Climate change in California

Climate change in California has resulted in higher than average temperatures, leading to increased occurrences of droughts and wildfires.[3] Over the next few decades in California, climate change is predicted to further reduce water availability, increase wildfire risk, decrease agricultural productivity, and threaten coastal ecosystems.[4] The state could also be impacted economically due to the rising cost of providing water to its residents along with revenue and job loss in the agricultural sector.[5][6] Economic impacts also include inflation from rising insurance premiums,[7][8] energy costs and food prices.[7][9][10] California has taken a number of steps to mitigate impacts of climate change in the state.[11]

Animated map of the progression of the drought in California in 2014, during which the drought covered 100% of California (http://thinkprogress.org/climate/2014/04/25/3430883/drought-all-california/). As of December 2014, 75% of California was under **Extreme** (Red) or **Exceptional** (Maroon) **Drought**. The California drought continued after 2014.[1][2]

Paleoclimatological evidence

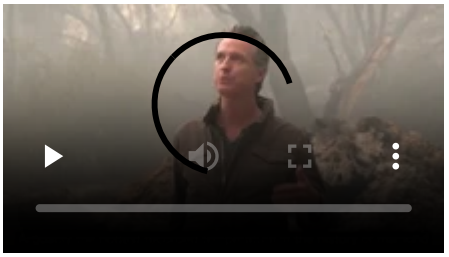
Paleoclimatological studies indicate that the last 150 years of California's history have been unusually wet compared to the previous 2000 years. Tree stumps found at the bottom of lakes and rivers in California indicate that many water features dried up during historical dry periods, allowing trees to grow there while the water was absent. These dry periods were associated with warm periods in Earth's history. During the Medieval Warm Period, there were at least two century-long megadroughts with only 60-70% of modern precipitation levels. Paleoclimatologists believe that higher temperatures due to global warming may cause California to enter another dry period, with significantly lower precipitation and snowpack levels than observed over the last 150 years.[12]

Extreme weather impacts

A 2011 study projected that the frequency and magnitude of both maximum and minimum temperatures would increase significantly as a result of global warming.[13] According to the Fifth National Climate Assessment published in 2023, coastal states including California, Florida, Louisiana, and Texas are experiencing "more significant storms and extreme swings in precipitation".[14]

Wildfires

Fire retardant (pink) and smoldering brush in the Tumbleweed Fire, which burned 1,000 acres of vegetation north of Los Angeles in July 2021



Governor Gavin Newsom talks about climate change and wildfires at the North Complex Fire in 2020.

Because of warming, frequent droughts, and the legacy of past land management and expansion of residential areas, both people and the ecology are more vulnerable to wildfires. Wildfire activity is closely tied to temperature and drought over time. Globally, the length of the fire season increased by nearly 19% from 1979 to 2013, with significantly longer seasons in the western states. Since 1985, more than 50% of the wildfire area burned in the western United States can be attributed to anthropogenic climate change.[15] In addition, due to human fire suppression methods, there is a build up of fuels in some ecosystems. This makes them more vulnerable to wildfires. Currently, there is a greater risk of fires occurring in denser, dryer forests, whereas historically these fires have occurred in low-density areas. Lastly, with increases in human population, communities have expanded into areas that are at higher risk to wildfire threat, making these same populations more vulnerable to structural damage and death due to wildfires. Since 1990, the average annual number of homes lost to wildfires has increased by 300%. Almost 900,000 of western US residences were in high risk wildfire areas as of 2017 with nearly 35% of wildfires in California starting within these high risk areas.

Numerous studies have also found that climate change is increasing the frequency of large and explosive wildfires in California in particular.[16][17][18] And the economic and human health damages (mostly from smoke-related air pollution) of recent fire seasons has been estimated to be as high as $148.5 billion, or roughly 1.5% of California's annual GDP.[19] As a consequence of further global warming, it is projected that there will be an increase in risk due to climate-driven wildfires in the coming decades.[16] Because of warming, frequent droughts, and the legacy of past land management and expansion of residential areas, both people and the ecology are more vulnerable to wildfires. Wildfire activity is closely tied to temperature and drought over time. Globally, the length of the fire season increased by nearly 19% from 1979 to 2013, with significantly longer seasons in the western states. Since 1985, more than 50% of the wildfire area burned in the western United States can be attributed to anthropogenic climate change.[15] In addition, due to human fire suppression methods, there is a build of fuels in some ecosystems, making them more vulnerable to wildfires. There is greater risk of fires occurring in denser, dryer forests, where historically these fires have occurred in low-density areas. Lastly, with increases in human population, communities have expanded into areas that are at higher risk to wildfire threat, making these same populations more vulnerable to structural damage and death due to wildfires. Since 1990, the average annual number of homes lost to wildfires has increased by 300%. Almost 900,000 of western US residences were in high risk wildfire areas as of 2017 with nearly 35% of wildfires in California starting within these high risk areas.[20]

In 2019, after "red flag" warning about the possibility of wildfires was declared in some areas of California, the electricity company "Pacific Gas and Electric (PG&E)" begun to shut down power, for preventing inflammation of trees that touch the electricity lines. Millions can be impacted. The climatic conditions that cause this warning became more frequent because of climate change.[21] If the temperatures keep rising, such power outages could become common.[22]

Recent wildfire seasons have broken number of records. The 2018 season became the deadliest and most destructive in the state's history, with 103 people killed and 24,226 buildings damaged or destroyed.[23] The 2020 season became the largest in the state's recorded history in terms of area burned, with more than 4 million acres burned across the state in 9,917 wildfires.[24] Out of six of the biggest fires ever recorded in the state of California, five took place in 2020.[25]

In 2017, a study projected that the single largest threat to Los Angeles County hospitals related to climate change is the direct impact of the expected increase in wildfires. In Los Angeles County, 34% of hospitals are located within one mile of fire hazard severity zones. Additionally, one of these hospitals was also deemed in danger of coastal flooding due to the effects of climate change as concluded by the study. This latter issue was also included and focused on, as the study likewise concluded that this would become a greater hazard as sea level rise due to increase annual temperatures.[26]

