

## Summary of Photographs

- Description: [Madison Canyon landslide \(labeled\)](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) G
- Description: [Red Canyon fault scarp near Red Canyon Creek](#)  
Source: U.S. Geological Survey  
[Info Categories:](#) G
- Description: [Red Canyon fault scarp near Blarneystone Ranch](#)  
Source: U.S. Geological Survey  
[Info Categories:](#) G
- Description: [Structural damage to buildings astride Red Canyon fault at Blarneystone Ranch](#)  
Source: U.S. Geological Survey  
[Info Categories:](#) B, G
- Description: [Crater resulting from a sand spout north of Hebgen Lake](#)  
Source: U.S. Geological Survey  
[Info Categories:](#) G
- Description: [Rockslide in Yellowstone National Park](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) G, L
- Description: [Boulders fell into campsite. Cliff Lake Campground](#)  
Source: U.S. Forest Service  
[Info Categories:](#) G, P
- Description: [Hebgen Lake Dam \(aerial view showing dam, lake, new fault scarp on far left\)](#)  
Source: U.S. Forest Service  
[Info Categories:](#) G, L
- Description: [Demonstrating maximum height of waves that overtopped Hebgen Dam](#)  
Source: Montana Power Company  
[Info Categories:](#) L, G
- Description: [Hebgen Lake Dam's damaged spillway](#)  
Source: MT. Bureau of Mines and Geology  
[Info Categories:](#) L

Description: [Hilgard Lodge residence floating in lake](#)  
Source: U.S. Forest Service  
[Info Categories:](#) B, G

Description: [South shore of Hebgen Lake and newly exposed boat docks](#)  
Source: U.S. Geological Survey  
[Info Categories:](#) G, I

Description: [Flooded units of Hilgard Lodge on northeast shore of Hebgen Lake](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) B, G

Description: [Driftwood deposited on road by seiche in Hebgen Lake](#)  
Source: Montana Historical Society  
[Info Categories:](#) G, L, P

Description: [West Yellowstone school damage](#)  
Source: Salt Lake Tribune file, Utah State Historical Society  
[Info Categories:](#) B

Description: [Building damage; West Yellowstone, MT](#)  
Source: Salt Lake Tribune  
[Info Categories:](#) B

Description: [Interior West Yellowstone shop](#)  
Source: Salt Lake Tribune  
[Info Categories:](#) N

Description: [Packing car to evacuate tourist cabin](#)  
Source: Salt Lake Tribune file, Utah State Historical Society  
[Info Categories:](#) P

Description: [Car blocked by fault scarp](#)  
Source: Salt Lake Tribune file, Utah State Historical Society  
[Info Categories:](#) L, P

Description: [Highway 287 broken into Hebgen Lake](#)  
Source: U.S. Geological Survey  
[Info Categories:](#) L

Description: [Truck tires caught in cracks in Highway 191](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) G, L

Description: [Campers waiting for rescue](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) P

Description: [Smokejumper descending between landslide and Hebgen Dam](#)  
Source: U.S. Forest Service  
[Info Categories:](#) A

Description: [Helicopter evacuating injured among trapped campers](#)  
Source: U.S. Forest Service  
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Description: [Aerial of Hebgen Dam with the SOS-OK sign and vehicles with stranded campers](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) L, P

Description: [Injured being carried to First Aid Station](#)  
Source: Salt Lake Tribune  
[Info Categories:](#) P, A

Description: [Rescuers with man on stretcher](#)  
Source: Salt Lake Tribune  
[Info Categories:](#) P, A

Description: [Reporters interviewing injured woman](#)  
Source: Salt Lake Tribune file, Utah State Historical Society  
[Info Categories:](#) I, P

Description: [Divers coming out of new lake formed by landslide](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) A, P

Description: [Rescuers search dry Madison River bed adjacent to slide](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) A, P

Description: [Circle of rescuers offer prayer](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) A, P

