



Northwest Facts

The USGS Northwest Region includes:

- Idaho, Montana, Oregon, Washington and Wyoming
- A population just under 14 million
- 43 percent federal land including 40 National Park Service Properties
- Over 50 state and federally recognized tribes
- Headwaters for the Columbia, Missouri and Colorado Rivers
- An electricity supply comprised of 60 percent hydropower
- 84 federally listed threatened and endangered species
- 12 active or potentially active volcanos, including Yellowstone, the largest active caldera in North America
- > 200 square miles of glaciers
- > 1,000 miles of international border with Canada
- > 900 miles of Pacific coast
- > 2,300 miles of greater Puget Sound shoreline
- Significant lead, zinc, silver and phosphate deposits
- The nation's largest reserves of recoverable low-sulfur coal, and significant natural gas reserves
- Temperate rainforests that comprise the nation's largest biological carbon sink.

Northwest Region Science

Ecosystem Sustainability

The Northwest exhibits diverse altitude, latitude, landforms, and patterns of precipitation. The region contains glaciers, temperate rainforest, shortgrass prairies, alpine peaks, and great rivers such as the Columbia. Coexisting with these ecosystems is a growing human population



with expanding resource needs. Sustaining water supplies, fish and wildlife, national parks, and other natural resources is a top priority of the Department of the Interior. To support these goals USGS draws on skilled scientists and cutting edge capabilities from groundwater hydrology to molecular genetics. Our science supports large river restoration, including dam removal on the Elwha River in Washington and potentially on other rivers such as the Klamath in Oregon and California. USGS also researches ecosystems critical to species recovery such as the sagebrush community for greater sage-grouse and Puget Sound for its iconic salmon.

Examples:

Elwha Dam Removal and River Restoration: <http://www.usgs.gov/elwha>

Greater Sage-grouse Conservation: <http://sagemap.wr.usgs.gov/>

Yakima River Basin Water Management:
<http://wa.water.usgs.gov/projects/yakimawarsmp/>

