How climate change is affecting every U.S. region

The nation's top scientists have the details in a brand-new report.

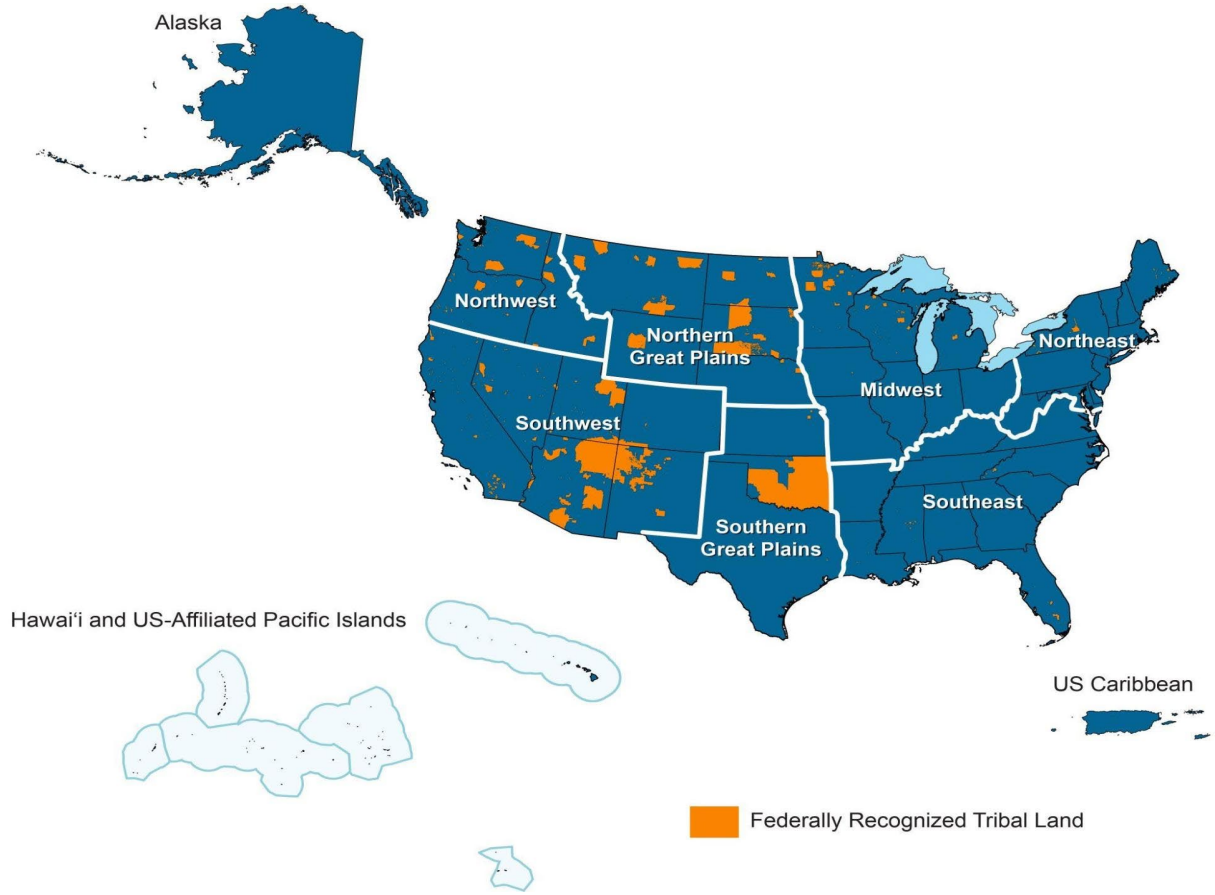
by **Dana Nuccitelli** November 20, 2023

Climate change is making the weather weird in every region of the United States.

That's a key takeaway of the new fifth National Climate Assessment, a sweeping, U.S.-focused report in which top climate scientists summarize the latest research on climate change science, impacts, and solutions.

As the climate warms, most of the Eastern United States is becoming wetter and thus faces increased flood risks. At the same time, the Western states are mostly becoming drier, the risk of droughts and wildfires is rising.

The National Climate Assessment divides the country into 10 regions and identifies the key threats in each one.



(Image credit: the fifth National Climate Assessment)

The Northwest

The biggest climate threats in the Northwest (Washington, Oregon, and Idaho) are heat, flooding, and wildfires. Hotter and drier conditions in recent decades have increased the risk of wildfires, smoke, and heat exposure. Warming temperatures and drought have contributed to a declining snowpack and created water supply vulnerabilities, such as the depletion of reservoirs across central and eastern Oregon and southern Idaho. And the deadly Pacific Northwest heat wave in the summer of 2021 exposed the vulnerability of a region that is not yet accustomed or adapted to dangerous triple-digit heat.

The Southwest

The Southwest (California, Nevada, Utah, Colorado, New Mexico, and Arizona) faces threats from heat, drought, and wildfires. Water supplies are under pressure from the combination of heat and an ongoing drought that's the region's worst in over 1,200 years. California's agriculture, which is the most diverse and lucrative in the country, is threatened by swings between drought conditions and occasional floods caused by atmospheric river events. Extreme heat threats in the region were exemplified by Phoenix's record 31 consecutive days and 54 total days above 110°F this year. Hotter and drier conditions will also continue worsening wildfires, putting "the people, economies, ecosystems, and water resources of the region at considerable risk."

