



Department of Natural Resources

The mission of the Department of Natural Resources (DNR) is to manage, sustain, and protect the health and productivity of Washington's lands and waters to meet the needs of present and future generations. Our agency is at the forefront of disaster resilience and mitigation. We have programs that are responsible for studying and providing information on geologic hazards (earthquake, tsunami, volcano, and landslide), wildfire, aquatic resources, forest health, and climate.

This submission for the Disaster Resilience Workgroup contains information on Assignment #1 from the workgroup. This submission is broken up by DNR Divisions that have a role in disaster resilience activities.

Assignment #1: The disaster resilience activities DNR is currently doing in Washington State.

Washington Geological Survey (WGS)

Hazard Mapping and Outreach: The WGS provides information and maps on geologic hazards in the state of Washington:

- WGS Produces:
 - Brochures:
https://www.dnr.wa.gov/sites/default/files/publications/ger_geologic_risk.pdf?wqnjxlv
 - Website content: <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards-and-environment>
 - Geologic information portal: <https://geologyportal.dnr.wa.gov/>
 - Publications: <https://www.dnr.wa.gov/programs-and-services/geology/publications-and-data/washington-geologic-survey-publications-catalog>
 - Resilient Washington State: A Framework for Minimizing Loss and Improving Statewide Recovery after an Earthquake (2012):
http://www.dnr.wa.gov/Publications/ger_ic114_resilient_washington_state.pdf
 - Storymaps:
<https://wadnr.maps.arcgis.com/apps/Cascade/index.html?appid=36b4887370d141fcbb35392f996c82d9>
 - Presentations and more: <https://www.dnr.wa.gov/programs-and-services/geology/publications-and-data/presentation-archive>

Earthquake Hazard Mapping and Outreach: <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/earthquakes-and-faults>

- The Survey conducts and publishes geologic mapping to identify and characterize faults throughout the state. Each year we map additional areas and learn more about existing faults and (or) discover new ones. <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/earthquakes-and-faults#active-faults-and-future-earthquakes.4>
- The WGS provides information on different earthquake scenarios and the potential damage they may cause: https://geologyportal.dnr.wa.gov/#seismic_scenarios



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- School Seismic Safety Project: The School Seismic Safety Project (SSSP) is the first phase of a statewide effort to systematically evaluate Washington school buildings for seismic performance. <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/earthquakes-and-faults/school-seismic-safety#project-overview>

Tsunami Hazard Mapping and Outreach: <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/tsunamis>

- WGS works with the National Oceanic and Atmospheric Administration (NOAA) and the University of Washington to model the inundation (flooding) of coastal areas from tsunamis. <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/tsunamis#tsunami-hazard-maps>
- WGS works with the Washington Emergency Management Division and local, county, tribal, and other planners and emergency managers to develop, publish, and distribute evacuation maps. <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/tsunamis#preparation-and-evacuation.6>
- WGS is working with OSPI, and EMD, among others, to develop hazard information and guidance for schools in mapped tsunami hazard zones so that they can practice mandatory pedestrian evacuation drills.
- WGS works with EMD, counties, cities, and tribes to act as a SME for tsunami inundation mapping and vertical evacuation guidance.

Landslide Hazard Mapping and Outreach: <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/landslides>

The Landslide Hazards Program at the WGS is producing landslide inventories for densely populated areas. The data is assembled into a database and susceptibility maps are produced using the data. https://www.dnr.wa.gov/publications/ger_fs_landslide_hazards.pdf?ryukmq
https://www.dnr.wa.gov/publications/ger_fs_landslide_processes.pdf?0bc7as
https://www.dnr.wa.gov/publications/ger_homeowners_guide_landslides.pdf?qazhq

- WGS also maintains a shallow landslide forecast map based on antecedent rainfall, 24-hour, and 48-hour predicted rainfall. This site provides daily forecasts for precipitation-induced shallow landslides in Washington State. <https://www.dnr.wa.gov/slhfms>
- WGS geologists assess post-wildfire debris flow hazards and produce reports and maps for partners.

Volcano Hazard Mapping and Outreach:

- WGS provides information on volcanic hazards to people. <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/volcanoes-and-lahars>
- WGS is working with OSPI, EMD, and the USGS Cascades Volcano Observatory, among others, to develop hazard information and guidance for schools in mapped lahar hazard zones so that they can practice mandatory pedestrian evacuation drills.



