





Executive Summary

A Watershed-Scale Approach to Climate Resilience

The Ventura River Watershed Resilience Plan (VRWRP) is a comprehensive, watershed-scale effort designed to strengthen long-term climate resilience, water reliability, and ecosystem function throughout the Ventura River Watershed. Spanning forested headwaters, agricultural valleys, and coastal communities, the watershed is stewarded by numerous agencies, Tribes, non-profits, and other landowners whose decisions intersect across hydrology, infrastructure, and cultural landscapes.

Climate change is affecting the watershed in dramatic ways and will continue to disrupt the Ventura River Watershed’s communities, ecosystems and economies in the coming years and decades. This plan establishes a baseline for understanding how future climate hazards may affect water resources, ecosystems, infrastructure, and communities. It provides an integrated look at the watershed’s physical setting, summarizes the key vulnerabilities caused by extreme climate hazards, and presents solutions to address these challenges.

Interconnected water resource systems – water supply, flood management, groundwater management, ecosystems, water quality and cultural resources – face intensifying climate pressures that require cross-disciplinary and multisector responses. These systems are examined through the lens of historical, future, and observed climate hazards, including drought, extreme heat, wildfire, flooding, sea level rise, and declining marine fog, to illustrate how climate hazards translate into impacts to people, the environment, and critical services. The VRWRP provides a data-informed and locally grounded framework that aligns regional priorities, assesses climate vulnerabilities, and identifies pathways to action shaped by the watershed’s unique hydrology and high level of community engagement.

The VRWRP builds upon the existing regulatory and planning landscape, including the Integrated Regional Water Management (IRWM) Plan, the Ventura River Watershed Management Plan, Groundwater Sustainability Plans (GSPs), habitat conservation and resource protection programs, County and City hazard mitigation plans, local coastal programs, general plans, and capital improvement programs.

Guided by the State – Informed by Local Conditions

The VRWRP was developed within the California Department of Water Resources’ Regional Resilience Framework, which supports watershed-scale planning across the state. While informed by statewide guidance and other pilot efforts across the state, the VRWRP is deeply tailored to the Ventura River Watershed’s conditions: highly variable instream flows, localized water supplies, limited surface- and groundwater storage, strong agricultural presence, and tight linkages between ecological health and water supply reliability. For an overview of watershed’s current conditions, see **Chapter 3: State of the Watershed**.

The planning process integrated current climate science data, qualitative and quantitative vulnerability and risk assessment findings, overburdened community¹ and Tribal insights, and development of implementation plans to generate realistic and practical climate adaptation strategies that will result in positive on-the-ground outcomes. Together, these methods provide a comprehensive picture of where vulnerabilities exist, what drives them, and which assets warrant priority attention.

¹ Overburdened Community can be defined as a population that experiences disproportionate environmental and climate risks due to cumulative exposure to pollution, environmental hazards, and social vulnerabilities such as low income, language barriers, or limited access to resources and services. (CalEPA 2021)



Climate Adaptation Goals and Action Framework

The VRWRP’s climate adaptation framework is organized around eight goals that translate identified vulnerabilities into coordinated areas of action:



Goal 1

Ecosystem Health is Strengthened
Watershed Wide



Goal 2

Water Supply is More Reliable and Water
Infrastructure is More Climate-Resilient



Goal 3

Communities, Infrastructure, and
Ecosystems are Protected from Erosion,
Flooding, and Shoreline Change Driven by
Sea Level Rise and Storm Surge



Goal 4

Flood and Erosion Risks to Communities,
Infrastructure, Water Quality, and
Ecosystems from Extreme Precipitation
are Minimized



Goal 5

Recreational Access for Community
Enjoyment is Protected and Enhanced



Goal 6

Agricultural Practices Are Adapted to the
Effects of Climate Change and Sustains
a Thriving Local Economy and Ag-Based
Livelihoods



Goal 7

Coordinated Watershed Resilience is
Strengthened Through the Improvement of
Governance, Funding, and Monitoring Tools



