

Washington State Landslide

On Saturday, March 22, a mile-long mudslide descended north of Seattle, Washington, damaging homes, blocking roadways, and blocking a dam in the area. While rescuers work to move their recovery efforts forward, fears of additional flooding, property damage, and loss of life arise.

This special edition of our monthly newsletter was created to help you respond to this unfortunate and unexpected event and prepare your home and family for the possibility of additional flooding.

While being prepared for the unique environmental dangers in your area is the best tool to help you and your family respond to a variety of situations, these additional resources will assist you right now. You'll better understand how landslides develop, what you should do when a landslide happens in your area, and what you can expect when you finally return to an evacuated home.

Additionally, the following are news outlets and organizations with current news, updates, and helpful information:

[The Seattle Times](#)

[Komo News](#)

[American Red Cross](#)

Landslides and Debris Flows

Landslides occur in all U.S. states and territories and can be caused by a variety of factors including earthquakes, storms, volcanic eruptions, fire, and by human modification of land. Landslides can occur quickly, often with little notice and the best way to prepare is to stay informed about changes in and around your home that could signal that a landslide is likely to occur.

In a landslide, masses of rock, earth or debris move down a slope. Debris and mud flows are rivers of rock, earth, and other debris saturated with water. They develop when water rapidly accumulates in the ground, during heavy rainfall or rapid snowmelt, changing the earth into a flowing river of mud or "slurry." They can flow rapidly, striking with little or no warning at avalanche speeds. They also can travel several miles from their source, growing in size as they pick up trees, boulders, cars and other materials.

Landslide problems can be caused by land mismanagement, particularly in mountain, canyon and coastal regions. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides. Land-use zoning, professional inspections, and proper design can minimize many landslide, mudflow, and debris flow problems.

Before a Landslide

The following are things you can do to protect yourself, your family and your property from the effects of a landslide or debris flow:

- To begin preparing, you should build an emergency kit and make a family communications plan.
- Prepare for landslides by following proper land-use procedures - avoid building near steep slopes, close to mountain edges, near drainage ways or along natural erosion valleys.
- Become familiar with the land around you. Learn whether debris flows have occurred in your area by contacting local officials. Slopes where debris flows have occurred in the past are likely to experience them in the future.
- Get a ground assessment of your property.
- Consult a professional for advice on appropriate preventative measures for your home or business, such as flexible pipe fittings, which can better resist breakage.
- Protect your property by planting ground cover on slopes and building retaining walls.
- In mudflow areas, build channels or deflection walls to direct the flow around buildings. Be aware, however, if you build walls to divert debris flow and the flow lands on a neighbor's property, you may be liable for damages.
- If you are at risk from a landslide talk to your insurance agent. Debris flow may be covered by flood insurance policies from the [National Flood Insurance Program \(NFIP\)](#).

During a Landslide

- During a severe storm, stay alert and awake. Many deaths from landslides occur while people are sleeping.
- Listen to local news stations on a battery-powered radio for warnings of heavy rainfall.
- Listen for unusual sounds that might indicate moving debris, such as trees cracking or boulders knocking together.
- Move away from the path of a landslide or debris flow as quickly as possible. The danger from a mudflow increases near stream channels and with prolonged heavy rains. Mudflows can move faster than you can walk or run. Look upstream before crossing a bridge and do not cross the bridge if a mudflow is approaching.
- Avoid river valleys and low-lying areas.
- If you are near a stream or channel, be alert for any sudden increase or decrease in water flow and notice whether the water changes from clear to muddy. Such changes may mean there is debris flow activity upstream so be prepared to move quickly.
- Curl into a tight ball and protect your head if escape is not possible.

After a Landslide

- Go to a designated public shelter if you have been told to evacuate or you feel it is unsafe to remain in your home. Text **SHELTER** + your ZIP code to **43362** (4FEMA) to find the nearest shelter in your area (example: **shelter 12345**).
- Stay away from the slide area. There may be danger of additional slides.

