



CALIFORNIA
CLIMATE
ADAPTATION
STRATEGY



2024
Implementation
Report



The progress outlined in this 2024 Implementation Report is thanks to the insights, experience, and tireless efforts of a diverse, growing, and deeply valued community of leaders, practitioners, experts, and groups across California and beyond. We are deeply grateful for this collective wisdom and shared commitment. This collaboration will be essential to continuing to achieve and realize the priorities of the California Climate Adaptation Strategy.

A copy of this document can be found online at ClimateResilience.ca.gov



This report details California’s progress in addressing the Climate Adaptation Strategy (Strategy) throughout 2024, highlighting key actions that made our state more resilient.

California’s Climate Adaptation Strategy encompasses six key priorities that drive all resilience actions in California:

1. Strengthen Protections for **Climate Vulnerable Communities**
2. **Bolster Public Health** and Safety to Protect Against Increasing Climate Risks
3. Build a **Climate Resilient Economy**
4. Accelerate **Nature-Based Climate Solutions** and Strengthen Climate Resilience of Natural Systems
5. Make Decisions Based on the **Best Available Climate Science**
6. **Partner and Collaborate** to Leverage Resources

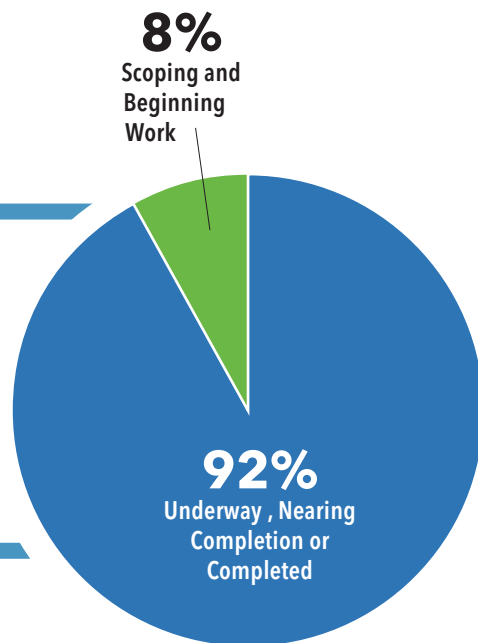
Across the six priorities, progress continues to be measured and reflected through specific metrics, which were included for the first time in California’s 2021 Climate Adaptation Strategy.

Progress updates on all the Strategy’s metrics can be found here:

climateresilience.ca.gov

AT-A-GLANCE

At the start of 2025, 92 percent of all 2021 Strategy metrics were well underway, nearing completion, or completed, with only 8 percent of Strategy’s metrics at the stage of organizing or beginning project work, including gathering and integrating community input. Over the three-year period of the 2021 Adaptation Strategy, two-thirds of all metrics scheduled to end between 2021 and 2024 have been completed.





California's Climate Impacts - 2024 Year in Review

2024 was the warmest year on observational record, both in the United States and across the globe, beating the previous record set in 2023. As global temperatures increased, greenhouse gas levels in the atmosphere also continued to climb, trapping in even more heat for the future.

Climate impacts Californians experienced in 2024 include:

Storms & Flooding

Winter and spring of 2024 were defined by extreme precipitation events linked to climate change. El Niño brought warmer than average ocean surface temperatures off the coast of Ecuador and Peru, altering the frequency and characteristics of storms along California's coast.

In January and February, winter storms in Southern California caused widespread river and coastal flooding, flash flooding, high surf conditions, mudslides, and debris flows threatening life and safety, structures, and critical infrastructure. The rain led to water rescues, closed roadways, and significant property damage. As a result, Governor Newsom proclaimed a State of Emergency for the January winter storms, including across several Southern California counties. For example, San Diego County experienced historic rainfall for the month of January, with two to three inches of rain dropping in roughly 24 hours making it one of the wettest days on record for the County.

Atmospheric rivers continued to hit throughout California in March, causing landslides, slip outs, potholes, various road closures, debris flows, and widespread power outages. Northern Sierra Nevada, near Lake Tahoe, was hit by the strongest storm in 40 years in the region. Five to seven feet of snow fell and winds gusted over 150 mph. Vehicles were stranded overnight on Interstate 80 as extreme conditions forced the closure of the road. In Los Angeles County, a landslide on Topanga Canyon Boulevard also forced roadway closures.

After a dry summer, a strong atmospheric river in November brought heavy rainfall again to Northern California. Santa Rosa saw a record 12.5 inches of rainfall fall over three days. This contributed to Santa Rosa's fourth wettest year on record with 48.48 inches of precipitation, or 154 percent of normal. The atmospheric river also brought strong winds leading to toppled trees, downed power lines, and damage to homes and vehicles.

A significant impact of these repeated extreme precipitation events was accelerated land movement and erosion. For example, the City of Rancho Palos Verdes south of Los Angeles experienced acceleration of land movement and an expanded active landslide area, affecting hundreds of buildings and basic utilities services for communities.



