



Fact Sheet

Water quality and post-fire assessments

Wildfire can impact waterways that support a variety of uses. Streams, rivers, lakes and other water bodies can experience effects long after the fire is out. Post-fire assessments are important, because they identify specific threats to human life, property, cultural resources, environment and habitat. These assessments may also identify short-term mitigation actions to stabilize burned areas following wildfire.

If a fire burns on federal lands, federal agencies will generally identify and assign a team of scientists to evaluate the area. Information on the federal evaluation program can be found at the [U.S. Forest Service website](#). Reports specific to individual fires may be found on the federal government's website called [InciWeb](#).

Individual property owners are responsible for doing their own post-fire assessment on private, city, county, or state land. The information below provides guidance for individual property owners conducting their own or hiring a contractor to do a post-fire assessment. See the contacts below for state and local resources that may be of assistance. Your local soil and water conservation district may be a good first contact as you begin to restore the landscape following fire. Before hiring someone to do this assessment, consider contacting your insurance provider first to learn about any requirements they may have for reimbursement. Be sure to hire a qualified environmental professional with experience in post-fire ecosystem restoration activities that prevent further damage to life, property, and natural resources.

When the President of the United States issues a major disaster declaration in Oregon, the state can request the Federal Emergency Management Agency provide Erosion Threat Assessment and Reduction Teams, which are groups of local, state and federal experts to perform this work.

Water quality impacts and beneficial uses

Wildfires can directly affect drinking water systems by damaging treatment facilities and other infrastructure or impact the streams, rivers, and reservoirs serving as sources of drinking water. For information specific to wildfires and drinking water impacts, read the fact sheet on DEQ's [wildfire response web page](#).

Wildfires can cause significant chemical and physical changes in the watersheds, including streams, rivers, and reservoirs. Through erosion and runoff during rain or storm events, these changes can impact water quality by increasing inputs of chemical constituents such as:

- Total organic carbon.
- Nutrients such as phosphate, nitrate, and nitrite, particularly if fire retardants were widely applied within the watershed during firefighting efforts.

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- Heavy metals, including lead and chromium, which may be contained in ash and the remnants of burned homes or other structures.
- Suspended sediment, which can cause elevated turbidity (water cloudiness) and decrease water clarity.

These effects of fire also impair or destroy the quality of vital aquatic habitats that support fish, mammals, invertebrates and other species. Particular ecological impacts include:

- Death or injury to aquatic species from the acute toxicity of materials contained in ash, debris or fire retardant.
- The likelihood of more algal blooms in lakes, slow-moving rivers, or reservoirs.

Mitigation and restoration measures

The continuing erosion of slopes and other areas denuded of vegetation, including river and stream banks, can present a challenge to water quality long after a wildfire occurs. Post-fire assessments can be used to identify and prioritize recovery and restoration. Mitigation and restoration measures may include the following:

- Follow appropriate procedures when cleaning ash or debris, such as never washing ash or debris into waterbodies, streets or storm drains. See DEQ's factsheet on [Cleaning up Fire Retardant and Fire Suppressants](#) for residential areas.
- Identify steep slopes, damaged roads and culverts, severely burned riparian areas, and other sites vulnerable to post-fire erosion.
- Perform short-term erosion control on fire lines and other disturbed soils that could contribute sediment to source waters. This can include mulching, straw bales and wattles, seeding with native plants and grasses, building water bars on roads and trails, unblocking culverts, emergency road and culvert repairs, and removal of damaged and destroyed vehicles and other trash.
- Avoid creating further disturbance whenever possible. Keep vehicles on road surfaces. Restrict public access for safety and disturbance prevention. Only remove trees and downed logs that present a hazard to public safety or infrastructure—trees and logs add stability to disturbed soils, filter mobilized sediment, and provide habitat structures that aid revegetation and reforestation.
- During planting, select a range of native grasses, herbs, shrubs, and trees. Avoid planting high densities of shrubs and trees. Leave legacies (surviving trees and shrubs, standing and downed dead wood, sprouting plants) intact whenever possible—these are allies in erosion prevention, and removal can increase erosion risk. Consider that only areas of severe burn will have a total vegetation loss. Vegetation in mosaic or lightly burned areas will that survive the fire and re-sprout.
- Maintain roads and stream crossings frequently during the first two or three post-fire rainy seasons to remove debris from crossings and catch road prism failures before they happen.
- Prioritize where restoration is needed the most; implement stormwater best management practices to reduce nutrient impacts on waterbodies and waterways; stabilize streambanks and lake shorelines; when feasible, reseed or replant.
- Use satellite imagery to detect and track cyanobacteria or harmful algal blooms.
- Continue to monitor raw water quality especially for turbidity, dissolved oxygen, pH, Total Organic Carbon, Dissolved Organic Carbon, and suspended solids.
- Tap into technical assistance or grants from Soil and Water Conservation District for agricultural lands; Oregon State University Extension for agricultural and family (private nonindustrial) forestlands; watershed councils; Natural Resources Conservation Service grants; grants from OHA; and Drinking Water Providers Partnership for lands within drinking water source areas.

Contacts

There are many partners and resources available assist with watershed stabilization and restoration. The following partners, programs and resources may be especially relevant:

- Oregon Department of Forestry (ODF) - [Help after a fire](#).
- DEQ's [basin coordinators](#) for questions on water quality impacts.
- County [soil and water conservation districts](#), [Oregon State University Extension Service](#) and local [Watershed Councils](#) can often provide technical assistance and link landowners with funding resources.
- The Oregon Department of Emergency Management is also continuing to update resources on the [Oregon Wildfire Response and Recovery website](#).

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