Description: [Men and equipment working on spillway atop landslide as waters begin to flow](#)  
Source: Deseret News (Salt Lake City, UT)  
[Info Categories:](#) G, P, R

## Information Categories

### **A -- Aid:**

provide medical services, shelter, donations, loans, advice, encouragement, implement safety measures

### **B -- Building Damage:**

structure itself plus windows and chimneys (typically damage visible from outside the building)

### **E -- Earthquake Description:**

where, when, duration, direction, sound, motion, number and timing of aftershocks

### **G -- Geologic Effects:**

changes at the Earth's surface, fault scarps, rockfalls, landslides, ground cracks, ground subsidence, sand boils, water spouts; effects on springs, lakes, wells

### **H -- Humor:**

### **I -- Impact:**

changes in daily routine; rumors; influx of reporters, politicians, cost in dollars

### **L -- Lifelines:**

effects on transportation: roads, bridges, railroads, airports

effects on communications: telephone, telegraph

effects on power, gas, water, and sewer lines

effects on dams

### **N -- Nonstructural Effects:**

effects on plaster, furnishings (typically damage or rearrangement of furnishings visible inside a building)

### **P -- People:**

effects on and responses to, during and after; deaths, injuries, near misses

### **R -- Recovery:**

clean up, rebuild

### **S -- Scientific:**

explanation of the day

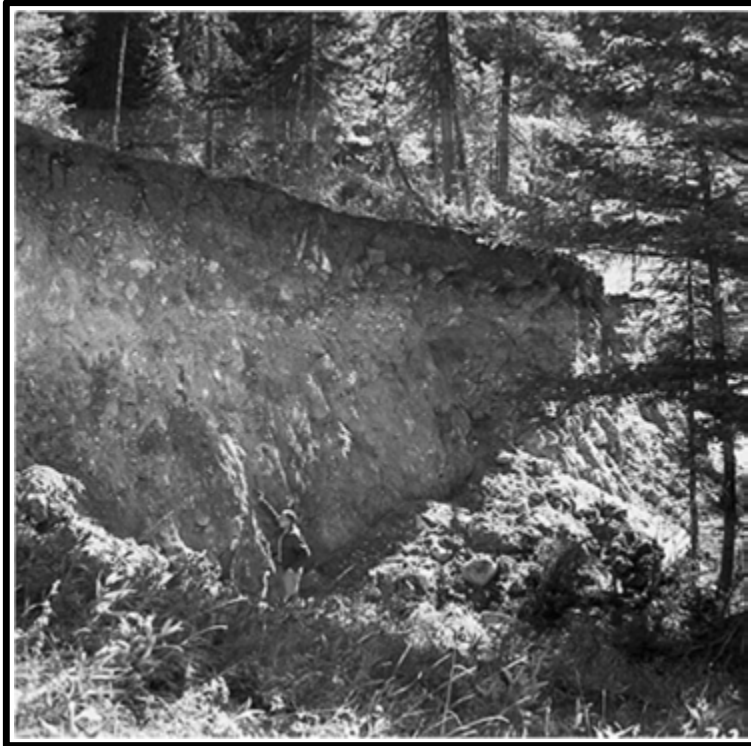
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The Madison Canyon landslide, six miles below Hebgen Dam, was the most devastating result of this earthquake. Nearly half of a mountain fell to the canyon bottom, covered part of Rock Creek campground, blocked State Highway 287, and dammed the Madison River, causing Earthquake Lake to form. Twenty six people were killed by this landslide, but only seven bodies were found. The remaining 19 are presumed buried under the landslide. This photo was taken the day after the earthquake.

*Photo courtesy of Deseret News*

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Several new fault scarps formed during the earthquake. The largest was the Red Canyon scarp located north of Hebgen Lake. It is 14 miles long with a maximum height of 21 feet. Photo #116 from J.R. Stacy Collection, U.S. Geological Survey.