Klamath Basin Studies: <http://or.water.usgs.gov/klamath/>



Science Centers in the Northwest Region

Northwest Regional Office

<http://www.wr.usgs.gov/northwest>

Western Fisheries Research Center

<http://wfrc.usgs.gov>

Washington Water Science Center

<http://goehazards.usgs.gov>

Montana Water Science Center

<http://mt.water.usgs.gov>

Oregon Water Science Center

<http://or.water.usgs.gov>

Northern Rocky Mountain Science

Center <http://www.nrmsc.usgs.gov>

Forest & Rangeland Ecosystem

Science Center

<http://fresc.usgs.gov>

Idaho Water Science Center

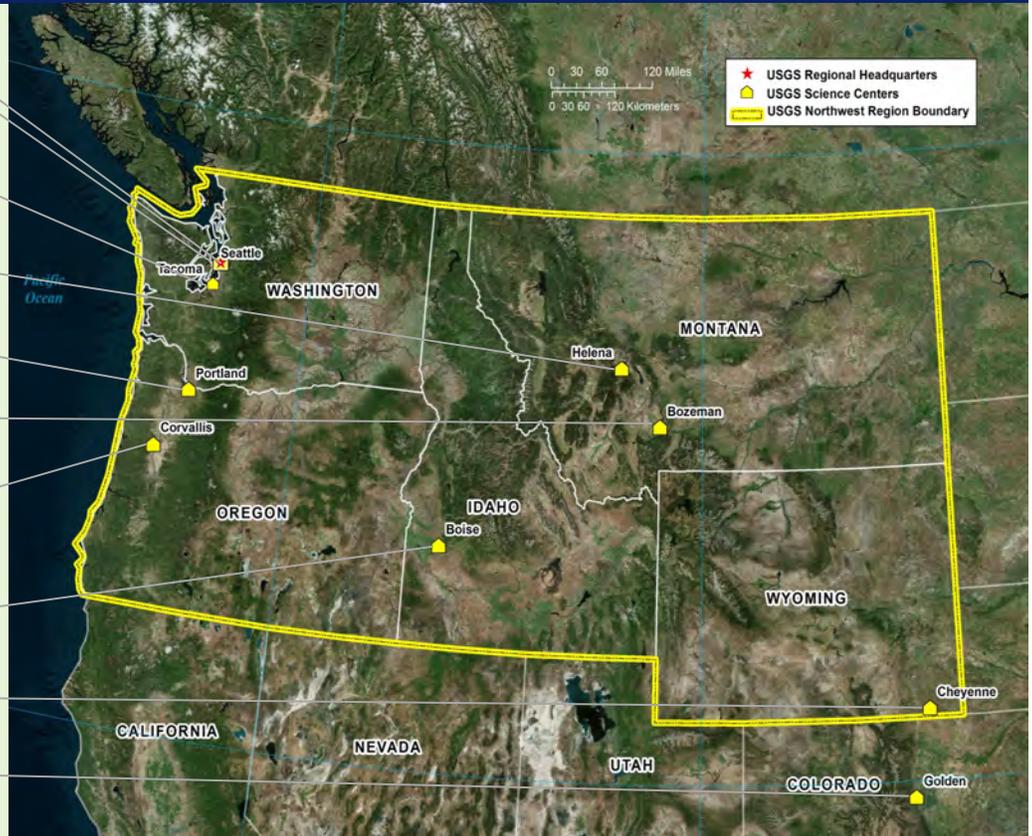
<http://id.water.usgs.gov>

Wyoming Water Science Center

<http://wy.water.usgs.gov>

Geologic Hazards Science Center

<https://geohazards.usgs.gov>



Water Availability and Quality

The five water science centers of the Northwest Region focus their research on issues of local water quality and availability. They measure stream flow with more than 1,000 stream gages throughout the Northwest that collect data critical for federal, state, tribal and local governments, river managers, fisheries professionals, and recreationists. USGS models help allocate water among competing uses, such as among aquatic habitat, hydroelectric power generation, agriculture, recreation and residential water supply. In support of ecosystem management, critical connections between ground and surface water help determine sustainable levels of pumping for agriculture while supporting ecological needs in rivers and streams. USGS scientists also examine the effects of “emerging contaminants” that result from personal use products and conventional contaminants like nutrients from fertilizers, trace metals and pesticides in fresh and marine waters.



Examples:

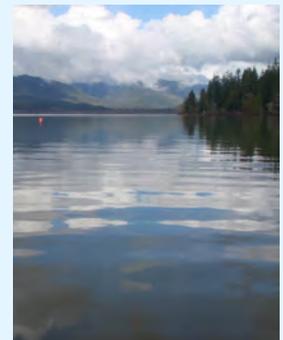
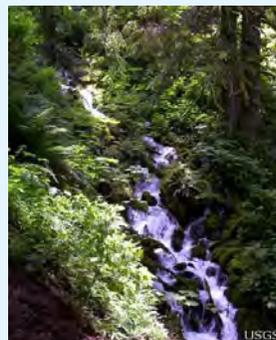
Water Quality in the Willamette Basin:

<http://or.water.usgs.gov/proj/pn366/nawqa.html>

Modeling Water Allocation Scenarios

in the Klamath Basin: <http://wfrc.usgs.gov/projects/9183D4J/>

Columbia Plateau Groundwater Availability Study: <http://wa.water.usgs.gov/>



USGS Partners

The USGS collaborates with many partners throughout the Northwest including other federal agencies, tribal, state and local governments, non-governmental organizations, public utilities, conservation districts, universities and others.

Featured Partnerships:

Wyoming Landscape Conservation Initiative

<http://www.wlci.gov/>

Pacific NW Aquatic Monitoring Partnership

<http://www.pnamp.org/>

Puget Sound Federal Caucus

http://www.epa.gov/pugetsound/pdf/PSFC_FactSheet_12June09.pdf

Columbia River Basin Federal Caucus

<http://www.salmonrecovery.gov/AboutUs.aspx>

Great Basin Consortium

<http://environment.unr.edu/consortium/>

Lower Columbia River Estuary Partnership

<http://www.estuarypartnership.org/>



Stephen Slaughter WA DNR

Natural Hazards

Earthquakes, landslides, floods, tsunamis, and wildfires pose risks to life, property and natural resources in the Northwest. (Western volcano hazards are addressed by a separate USGS Volcano Hazards Program see <http://volcanoes.usgs.gov/>). USGS scientists assess risks associated with natural hazards, monitor in near-real time, and help local communities plan responses. The USGS Geological Hazards Science Center in Golden, Colorado monitors and reports earthquakes through the Global Seismographic Network; assesses impacts; and researches causes and effects of earthquakes. USGS also helps reduce losses from landslides by studying causation and by developing mitigation strategies. USGS forecasts floods before they occur and monitors them 24/7. Wildland fires can radically alter ecosystems, particularly in combination with climate change and the spread of invasive species. USGS works with land managers to anticipate and manage fire.