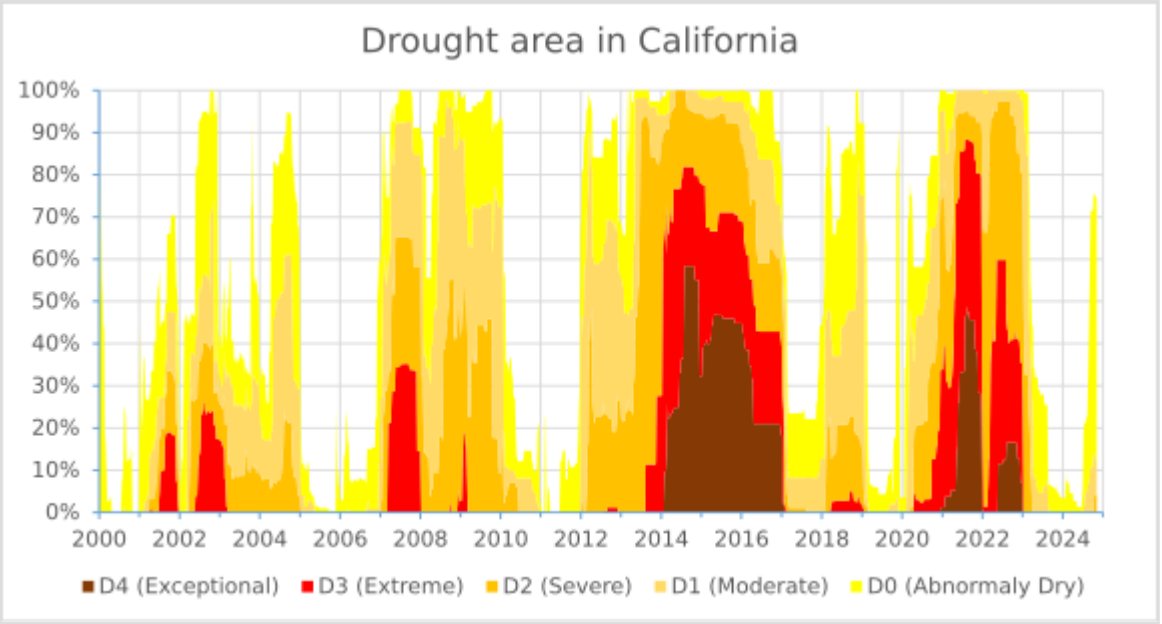
Drought

In February 2022, researchers described the drought in the southwest of the US, including California, in the years 2000–2021 as the most severe in 1,200 years, "which is as far back as the data goes." Without climate change, the drought was probably finished already in 2005.[28] 42% of its severity is due to temperature rise as a result of climate change. 88% of the area was drought-stricken. The flow of the Colorado river supplying water to 7 states had "shrank to the lowest two-year average in more than a century of record keeping." If the temperature rise will continue the drought will become worse.[29]

A typical dry lakebed is seen in California, which is experiencing its worst drought in 1,200 years, precipitated by climate change, and is therefore water rationing.[27]

According to the NOAA Drought Task Force report of 2014, the drought is not part of a long-term change in precipitation and was a symptom of the natural variability, although the record-high temperature that accompanied the recent drought may have been amplified due to human-induced global warming.[30] This was confirmed by a 2015 scientific study which estimated that global warming "accounted for 8–27% of the observed drought anomaly in 2012–2014... Although natural variability dominates, anthropogenic warming has substantially increased the overall likelihood of extreme California droughts."[31] A study published in 2016 found that the net effect of climate change has made agricultural droughts less likely, with the authors stating that "Our results indicate that the current severe impacts of drought on California's agricultural sector, its forests, and other plant ecosystems have not been substantially caused by long-term climate change."[32]

In February 2014, the Californian drought effects caused the California Department of Water Resources to develop plans for a temporary reduction of water allocations to farmland by up to 50% at the time. During that period California's 38 million residents experienced 13 consecutive months of drought. This is particularly an issue for the state's 44.7 billion dollar agricultural industry, which produces nearly half of all American-grown fruits, nuts, and vegetables.[33] According to NASA, tests published in January 2014 have shown that the twelve months prior to January 2014 were the driest on record, since record-keeping began in 1885.[34] Lack of water due to low snowpack prompted Californian governor Jerry Brown to order a series of stringent mandatory water restrictions on April 1, 2015.[35]



Percent Area in U.S. Drought Monitor Categories

Megafloods

A study published in *Science Advances* in 2022 stated that climate-caused changes in atmospheric rivers affecting California had already doubled the likelihood of megafloods since 1920—which can involve 100 inches (250 cm) of rain and/or melted snow in the mountains per month, or 25 to 34 feet (7.6 to 10.4 m) of snow in the Sierra Nevada—and runoff in a future extreme storm scenario is predicted to be 200 to 400% greater than historical values in the Sierra Nevada.[36]

Forest management

Drought-surviving sugar pines around Lake Tahoe have been found among 129 million trees in California killed between 2012 and 2016 by drought and bark beetles. Thousands of seedlings descended from these trees are being planted south-facing slopes on the lake basin's north side with the hope that they carry genes that make them more resilient to drought, waning snowpack and other effects of global warming in the forests of Sierra Nevada.[37]

2022 IPCC report on climate change and mitigation suggests that California land management needs to consider the changing climate when updating their forest management practices especially when considering the massive amounts of wildfires the region endures. The report suggests that prescribed burning, a popular practice in land and fire management, may not have as beneficial results and often ties adds carbon into the air furthering the problem of climate change and wildfires.[38]

Agriculture

Extended periods of higher temperatures are expected to increase navel orangeworm reproduction, resulting in increased insect damage to almond, walnut, and pistachio crops.[39]

Conservation groups are partnering with farmers in Central California to flood fields for portions of the year, in order to increase habitat for species impacted by climate change, such as salmon and migratory birds.[40][41]

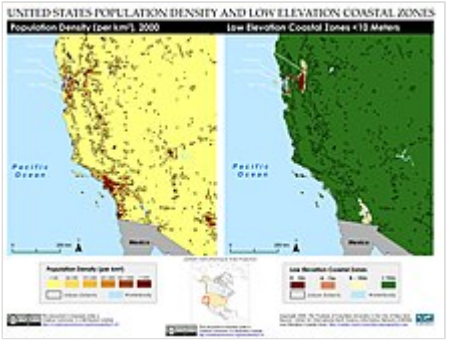
The impact of climate change on precipitation in California can lead to the occurrence of severe drought.[42] During droughts in California, farmers leave land fallow. In 2014 drought season, 430,000 acres of farmland were left to fallow.[43] Farmers anticipate they will fallow a similar number of acres of farmland in 2022.[44]

Fisheries impact

Ocean heat waves since 2013 have delayed three Dungeness crab seasons, due to harmful algal blooms that contaminate crab meat.[45]

Sea level rise

A 2017 study published in the *Journal of Geophysical Research* projected that a sea level rise of between 1 and 2 m will swallow between one-third and two-thirds of Southern California beaches.[46] Sea levels off the coast are projected to rise 20-55 inches over the next century.[47] The rise of sea levels leads to the destruction of sea life, permanent floods, and coastal erosion. According to an economic assessment done by Risky Business Project, "if current global greenhouse gas emission trends continue, between $8 billion and $10 billion of existing property in California is likely to be underwater by 2050, with an additional $6 billion to $10 billion at risk during high tide."[48]

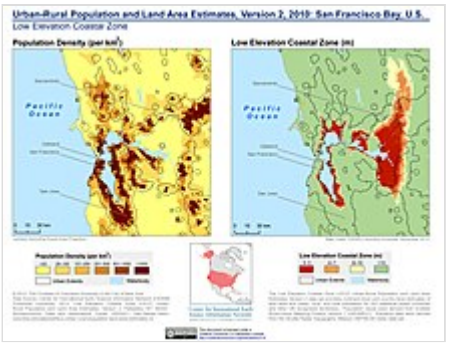


Population density and low elevation coastal zones in Western United States

Health impacts

Expected increases in extreme weather could lead to increased risk of illnesses and death.[49] There are various diseases that will impact Californians as a result to climate change. "Exposure to wildfire smoke has been linked to health problems such as respiratory infections, cardiac arrests, low birth weight, mental health conditions, and exacerbated asthma and chronic obstructive pulmonary disease.17 Longterm

exposure to wildfire smoke generated an estimated $76 billion to $136 billion per year in health costs across the continuous United States from 2008 to 2012, with some of the most significant impacts in northern California."[50]