Drought

Many areas of California began 2024 with increased levels of precipitation and as a result of atmospheric rivers and storms much of California received near-normal precipitation in Water Year 2024 (October 2023 to September 2024). However, summer record-breaking heat led to drier-than-normal conditions across many parts of California. This increased the percentage of California that was abnormally dry from less than two percent at the start of June to over 70 percent at the start of October. By the end of December, nearly 60 percent of California was abnormally dry, with moderate drought affecting large areas of Southern California. Strong Santa Ana winds further increased dryness in Southern California, where vegetation is generally quite dry.

Extreme Heat

2024 was the warmest year in the 175-year observational record. Each of the past ten years, 2015 to 2024, were individually the ten warmest years on record. These global temperature trends are evident in California, with summer 2024 being the state's hottest summer on record. Several locations set record high annual mean temperatures, such as Death Valley, with an average monthly temperature of 108.5 degrees, and Sacramento, with temperatures almost matching its historical high of 116 degrees. Temperatures in Redding reached 118 degrees, while Modesto reached 110 degrees. These high temperatures, and overall statewide increase in temperatures, not only significantly impact local infrastructure and fragile ecosystems but endanger outdoor workers and exacerbate historical inequities, particularly in frontline communities who are already suffering the brunt of climate change impacts.

Extreme heat has clear public health impacts, as evidenced by an additional week of extreme heat in September 2024. As triple-digit heat built across California, Arizona, and Nevada the first week of September, the rate of emergency room visits for heat-related illness doubled in the region. Overall, extreme heat impacted almost all of California in 2024, with annual mean temperatures one to three degrees Fahrenheit above normal for most of the West.

Wildfire

2024 FIRE SEASON BY THE NUMBERS:

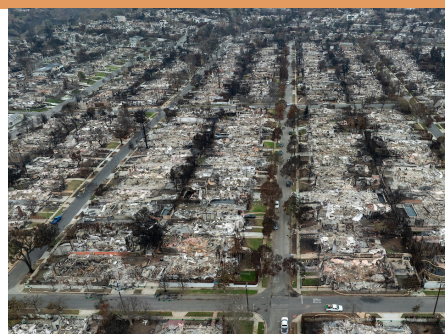
605,868 Total Emergency Responses

8,024 Wildfires

1,050,012 Acres Burned

1 Civilian Fatality

2,148 Structures: 432 Damaged / 1,716 Destroyed





In 2024, California experienced significant wildfire activity, exacerbated by a hot summer and an abundance of fuels from an unusually wet winter and spring. This combination made vegetation more susceptible to ignition and rapid fire spread. In total, 1,050,012 acres burned during thousands of wildfire incidents in California, causing 10 State of Emergency proclamations for wildfire.

The Park Fire stood out as a particularly devastating event. The fire ignited on July 24th in Chico's Bidwell Park in Butte County. Despite aggressive initial attack suppression efforts, the fire rapidly expanded and burned 429,603 acres across Butte and Tehama counties. The Park Fire destroyed 709 structures and damaged 54 others, prompting widespread evacuations and the temporary closure of Lassen Volcanic National Park.

The Franklin Fire was another significant wildfire in 2024. It ignited near Malibu on December 9th and spread quickly due to strong Santa Ana winds. Over 4,000 acres burned, leaving 20 structures destroyed and 28 damaged, including several schools. More than 20,000 people were evacuated during the fire.

Ocean Changes and Coastal Impacts

In 2024, California experienced widespread increases in coastal ocean temperatures. Several daily sea surface temperature records were broken, the majority of which occurred offshore and in the central to southern regions. Most of these record-breaking temperatures occurred in the late winter and early spring during El Niño, and again in the summer during a large marine heatwave event.

The summer marine heatwave event impacted species at the top of the food web, commercially important fisheries, and endangered salmon. Specifically, the Chinook salmon commercial fishery significantly declined. These increases in marine heatwave events are a concern for California's marine life and economy, yet the cascading impacts on marine ecosystems are not fully understood.

In late spring, the California Current Ecosystem exited an El Niño pattern, resuming upwelling of cold, nutrient-rich deep ocean water along the coast. Upwelling conditions supported forage for sea lion populations and other species. However, as the year went on, upwelling also contributed to harmful algal blooms off Southern California, producing a neurotoxin called domoic acid that can be poisonous.



2024 Adaptation Action - Key Highlights

Below are examples of how the state has made progress in achieving the six priorities in the Climate Adaptation Strategy in 2024.