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Hazardous Mineral Mapping and Outreach:

- The Washington Geological Survey provides maps and geologic information on minerals related to environmental and public health issues. <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/hazardous-minerals>

Lidar data collection and distribution:

- In 2015, the Washington State Legislature mandated that the Department of Natural Resources, Washington Geological Survey collect, analyze, and publicly distribute detailed information about our state's geology using the best available technology – lidar. This is useful to identify hazardous areas as well as to collect data following an event to determine the areas that have changed. <https://www.dnr.wa.gov/lidar>

Emergency Preparedness Information and Outreach:

- WGS provides information on emergency preparedness for geologic disasters. <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/emergency-preparedness>
- The WGS has an Emergency Response plan for staff responding to geologic emergencies and information on continuity of operations.

Forest Health & Resiliency

Community & Landowner Assistance

The Community & Landowner Assistance Section is composed of Urban & Community Forestry, Forest Stewardship, and Wildfire Prevention & Fuels Reduction. Though each plays a role in disaster resilience activities, Wildfire Prevention & Fuels Reduction leads with the following activities:

Wildland Urban Interface Mapping

Under ESSB6109, the DNR was tasked with mapping the extent of the wildland urban interface within the state. The final version is expected to be released in mid to late 2020.

Community Wildfire Preparedness

This program engages with communities, residents, landowners, and others with interest or concerns about wildfire impacting their homes or communities. Support is provided to region staff responding to inquiries and attending events to conduct education and outreach about wildfire safety, mitigation, and reducing human caused ignitions.

Fuels Reduction & Landowner Assistance

The region based landowner assistance program is responsible for direct actions to support wildfire resilience activities through implementation of fuels reduction activities on non-industrial private forest lands through cost-share agreements. The process starts with a site visit to determine risk and property eligibility during which an assessment is performed and shared with the resident or owner. Cost-share assistance of 50 to 100% may be available to support wildland fire risk reduction activities such as fuel mitigation.



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Multi-program Support and Integration

Each program strives to support the efforts of the others through sharing common messaging and maximizing public contacts by providing cross-program education. Though focused on forest health concerns, Forest Stewardship site visits often include discussions about fire risk to the home and property. Urban forestry communication is often targeted in the wildland urban interface which offers additional opportunities to share messaging with at-risk populations which might otherwise remain unreached.

Prescribed Fire Program

Provides guidance, coordination and resources for the planning and implementation of prescribed fires that reduce hazardous fuel loads, provide defensible spaces around communities and improves forest health leading to landscapes more capable of withstanding the negative effects of severe and/or catastrophic wildfire.

Federal Lands Program – Hazardous fuels reduction and forest road improvements

Through use of the Good Neighbor Authority (GNA), the department is now able to directly impact project implementation on federal lands throughout WA specifically in hazard mitigation efforts related to fuels reduction projects in Eastern WA and in making improvements on the vast road networks that are in poor condition on federal lands (USFS and BLM). When able, the program coordinates with adjacent landownerships, such as DNR State Lands, to look for areas where coordinated project implementation could yield greater positive impacts at a watershed level.

Planning, science, and monitoring

Planners and scientists on this the team analyze forest health and resiliency treatment needs across large landscapes and work with partners across all lands to plan, implement, and monitor treatments and changing forest conditions, with a primary focus in support of the 20-Year Forest Health Strategic Plan for eastern Washington. These analyses include consideration of large natural disturbances such as fire, climate change, and drought.

Wildfire

The primary mission of the Wildfire Division is preparedness for and conducting of wildfire suppression activities. When non-wildfire disasters of various types occur, Wildfire Division is sometimes brought in because of our emergency response experience and training. When this occurs, we are following specific tasking direction coming from the entity requesting our assistance and roles can vary greatly depending on the type of disaster. In the past, Wildfire Division has supported responses to landslides, floods, hurricanes, and other events.