Population density and low elevation coastal zones in San Francisco Bay (2010)

Heat waves

Sign thanking firefighters after the Carr Fire, Redding, 2018

From May to September 1999 – 2003, a study was conducted in nine Californian counties that found that for every 10 °F (5.6 °C) increase in temperature, there is a 2.6 percent increase in cardiovascular deaths.[51]

2006 heat wave

A study of the 2006 Californian heat wave showed an increase of 16,166 emergency room visits, and 1,182 hospitalizations. There was also a dramatic increase in heat related illnesses; a six-fold increase in heat-related emergency room visits, and 10-fold increase in hospitalizations.[52]

A study of seven counties impacted by the 2006 heat wave found a 9 percent increase in daily mortality per 10 degrees Fahrenheit change in apparent temperature for all counties combined. This estimate is 3 times greater than the effect estimated for the rest of the warm season. The estimates indicate that actual mortality during the 2006 heat wave was two or three times greater than the initial coroner estimate of 147 deaths.[53]

Air pollution

Research suggests that the majority of air pollution related health effects are caused by ozone (O3) and particulate matter (PM). Many other pollutants that are associated with climate change, such as nitrogen dioxide, sulfur dioxide, and carbon monoxide, also have health consequences.[54]

Five of the ten most ozone-polluted metropolitan areas in the United States (Los Angeles, Bakersfield, Visalia, Fresno, and Sacramento) are in California.[55][56] Californians suffer from a variety of health consequences due to air pollution – including 18,000 premature deaths attributed to various causes such as respiratory diseases as well as a number of other illnesses.[57]

Climate change may lead to exacerbated air pollution problems. Higher temperatures catalyze chemical interactions between nitrogen oxide, volatile organic gases and sunlight that lead to increases in ambient ozone concentrations in urban areas. A study found that for each 1 degree Celsius (1 °C) rise in temperature in the United States, there are an estimated 20–30 excess cancer cases, as well as

approximately 1000 (CI: 350–1800) excess air-pollution-associated deaths.[58] About 40 percent of the additional deaths may be due to ozone and the rest to particulate matter annually. Three hundred of these annual deaths are thought to occur in California.[59]

Economic impacts

Inflation

Economic impacts also include inflation from rising insurance premiums,[7][8] energy costs and food prices.[7][9][10]

Gross domestic product

The Natural Resources Defense Council (NRDC) estimates that under a business-as-usual scenario, between the years 2025 and 2100, the cost of providing water to the western states in the United States will increase from $200 billion to $950 billion per year, an estimated 0.93–1 percent of the United States' gross domestic product (GDP). Four climate change impacts—hurricane damage, energy costs, real estate losses, and water costs—alone are projected to cost 1.8 percent of the GDP of the United States, or, just under $1.9 trillion in 2008 U.S. dollars by the year 2100.[5]

Job opportunities

Solar installation, Los Angeles

A study conducted in 2009 showed that increases in frequency and intensity of extreme weather due to climate change will lead to a decreased productivity of agriculture, revenue losses, and the potential for lay offs.[6] Changing weather and precipitation patterns could require expensive adaptation measures, such as relocating crop cultivation, changing the composition or type of crops, and increasing inputs such as pesticides to adapt to changes in ecological composition, that lead to economic degradation and job loss.[55] Climate change has adverse effects on agricultural productivity in California that cause laborers to be increasingly affected by job loss. For example, the two highest-value agricultural products in California's $30 billion agriculture sector are dairy products (milk and cream, valued at $3.8 billion annually) and grapes ($3.2 billion annually).[60] It is also expected to adversely affect the ripening of wine grapes, substantially reducing their market value.[61]

Legislation

California has taken a number of legislative steps and extensive measures and initiatives targeted at the broader issue of climate effects seeking to prevent and minimize the risks of possible effects of climate change[62][63] by a wide variety of incentives, measures and comprehensive plans for clean cars,

renewable energy, and pollution controls on industry with overall high environmental standards.[64][65][66] California is known for its leading role in the realm of ecoconscious legislature not just on a national level but also globally.[67][62][68]

In 2007, the California Legislature enacted AB 32, the Global Warming Solutions Act of 2006, which required the state to reduce greenhouse-gas emissions to 1990 levels by 2020.[69] It tasked the California Air Resources Board (CARB) with developing a Scoping Plan to implement the statute.[70] AB 32 was consistent with Governor Arnold Schwartznegger's 2005 Executive Order S-03-05, which, in addition, required California to reduce its emissions to 80% below 1990 levels by 2050.[71] CARB updated the Scoping Plan in 2014.[72] SB 32, enacted in 2016, set the State's climate goals beyond 2020, requiring a 40% reduction below 1990 levels by 2030 and an 80% reduction by 2050.[73] The CARB 2017 Scoping Plan, detailing how the State will implement SB 32, sets statewide goals for per-capita GHG emissions: they must be reduced to 6 MTCO2e (metric tonnes of carbon-dioxide equivalent) by 2030, and 2 MTCO2e by 2050.[74] CARB's 2022 Scoping Plan continues the implementation of SB 32.[75]

Wildlife impacts

Climate change is having profound impacts on wildlife in California, altering habitats, species distributions, and ecological relationships. As temperatures rise, many species are shifting their ranges to higher elevations or northward, while some southern bird species are now nesting regularly in the state. These shifts are causing significant habitat loss, with projections suggesting that between 21 and 56% of California's natural areas may become unsuitable for current ecosystems by 2100.[76] Some ecosystems, such as pinyon-juniper woodland and freshwater marshes, could lose up to 97% of their suitable habitat.[77] Some species that could be affected include the California Spotted Owl. This species relies on stable forest environments with large, old trees. Climate change-induced droughts and extreme weather events disrupt these habitats, affecting their ability to reproduce and survive.[78] The effects also extend to the Central California Coast Coho Salmon: These salmon are vulnerable to habitat changes due to increased droughts and floods. Climate change can degrade their spawning grounds, affecting egg and juvenile survival.[79] Sacramento River Winter-Run Chinook Salmon are also impacted by the worsening of climate change in California. Rising temperatures and reduced water availability due to climate change threaten their spawning success, as they require cold water conditions.[79] The Desert Slender Salamander is an example of an amphibian affected by California's climate change. This species depends on moist habitats that are increasingly drying out due to higher temperatures and reduced precipitation associated with climate change.[80]

See also

- 2012–2013 North American drought
- 2014 California wildfires
- 2013 California wildfires
- California Air Resources Board
- California Environmental Protection Agency
- Climate change in the United States
- CoolCalifornia.org

- Effects of global warming
- Global Warming Solutions Act of 2006
- List of U.S. states and territories by carbon dioxide emissions
- Plug-in electric vehicles in California
- Pollution in California