Strengthen Protections for Climate Vulnerable Communities

- Awarded \$17 million in grants to six Direct Assistance Providers throughout the state via the 2024 California Underserved and Small Producers Extreme Weather and Other Climate Impacts direct relief program to provide financial relief and technical assistance to underserved and small farmers in the state in need. (Department of Food and Agriculture)
- Launched the [Homeless Housing, Assistance and Prevention Program \(HHAP\)](#), which helps communities protect people experiencing homelessness from dangerous climate impacts such as heat and flooding. (Business Consumer Services and Housing Agency - Department of Housing and Community Development)
- Awarded over \$24 million in Climate Adaptation Planning Grants to adapt transportation systems to climate change impacts. (State Transportation Agency - Caltrans)
- Developed [CalHeatScore](#), an extreme heat ranking system that gives Californians early warning when hot weather is forecast to cause elevated health risks. The tool brings together ZIP code level data to provide locally tailored guidance. The tool identifies groups most susceptible to extreme heat, including seniors, children, and pregnant people; provides tips for staying safe, such as how to recognize signs of heat illness; and integrates other important data sets like locations for the nearest cooling centers. (Environmental Protection Agency - Office of Environmental Health Hazard Assessment)
- Piloted a [Wildfire Smoke Education Toolkit](#) in English and Spanish for community health workers, community-based organizations, and educators. (Health and Human Services Agency - Department of Public Health)
- Designated 213 new [FireWise Communities](#) across California, a program that promotes collaborative efforts among residents, local fire departments, and key stakeholders to bolster the fire resistance of homes and their surroundings. (Natural Resources Agency - Department of Forestry and Fire Protection or CAL FIRE)
- Invested in 902 fuel reduction projects treating 131,034 acres across the state through CAL FIRE and its grantee partners. Launched a [Fuels Treatment Effectiveness Dashboard](#) to show how projects are protecting communities and landscapes when wildfire strikes. (Natural Resources Agency - CAL FIRE)
- Awarded more than \$335 million in grant funding to improve the wildfire resilience of communities and landscapes, green communities, and conserve forests. (Natural Resources Agency - CAL FIRE)



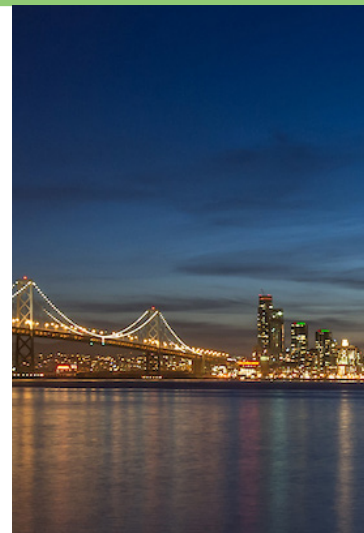
- Created a new Climate and Environmental Justice unit and hired the Delta Stewardship Council's first-ever Justice, Equity, Diversity, and Inclusion (or JEDI) Officer to deliver on climate adaptation and environmental justice commitments. (Natural Resources Agency - Delta Stewardship Council)
- Supported local health jurisdictions through a monthly working group, office hours, newsletters, and one-on-one technical assistance to address the health and equity impacts of climate change, engaging more than 60% of local health jurisdictions. (Health and Human Services Agency - Department of Public Health)
- [Invested more than \\$789 million](#) to build more than 2,400 affordable homes and advance multiple green transportation improvement projects. Selected projects considered climate risks in project design. (Strategic Growth Council)

CASE STUDY: The Park Fire was California's largest wildfire in 2024 and the fourth-largest wildfire in California's recorded history, burning more than 420,000 acres and creating a devastating impact on local communities and the environment. As the fire burned rapidly toward the community of Cohasset, it encountered the Cohasset Fuels Reduction treatment. This treatment was part of the [Forest Health and Upper Watershed Resilience Project](#) managed by the Butte County Fire Safe Council (Council) and funded through the CAL FIRE Forest Health Program. After initial treatment work undertaken by the Council, the Butte County Prescribed Burn Association carried out prescribed burns in and around the treated areas to further reduce the fuel loading. During the Park Fire, this project created a safe area for firefighters to protect houses and redirect the fire away from the community of Cohasset. This project resulted in reduced flame height that safeguarded taller trees from significant damage, improving their survival rate after the fire. The fire also encountered a California Department of Transportation (Caltrans)-funded 100-foot-wide fire break for two miles on both sides of Highway 32 in Butte County which acted as a highly effective fire control line along the ridge.





CASE STUDY: The award-winning San Francisco Bay [Regional Shoreline Adaptation Plan \(RSAP\)](#) is a first-of-its-kind plan to proactively and collectively protect the most at-risk communities, critical infrastructure, natural habitats and public access along the San Francisco Bay from sea level rise. Supported by California legislation, Senate Bill 272, the RSAP sets a bay-wide vision and guidelines for how 51 local governments create adaptation plans – emphasizing equity, nature-based solutions, and collaborative governance. The RSAP is the result of two years of extensive, bay-wide engagement. It was unanimously adopted by the San Francisco Bay Conservation and Development Commission in December 2024.



