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Dams if they do: Oroville's near-disaster underscores risk to California's aging infrastructure

New climate extremes will tax state's outdated water storage systems, experts predict

By [Matt Kramer](#)

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The **rupture of the Oroville dam spillway** that temporarily displaced 190,000 people could be just the beginning. According to three climate science experts speaking via teleconference last week, the near-disaster was **a symptom of California's aging water infrastructure**—an infrastructure mostly built over 50 years ago, and for a different climate.

Noah Diffenbaugh, senior fellow at the Stanford Woods Institute for the Environment, said February 24 that the latest round of storms is indicative of **new climate extremes**, oscillating between drought and heavy precipitation. According to Diffenbaugh, low precipitation years combined with increased heat will make droughts more likely. But heavier rainfall can come in a deluge, as demonstrated this winter. Diffenbaugh explained that snow is melting earlier in the year due to an overall upward temperature shift. This means **more rainfall and less snowpack** at lower elevations, posing an increased flood risk, especially to the Sacramento Valley and the Natomas Basin.

"These are the kinds of conditions that climate scientists have predicted for decades in California," Diffenbaugh said. "[They] are projected to intensify as global warming continues in the future."

Juliet Christian-Smith, senior climate scientist at the Union of Concerned Scientists, said California's water storage infrastructure, much of it decades old, was not designed for rapid onslaughts of water. And there may be no silver-lining reprieve from the drought; it's likely that a heavy rain year may be thwarted as early melt and runoff escapes into the ocean, circumventing the state's grossly **outdated water storage infrastructure**.

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"By 2020, 70 percent of our dams will be more than 50 years old," Christian-Smith said. "[Our infrastructure] was constructed and is operated often for past climate conditions. ... It has **huge hidden costs**. For instance, climate change was ignored during the relicensing of the Oroville dam."

Christian-Smith was referring to a motion of intervention filed in 2005 with the Federal Energy Regulatory Commission by advocacy groups Friends of the River, the Sierra Club, and the South Yuba River Citizens League over **the inadequacy of the Oroville spillway** to handle emergency weather events.

According to Ethan Elkind, director of the climate program at the UC Berkeley Center for Law Energy & The Environment, infrastructure spending must be a top priority at the state and county levels. As it is, Elkind estimated that **\$77 billion is needed** to maintain and repair transportation infrastructure. Without major investments, he said, potential development along highway systems, like Highway 50 and the Yolo Bypass, could become sitting ducks for future flood events.

Christian-Smith said the proper implementation of the Sustainable Ground Water Management Act, a three-bill package signed into law by Gov. Jerry Brown in 2014, will be crucial to the flood mitigation process.

In identifying direct threats to the area, Christian-Smith cited the Sacramento San Joaquin Bay Delta as one of the more vulnerable areas of the United States. She added that, without proper infrastructure investments, the **amount of land in the Sacramento region that sits below sea level**, protected by aging levees, is particularly concerning.

"We haven't had the infrastructure spending really to do much about it," Christian-Smith said. "The numbers from the Public Policy Institute of California were around \$800 million needed to repair some of these primary local infrastructure systems. That money hasn't made its way to those levees."