References

1. "Drought maps show just how thirsty California has become" (https://web.archive.org/web/20160513011212/http://www.latimes.com/local/lanow/la-me-g-california-drought-map-htmlstory.html). *L.A. Times*. May 5, 2016. Archived from the original (http://www.latimes.com/local/lanow/la-me-g-california-drought-map-htmlstory.html) on May 13, 2016.
2. "U.S. Drought Monitor" (http://droughtmonitor.unl.edu/). *droughtmonitor.unl.edu*. Archived (https://web.archive.org/web/20180903235624/https://droughtmonitor.unl.edu/) from the original on September 3, 2018. Retrieved September 4, 2018.
3. "Intensifying climate whiplash set the stage for devastating California fires" (https://www.latimes.com/environment/story/2025-01-09/climate-whiplash-study-california-fires). *Los Angeles Times*. January 9, 2025. Retrieved January 9, 2025.
4. United States EPA. (2016). What Climate Change Means for California. Retrieved from: https://www.epa.gov/sites/production/files/2016-09/documents/climate-change-ca.pdf Archived (https://web.archive.org/web/20210529210452/https://www.epa.gov/sites/production/files/2016-09/documents/climate-change-ca.pdf) May 29, 2021, at the Wayback Machine
5. "The Cost of Climate Change: What We'll Pay if Global Warming Continues Unchecked" (http://www.nrdc.org/globalwarming/cost/cost.pdf) (PDF). New York, New York: NRDC. Archived (https://web.archive.org/web/20150616051522/http://www.nrdc.org/globalwarming/cost/cost.pdf) (PDF) from the original on June 16, 2015. Retrieved December 7, 2018.
6. "Effect of Climate Change on Field Crop Production in the Central Valley of California" (http://www.energy.ca.gov/2009publications/CEC-500-2009-041/CEC-500-2009-041-D.PDF) (PDF). *Energy.ca.gov*. Archived (https://web.archive.org/web/20150924001101/http://www.energy.ca.gov/2009publications/CEC-500-2009-041/CEC-500-2009-041-D.PDF) (PDF) from the original on September 24, 2015. Retrieved December 7, 2018.
7. Becker, William S. (July 22, 2024). "Opinion: Climate inflation is eating your paycheck — and it's only going to get worse" (https://thehill.com/opinion/energy-environment/4782252-climate-inflation-economic-impact/). *The Hill*. Retrieved July 24, 2024.
8. "Home insurance rates are rising due to climate change. What could break that cycle?" (https://www.npr.org/2024/07/18/1198912918/home-insurance-rates-are-rising-due-to-climate-change-what-could-break-that-cycl). *NPR*. July 23, 2024.
9. "How is climate change affecting food prices and inflation?" (https://www.aljazeera.com/program/inside-story/2024/7/11/how-is-climate-change-affecting-food-prices-and-inflation). *Al Jazeera*. July 11, 2024. Retrieved July 24, 2024.
10. Borenstein, Seth (March 21, 2024). "Higher temperatures mean higher food and other prices. A new study links climate shocks to inflation" (https://apnews.com/article/inflation-climate-change-food-prices-heat-6e5297e12868aaf797529bb755268818). *AP News*. Retrieved July 24, 2024.

11. Franco, Guido; Cayan, Dan; Luers, Amy; Hanemann, Michael; Croes, Bart (2008). "Linking climate change science with policy in California" (http://link.springer.com/10.1007/s10584-007-9359-8). *Climatic Change*. **87** (S1): 7–20. Bibcode:2008ClCh...87S...7F (https://ui.adsabs.harvard.edu/abs/2008ClCh...87S...7F). doi:10.1007/s10584-007-9359-8 (https://doi.org/10.1007%2Fs10584-007-9359-8). ISSN 0165-0009 (https://search.worldcat.org/issn/0165-0009). S2CID 15576022 (https://api.semanticscholar.org/CorpusID:15576022). Archived (https://web.archive.org/web/20230302050210/https://link.springer.com/article/10.1007/s10584-007-9359-8) from the original on March 2, 2023. Retrieved March 2, 2021.
12. "Climate change and paleoclimatology: Putting California's drought in a long-term perspective" (https://mavensnotebook.com/2014/11/03/paleoclimate/). *Maven's Notebook*. November 3, 2014. Archived (https://web.archive.org/web/20201224193800/https://mavensnotebook.com/2014/11/03/paleoclimate/) from the original on December 24, 2020. Retrieved February 23, 2020.
13. Mastrandrea, M. D.; Tebaldi, C.; Snyder, C. W.; Schneider, S. H. (2011). "Current and future impacts of extreme events in California". *Climatic Change*. **109** (S1): 43–70. Bibcode:2011ClCh..109S..43M (https://ui.adsabs.harvard.edu/abs/2011ClCh..109S..43M). doi:10.1007/s10584-011-0311-6 (https://doi.org/10.1007%2Fs10584-011-0311-6). S2CID 153868202 (https://api.semanticscholar.org/CorpusID:153868202).
14. Nilsen, Ella (November 14, 2023). "No place in the US is safe from the climate crisis, but a new report shows where it's most severe" (https://www.cnn.com/2023/11/14/us/national-climate-assessment-extreme-weather-costs/index.html). *CNN*.
15. Abatzoglou, John T.; Williams, A. Park (October 10, 2016). "Impact of anthropogenic climate change on wildfire across western US forests" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5081637). *Proceedings of the National Academy of Sciences*. **113** (42): 11770–11775. Bibcode:2016PNAS..11311770A (https://ui.adsabs.harvard.edu/abs/2016PNAS..11311770A). doi:10.1073/pnas.1607171113 (https://doi.org/10.1073%2Fpnas.1607171113). PMC 5081637 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5081637). PMID 27791053 (https://pubmed.ncbi.nlm.nih.gov/27791053).
16. Brown, Patrick T.; Hanley, Holt; Mahesh, Ankur; Reed, Colorado; Strenfel, Scott J.; Davis, Steven J.; Kopchanski, Adam K.; Clements, Craig B. (August 30, 2023). "Climate warming increases extreme daily wildfire growth risk in California" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5422781). *Nature*. **621** (7980): 760–766. Bibcode:2023Natur.621..760B (https://ui.adsabs.harvard.edu/abs/2023Natur.621..760B). doi:10.1038/s41586-023-06444-3 (https://doi.org/10.1038%2Fs41586-023-06444-3). PMC 5422781 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5422781). PMID 28416662 (https://pubmed.ncbi.nlm.nih.gov/28416662).
17. Turco, Marco; Abatzoglou, John T.; Herrera, Sixto; Zhuang, Yizhou; Jerez, Sonia; Lucas, Donald D.; AghaKouchak, Amir; Cvijanovic, Ivana (June 12, 2023). "Anthropogenic climate change impacts exacerbate summer forest fires in California" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10288651). *Proceedings of the National Academy of Sciences*. **120** (25): e2213815120. Bibcode:2023PNAS..12013815T (https://ui.adsabs.harvard.edu/abs/2023PNAS..12013815T). doi:10.1073/pnas.2213815120 (https://doi.org/10.1073%2Fpnas.2213815120). PMC 10288651 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10288651). PMID 37307438 (https://pubmed.ncbi.nlm.nih.gov/37307438).
18. Goss, Michael; Swain, Daniel L.; Abatzoglou, John T.; Sarhadi, Ali; Kolden, Crystal A.; Williams, A. Park; Diffenbaugh, Noah S. (August 20, 2020). "Climate change is increasing the likelihood of extreme autumn wildfire conditions across California" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5422781). *Environmental Research Letters*. **15** (9): 4582–4590. Bibcode:2023Natur.621..760B (https://ui.adsabs.harvard.edu/abs/2023Natur.621..760B). doi:10.1038/s41586-023-06444-3 (https://doi.org/10.1038%2Fs41586-023-06444-3). PMC 5422781 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5422781). PMID 28416662 (https://pubmed.ncbi.nlm.nih.gov/28416662).