Bolster Public Health and Safety to Protect Against Increasing Climate Risks

- [Protected and expanded the state's water supply](#) by building resilience of drinking water and wastewater systems and adding to the state's water supply, investing more than \$100 million in local groundwater recharge projects streamlining the Sites Reservoir project and making progress on the Delta Conveyance Project, and more. (Environmental Protection Agency – State Water Resources Control Board, Natural Resources Agency – Department of Water Resources)
- Marked the [first decade of the Sustainable Groundwater Management Act](#), historic legislation that aims to improve water supply reliability by working to improve groundwater sustainability practices. Recent [groundwater conditions reports](#) show improved groundwater planning and data collection, enhanced groundwater recharge activities, and increased local collaboration, positioning the state on a path toward sustainable water management, despite extreme climate fluctuations. (Natural Resources Agency – Department of Water Resources, Environmental Protection Agency – State Water Resources Control Board)
- Improved [community response](#) and [adaptation to extreme heat](#) through 47 projects across the state, including awareness campaigns, cooling center investments, shade and cooling investments in parks, home retrofits, cool pavement planning and nature-based solutions. (Governor's Office of Land Use and Climate Innovation)
- Awarded \$93.6 million through the [SGC Community Resilience Centers program](#) to build climate resilience centers in communities most impacted by climate change. (Strategic Growth Council)



- Awarded \$8.2 million in wildfire resilience projects through the Regional Resilience Grant Program. (Governor’s Office of Land Use and Climate Innovation)
- Invested in projects to improve Delta levees and tracts and released a [decision-support tool](#) to explore future flood risk scenarios for each Delta island and tract. (Natural Resources Agency - Delta Stewardship Council)
- Encouraged zoning for new housing within existing neighborhoods, neighborhoods closer to jobs and daily destinations, and in high quality transit corridors through the Department of Housing and Community Development’s [ongoing review](#) of Housing Elements from local communities. This review considers climate resilience and the protection of vulnerable communities from climate impacts. (Business, Consumer Services and Housing Agency - Department of Housing and Community Development)
- Completed the 32 action items in the “Strengthen Protection of Communities” chapter of the Wildfire and Forest Resilience Action Plan, which are also actions within the 2023 State Hazard Mitigation Plan, including increasing fire prevention, preparedness, and mitigation efforts, reducing community wildfire risk, and creating fire-adapted and resilient communities throughout the state. (Governor’s Wildfire and Forest Resilience Task Force and Governor’s Office of Emergency Services)
- Updated and translated to Spanish key indicator narratives of the [Climate Change and Health Vulnerability Indicators Visualization platform](#). (Health and Human Services Agency - Department of Public Health)
- [Released the Homeless Emergency and Active Readiness Toolkit](#) to support the inclusion of people experiencing homelessness into local emergency planning and response efforts. (Business Consumer Services and Housing Agency - California Interagency Council on Homelessness)

CASE STUDY: Surfers Point is a major recreational site for swimming, surfing, windsurfing, and kayaking in Ventura. The Surfers Point Phase II Project broke ground in 2024. It was funded by a \$16.2 million grant from the California State Coastal Conservancy and is a continuation of the initial phase of the Surfers Point Managed Retreat Project, which was completed in 2013. The project’s first phase garnered national attention for its approach to addressing long-term coastal resilience. During the second phase of the project, the City is removing existing infrastructure along the coastline that has been damaged due to consistent wave action and erosion, and reconstructing the coastline with dunes, native plantings, public access amenities, and a berm that will provide long-term protection to coastal infrastructure.





CASE STUDY: The Community Health Workers (CHWs), Healthy Homes and Healthy Families pilot program is the result of a partnership between Kaweah Health, the Association for Energy Affordability, the University of California-Davis, Proteus, Inc., and the California Department of Public Health (CDPH). This pilot program connects low-income families and farmworker communities in Tulare County with energy efficiency and weatherization services as protective health interventions to provide thermal comfort in homes, reduce health risks, and improve resilience to heat, wildfire smoke and air pollution. CHWs perform in-home visits with Medi-Cal patients who have asthma, chronic obstructive pulmonary disease (COPD), or other potential health conditions. CHWs assess health conditions linked to housing conditions using a housing and health intake survey and, when appropriate and authorized by the patient, make a referral to the local weatherization provider.



