol Heights
Powellhurst
Gilbert
Russellville
Rockwood
Fairview
Wood Village
Troutdale
Gresham
Powell Valley
Orient
Pleasant Home
Cottrell
Damascus
Boring
Kelso
Estacada
Faraday
Springwater
Carus
Canby
Barlow
Butteville
Mount Scott
Happy Valley
Milwaukie
Clackamas
Oregon City
West Linn
Lake Oswego
PORTLAND
Twelvemile Corner
TUALATIN BASIN SYNCLINE
BEAVERTON FAULT
ELMONICA FAULT ZONE
COOPER MOUNTAIN ANTICLINE
BULL MOUNTAIN ANTICLINE
BEEF BEND FAULT
SHERWOOD FAULT
CANBY FAULT ZONE
BOLTON FAULT
PORTLAND HILLS FAULT
OATFIELD FAULT
EAST BANK FAULT
SANDY RIVER FAULT
GALES CREEK FAULT ZONE-SCOGGINS VALLEY FAULT
GALES CREEK FAULT ZONE-CHEHALEM VALLEY FAULT
MOUNT RICHMOND FAULT
YAMHILL RIVER FAULT ZONE
CHEHALEM ANTICLINE
WASHINGTON CO
YAMHILL CO
CLACKAMAS CO
MARION CO
CARLTON LAKE STATE GAME REFUGE
CHAMPOEG STATE PARK
MOLALLA RIVER STATE PARK
BONNIE LURE STATE PARK
WILLAMETTE RIVER


123° 45'
122° 30'
45°37'30"
45°22'30"
Columbia River
Willamette River
0 1 2 3 4 5 KILOMETERS
0 1 2 3 MILES

Lidar topographic image of the Portland, Oregon, metropolitan region. The area covered is about 35 km by 35 km; north is at the top. Lowlands are deep blue, about 3 to 4 m elevation, and highlands are orange and red, reaching 400 m elevation. Deep blue channels of the northwest-flowing Willamette River and the west-flowing Columbia River converge at the northwest edge of the image. The Tualatin Mountains, also known as the Portland Hills, along the southwest side of the Willamette River, consist of a faulted anticline of Miocene Columbia River Basalt along the southwest margin of the Portland basin. In the southeast part of the image, Quaternary volcanoes form isolated hills, some with visible craters. The basin fill in the center of the image was formed by the cataclysmic late Pleistocene Missoula floods, which flowed westward across the basin, carving channels and depositing giant gravel bars. Image and description are modified slightly from Evarts and others (2009). Source data is from the Oregon Lidar Consortium and Clark County, Washington.

Photograph of downtown Portland looking northwest down the Willamette River. The Ross Island Bridge at the north end of Ross Island is the closest bridge to the camera. The Tualatin Mountains form the forested slopes west of downtown; the prominent break in slope along the eastern foot of the mountains is the approximate location of the Portland Hills fault. Photograph by Charles Simenstad.

Photograph of Scoggins Dam, Henry Hagg Lake, and the Stimson Mill pond with floating log rafts in the foothills of the Coast Range west of Forest Grove, Oregon. View is to the northwest, along the active Scoggins Creek strand of the Gales Creek fault, which follows the valley. Orange fencing on the valley floor in front of mill pond marks the location of a 2017 paleoseismic trench across the fault. Photograph by Ray Wells.



Photograph showing faulted sandstone of the Eocene Cowlitz Formation exposed along the shore of Henry Hagg Lake. North abutment of Scoggins Dam in background. Photograph by Ray Wells.

Base from U.S. Geological Survey 30' x 60' (1:100,000) Nehalem River, 1979; Vancouver, 1979; Yamhill River, 1980; and Oregon City, 1982
Shaded relief calculated from 6-ft-resolution lidar digital elevation models (Oregon Lidar Consortium, Oregon Department of Geology and Mineral Industries; Washington Lidar Portal, Washington Geological Survey) and 1/3 arc-second digital elevation models derived from 1:24,000-scale contours (The National Map, U.S. Geological Survey)

15½°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION NEAR CENTER OF MAP, 2020

SCALE 1:63 360
1 ½ 0 1 2 3 4 5 MILES
1 .5 0 1 2 3 4 5 6 7 KILOMETERS

MAP LOCATION

Geologic Map of the Greater Portland Metropolitan Area and Surrounding Region, Oregon and Washington

By
Ray E. Wells,[1] Ralph A. Haugerud,[1] Alan R. Niem,[2] Wendy A. Niem,[2] Lina Ma,[3] Russell C. Evarts,[1] James E. O'Connor,[1]
Ian P. Madin,[3] David R. Sherrod,[1] Marvin H. Beeson,[4] Terry L. Tolan,[5] Karen L. Wheeler,[1] William B. Hanson,[6] and Michael G. Sawlan[1]

2020

[1] U.S. Geological Survey;
[2] Oregon State University;
[3] Oregon Department of Geology and Mineral Industries;
[4] Portland State University;
[5] Intera Geoscience and Engineering Solutions;
[6] Private consultant

Geology compiled by R.E. Wells, R.A. Haugerud, and K.L. Wheeler, 2014–2018, from published and unpublished sources. See figure 1, pamphlet, and digital database (https://doi.org/10.3133/sim3443) for further information

Database by R.A. Haugerud and R.E. Wells

Edited by J.L. Zigler; digital cartographic production by Katie Sullivan

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