19. Wang, Daoping; Guan, Dabo; Zhu, Shupeng; Mac Kinnon, Michael; Geng, Guannan; Zhang, Qiang J.; Zheng, Heran; Lei, Tianyang; Shuai, Shao; Gong, Peng; Davis, Steven J. (December 7, 2020). "Economic footprint of California wildfires in 2018" (https://discovery.ucl.ac.uk/id/eprint/10119102/). *Nature Sustainability*. **4** (3): 252–260. Bibcode:2020NatSu...4..252W (https://ui.adsabs.harvard.edu/abs/2020NatSu...4..252W). doi:10.1038/s41893-020-00646-7 (https://doi.org/10.1038%2Fs41893-020-00646-7). S2CID 227513892 (https://api.semanticscholar.org/CorpusID:227513892).
20. Schoennagel, Tania; Balch, Jennifer K.; Brenkert-Smith, Hannah; Dennison, Philip E.; Harvey, Brian J.; Krawchuk, Meg A.; Mietkiewicz, Nathan; Morgan, Penelope; Moritz, Max A. (May 2, 2017). "Adapt to more wildfire in western North American forests as climate changes" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5422781). *Proceedings of the National Academy of Sciences*. **114** (18): 4582–4590. Bibcode:2017PNAS..114.4582S (https://ui.adsabs.harvard.edu/abs/2017PNAS..114.4582S). doi:10.1073/pnas.1617464114 (https://doi.org/10.1073%2Fpnas.1617464114). PMC 5422781 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5422781). PMID 28416662 (https://pubmed.ncbi.nlm.nih.gov/28416662).
21. Rosane, Olivia (October 9, 2019). "Power Outage Intended to Prevent Wildfires Will Affect Millions of Californians Who Use PG&E" (https://www.ecowatch.com/power-outage-california-wildfires-2640897787.html). Ecowatch. Archived (https://web.archive.org/web/20191207162633/https://www.ecowatch.com/power-outage-california-wildfires-2640897787.html) from the original on December 7, 2019. Retrieved October 10, 2019.
22. Blaauw, Maddie (October 13, 2019). "Climate Change Dictates That The PG&E Power Outage Likely Won't Be The Last" (https://web.archive.org/web/20201224193728/https://therising.co/2019/10/13/climate-change-dictates-that-the-pge-power-outage-likely-wont-be-the-last/). The Rising. Archived from the original (https://therising.co/2019/10/13/climate-change-dictates-that-the-pge-power-outage-likely-wont-be-the-last/) on December 24, 2020. Retrieved October 15, 2019.
23. "2018 Fire Statistics" (https://www.fire.ca.gov/incidents/2018/). *CAL FIRE*. Archived (https://web.archive.org/web/20200905140438/https://www.fire.ca.gov/incidents/2018/) from the original on September 5, 2020. Retrieved July 14, 2021.
24. "2020 Fire Statistics" (https://www.fire.ca.gov/incidents/2020/). *CAL FIRE*. Archived (https://web.archive.org/web/20200628081514/https://www.fire.ca.gov/incidents/2020/) from the original on June 28, 2020. Retrieved July 14, 2021.
25. Dwyer, Mimi (October 14, 2020). "Wildfire threat intensifying across California, officials say" (https://www.reuters.com/article/us-usa-wildfires-california-idUSKBN26Z00D). *Reuters*. Archived (https://web.archive.org/web/20201028062531/https://www.reuters.com/article/us-usa-wildfires-california-idUSKBN26Z00D) from the original on October 28, 2020. Retrieved October 14, 2020.
26. Adelaine, Sabrina A.; Sato, Mizuki; Jin, Yufang; Godwin, Hilary (October 2017). "An Assessment of Climate Change Impacts on Los Angeles (California USA) Hospitals, Wildfires Highest Priority". *Prehospital and Disaster Medicine*. **32** (5): 556–562. doi:10.1017/S1049023X17006586 (https://doi.org/10.1017%2FS1049023X17006586). ISSN 1945-1938 (https://search.worldcat.org/issn/1945-1938). PMID 28606202 (https://pubmed.ncbi.nlm.nih.gov/28606202). S2CID 10646762 (https://api.semanticscholar.org/CorpusID:10646762).
27. Irina Ivanova (June 2, 2022). "California is rationing water amid its worst drought in 1,200 years" (https://www.cbsnews.com/amp/news/water-cutbacks-california-6-million-people-drought/). CBS News. Archived (https://web.archive.org/web/20230113175522/https://www.cbsnews.com/amp/news/water-cutbacks-california-6-million-people-drought/) from the original on January 13, 2023. Retrieved June 2, 2022.

28. Fountain, Henry (February 14, 2022). "How Bad Is the Western Drought? Worst in 12 Centuries, Study Finds" (https://www.nytimes.com/2022/02/14/climate/western-drought-megadrought.html). *The New York Times*. The New York Times. Archived (https://web.archive.org/web/20220217114116/https://www.nytimes.com/2022/02/14/climate/western-drought-megadrought.html) from the original on February 17, 2022. Retrieved February 17, 2022.
29. JAMES, IAN (February 14, 2022). "Western megadrought is worst in 1,200 years, intensified by climate change, study finds" (https://www.latimes.com/environment/story/2022-02-14/western-megadrought-driest-in-1200-years). Los Angeles Times. Archived (https://web.archive.org/web/20220217160134/https://www.latimes.com/environment/story/2022-02-14/western-megadrought-driest-in-1200-years) from the original on February 17, 2022. Retrieved February 17, 2022.
30. "Climate Program Office > Climate Programs > Modeling Analysis Predictions and Projections > MAPP Task Forces > Drought Task Force > California Drought" (https://web.archive.org/web/20141216233908/http://cpo.noaa.gov/ClimatePrograms/ModelingAnalysisPredictionsandProjections/MAPPTaskForces/DroughtTaskForce/CaliforniaDrought.aspx). *cpo.noaa.gov*. Archived from the original (http://cpo.noaa.gov/ClimatePrograms/ModelingAnalysisPredictionsandProjections/MAPPTaskForces/DroughtTaskForce/CaliforniaDrought.aspx) on December 16, 2014. Retrieved January 13, 2022.
31. Williams, A. Park; et al. (2015). "Contribution of anthropogenic warming to California drought during 2012–2014" (https://doi.org/10.1002%2F2015GL064924). *Geophysical Research Letters*. **42** (16): 6819–6828. Bibcode:2015GeoRL..42.6819W (https://ui.adsabs.harvard.edu/abs/2015GeoRL..42.6819W). doi:10.1002/2015GL064924 (https://doi.org/10.1002%2F2015GL064924).
32. Cheng, Linyin; Hoerling, Martin; AghaKouchak, Amir; Livneh, Ben; Quan, Xiao-Wei; Eischeid, Jon (January 1, 2016). "How Has Human-Induced Climate Change Affected California Drought Risk?" (https://doi.org/10.1175%2FJCLI-D-15-0260.1). *Journal of Climate*. **29** (1): 111–120. Bibcode:2016JCli...29..111C (https://ui.adsabs.harvard.edu/abs/2016JCli...29..111C). doi:10.1175/JCLI-D-15-0260.1 (https://doi.org/10.1175%2FJCLI-D-15-0260.1). ISSN 0894-8755 (https://search.worldcat.org/issn/0894-8755).
33. "California drought: no relief in sight, Drinking water and farming are at risk from state's ongoing drought, but forecasts offer little hope" (https://www.theguardian.com/environment/2014/feb/03/california-drought-no-relief-in-sight). *The Guardian*. UK. February 3, 2014. Archived (https://web.archive.org/web/20141110164123/http://www.theguardian.com/environment/2014/feb/03/california-drought-no-relief-in-sight) from the original on November 10, 2014. Retrieved July 17, 2014.
34. *Drought Stressing California's Plantscape* (https://earthobservatory.nasa.gov/IOTD/view.php?id=83124), Earth Observatory, NASA, February 2014, archived (https://web.archive.org/web/20140222153710/http://earthobservatory.nasa.gov/IOTD/view.php?id=83124) from the original on February 22, 2014, retrieved February 24, 2014
35. "California governor orders mandatory water restrictions amid drought" (https://www.foxnews.com/politics/california-governor-orders-mandatory-water-restrictions-amid-drought/). FOX News, Associated Press. April 1, 2015. Archived (https://web.archive.org/web/20150402065445/http://www.foxnews.com/politics/2015/04/01/california-governor-orders-mandatory-water-restrictions-amid-drought/) from the original on April 2, 2015. Retrieved April 1, 2015.