Build a Climate Resilient Economy

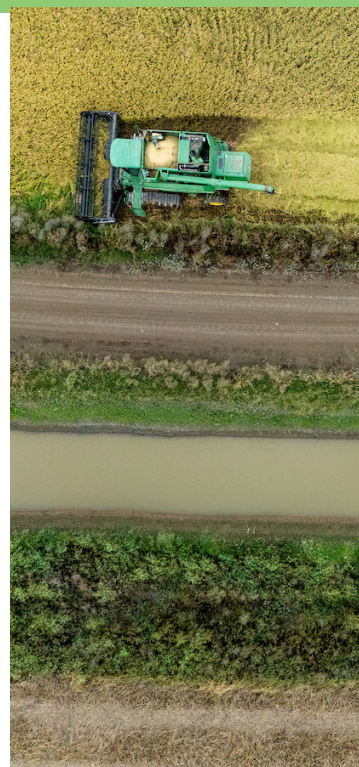
- Awarded \$52.8 million in grant funding to 195 Farm to School projects across the state. This funding will serve 1,650,985 students, 199 school districts and educational entities, 52 farms, eight food hubs and five California Native American Tribes. (Department of Food and Agriculture)
- [Invested nearly \\$13 billion](#) and created approximately 420,000 jobs through projects to enhance transportation safety, increase accessibility for people who walk and bike, support infrastructure in underserved communities across both rural and urban parts of the state, and create a more sustainable highway system that is resilient to climate change. (California Transportation Commission)
- Conducted grant solicitations for three manure methane reduction programs that collectively had over \$80 million available for awards. Awards, which were announced in spring of 2025, were made to dairies to implement climate-friendly projects and practices, including dairy digesters, that result in long-term methane emissions reductions. (Department of Food and Agriculture)



- Promoted integrated pest management (IPM) research and implementation in urban and agriculture settings [through eight grants totaling over \\$2.67 million](#). Also awarded more than \$1.5 million in funding to support IPM development, including proactive solutions to treat the [South American Palm Weevil](#) and development of biologically integrated practices such as [using pheromones in area-wide coordination to manage pests](#). (Environmental Protection Agency - Department of Pesticide Regulation, Department of Food and Agriculture)
- Adopted a statewide permit to better respond to increased risks of flooding and debris flows by streamlining the approval of emergency repairs and protections or repairs or restoration to address anticipated emergencies. (Environmental Protection Agency - State Water Resources Control Board)
- Initiated the development of an [Urban Infiltration Policy](#) to promote capture and infiltration of stormwater for groundwater recharge. (Environmental Protection Agency - State Water Resources Control Board)
- [Adopted water efficiency standards](#) for water utilities serving cities and towns across the state, cultivating long-term water conservation practices while allowing for flexibility for locally appropriate solutions. (Environmental Protection Agency - State Water Resources Control Board)
- Developed an [interactive mapping tool](#) that identifies cleanup sites that are vulnerable to sea level rise and groundwater rise. (Natural Resources Agency - Ocean Protection Council, Environmental Protection Agency - Department of Toxic Substances Control)
- Completed the [2024 California State Rail Plan](#), which addresses coastal erosion and sea level rise, a major challenge facing the State's rail network. The plan identifies key locations on the rail network where this is an issue, to prioritize and implement long-term solutions. (State Transportation Agency - Caltrans)
- [Brought a record number of new clean energy resources](#) online to serve all Californians, adding over 7,000 megawatts of new clean energy capacity - enough to power up to seven million homes. (Public Utilities Commission)
- Expanded [battery storage capacity by 3,012 megawatts \(MW\)](#) in six months to reach 13,391 MW, resulting in a 30% increase since April 2024. Battery storage systems capture power produced by wind and solar resources and discharge the energy back to the electric grid during times of peak demand creating a safer, more reliable and resilient power grid. (Public Utilities Commission)



CASE STUDY: The legislature established the California Department of Food and Agriculture’s State Water Efficiency and Enhancement Program (SWEEP) in 2014 in response to drought, providing incentive funding for sustainable agricultural practices that help make farms more resilient to drought and improves water and energy efficiency. Common SWEEP projects include soil moisture sensors, weather stations, and other water flow devices; micro-irrigation systems; pump retrofits or replacements; and renewable energy systems – among other water and energy saving technologies. The SWEEP Block Grant Pilot Program, established in 2024, is designed to provide financial assistance to California agricultural operations through organizations with close ties to producers who understand regional and commodity-specific needs. CDFA selected nine block grants across the state to increase on-farm water and energy use efficiency. Together with CDFA’s Healthy Soils Program, over \$104 million was awarded for the regional implementation of climate smart agricultural projects.



CASE STUDY: The 2018 Camp Fire burned over 150,000 acres, including almost the entire town of Paradise, and destroyed 19,000 structures putting strains on the housing market. To ease the burden of housing lost during the Camp Fire and other nearby fires, the state contributed to the development of a 48-unit new construction multifamily housing project located in the City of Oroville in Butte County called Table Mountain Phase II. 21 of the units are funded by [Disaster Recovery Multifamily Housing Program](#). The project adds to the housing stock by providing one, two, and three-bedroom units for households earning up to 50 percent of the area median income.





