

Southwest

Regional Climate Impacts

Arizona, California, Colorado, Nevada,
New Mexico, Utah

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ENVIRONMENTAL
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Fast Facts Series

Increasing drought threatens water resources



The Southwest is experiencing more intense, longer, and more frequent **extreme heat** events due to climate change.



Climate change is worsening **drought** conditions in the Southwest, with increasing temperatures leading to drier soils and reduced flows in major river basins.



Exacerbated by climate change, large **wildfires** on non-forested western U.S. rangelands increased more than fivefold between 1984 and 2017. Property losses from wildfires are greatest in the Southwest.



Due to wildfires, smoke events that exceed federal **air quality** standards have increased in frequency and severity in the Southwest.



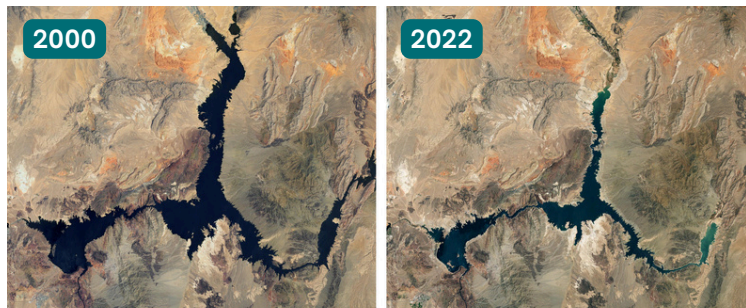
Sea-level rise poses risks to the California coast, including increased flooding, storm surges, and loss of coastal habitats.

Reduced water availability is leading to litigation

Higher temperatures and changing precipitation patterns are leading to longer and more severe droughts, which can result in:

- Disputes over water rights and allocations
- Challenges to water management decisions
- Conflicts over increasingly scarce water resources

Declining Water Levels in Lake Mead



In 2021, after more than 22 years of historic drought made worse by climate change, officials declared the first-ever water shortage on the Colorado River. Lake Mead, located on the Colorado River, saw its water levels decline from 98% total capacity in 2000 to just 27% in 2022, a historic low. Satellite image from the Fifth U.S. National Climate Assessment.

CASE SPOTLIGHT: DROUGHT

Aquifer Science, LLC v. Verhines (N.M. Ct. App. 2022)

Summary: After the New Mexico State Engineer denied Aquifer Science's **application to appropriate water for homes, businesses, a resort, and other amenities**, citing a lack of available groundwater, Aquifer Science brought a lawsuit in state court. The trial court affirmed the denial, finding that Aquifer Science failed to show that its application would not **impair long-term water conservation** and failed to consider projected long-term climate change impacts on water availability. The appellate court affirmed, finding that the application was "contrary to conservation of water," but "opt[ed] not to rely on the [trial court's] finding regarding climate change" in order to "giv[e] the State Engineer and the Legislature the opportunity to provide guidance regarding climate change...before it is judicially imposed."

Science: The trial court heard testimony and reviewed exhibits on **water demand, groundwater models, geology, and climate change**.



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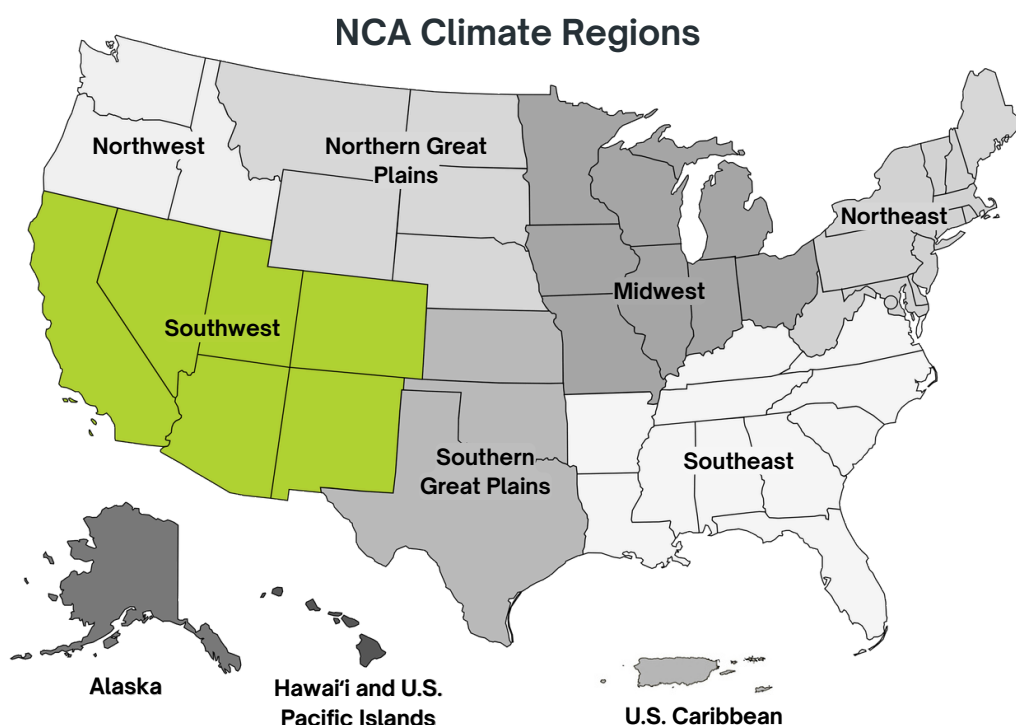
Providing judges with authoritative, objective, and trusted education on climate science and the law.

Climate change impacts all regions of the United States

The Fifth National Climate Assessment (NCA5) of 2023 divides the United States into ten regions to assess the current and future risks posed by climate change in each region. View fact sheets for other regions at cjp.eli.org and learn more about climate impacts at nca5.climate.us/regions.

Primary impacts from climate change vary regionally, typically affecting:

- Heat
- Sea-level rise and flooding
- Precipitation patterns
- Hurricanes and tropical storms
- Wildfires
- Air quality
- Sea ice and glacier melt



SO Why should judges care?

The effects of climate change are reshaping society and, with it, many aspects of the law. There are thousands of cases in courts throughout the country raising issues related to climate change that cover an extremely wide variety of topics, including, for example, insurance, permitting, and land use. As the impacts of climate change accelerate, judges can expect more cases that will draw upon scientific and technical evidence about these impacts.

SOURCES

Dave D. White et al., *Chapter 28: Southwest in Fifth National Climate Assessment (2023)*, <https://nca5.climate.us/>.

Aquifer Science, LLC v. Verhines, 527 P.3d 667 (N.M. Ct. App. 2022).