36. Huang, Xingying; Swain, Daniel L (August 12, 2022). "Climate change is increasing the risk of a California megaflood" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9374343). *Science Advances*. **8** (32): eabq0995. Bibcode:2022SciA....8..995H (https://ui.adsabs.harvard.edu/abs/2022SciA....8..995H). doi:10.1126/sciadv.abq0995 (https://doi.org/10.1126%2Fsciadv.abq0995). PMC 9374343 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9374343). PMID 35960799 (https://pubmed.ncbi.nlm.nih.gov/35960799). Explained by Cappucci, Matthew (August 12, 2022). "A 'megaflood' in California could drop 100 inches of rain, scientists warn" (https://www.washingtonpost.com/climate-environment/2022/08/12/megaflood-california-flood-rain-climate/). *The Washington Post*. Archived (https://web.archive.org/web/20220814063213/https://www.washingtonpost.com/climate-environment/2022/08/12/megaflood-california-flood-rain-climate/) from the original on August 14, 2022.
37. Barboza, Tony (November 18, 2019). "In the Sierra, scientists bet on 'survivor' trees to withstand drought and climate change" (https://www.latimes.com/california/story/2019-11-18/sierra-trees-climate-change-adaptation-lake-tahoe). *Los Angeles Times*. Archived (https://web.archive.org/web/20191125235856/https://www.latimes.com/california/story/2019-11-18/sierra-trees-climate-change-adaptation-lake-tahoe) from the original on November 25, 2019. Retrieved November 26, 2019.
38. IPCC Sixth Assessment Report
39. Gross, Liza (February 5, 2021). "In California, a Warming Climate Will Help a Voracious Pest—and Hurt the State's Almonds, Walnuts and Pistachios" (https://insideclimatenews.org/news/05022021/in-california-a-warming-climate-will-help-a-voracious-pest-and-hurt-the-states-almonds-walnuts-and-pistachios/). *Inside Climate News*. Archived (https://web.archive.org/web/20210207001840/https://insideclimatenews.org/news/05022021/in-california-a-warming-climate-will-help-a-voracious-pest-and-hurt-the-states-almonds-walnuts-and-pistachios/) from the original on February 7, 2021. Retrieved February 6, 2021.
40. Gross, Liza (January 5, 2021). "Harnessing Rice Fields to Resurrect California's Endangered Salmon" (https://insideclimatenews.org/news/05012021/floooding-rice-fields-salmon-sacramento-river/). *Inside Climate News*. Archived (https://web.archive.org/web/20210129210348/https://insideclimatenews.org/news/05012021/floooding-rice-fields-salmon-sacramento-river/) from the original on January 29, 2021. Retrieved February 6, 2021.
41. Gross, Liza (December 6, 2020). "California Farmers Work to Create a Climate Change Buffer for Migratory Water Birds" (https://insideclimatenews.org/news/06122020/california-staten-island-sandhill-cranes-water-birds-agriculture/). *Inside Climate News*. Archived (https://web.archive.org/web/20210214064521/https://insideclimatenews.org/news/06122020/california-staten-island-sandhill-cranes-water-birds-agriculture/) from the original on February 14, 2021. Retrieved February 6, 2021.
42. Mann, and Peter H. Gleick., Michael E. (2015). " "Climate change and California drought in the 21st century." " (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4386383). *Proceedings of the National Academy of Sciences*. 112.13 (2015) (13): 3858–3859. doi:10.1073/pnas.1503667112 (https://doi.org/10.1073%2Fpnas.1503667112). PMC 4386383 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4386383). PMID 25829537 (https://pubmed.ncbi.nlm.nih.gov/25829537).
43. Nijhuis, Michelle (October 2014). "When the Snows Fail" (https://www.nationalgeographic.com/west-snow-fail/). *National Geographic*. Archived (https://web.archive.org/web/20221213032705/https://www.nationalgeographic.com/west-snow-fail/) from the original on December 13, 2022. Retrieved December 13, 2022.
44. Hooker, Brad (April 4, 2022). "Drought will lead to $1B loss, 370,000 acres fallowed in Sac Valley" (https://www.agri-pulse.com/articles/17511-drought-will-lead-to-1b-loss-370-000-acres-fallowed-in-sac-valley). *AgriPulse*. Archived (https://web.archive.org/web/20221214150213/https://www.agri-pulse.com/articles/17511-drought-will-lead-to-1b-loss-370-000-acres-fallowed-in-sac-valley) from the original on December 14, 2022. Retrieved December 14, 2022.