Accelerate Nature-Based Climate Solutions and Strengthen Climate Resilience of Natural Systems

- [Set the state's first nature-based solution climate targets](#) to support California's goals of building climate resilience and achieving carbon neutrality no later than 2045 and protecting Californians from the climate crisis. (Multiple Agencies)
- Completed the Delta's largest-ever tidal wetland restoration effort, restoring 3,400 acres of habitat for sensitive fish species while also reducing flood risk in the Central Valley through the [Lookout Slough project](#). (Natural Resources Agency - Department of Water Resources)
- Restored 156 acres of forested lands and completed forestry planning for another 200 acres on [Tahoe Conservancy properties](#) to increase forest health and resilience to drought conditions, disease and pest invasions, and catastrophic wildfire. (Natural Resources Agency - California Tahoe Conservancy)
- Supported partners in [addressing areas impacted by the Caldor Fire](#) on federal lands, completing hazard fuel reduction and restoration on 593 acres. (Natural Resources Agency - California Tahoe Conservancy)
- Implemented wildfire resiliency treatment activities on over 100,000 acres across California Department of Fish and Wildlife (CDFW) lands, including creating defensible space, applying beneficial fire via cultural and prescribed burns, targeting invasive species removal, prescribing herbivory to reduce fuel loads, and more. CDFW evaluated relative wildfire risk across the state to prioritize these activities. (Natural Resources Agency - Department of Fish and Wildlife)
- Awarded \$35.15 million in the 2023-24 Budget to wildfire recovery and forest resilience projects. The Sierra Nevada Conservancy administered a cycle of its Wildfire Recovery and Forest Resilience Grant Program, making the full amount available to [22 projects across the Sierra-Cascade Region](#). (Natural Resources Agency - Sierra Nevada Conservancy)
- Contributed to the acquisition and permanent [protection of over 11,000 acres of forest, meadow, and critical water sources](#) through the Sierra Nevada Conservancy. (Natural Resources Agency - Sierra Nevada Conservancy)
- Incentivized the production of high-quality, marketable compost and reduced methane emissions caused by landfilled organic waste by providing \$805,457 through the [Community Composting for Green Spaces Grant Program](#) which increases the number and capacity of small-scale composting programs in disadvantaged and low-income communities. Projects funded in 2024 were awarded for community composting on lands under the ownership, management, or stewardship of members of a tribal community. The program also provides compost and trees to enhance green spaces, grow fresh produce, and support neighborhood climate adaptation projects, thereby increasing local soil health, access to green spaces, and food choices while decreasing food insecurity in [priority population communities](#). (Environmental Protection Agency - CalRecycle)

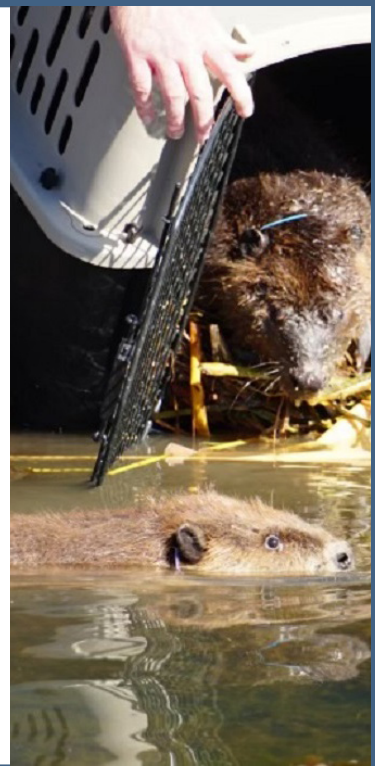


- Awarded \$38 million in 15 Fuel Reduction Service Contracts to establish strategic fuel breaks on 92 highway routes extending nearly 804 centerline miles to treat 9,225 acres of high and very high fire hazard severity zones. (State Transportation Agency – Caltrans)
- Invested \$129 million in daily field maintenance crew labor, equipment and materials for vegetation management along state highways. (State Transportation Agency – Caltrans)

CASE STUDY: The Delta Conservancy approved four nature-based solutions projects that will re-wet up to 10,000 acres of deeply subsided peat soils in the Delta, stopping subsidence and reducing resulting greenhouse gas emissions by up to 100,000 tons of carbon dioxide annually. These projects advance California’s Nature-Based Solutions Climate Targets called for in Assembly Bill 1757 and specifically the wetland target of rewetting peat soils in the Delta.



CASE STUDY: In 2022, as part of the state’s effort to expand nature-based solutions, CDFW created the Beaver Restoration Program to begin returning beavers to watersheds throughout their native range in the state. Since then, the translocated beavers have begun their work as ecosystem engineers, restoring wetlands and building resilience to climate change impacts such as drought and wildfire. Between October 2023 and September 2024, CDFW placed 28 beavers in the Sierra Nevada at five release sites through two pilot projects, which were launched in partnership with the Tule River Tribe in Southern California and the Maidu Summit Consortium in Northern California. The translocated beavers have built dams at three of the release sites. At the most productive release site, beavers have begun to dig a network of canals, reconnected the stream with its floodplain and increased the surface water area by approximately 23%. CDFW recently released a [status report](#) on the translocated beavers and restoration sites, summarizing project successes, lessons learned, and next steps for beaver restoration in California.