*Courtesy of MT Bureau of Mines and Geology*

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Red Canyon fault scarp crosses the access road to Blarneystone Ranch. Photo #5 from J.B. Hadley Collection, U.S. Geological Survey.

*Courtesy of U.S. Geological Survey*

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The remnants of the old Red Canyon fault scarp were hidden by sand and gravel deposits when softwater tycoon, Emmett J. Culligan, built his "Blarneystone Ranch" across it. When the fault was reactivated in this earthquake, the earth dropped 10 -12 feet beneath the ranch, collapsing the storage shed portion on top of the scarp and severely buckling the domestic quarters that were attached. The shed portion was built of unreinforced concrete blocks. The domestic quarters had a wood frame structure on top of concrete blocks. The caretaker family climbed out of windows to escape the building after the earthquake. Photo #17 from I.J. Witkind Collection, U.S. Geological Survey.

*Courtesy of U.S. Geological Survey*

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The earthquake caused rockfalls and landslides throughout the northwest section of Yellowstone National Park. This one blocked the road at Golden Gate Canyon. A later slide just missed five park workers. Photo #703 from I.J. Witkind Collection, U.S. Geological Survey.

*Courtesy of MT Bureau of Mines and Geology*

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The earthquake caused rockfalls and landslides throughout the northwest section of Yellowstone National Park. This one blocked the road at Golden Gate Canyon. A later slide just missed five park workers. Photo by Haynes, Inc. for the Deseret News.

*Courtesy of Deseret News*

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Two people died at Cliff Lake Campground, 15 miles southwest of the Madison Canyon landslide, when a large boulder bounced over the picnic table and landed on their tent. Their three sons, sleeping a few feet away, were not injured.

*Photo courtesy of U.S. Forest Service*

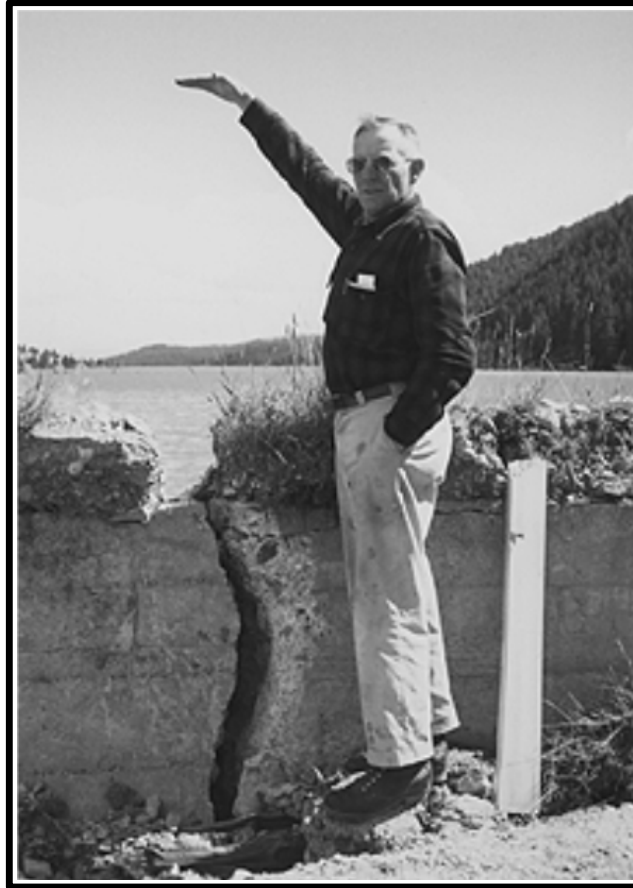
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The Hebgen Lake Dam is an earth-fill, concrete core dam that was built on the Madison River in 1914. It survived the intense vibrations of the earthquake as well as the repeated waves (seiche) which overflowed from Hebgen Lake. These waves were caused by the sudden down-dropping and tilting of the lake bottom during the earthquake. Notice the newly-formed Hebgen fault scarp to the far left and the small landslide (upper third of photo) that dropped part of Highway 287 into Hebgen Lake.