45. Gross, Liza (February 1, 2021). "As Warming Oceans Bring Tough Times to California Crab Fishers, Scientists Say Diversifying is Key to Survival" (https://insideclimatenews.org/news/01022021/california-agriculture-crab-fishermen-climate-change/). *Inside Climate News*. Archived (https://web.archive.org/web/20210209073346/https://insideclimatenews.org/news/01022021/california-agriculture-crab-fishermen-climate-change/) from the original on February 9, 2021. Retrieved February 6, 2021.
46. Lucas, Scott (January 29, 2019). "Los Angeles Is the Face of Climate Change" (https://medium.com/s/2069/los-angeles-is-burning-f9fab1c212cb). *Medium*. Archived (https://web.archive.org/web/20190902153106/https://medium.com/s/2069/los-angeles-is-burning-f9fab1c212cb) from the original on September 2, 2019. Retrieved September 2, 2019.
47. "Climate Change Impacts in California" (https://oag.ca.gov/environment/impact). *State of California - Department of Justice - Office of the Attorney General*. December 22, 2011. Archived (https://web.archive.org/web/20221213032706/https://oag.ca.gov/environment/impact) from the original on December 13, 2022. Retrieved December 13, 2022.
48. "Climate Change Impacts Across California - Crosscutting Issues" (https://lao.ca.gov/Publications/Report/4575#:~:text=A%20changing%20climate%20presents%20California,erosion%20from%20sea%E2%80%91level%20rise.). *lao.ca.gov*. Archived (https://web.archive.org/web/20221213032705/https://lao.ca.gov/Publications/Report/4575#:~:text=A%20changing%20climate%20presents%20California,erosion%20from%20sea%E2%80%91level%20rise.) from the original on December 13, 2022. Retrieved December 13, 2022.
49. "IPCC - Intergovernmental Panel on Climate Change" (http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_science_basis.htm). *Ipcc.ch*. Archived (https://web.archive.org/web/20181123024424/http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_science_basis.htm) from the original on November 23, 2018. Retrieved September 4, 2018.
50. "Climate Change and Health in California - Issue Brief" (https://www.nrdc.org/sites/default/files/climate-change-health-impacts-california-ib.pdf) (PDF). *Natural Resources Defense Council*. 2019. Archived (https://web.archive.org/web/20200720092659/https://www.nrdc.org/sites/default/files/climate-change-health-impacts-california-ib.pdf) (PDF) from the original on July 20, 2020. Retrieved August 11, 2021.
51. Basu, R., and B. D. Ostro. 2008. "A Multicounty Analysis Identifying the Populations Vulnerable to Mortality Associated with High Ambient Temperature in California." *Am J Epidemiol* 168(6): 632–37
52. Knowlton, K., M. Rotkin-Ellman, G. King, H. G. Margolis, D. Smith, G. Solomon, R. Trent, and P. English. 2009. "The 2006 California Heat Wave: Impacts on Hospitalizations and Emergency Department Visits". *Environ Health Perspect* 117(1): 61–67
53. "Estimating the Mortality Effect of the July 2006 California Heat Wave" (https://web.archive.org/web/20090716010226/http://www.energy.ca.gov/2009publications/CEC-500-2009-036/CEC-500-2009-036-D.PDF) (PDF). Archived from the original (http://www.energy.ca.gov/2009publications/CEC-500-2009-036/CEC-500-2009-036-D.PDF) (PDF) on July 16, 2009. Retrieved 2009-07-25.
54. Public health-related impacts of climate change in California. California Energy Commission "Estimating the Mortality Effect of the July 2006 California Heat Wave" (https://web.archive.org/web/20090716010226/http://www.energy.ca.gov/2009publications/CEC-500-2009-036/CEC-500-2009-036-D.PDF) (PDF). Archived from the original (http://www.energy.ca.gov/2009publications/CEC-500-2009-036/CEC-500-2009-036-D.PDF) (PDF) on July 16, 2009. Retrieved 2009-07-25.
55. "Climate Change in California: Health, Economic and Equity Impacts" (http://rprogress.org/publications/2006/CARB_ES_0106.pdf) (PDF). Oakland, California: Redefining Progress. Archived (https://web.archive.org/web/20160304082818/http://rprogress.org/publications/2006/CARB_ES_0106.pdf) (PDF) from the original on March 4, 2016. Retrieved December 7, 2018.

56. ALA (American Lung Association). 2008. State of the Air: 2008. American Lung Association: New York.
57. "Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California" (http://www.arb.ca.gov/research/health/pm-mort/pm-mortdraft.pdf) (PDF). CARB (California Air Resources Board). Archived (https://web.archive.org/web/20150923173318/http://www.arb.ca.gov/research/health/pm-mort/pm-mortdraft.pdf) (PDF) from the original on September 23, 2015. Retrieved December 7, 2018.
58. "On the causal link between carbon dioxide and air pollution mortality" (https://web.stanford.edu/group/efmh/jacobson/Articles/V/2007GL031101.pdf) (PDF). *Web.stanford.edu*. Archived (https://web.archive.org/web/20151214194103/https://web.stanford.edu/group/efmh/jacobson/Articles/V/2007GL031101.pdf) (PDF) from the original on December 14, 2015. Retrieved December 7, 2018.
59. "Boosting the Benefits: Improving air quality and health by reducing global warming pollution in California" (http://www.nrdc.org/globalwarming/boosting/boosting.pdf) (PDF). *Nrdc.org*. Archived (https://web.archive.org/web/20160304192554/http://www.nrdc.org/globalwarming/boosting/boosting.pdf) (PDF) from the original on March 4, 2016. Retrieved December 7, 2018.
60. California agriculture statistical review. Sacramento, California. California Agriculture Statistics Service
61. Verville, Julia H.; Sheridan, Scott C.; Neilson, Ronald P.; Lunch, Claire K.; Lenihan, James; Kalkstein, Laurence S.; Hanemann, R. Michael; Drapek, Ray; Dale, Larry; Cleland, Elsa E.; Cahill, Kimberly Nicholas; Schneider, Stephen H.; Moser, Susanne C.; Miller, Norman L.; Maurer, Edwin P.; Frumhoff, Peter C.; Field, Christopher B.; Cayan, Daniel; Hayhoe, Katharine (August 24, 2004). "Emissions pathways, climate change, and impacts on California" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC514653). *Proceedings of the National Academy of Sciences*. **101** (34): 12422–12427. Bibcode:2004PNAS..10112422H (https://ui.adsabs.harvard.edu/abs/2004PNAS..10112422H). doi:10.1073/pnas.0404500101 (https://doi.org/10.1073%2Fpnas.0404500101). PMC 514653 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC514653). PMID 15314227 (https://pubmed.ncbi.nlm.nih.gov/15314227).
62. "California leads subnational efforts to curb climate change" (https://www.economist.com/international/2018/09/15/california-leads-subnational-efforts-to-curb-climate-change). *The Economist*. September 15, 2018. Archived (https://web.archive.org/web/20181115030854/https://www.economist.com/international/2018/09/15/california-leads-subnational-efforts-to-curb-climate-change) from the original on November 15, 2018. Retrieved November 14, 2018.
63. Biello, David. "California Dreaming? The Golden State Takes the Lead in U.S. Efforts to Combat Climate Change" (https://www.scientificamerican.com/article/california-leads-us-efforts-to-combat-climate-change/). *Scientific American*. Archived (https://web.archive.org/web/20181115112751/https://www.scientificamerican.com/article/california-leads-us-efforts-to-combat-climate-change/) from the original on November 15, 2018. Retrieved November 14, 2018.
64. Counts, Laura (May 1, 2018). "In new book, Prof. Vogel explores why California has a green streak" (http://newsroom.haas.berkeley.edu/new-book-prof-vogel-explores-california-green-streak/). *Haas News - Berkeley Haas*. Archived (https://web.archive.org/web/20181115071230/http://newsroom.haas.berkeley.edu/new-book-prof-vogel-explores-california-green-streak/) from the original on November 15, 2018. Retrieved November 14, 2018.
65. "California is Way Ahead of Schedule for Cutting Greenhouse Gas Emissions" (https://web.archive.org/web/20181115071150/https://gizmodo.com/california-is-way-ahead-of-schedule-for-cutting-greenho-1827532504). Archived from the original (https://gizmodo.com/california-is-way-ahead-of-schedule-for-cutting-greenho-1827532504) on November 15, 2018. Retrieved November 14, 2018.

