



By [Oregon Water Science Center](#)

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New post-wildfire resource guide now available to help communities cope with flood and debris flow danger.

Wildfires burns hundreds of thousands of acres in Oregon each year. After such fires, there can be an increased risk of flooding or debris flow [Was this page helpful?](#) ; can

destroy protective vegetation and alter soil so it is less able to absorb rainfall and snowmelt.



Post-Wildfire Playbook

Landslides cause about \$3.5 billion in damage in the U.S. each year, and claim between 25 to 50 lives. Weeks after the December 2017 Thomas Fire burned the hills above Montecito in Southern California, a debris flow swept through the town, killing more than 20 people.

Communities in areas that have had a wildfire often have questions about what can be done to prevent or prepare for flooding or debris flows, or where to find help with recovery. A task force of state and federal agencies in 2018 compiled a comprehensive guide to help community leaders and emergency management officials in Oregon find answers to these questions. Below is a selection of some commonly asked questions and their answers:

1. ***What is a debris flow?*** A debris flow is a moving mass of mud, sand, soil, rock and water that travels down a slope under the influence of gravity. Debris flows have been recorded at speeds of 35 to 40 miles an hour, much faster than a person can run. Debris flows can sweep up trees, boulders, cars, houses and anything else in their path. Such objects serve as battering rams, knocking down structures in their path.
2. ***Why might a community be at increased risk for flooding or debris flows after a wildfire occurs nearby?*** Depending on how severe a wildfire is, it may bake soil so that a hard crust is formed that repels water. Severe fires can also destroy vegetation that would slow and absorb rainfall, naturally preventing a sudden rise in water level in nearby streams and rivers. With vegetation gone and soils not able to absorb rainfall as they would normally, runoff is greater, making flooding more likely. Debris flows are also more likely when trees and brush that would normally shield the soil from water erosion are killed and consumed by fire. Sediment eroded from newly burned areas can also fill stream and river channels, causing them to overflow their banks more easily.
3. ***If prior wildfires near a community have not caused any flooding or debris flows, does that mean an area is low-risk for such disasters?*** Everyone lives in an area with some flood risk. The fact that a flood hasn't occurred within recorded history does not mean one won't happen in the future. Every wildfire is different. Lack of flooding or debris flows from past wildfires is not a reliable way to gauge a community's risk after a wildfire. The most recent wildfire may have been less

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intensely, burned in steeper terrain or burned more of a particular drainage or landslide-prone area. Rainfall or snowmelt might also be heavier after a new wildfire than after previous ones. Recent construction could also have increased flood risk by reducing the land area that can absorb rainfall. All those factors could create hazards which were not caused by earlier wildfires.

4. *Can anything be done to prevent destructive post-wildfire flooding and debris flows?* Communities can take steps to minimize damage from post-wildfire floods and debris flows. The first step is to reduce the risk of a high-intensity wildfire by treating overstocked forestlands near the community to be less vulnerable to high-intensity wildfire through thinning and periodic controlled burns. Through proper planning, communities can also ensure that buildings, roads and other infrastructure are not placed in high-risk areas, such as floodplains and the mouths of steep canyons. Engineering options, such as building retaining walls to channel debris away from populated areas, are also possibilities. These can be expensive and require careful planning to ensure they don't displace damage from one populated area to another.
5. *Who should I contact in the event of a flood?* For virtually all emergencies, including flooding, county emergency management offices are the first sources of information, the first responders, and the designated authorities for deciding upon and announcing evacuations.
6. *What about flood insurance?* Government agencies cannot advocate for or against flood insurance. We can provide you with information so you can learn as much possible and make an informed decision for yourself. Flood preparation and insurance information is available at FEMA's FloodSmart website:
<http://www.floodsmart.gov>.

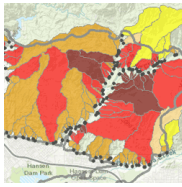
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JUNE 23, 2018

Postfire debris-flow hazards

Wildfires can dramatically alter how water moves across the landscape. After a fire, vegetation is removed and soil properties change, reducing the ground's ability to absorb rainfall. As a result, even modest rainstorms can trigger dangerous flash floods and debris flows in steep burned areas. Postfire debris flows are fast-moving mixtures of water, mud, rocks, and vegetation that can surge...

By: [Natural Hazards Mission Area](#), [Landslide Hazards Program](#), [Geologic Hazards Science Center](#), [Big Sur Landslides](#), [Wildland Fire Science](#)



JUNE 5, 2018

Post-Fire Flooding and Debris Flow

Fast-moving, highly destructive debris flows triggered by intense rainfall are one of the most dangerous post-fire hazards. The risk of floods and debris flows after fires increases due to vegetation loss and soil exposure. Cases of sudden and deadly debris flow are well documented along the western United States, particularly in Southern California. These flows are a risk to life and property...

By: [California Water Science Center](#), [Wildland Fire Science](#)



MARCH 1, 2016

Post-Wildfire Landslide Hazards

Post-fire landslides are particularly hazardous because they can occur with little warning, can exert great force on objects in their paths, can strip vegetation, block drainage ways, damage structures, and endanger human life. Our focus is to develop tools and methods for the prediction of post-wildfire landslide activity and hazard delineation.

By: [Natural Hazards Mission Area](#)

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