Examples:

Science of Landslides: <http://www.youtube.com/watchv=MVwSpGVfWVo>

Reducing Flood Risk: <http://water.usgs.gov/floods/>

Energy Development

Unconventional fossil fuels like shale oil and gas and novel recovery methods such as hydrofracking and directional drilling are opening new lands for development in the northwest. USGS supports energy development with an integrated scientific approach that considers multiple land uses and the need for ecosystem conservation. As renewable energy resources such as wind, solar and biofuels are expanded to improve national energy self-reliance, USGS provides models and data to address the development impacts on resources ranging from bats and golden eagles to entire ecosystems such as the prairie potholes landscape. USGS science will also support planning of wave and tidal power installations as these new renewable energy sources are developed off Northwest shores.

Examples:

Southwest Wyoming Research: <http://pubs.usgs.gov/of/2013/1033/>

Windfarms and Bats: <http://fresc.usgs.gov/research/researchPage.aspx>

Risk Assessment and Decision Support for Wildlife Friendly Wind Power:

<http://www.nrmisc.usgs.gov/science/wind>



Climate Change Adaptation

Climate change is altering the life support capacity of Northwest ecosystems. Traditional management of critical resources like agricultural products, timber, water, and fish and wildlife has become less certain, as temperature and precipitation changes affect river hydrology, species habitats and ranges, fire, drought frequency, and snow and ice cover. USGS addresses these challenges by working with resource managers in collaborations with the Department of the Interior's Climate Science Centers and Landscape Conservation Cooperatives. USGS scientists also conduct research, monitoring and modeling/forecasting in support of tribal and public trust responsibilities.

Examples:

North Pacific Landscape Conservation Cooperative:

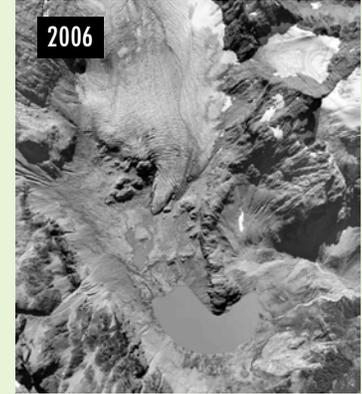
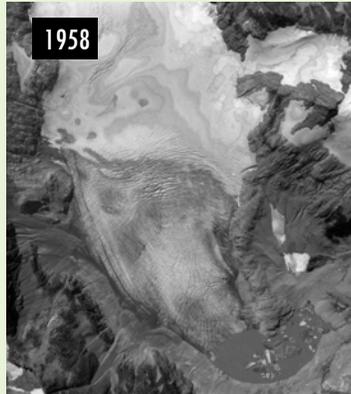
<http://northpacificlcc.org/>

Northwest Climate Science Center:

<http://www.doi.gov/csc/northwest/>

Great Northern Landscape Conservation Cooperative:

<http://greatnorthernlcc.org>



Science to Meet Tribal Needs

The Northwest is home to more than 50 state and federally recognized tribes. As a bureau of the Department of the Interior, USGS has particular trust responsibilities related to these sovereign tribes. Treaties signed with the federal government reserve rights to fish, hunt and gather shellfish and other traditional foods to provide nutrition and preserve tribal culture. Northwest tribes are concerned about ecological trends that affect their livelihood. USGS Northwest science centers collaborate directly with tribes, providing science for the management of "first foods" such as salmon. USGS works with tribes in the Klamath River Basin, Salish Sea and Columbia River Basin. USGS is invited to collect water quality data during the annual Salish Canoe Journey, where up to 100 tribes and Canadian First Nations navigate the Salish Sea in a traditional journey.



Examples:

Coast Salish Tribal Journey Water Quality Project: <http://wfr.usgs.gov/tribal/cswaq/index.html>

Sustainable Forest Management Training: <http://www.nrm.usgs.gov/TESNAR2012>

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