- Listen to local radio or television stations for the latest emergency information.
- Watch for flooding, which may occur after a landslide or debris flow. Floods sometimes follow landslides and debris flows because they may both be started by the same event.
- Check for injured and trapped persons near the slide, without entering the direct slide area. Direct rescuers to their locations.
- Look for and report broken utility lines and damaged roadways and railways to appropriate authorities. Reporting potential hazards will get the utilities turned off as quickly as possible, preventing further hazard and injury.
- Check the building foundation, chimney, and surrounding land for damage. Damage to foundations, chimneys, or surrounding land may help you assess the safety of the area.
- Replant damaged ground as soon as possible since erosion caused by loss of ground cover can lead to flash flooding and additional landslides in the near future.
- Seek advice from a geotechnical expert for evaluating landslide hazards or designing corrective techniques to reduce landslide risk. A professional will be able to advise you of the best ways to prevent or reduce landslide risk, without creating further hazard.

Ready.gov

Precautions After a Flood

Precautions When Returning to Your Home

Electrical power and natural gas or propane tanks should be shut off to avoid fire, electrocution, or explosions. Try to return to your home during the daytime so that you do not have to use any lights. Use battery-powered flashlights and lanterns, rather than candles, gas lanterns, or torches. If you smell gas or suspect a leak, turn off the main gas valve, open all windows, and leave the house immediately. Notify the gas company or the police or fire departments or State Fire Marshal's office, and do not turn on the lights or do anything that could cause a spark. Do not return to the house until you are told it is safe to do so.

Your electrical system may also be damaged. If you see frayed wiring or sparks, or if there is an odor of something burning but no visible fire, you should immediately shut off the electrical system at the circuit breaker.

Avoid any downed power lines, particularly those in water. Avoid wading in standing water, which also may contain glass or metal fragments.

You should consult your utility company about using electrical equipment, including power generators. Be aware that it is against the law and a violation of electrical codes to connect generators to your home's electrical circuits without the approved, automatic-interrupt devices. If a generator is on line when electrical service is restored, it can become a major fire hazard. In addition, the improper connection of a generator to your home's electrical circuits may endanger line workers helping to restore power in your area. All electrical equipment and appliances must be completely dry before returning them to service. It is advisable to have a certified electrician check these items if there is any question. Also, remember not to operate any gas-powered equipment indoors.

Cleanup

Walls, hard-surfaced floors, and many other household surfaces should be cleaned with soap and water and disinfected with a solution of 1-cup of bleach to five-gallons of water. Be particularly careful to thoroughly disinfect surfaces that may come in contact with food, such as counter tops, pantry shelves, refrigerators, etc. Areas where small children play should also be carefully cleaned. Wash all linens and clothing in hot water, or dry clean them.

For items that cannot be washed or dry cleaned, such as mattresses and upholstered furniture, air dry them in the sun and then spray them thoroughly with a disinfectant. Steam clean all carpeting.

If there has been a backflow of sewage into the house, wear rubber boots and waterproof gloves during cleanup. Remove and discard contaminated household materials that cannot be disinfected, such as wallcoverings, cloth, rugs, and drywall.

Immunizations

Outbreaks of communicable diseases after floods are unusual. However, the rates of diseases that were present before a flood may increase because of decreased sanitation or overcrowding among displaced persons. Increases in infectious diseases that were not present in the community before the flood are not usually a problem. If you receive a puncture wound or a wound contaminated with feces, soil, or saliva, have a doctor or health department determine whether a tetanus booster is necessary based on individual records.

Specific recommendations for vaccinations should be made on a case-by-case basis, or as determined by local and state health departments.

Swiftly Flowing Water

If you enter swiftly flowing water, you risk drowning -- regardless of your ability to swim. Swiftly moving shallow water can be deadly, and even shallow standing water can be dangerous for small children. Cars or other vehicles do not provide adequate protection from flood waters. Cars can be swept away or may break down in moving water.

Chemical Hazards

Use extreme caution when returning to your area after a flood. Be aware of potential chemical hazards you may encounter during flood recovery. Flood waters may have buried or moved hazardous chemical containers of solvents or other industrial chemicals from their normal storage places.

If any propane tanks (whether 20-lb. tanks from a gas grill or household propane tanks) are discovered, do not attempt to move them yourself. These represent a very real danger of fire or explosion, and if any are found, police or fire departments or your State Fire Marshal's office should be contacted immediately.

Car batteries, even those in flood water, may still contain an electrical charge and should be removed with extreme caution by using insulated gloves. Avoid coming in contact with any acid that may have spilled from a damaged car battery.

Centers for Disease Control and Prevention (CDC)