

Photo 1 (7/3/2020) – View looking NW at the left lateral moraine (downstream convention) that forms the left side of Redfish Lake. These features were not closely examined, except as viewed from the boat. All appeared to be relatively new features; most especially, the rotational slide (#3). John Falk, IDWR



#2

Planar

#3

Rotational

Stanley, ID Earthquake Response

Basin and Range Earthquake Summit

October 17-21, 2022

Location

Centennial Seismic Zone – central ID east-west

Sawtooth, Lost River, Trans-Challis, Lemhi faults

M6.9 Challis 1983 on Lost River Fault

M6.5 Stanley 2020

Intermountain Seismic Belt – E ID north-south

Eastern Bear Lake, Wasatch, West Cache,

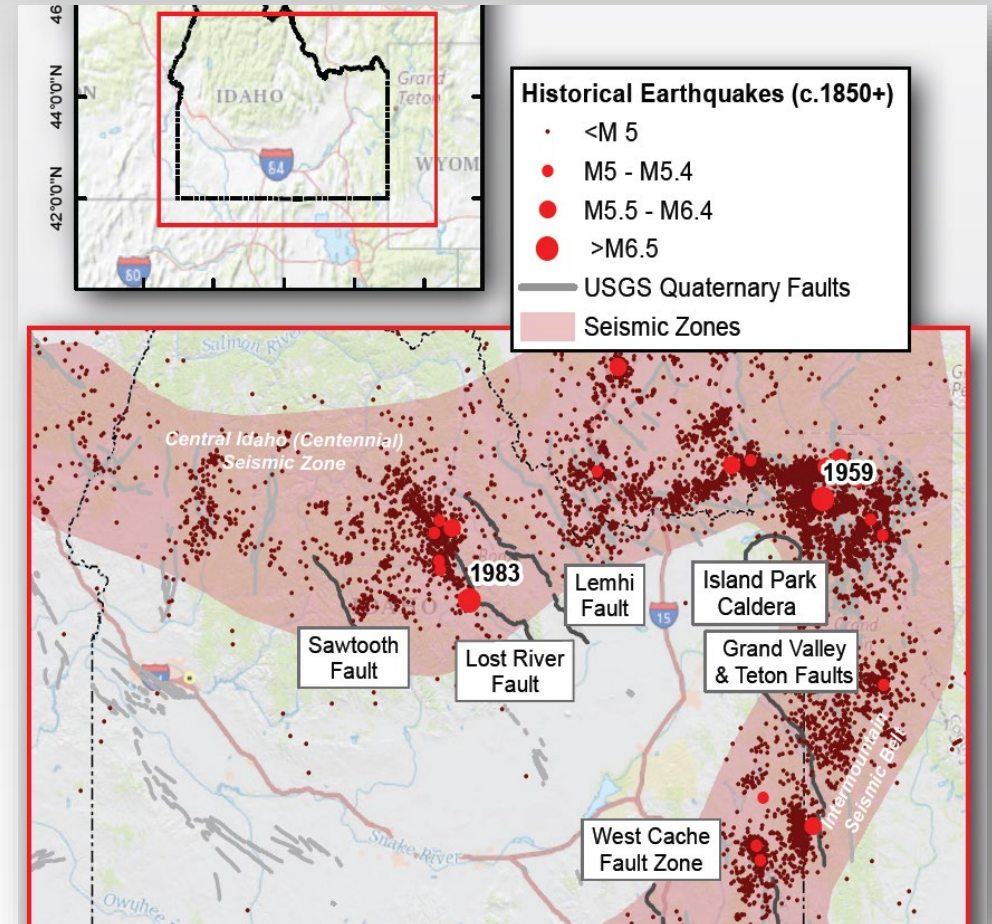
Grand Valley, Teton faults

M6.0 Paris/Bear Lake Valley 1884

M6.6 Hansel Valley, UT

Yellowstone

M7.2 Hebgen Lake 1959



Incident Summary

March 31, 2020, 5:52 pm a magnitude 6.5 earthquake, depth of 12.1 km, struck in the Challis National Forest between the towns of Stanley and Challis, Idaho.

Shaking was reported in all regions of Idaho and in all neighboring states.

The earthquake was the largest in Idaho since the 1983 Borah Peak Earthquake (M6.9), the largest quake in Idaho's history.

No injury, loss of life, or immediate damage to critical infrastructure reported.