*Photo courtesy of U.S. Forest Service*

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George Hungerford, dam caretaker, observed 3-4 foot surges of water overtopping the dam. With each surge water flowed an estimated 10 minutes before withdrawing. The earthquake also caused the earth-fill to drop leaving the concrete core wall exposed. Its sod covering remained in place. The largest of the 16 cracks in the wall was 3 1/2 inches wide. Despite all of this the dam held. Photo by Dick Engstrom, Montana Power Company.

*Courtesy of MT Bureau of Mines and Geology*

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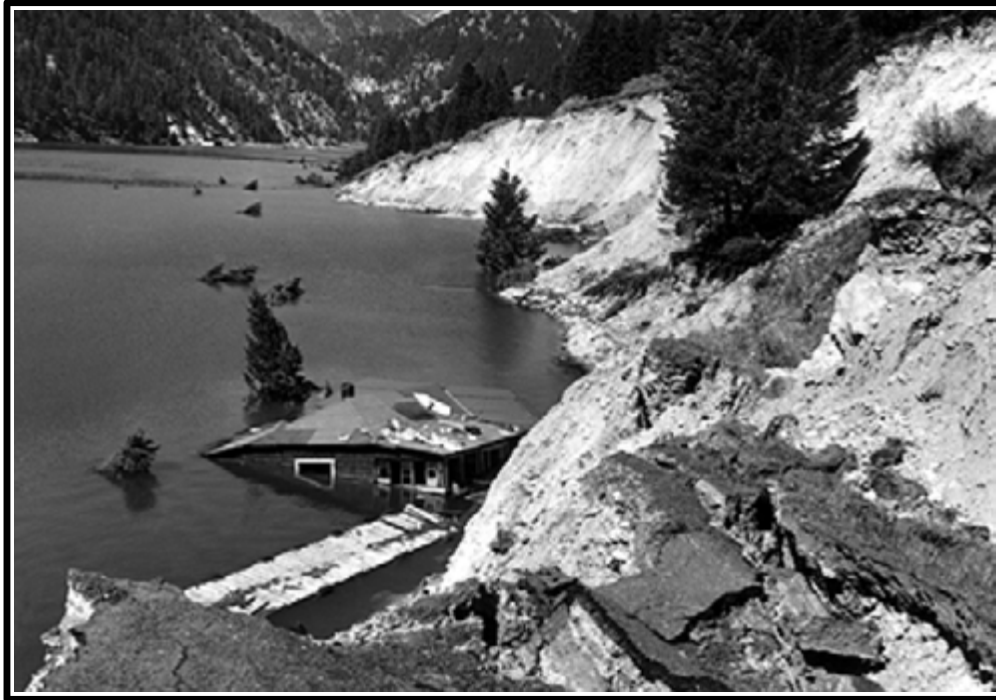


The spillway of Hebgen Dam was damaged by the ground shaking. Water flowing down the spillway further eroded some of the concrete slabs.

*Photo courtesy of MT Bureau of Mines and Geology*

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The north shore of Hebgen Lake was submerged when the rock on which it rests dropped down adjacent to the new Hebgen fault scarp. The main residence at Hilgard Lodge dropped off its foundation into the lake and floated to this location.

*Photo courtesy of U.S. Forest Service*

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Northward tilting of Hebgen Lake submerged the north shore and left these boat docks high and dry along the south shore. This down-dropping of the lakebed caused the waves that overtopped the dam 4 times and continued oscillating 11 1/2 hours. Photo #53 from I.J. Witkind Collection, U.S. Geological Survey.

*Photo courtesy of U.S. Geological Survey*

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Hebgen Lake surrounded these units of Hilgard Lodge on its northeast shore when the basin beneath the lake dropped (subsided) over a large area during the earthquake.

*Photo courtesy of Deseret News*

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Driftwood was thrown up onto the road by the seiche (oscillatory waves) in Hebgen Lake.