Specific to wildfire, DNR has developed and now leads implementation of the Washington State Wildland Fire Protection 10-Year Strategic Plan: <https://www.dnr.wa.gov/StrategicFireProtection>

This plan, which was developed with input from nearly 1,000 individuals around the state, has four goals:



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1. Washington's preparedness, response, and recovery systems are fully capable, integrated, and sustainable;
2. Landscapes are resilient – in the face of wildland fire, they resist damage and recover quickly;
3. Communities are prepared and adapted for current and future wildland fire regimes; and
4. Response is safe and effective.

Climate Resilience

DNR's executive policy advisors for climate change focus on planning, project management, and implementation support for climate resilience and mitigation activities across the agency.

- **Coordinate implementation of DNR's Plan for Climate Resilience** (<https://www.dnr.wa.gov/climate-change>). Issued in February, 2020, the Plan sets forth DNR's priority responses to achieve climate resilience. The Plan identifies program-specific, agency-wide and statewide system-level actions to strengthen climate resilience across the state's lands, waters and communities. At the statewide systems level, the actions include:
 - An interagency climate resilience leadership structure;
 - State-supported climate impact projections;
 - Funding and financing mechanisms to support resilience efforts;
 - Community-level resilience planning and implementation; and
 - Enhanced state-level climate communications capacity for public education, outreach and engagement.
- **Coordinate implementation of the Commissioner of Public Lands' Order on Climate Resilience.** In conjunction with DNR's Plan for Climate Resilience, Commissioner of Public Lands Hilary Franz issued a Commissioner's Order on Climate Resilience. The Order directs "Department leadership and all staff to take all practicable steps within our existing authorities and as guided by DNR's Plan for Climate Resilience to incorporate climate change considerations into all relevant decisions, policies, procedures, and operations including, where relevant, into legal, policy, and guidance documents."
- **Coordinate completion of operationally-oriented climate resilience strategies.** DNR is working to complete operationally-oriented climate resilience strategies for DNR's resource management and protection programs including: Aquatics, Forest Health, Forest Practices, Forest Resources, Forest Roads, Natural Areas and Natural Heritage, Product Sales, Recreation, Small Forest Landowner Office, Transactions, Uplands Leasing, Urban and Community Forestry, Washington Geological Survey, and Wildfire.

Safety & Health Program

Emergency Management Plan, Continuity of Operations Plan, and associated components:

- The Safety Program has created and works with other groups within DNR (regions and divisions) to maintain the agency Emergency Management Plan (EMP) and Continuity of Operations Plan (COOP) documents. These plans outline agency response during an assortment of emergency situations.



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State Lands Program

State Lands has participated in the development of a climate resilience plan for the department. This plan sets the framework for us to be proactive rather than reactive and challenges us to expand our partnerships and collaborations with other organizations and sectors. Current actions to increase resilience include continuing our efforts to make our forest road infrastructure more resilient to large storm events, developing resilient seed management and reforestation approaches, preparing for increased variability in harvest opportunities, and supporting implementation of DNR's 20-Year Forest Health Strategic Plan, the Wildland Fire Protection 10-Year Strategic Plan, and the Forest Action Plan.

DNR is also actively working to increase renewable energy in Washington, and supporting WA utilities in their quest for 100% renewable energy by 2045. DNR is currently leasing state trust lands for wind and solar power production and is exploring the power potential of geothermal energy. DNR manages leases that involve more than 100 wind turbines producing over 200 megawatt (MW) of clean electric power. During 2019, DNR entered into its first two leases for solar power installations, totaling approximately 100 MW. DNR has established a renewable energy office, hired a renewable energy manager, and set a goal of 500 MW of new solar power under lease by December 2023. In addition to their emissions reduction advantages, renewable energy leases represent a relatively new revenue stream for trust beneficiaries and can provide economic benefits for rural communities. DNR is proceeding carefully, to ensure that renewable energy development does not negatively affect cultural resources, prime agricultural land, critical wildlife habitat, or rare plant communities.

Biofuels are a less carbon intensive source of energy than fossil fuels because some of the carbon emitted when they are combusted is offset by the carbon that is sequestered as they are grown. DNR periodically conducts public auctions to sell the rights to harvest forest residual biomass—the limbs and small pieces of wood left on a site after its timber is harvested—as a source of biofuel. Forest biomass marketed by DNR does not include wood from old growth forests, wood that is protected as a habitat component by policy or rule, or any type of chemically-treated wood.