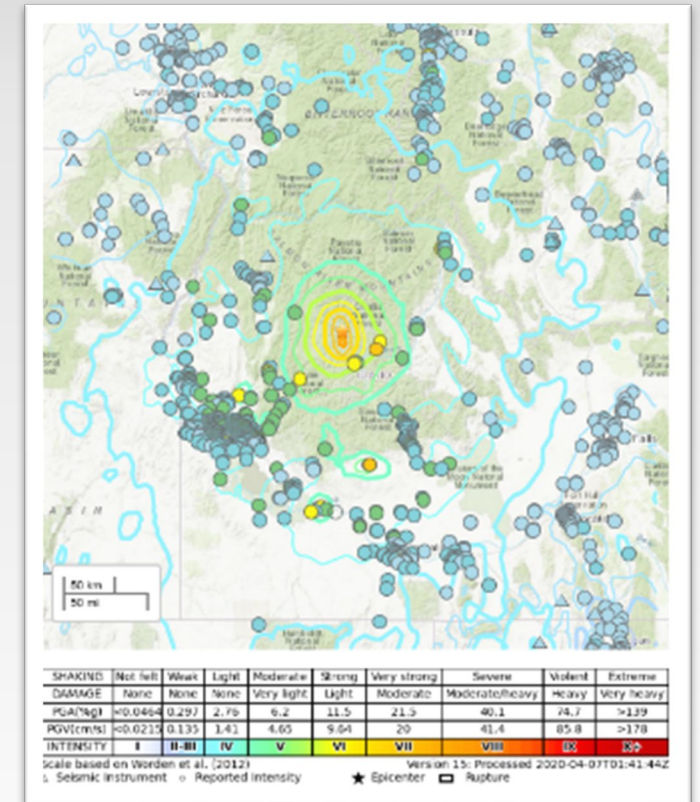
ITD utilized a ShakeCast Report from the National Earthquake Information Center (NEIC) to prioritize road and bridge inspections with no issues identified upon inspection.

Triggered avalanches and slides across Hwy 21 near Grandjean, ID.

Salmon River temporarily dropped in some areas due to multiple slides.

Minor structural damage (foundation cracks, broken windows, etc.) was reported in various locations.

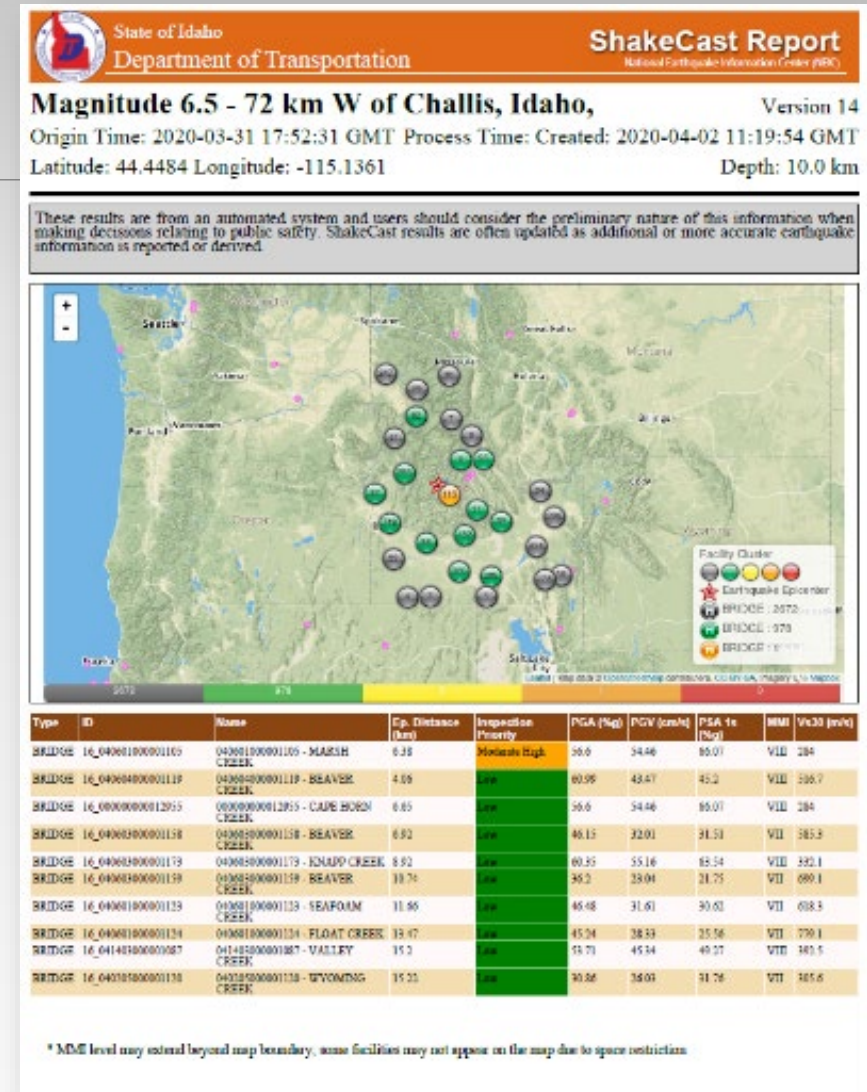
Vigorous aftershock sequence of at least 50 M3+ aftershocks in 48 hours, over 400 in 3 weeks, and still continue.