The Northern Great Plains

The Northern Great Plains (Montana, North and South Dakota, Wyoming, and Nebraska) are most threatened by drought, floods, wildfires, and hail. The largest increases in hail risk anywhere in the United States are in this region during the month of July.

This region's economy relies heavily on fossil fuel extraction and agriculture. Although fossil fuel extraction jobs are threatened by the transition to a clean economy, the Northern Great Plains states have tremendous wind energy potential.

This region accounts for 24% of U.S. farmland and 13% of the country's agricultural market value, which is under pressure from the interacting effects of changes in temperature, moisture, carbon dioxide, and ozone. At the same time, farmers in the region are likely to respond by shifting the kinds of crops they grow and how they manage them.

The Southern Great Plains

The biggest threats to the Southern Great Plains states (Texas, Oklahoma, and Kansas) are heat, drought, and flooding. Due to the compounding effect of land subsidence, the Gulf Coast is experiencing the highest rate of sea level rise in the country, which will amplify the damage done by storms like Hurricane Harvey.

Learn more: Find out which climate action best fits into your life.

Although Texas leads the country in generating heat-trapping carbon and methane pollution, the Southern Great Plains also accounts for 42% of America's wind-generated electricity. Texas' solar generation capacity is expected to increase nearly eightfold from 2020 to 2025, while electricity generated from gas and coal is not planned to increase substantially. The workforce transition to a low-carbon economy will affect some Southern Great Plains communities disproportionately but is expected to result in a net increase in jobs.

The Southeast

The Southeast (Kentucky, Virginia, Tennessee, North and South Carolina, Arkansas, Louisiana, Mississippi, Alabama, Georgia and Florida) is most threatened by hurricanes, sea level rise, flooding, and heat. The region's population is growing relatively rapidly, especially in metropolitan areas that are threatened by extreme heat and along the sea-level-rise-threatened coastline. The report also notes that these states generally lack comprehensive climate adaptation plans. Changes in temperature, drought, extreme rainfall, and sea levels are already threatening the Southeast's agriculture and other food-related systems, and extreme heat threatens its labor productivity.

The Northeast

The Northeast (Maine, Vermont, New Hampshire, New York, New Jersey, Maryland, Pennsylvania, Connecticut, Rhode Island, and West Virginia) faces threats from extreme precipitation, flooding, and heat waves both on land and in the ocean. The region's extreme precipitation risks were exemplified by the Vermont flooding in July 2023.

Fish stocks off the coast are shifting to the northeast and into deeper, cooler waters as the oceans warm. Fishing communities will need to adjust to harvest the changing distribution of species. Almost every state in this region has taken action through climate impact assessments, comprehensive climate action plans, and enacted climate-related laws since 2018.

The Midwest

The Midwest (Minnesota, Wisconsin, Michigan, Iowa, Missouri, Illinois, Indiana, and Ohio) faces threats from extreme precipitation, heat, and drought. This is among the most intensive agricultural regions globally, producing more than 30% of the world's corn and soybeans, which generate about $50 billion per year. Crop production will be complicated by increasing extreme precipitation events and rapid transitions between wet and dry conditions. Heat and extreme precipitation are already challenging the aging infrastructure in this region.

Alaska

Alaska is threatened by thawing permafrost, shrinking glaciers, and melting sea ice. Alaska's seafood industry generates $6.1 billion in economic output, producing 60% of the volume and 31% of the value of the U.S. fishery catch, and accounts for 62,200 jobs and $1.7 billion in wages. Climate change has harmed marine fish, salmon, and crab populations in Alaskan waters.

Several fisheries have been closed or dramatically reduced due to declining fish populations, but this challenge could also create adaptation opportunities in the form of marine aquaculture.

Hawai'i and other Pacific Islands

Hawai'i and other Pacific Islands face threats from sea level rise, droughts, and heat. The region faces food and water insecurity due to these factors and altered rainfall patterns, as well as the degradation of nearshore fisheries. Sea level rise is encroaching on coastlines, particularly in low-lying islands. Marine and coastal species and ecosystems are threatened by rising ocean temperatures, ocean acidification, and sea level rise. Increasingly severe droughts and rising temperatures are increasing fire risk, as exemplified in the August 2023 Maui wildfires. These impacts also have consequences for native plants and wildlife, including an increased risk of forest bird extinctions.

The Caribbean

Caribbean islands are threatened by hurricanes, sea level rise, heat, and drought. Food and water systems are becoming increasingly vulnerable. Reductions in average annual rainfall, increasing air temperatures, and rising sea levels will hurt freshwater availability in the future. Dependence on fossil fuel imports increases energy insecurity in the region, but infrastructure improvements and a transition to clean decentralized energy sources could create economic opportunities and help limit residents' vulnerability to climate impacts.

Article link: https://yaleclimateconnections.org/2023/11/how-climate-change-is-affecting-every-u-s-region/#:~:text=The%20Northern%20Great%20Plains,have%20tremendous%20wind%20energy%20potential.