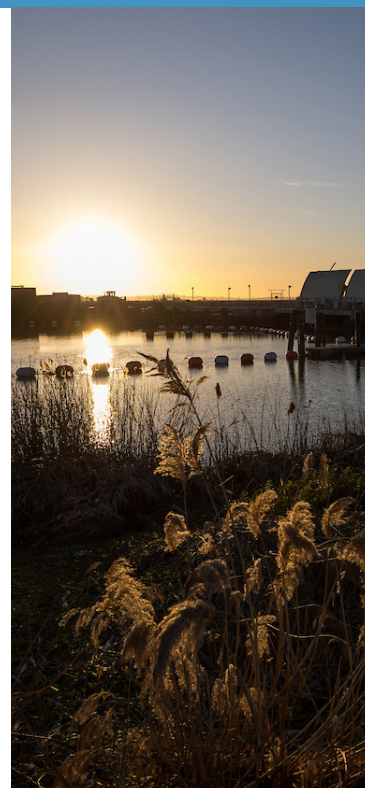


Make Decisions Based on the Best Available Climate Science

- Published the biennial [State Water Project Delivery Capability Report](#) with [new system risk-informed planning scenarios](#) that explore climate change impacts to the State Water Project that are already occurring and address future risks. This report informs and guides local water resources planning throughout California. (Natural Resources Agency - Department of Water Resources)
- Established nine regional author teams made up of research and community experts to develop California's Fifth Climate Change Assessment Regional Reports about the impacts of climate change across the state and inform adaptation responses. (Governor's Office of Land Use and Climate Innovation)
- Advanced tribal climate resilience across the state, including invasive species removal, mapping coastal hazards to cultural sites, and empowering Indigenous Youth, through the [Tribal Research Grant Program](#) of California's Fifth Climate Change Assessment. (Governor's Office of Land Use and Climate Innovation, Natural Resources Agency - California Energy Commission)
- Completed and made publicly available California's latest, downscaled climate projections via the [Cal-Adapt Analytics Engine](#) as well as a guidance document to help users understand how the Analytics Engine tools can be used to achieve adaptation and resilience goals. This data is easily accessible to general users via the [Cal-Adapt Data Explorer](#). (Natural Resources Agency - California Energy Commission)
- Identified key climate risks in updated Climate Risk and Resilience Reports for the first operating segments of the California High-Speed Rail project. (State Transportation Agency - High-Speed Rail Authority)
- Released [sea level rise guidance](#) for Department of Toxic Substances Control project managers and a publicly accessible [sea level rise viewer](#) that displays the locations of active cleanup sites with sea level and groundwater rise scenarios. (Environmental Protection Agency - Department of Toxic Substances Control)
- Improved the Investor-Owned Utilities' (IOUs) Climate Adaptation Vulnerability Assessments, which identify climate risks to utility infrastructure, by requiring IOUs to utilize best available climate data and analysis in climate adaptation planning, in alignment with the State's Climate Change Assessment and the Intergovernmental Panel on Climate Change. (Public Utilities Commission)



CASE STUDY: In 2024, the California Public Utilities Commission (CPUC) Energy Resource Modeling team developed “derate profiles” for power plants affected by extreme heat. A derate profile estimates how much a power plant’s output declines at higher temperatures—for example, when extreme heat reduces the efficiency of power plants or limits cooling capacity. These profiles are developed using hourly temperature data as well as historical analysis on how different types of power plants perform under heat stress. The CPUC incorporates these derate profiles into its long-term planning and reliability models, reducing assumed available capacity during high-temperature periods to reflect real-world performance. This results in more accurate forecasts of grid reliability risk, particularly during heatwaves, and informs decisions about how much capacity, storage, or demand-side resources California needs to maintain reliability. The CPUC is now conducting similar research on how climate change may affect hydroelectric availability due to changing precipitation patterns, ensuring long-term planning reflects evolving climate conditions rather than historical averages alone.



CASE STUDY: In November 2024, the California Coastal Commission unanimously adopted an update to its Sea Level Rise Policy Guidance to ensure sea level rise planning is based on up-to-date information. The update addresses three main topics:



- Best available science on sea level rise, reflecting the 2024 updates to the [Ocean Protection Council \(OPC\) State Sea Level Rise Guidance](#).
- Senate Bill 272 (Laird, 2023), which requires local governments to incorporate sea level rise plans as part of new or updated Local Coastal Programs. The legislation also requires the Coastal Commission (and the Bay Conservation and Development Commission), in coordination with OPC, to establish guidelines for the preparation of the required sea level rise plans by December 31, 2024. The updates to the Sea Level Rise Policy Guidance related to Senate Bill 272 were designed to fulfill this requirement.
- Integration of environmental justice principles and planning considerations related to sea level rise, implementing and building on the Commission’s [Environmental Justice Policy](#).