Advantages

Low population and limited structures lessened the risk of damage, injury, and loss of life

Time of year – winter has less tourism. Summer’s high tourist season would have increased risk to life and property.



Obstacles

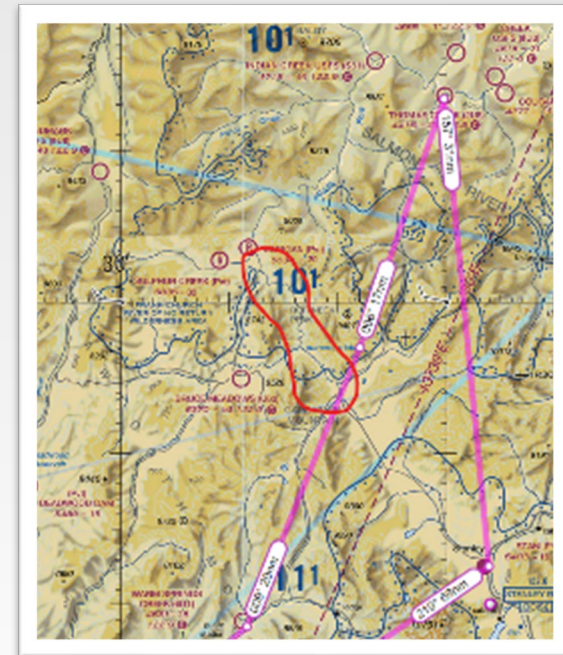
No state declaration made fulfilling requests difficult. Inter-agency agreements filled in.

Weather - 24 to 48 hours prior to the earthquake, the area around the epicenter received up to 27 inches of snowfall. Snow cover, inaccessibility, and high avalanche risk prevented further in-field investigations

Avalanches and landslides closed Hwy 21 to Stanley

COVID-19 interrupted many of the normal earthquake response and investigation activities

1. statewide stay-at-home order limited personnel available for response
2. The only route open was through the Wood River Valley, which had the one of the nation's highest per capita COVID-19 infection rates
3. The Town of Stanley requested that no one visit during the stay-at-home order to prevent stressing local resources



Avalanches

Sawtooth Avalanche Center - Apr 1, 2020
Avalanches and rockfall at the head of
Crooked Creek in the northern Sawtooths
that likely released as a result of the March
31, 2020 earthquake

ITD clears HWY 21



Rivers and Lakes

Slides on Middle Fork of the Salmon River temporarily blocked flow

Several slides impacted river west of the epicenter in steeper canyons, north of Cape Horn, west of Ruffneck between Morgan Ranch and Cape Horn near Stanley, ID

Twin Falls County had a small non-threatening landslide at river

Red Fish Lake had slides and liquefaction



Picture from ITD Division of Aeronautics

Roads

Gem County cleaned up “fair amount” of rocks and dirt from roads

Landslides, rockfall on Highways 21 and 75

Hwy 21 - Large boulder and three dirt slides from the Grandjean junction to 4 miles north of the junction



Sawtooth Mountains

Climbing sites

- Finger of Fate – multiple boulders toppled
- Arrowhead - destroyed
- Old Smoothie Baron Spire - gone

Craters of the Moon National Monument

- Caves threatened and closed



Strengths

Clearinghouse Plan was in place, exercised, and expedited Seismic Technical Working Group relationships

- IGS coordinated reconnaissance and collaborated with local property owners for access
- EERI established on-line database to share information and updates efficiently
- ITD provided flights to observe slides, place remote stations, and assess the fault area
- BSU deployed 24 geophones and 14 monitoring stations
- USGS increased ability to publish solutions from M3.5+
- IDWR inspected dams. No damage observed.
- IDL – Oil facilities and wells inspected. Mines reported no damage

WebEOC communications to EOC and FEMA



Thomas Otheim, Boise State geosciences tech, deploys seismic monitoring station near Grandiean, ID. 4/1/2020

Improvements

1. Multiple disaster events complicate response and need exercised
2. Slow and sparse earthquake damage information indicates need for education and training
3. Seismic retrofits to mitigate damage



Questions?

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