

## Wildfire and Drinking Water

### Potential Impacts to Public Water Systems After 2020 Wildfires

#### Overview

The September 2020 wildfires impact public water systems in many ways, ranging from immediate effects to anticipated long-term changes within watersheds that may affect the quality of water used at drinking water intakes, wells or springs. As of Sept. 22, 2020, a total of 50 public water systems have been affected, and there were 96 public water systems using groundwater within the wildfire perimeters.

#### Immediate impacts

A number of water systems experienced interruption of electrical power and limited access to water treatment plants, resulting in boil water notices due to loss of pressure in the distribution system. Others experienced damaged or lost structures and infrastructure requiring additional planning and potential monitoring to restore function. In direct-burn areas, distribution piping may have gotten hot enough to release contaminants from pipe materials requiring [system flushing and subsequent sampling for volatile organic compounds](#). Oregon Health Authority's [Drinking Water Services Program](#) provides regulatory and technical assistance for evaluation of treatment and distribution system issues to ensure water systems are in compliance and provide safe water to communities.

Systems served by surface water may experience increased surface runoff and eroded soils; increased suspended sediment and turbidity; and increases in organic carbon, pH, manganese, iron, and nutrients like nitrogen and phosphorus. These can create challenges for treatment and possibly lead to algal or cyanobacterial growth. In addition, the watersheds may have increased risk of [landslides, flooding, and debris flows](#) that can impact infrastructure. The [Drinking Water Protection Program](#) at DEQ can provide technical assistance to address short term stormwater and watershed stabilization efforts as well as longer term watershed evaluation, mitigation and restoration.

#### Fire retardant and drinking water quality

Firefighting agencies use a variety of materials as fire retardants including both long-term retardants



*Impacts of Holiday Farm fire in Lane County.*

(applied via air tankers or helicopter) and short-term fire suppressants (typically foams and gels). Long-term fire retardants are 85 percent water, 10 percent fertilizer (primarily phosphorus) and 5 percent coloring (typically iron oxide). Phosphorous is a key nutrient for plant life so it can be taken up by plants surviving the fire. However, phosphorous that is not taken up by plants on the landscape may make its way to the nearest waterbody when it rains. Excess nutrients in water bodies can affect the water quality and contribute to growth of plants and algae. Some fire retardants have also been known to contain “performance additives” that may contain metals. See DEQ’s factsheet on [Cleaning up Fire Retardant and Fire Suppressants](#) for residential areas.

#### Groundwater and wells

Although the source of water for wells and springs is naturally protected from wildfires, water systems may have challenges with short-term impacts due to depressurization or direct impact to infrastructure. These impacts could allow pollution to enter the system or lead to stagnant water lines that may need to be flushed. OHA Drinking Water Services provides guidance for [system flushing and](#)



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# Water Quality

[subsequent sampling for volatile organic compounds](#). Oregon Water Resources Department provides information on [evaluating and maintaining wells following a fire](#).

## Longer term impacts of wildfire on drinking water

The extent of longer term impacts (1 to 10 years post-fire) for drinking water systems using surface water intakes will depend on burn severity, riparian and watershed conditions and land management practices. Longer term impacts may include the following:

- Infrastructure damage from sediment and debris
- Increased hydrologic and water-quality variability
- Ongoing pulses of high turbidity and high pH
- Altered seasonality of hydrological and chemical export from burned catchment
- Risk of landslides, flooding, and debris flows
- Increased sedimentation and debris in reservoirs and loss of storage capacity

These conditions may increase suspended sediment and turbidity, pH, organic carbon, manganese, iron, and nutrients like nitrogen and phosphorus, all of which can create challenges for treatment and possibly lead to harmful algal blooms that produce toxins.

DEQ and OHA [Source Water Assessment](#) reports can provide the water system and community information on the watershed or recharge area that supplies the well, spring or intake (the “drinking water source area”) and identifies potential risks and susceptible areas within the source area. Information in the assessment can be used in conjunction with burn severity maps to identify areas for stabilization and restoration. A [companion factsheet](#) is available to provide more information on post fire assessments, mitigation strategies, and partners and resources.

## Prevention – planning for the future

Additional work is needed in many drinking water source areas to promote and support collaboration among drinking water providers, landowners, and restoration/conservation practitioners to achieve source water protection. There are upfront costs associated with drinking water protection activities, whether it is the opportunity of deferred income or direct costs of restoration activities. However, the long-term costs of inaction or business-as-usual are often higher than the costs of source water protection. Public water systems should be at the table to discuss water quality challenges and risk reduction strategies on forest lands, wildfire risks and preparedness, and funding opportunities.

## Questions about your drinking water

For questions about regulations, water quality, treatment plants, and testing, contact OHA, the agency responsible for implementation of the federal Safe Drinking Water Act. Oregon protects drinking water through a partnership between DEQ and the OHA. For questions regarding groundwater sources, contact OHA. Contact [DEQ](#) for questions about protecting public water supplies using surface water.

If you are concerned about your water from a private or domestic well see the following resources:

- Oregon Health Authority [Domestic Well Safety Program](#)
- [Evaluating and maintaining wells following a fire](#). (Oregon Water Resources Department)
- [DEQ Resources for Private \(Domestic\) Well Owners](#)

## Alternative formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email [deqinfo@deq.state.or.us](mailto:deqinfo@deq.state.or.us)



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