Partner and Collaborate to Leverage Resources

- Completed agreements with all grantees from California's [first-ever Tribal Wildfire Resilience grant solicitation](#) and made additional awards to applicants from California's [Tribal Nature-Based Solutions program](#). (Natural Resources Agency - Department of Forestry and Fire Protection)
- Launched the [Climate Action Counts initiative](#), aiming to educate and encourage people to take climate action at home and in their communities to build a more resilient California. (Governor's Office of Service and Community Engagement - California Volunteers)
- Leveraged [\\$217 million for wildfire resilience projects](#) and helped 16 forest-health partnerships become investment-ready. These partnerships have built a 5-10-year program of work for landscape restoration and have the capacity to implement projects quickly and at scale. (Natural Resources Agency - Sierra Nevada Conservancy)
- Released the [Weather Generator \(WGEN\) tool, dataset, and two peer-reviewed publications](#) to align water planning and investment strategies and inform multi-billion-dollar infrastructure water projects. WGEN was developed in collaboration with academic researchers, federal partners, and local water agencies. (Natural Resources Agency - Department of Water Resources)
- Celebrated the 45th season of trail rehabilitation in California's wilderness areas through the California Conservation Corps Backcountry Trails Program's. Ninety-two Corpsmembers improved 368 miles of trail in national and state parks and forests throughout the state. The national Corps Network recognized this program's milestone by selecting it as a [recipient of the Project of the Year Award](#). (Natural Resources Agency - California Conservation Corps)
- Celebrated the 30th season of the California Conservation Corps Watershed Stewards Program. Over its three decades, the program engaged over 1,500 young adults in specialized training on watershed health and Corpsmembers engaged over 34,000 community volunteers in watershed cleanup and restoration events and nearly 57,000 students in environmental education. (Natural Resources Agency - California Conservation Corps)
- Reviewed and provided direct assistance to improve Regional Transportation Plans and Metropolitan Transportation Plans to ensure appropriate incorporation of climate change considerations. (State Transportation Agency - Caltrans)
- Developed a robust, data-driven, and transparent methodology for prioritizing adaptation projects at Caltrans in partnership with the Governor's Office of Land Use and Climate Innovation and local agencies. This methodology will inform the Caltrans System Investment Strategy and the State Highway Operations Protection Program. (State Transportation Agency - Caltrans, Governor's Office of Land Use and Climate Innovation)
- Embarked in the creation of the first [Climate Resilience Strategy for California Agriculture](#) designed to bring together disparate actions across the state to identify work done and work still to be done to build resilience in our agriculture communities and industry. (Department of Food and Agriculture)



CASE STUDY: The State Lands Commission (Commission) and the Coastal Band of the Chumash Nation [committed to pursue a co-management framework](#) for land formerly used for offshore oil and gas development. This first-of-its-kind agreement memorializes the Commission’s intent to partner with the Coastal Band of the Chumash Nation to support shared land stewardship and California’s commitment to conserve 30 percent of the state’s lands and coastal waters by 2030. Rincon Island in Ventura County sits one-half mile out from one of California’s most beautiful coastlines and, until 2016, was home to a working oil and gas operation. The agreement memorializes the intent and commitment to partner on a framework and agreement to co-manage and co-steward Rincon Island and a 6-acre onshore parcel along Pacific Coast Highway that was part of the former oil and gas operations.



CASE STUDY: In 2024, the California Conservation Corps’ Forestry Corps engaged 190 Corpsmembers in statewide training and conservation projects. Corpsmembers prepared for high-demand fields through hands-on training and certifications, such as Fire Inspector training; Emergency Medical Responder training; Utility Line Clearance training; and Naturalist training. Additionally, the Forestry Corps made measurable contributions to environmental stewardship and wildfire resilience by conducting 1,414 acres of fuel reduction and planting 67,524 trees. In addition, the California Conservation Corps awarded \$10 million across 25 grants to Local Conservation Corps, enhancing the program’s capacity and outcomes for forestry and conservation projects across California.





Assessing Progress and Looking Ahead

2024 was the final year of implementing California’s 2021 Climate Adaptation Strategy, which integrated time-bound success metrics for the first time. Many lessons were learned to inform the next Strategy, such as the importance of metric specificity, consistent timeframes, and clear progress indicators. There is also much to be proud of. After reviewing the progress reported each year implementing the 2021 Strategy, we found that 92 percent of all success metrics are well underway, nearing completion, or complete. Two-thirds of all metrics with an end date between 2021- 2024 were completed.

As climate change impacts continue to accelerate, the need for climate action and partnership is greater than ever. Alongside a diverse, growing, and deeply valued community of leaders, practitioners, experts, and groups across, California state agencies remain committed to building a more resilient and clean future for all Californians. To learn more about the state’s actions and initiatives for the years ahead, explore the updated California Climate Adaptation Strategy:

<https://climateresilience.ca.gov/>