*Photo courtesy of MT Historical Society*

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The stone firewall at the front entrance to the West Yellowstone Public School collapsed during the ground shaking. Photo by Conrad, Salt Lake Tribune.

*Photo courtesy of Utah State Historical Society*

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The unanchored gable fell from the front of the Arctic Circle store in West Yellowstone, eight miles from the epicenter.

*Photo courtesy of Salt Lake Tribune*

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Ground shaking tossed merchandise and furnishings in offices, stores, and homes in West Yellowstone, 8 miles from the epicenter.

*Photo courtesy of Salt Lake Tribune*

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Tourists vacationing in the West Yellowstone-Hebgen Lake area were anxious to get home after their earthquake experience. Photo by Carl Hayden, Salt Lake Tribune.

*Photo courtesy of Utah State Historical Society*

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Evacuating the area after an earthquake may not be easy! Asplary of the Red Canyon fault scarp lifted a 10-foot wall across the road. Photo by Carl Hayden, Salt Lake Tribune.

*Photo courtesy of Utah State Historical Society*

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Four small landslides dropped portions of Highway 287 into Hebgen Lake, blocking the exit route for people in the Madison Canyon above the landslide. Photo #116 from I.J. Witkind Collection, U.S. Geological Survey.

*Photo courtesy of MT Bureau of Mines and Geology*

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Ground shaking caused roadbeds to settle and crack, hampering safe driving. This highway is U.S. 91 between West Yellowstone and Hebgen Lake. Photo by Ray Jones, Deseret News.

*Photo courtesy of Deseret News*

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Campers in Madison Canyon wait for rescue after their usual exits are blocked by the enormous Madison Canyon landslide to the west and smaller landslides to the east that dropped parts of the highway into Hebgen Lake. The man in the wheelchair is Henry Bennett of Arizona. During the earthquake, rising water swept him out of his sleeping bag.

*Photo courtesy of Deseret News*

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U.S. Forest Service smoke jumpers were first into the area between Hebgen Dam and the landslide to check on campers, administer first aid, and relay rescue needs to the outside world.

*Photo courtesy of U.S. Forest Service*

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Helicopters took the injured from the earthquake area to a First Aid Station in West Yellowstone, MT.

*Photo courtesy of U.S. Forest Service*

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Chalked messages on Hebgen Dam tell those flying over that the dam is OK, but that people need help (SOS) to get out of the canyon. Photo by J.M. Heslop, Deseret News.

*Photo courtesy of Deseret News*

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An old hangar in West Yellowstone, Montana, served as a make-shift first aid station for the injured.

*Photo courtesy of Salt Lake Tribune*

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Rescuers and first aid workers transfer a seriously injured man to a plane that will fly him to a hospital in Bozeman, Montana.

*Photo courtesy of Salt Lake Tribune*

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There is no rest for the injured, as reporters attempt to record their stories for the news media. Photo by Conrad, Salt Lake Tribune.

*Photo courtesy of Utah State Historical Society*

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Divers searched for bodies in Hebgen Lake and in the newly formed lake above the landslide. None were found. Photo by Reed Madsen, Deseret News.

*Photo courtesy of Deseret News*

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Rescuers search the rocky bed of the Madison River and the area adjacent to the huge landslide for victims and personal belongings that may give some clue to the identities of those buried by the landslide. Photo by Larry Finnegan, Deseret News.

*Photo courtesy of Deseret News*

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Friends, neighbors, and volunteers offer a prayer for Mrs. Marilyn Stowe of Sandy, Utah, after giving up the search for her body. Her husband, Mark Stowe, also died in the landslide. His body was recovered. Photo by Larry Finnegan, Deseret News.

*Photo courtesy of Deseret News*

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The Army Corp of Engineers race to complete a spillway at the top of the Madison Canyon landslide. It was feared that the newly forming "Earthquake Lake" would break through the landslide-dam and cause devastation downstream. Photo by United Press International.

*Photo courtesy of Deseret News*

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