Goal 8

Native Leadership and Indigenous
Knowledge Lead to Resilient Cultural
Resources, Sacred Sites, Subsistence
Areas and Heritage Assets

Collaborative Process Grounded in Local Expertise

Engagement was central to the VRWRP. The planning process leveraged the existing Ventura River Watershed Council and convened a multi-sector Advisory Group drawn from water agencies, local jurisdictions, resource managers, environmental organizations, agricultural representatives, Tribal partners, and community-based organizations. The Advisory Group provided strategic direction, reviewed technical findings, and helped develop strategies, actions, and implementation roadmaps. Broader public engagement through watershed

forums, community meetings, and partnerships with active community groups and advocates resulted in meaningful input from overburdened communities. As a result, major project outcomes were shaped and informed by lived experience and local knowledge.

Close collaboration with Tribal partners was integral throughout the process, with dedicated meetings and co-development of strategies, actions, and implementation roadmaps, culminating in a co-hosted final public forum centered on Tribal leadership and partnership.

Read more about the engagement process and the watershed network that supported this collaboration in **Chapter 2: Watershed Network**.

As with all planning efforts, participants held differing views on how projected impacts would be felt by communities, sectors, and places within the watershed. There were also nuances specific to certain water sector resources that were often lost when speaking to impacts in a watershed-wide

context. As the grant administrator on this effort, the Ventura County Resource Conservation District recognizes that, in some instance, consensus could not always be reached across all perspectives. For transparency, differing viewpoints have been incorporated where feasible to support improved collaboration, mutual understanding, and data sharing in future planning efforts.

Impacts from Climate Change

The VRWRP evaluated climate impacts on the six water resource systems from a range of climate hazards that are expected to intensify under future conditions, including:

- **Extreme heat:** increasing water demand, stressing ecosystems, and worsening water quality
- **Wildfire:** particularly in upper watershed areas, with downstream consequences for sedimentation, water quality, and flood risk
- **Extreme precipitation and flooding:** including post-fire debris flows and constrained channel capacity
- **Sea level rise and storm surge:** affecting coastal infrastructure, water quality, and habitat
- **Drought:** affecting surface water reliability, groundwater recharge, and ecosystem health, especially considering increasing hydrologic variability
- **Decreasing marine fog:** impacting ecosystems, cultural and recreational practices, and agricultural lands that have adapted to the coastal cooling effects

These hazards may occur in rapid succession or interact over time, creating compounding impacts that amplify overall risk. As the climate warms, hydroclimate variability is intensifying. Across the state landscapes are experiencing more pronounced swings between very wet and very dry periods (California Department of Water Resources, 2026). These sharper swings increase the likelihood that one extreme event will compound the effects of another, amplifying impacts across interconnected systems. For example, a very wet year can drive rapid vegetation growth that, when followed by extreme heat, creates abundant wildfire fuel; the resulting burn scar then leaves soils destabilized and hydrophobic, so that subsequent storms trigger amplified runoff, debris flows, and downstream flooding. The VRWRP explicitly considered cascading impacts that informed both the vulnerability assessment and the development of integrated strategies across key water resource systems.

Read more about the climate modeling conducted for this effort in **Chapter 4: Future Climate Conditions**.



Key Vulnerabilities

Findings from the VRWRP climate vulnerability assessment revealed that the watershed’s most critical vulnerabilities include:

- Wildfire, debris flows, and extreme storms are expected to damage water and wastewater systems, cultural resources, access roads, and downstream communities
- Drought, extreme heat, and declining fog may reduce water availability, elevate stream temperatures, and intensify demand
- Water-quality degradation is likely to occur from the interplay of drought, wildfire, and storm-driven runoff
- Ecosystem and cultural-resource degradation due to drought-induced altered flows, invasive species, and loss of cold-water refugia can occur as extreme heat events increase, droughts become more pronounced, and extreme precipitation leads to increased flooding
- Sea level rise and storm surge is expected to impact coastal ecosystems, the Ventura River Estuary, and shoreline infrastructure
- Problems tied to legacy land-use and governance gaps may be exacerbated by successive climate disasters, which can limit floodplain function, groundwater recharge, recreation access, emergency response, and proactive climate adaptation.