66. Barringer, Felicity (October 13, 2012). "In California, a Grand Experiment to Rein in Climate Change" (https://www.nytimes.com/2012/10/14/science/earth/in-california-a-grand-experiment-to-rein-in-climate-change.html). *The New York Times*. Archived (https://web.archive.org/web/20191008014805/https://www.nytimes.com/2012/10/14/science/earth/in-california-a-grand-experiment-to-rein-in-climate-change.html) from the original on October 8, 2019. Retrieved November 28, 2017.
67. "California leads on sustainability innovation while Trump digs coal" (https://phys.org/news/2018-09-california-sustainability-trump-coal.html). *Phys.org*. Archived (https://web.archive.org/web/20181115030748/https://phys.org/news/2018-09-california-sustainability-trump-coal.html) from the original on November 15, 2018. Retrieved November 14, 2018.
68. "California leads the way on climate action" (https://www.c2es.org/2012/11/california-leads-the-way-on-climate-action/). *C2es.org*. November 12, 2012. Archived (https://web.archive.org/web/20181115030702/https://www.c2es.org/2012/11/california-leads-the-way-on-climate-action/) from the original on November 15, 2018. Retrieved November 14, 2018.
69. "Bill Text - AB-32 Air pollution: greenhouse gases: California Global Warming Solutions Act of 2006" (https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200520060AB32). *leginfo.legislature.ca.gov*. Retrieved February 17, 2024.
70. "AB 32 Global Warming Solutions Act of 2006 | California Air Resources Board" (https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006). *ww2.arb.ca.gov*. Retrieved February 17, 2024.
71. Schwarzenegger, Arnoild (June 5, 2005). "Executive Order S-3-05" (https://www.library.ca.gov/wp-content/uploads/GovernmentPublications/executive-order-proclamation/5129-5130.pdf) (PDF). *California State Library*. Retrieved February 17, 2024.
72. "2013 Scoping Plan Documents | California Air Resources Board" (https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2013-scoping-plan-documents#:~:text=The%20First%20Update%20to%20the,with%20new%20strategies%20and%20recommendations.). *ww2.arb.ca.gov*. Retrieved February 17, 2024.
73. "Bill Text - SB-32 California Global Warming Solutions Act of 2006: emissions limit" (https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32). *leginfo.legislature.ca.gov*. Retrieved February 17, 2024.
74. "California's 2017 Climate Change Scoping Plan" (https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf) (PDF). *California Air Resources Board*. November 1, 2017.
75. "2022 Scoping Plan Documents | California Air Resources Board" (https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents). *ww2.arb.ca.gov*. Retrieved February 17, 2024.
76. James H. Thorne, Ryan M. Boynton, Andrew J. Holguin, Joseph A. E. Stewart, and Jacquelyn Bjorkman, *A Climate Change Vulnerability Assessment of California's Terrestrial Vegetation* (Sacramento, CA: California Department of Fish and Wildlife, 2016)
77. Louise Bedsworth, Dan Cayan, Guido Franco, Leah Fisher, and Sonya Ziaja, "Statewide Summary Report," in *California's Fourth Climate Change Assessment*, publication number: SUMCCCA4-2018-013, 2018
78. U.S. Fish and Wildlife Service. 2022. *Species Status Assessment for the California Spotted Owl (Strix occidentalis occidentalis)*, Version 2.0. November 2022. Sacramento, California
79. Fisheries, NOAA. "Climate Change Escalates Threats to Species in the Spotlight." NOAA, 9 Oct. 2024
80. Desert Slender Salamander (Batrachoseps Major Aridus) 5-Year Review: Summary and Evaluation Photo from Carlsbad Fish and Wildlife Office Files. 2009

Further reading

- B. Lynn Ingram; Frances Malamud-Roam (July 2, 2013). *The West without Water: What Past Floods, Droughts, and Other Climatic Clues Tell Us about Tomorrow* (https://books.google.com/books?id=Id7_aLijS8oC). University of California Press. ISBN 978-0520954809.
- Stine, Scott (June 1990). "Late holocene fluctuations of Mono Lake, eastern California". *Palaeogeography, Palaeoclimatology, Palaeoecology*. **78** (3–4). Elsevier: 333–81. Bibcode:1990PPP....78..333S (https://ui.adsabs.harvard.edu/abs/1990PPP....78..333S). doi:10.1016/0031-0182(90)90221-R (https://doi.org/10.1016%2F0031-0182%2890%29902221-R).
- Gonzalez, P.; G.M. Garfin; D.D. Breshears; K.M. Brooks; H.E. Brown; E.H. Elias; A. Gunasekara; N. Huntly; J.K. Maldonado; N.J. Mantua; H.G. Margolis; S. McAfee; B.R. Middleton; B.H. Udall (2018). "Southwest" (https://nca2018.globalchange.gov/chapter/25/). In Reidmiller, D.R.; C.W. Avery; D.R. Easterling; K.E. Kunkel; K.L.M. Lewis; T.K. Maycock; B.C. Stewart (eds.). Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II (Report). Washington, DC, USA: U.S. Global Change Research Program. pp. 1101–1184. doi:10.7930/NCA4.2018.CH25 (https://doi.org/10.7930%2FNCA4.2018.CH25).—this chapter of the National Climate Assessment covers Arizona, California, Colorado, New Mexico, Nevada, and Utah

External links

- Scoping Plan (http://www.arb.ca.gov/newsrel/nr062608.htm)
- California Center for Sustainable Energy (http://www.energycenter.org)
- California Releases Plans to Cut its Greenhouse Emissions (http://apps1.eere.energy.gov/news/enn.cfm#id_12067) Archived (https://web.archive.org/web/20110529013518/http://apps1.eere.energy.gov/news/enn.cfm#id_12067) May 29, 2011, at the Wayback Machine (EERE).
- California Department of Water Resources (http://www.water.ca.gov/)

Legislation

- CARB about 1493 (http://www.arb.ca.gov/cc/cc.htm#Background).
- CARB regulations (http://www.arb.ca.gov/regact/grnhsgas/revfro.pdf) (PDF).
- AB 32 Solutions For Global Warming (http://www.solutionsforglobalwarming.org).
- AB 1007 (https://web.archive.org/web/20080709002737/http://www.energy.ca.gov/ab1007).
- AB 1493 (Pavley) Briefing Package (https://web.archive.org/web/20080706125212/http://www.fypower.org/pdf/AB1493_presentation.pdf) (PDF) Greenhouse gas emissions.
- AB 1493 Informational Hearing (https://web.archive.org/web/20080529090754/http://www.assembly.ca.gov/acs/committee/c24/hearings/AB1493background.doc) (Microsoft Word file)
- AB 1493 from Governor's website (https://web.archive.org/web/20080529090755/http://governor.ca.gov/govsite/pdf/links/ab_1493_bill_20020701_enrolled.pdf), California Senate (https://web.archive.org/web/20071224052259/http://info.sen.ca.gov/cgi-bin/postquery?bill_number=ab_1493&sess=0102&house=B&site=sen) and AB 1493 from Calcleancars.org (https://web.archive.org/web/20040427170951/http://www.calcleancars.org/ab1493.pdf) (PDF)