Review the full climate vulnerability assessment and list of detailed key vulnerabilities in **Chapter 5: Climate Change Vulnerability**.

From Vulnerabilities to Action

Adaptation strategies and actions were developed to directly respond to key vulnerabilities and a subset of actions are supported by implementation roadmaps. Themes that cut across the actions include equitable access to watershed resources and benefits, multi-benefit integration, inter-jurisdictional coordination, and variability in watershed hydrology. Implementation roadmaps offer more detail on critical steps to complete actions, and provide suggestions on roles and responsibilities, potential funding considerations and pathways, and opportunities to advance coordinated action across agencies and communities. These roadmaps transform high-level action concepts into actionable pathways for on-the-ground resilience. In addition, a set of performance indicators are introduced, designed to track watershed-scale outcomes over time and provide a transparent way to measure progress toward the VRWRP's goals.

See detailed information about adaptation strategies and actions, along with the implementation roadmaps, in **Chapter 6: Adaptation Strategies, Actions, and Implementation Roadmaps**, and performance indicators in **Chapter 7: Performance Indicators for Watershed Resilience**.

Recommendations and Next Steps

Successful implementation of the VRWRP will rely on strong collaboration across agencies, Tribes, and community organizations. The Ventura River Watershed Council is well-positioned to serve as the long-term convener and coordinator of this work, helping maintain alignment on shared goals, steward collaborative tools, and support collective progress. The following recommendations outline priority actions to strengthen the watershed network and advance implementation.





Strengthen Multi-Agency Coordination Through the Watershed Council

Strengthen the position of the Watershed Council as the central forum for watershed-wide coordination, ensuring consistent communication across jurisdictions, sectors, and organizations. Distributing leadership roles, identifying shared priorities and strengthening partnerships will reduce over-reliance on a small set of partners and improve the network’s ability to address shared climate challenges. Continued support for collaborative planning efforts like the VRWRP will help maintain a common foundation of goals.

Maintain and Evolve Network Tools as Living Resources

Utilize and reference the watershed’s collaborative tools, including the Kumu network map and organizational profiles, to supplement existing collaboration and partnerships. Update and maintain these tools, as needed. These tools can support information-sharing, partner matching, and cross-sector coordination. Regular updates to the tools will ensure they reflect current partnerships, data, capacities, and needs.

Expand Inclusive Participation and Strategic Partnerships

Expand the watershed network by better engaging underrepresented and less-connected organizations (including Tribal governments, small community-based groups, farms, and domestic well users) and supporting their participation through targeted training, technical assistance, and funding navigation. At the same time, deepen partnerships with Tribal governments and representatives, private landowners, land conservancies, grassroots groups, youth initiatives, research institutions, and state and federal agencies to broaden implementation capacity and incorporate diverse knowledge systems.

Coordinate Funding Strategies and Pursue Large-Scale Resilience Investments

Develop a coordinated, multi-agency funding strategy that positions the watershed to compete effectively for Proposition 4 and other large-scale state and federal investments. Align priority actions with upcoming solicitations, identify joint funding opportunities, and support readiness for multi-benefit project proposals. Investing in both key anchor organizations and smaller, less-connected partners will strengthen overall network resilience and reduce funding disparities.

Establish an Annual Progress Reporting Process for Adaptive Management

Following adoption of the VRWRP, convene an annual progress (convened through the Watershed Council) reporting meeting to review progress on strategy and action implementation, provide an update on performance indicators, and recalibrate priorities based on emerging conditions. This regular touchpoint will provide transparency, reinforce collaboration, and help partners adjust strategies as climate, ecological, and community needs evolve. The Watershed Council can maintain a simple public-facing dashboard to track watershed-scale conditions and communicate progress year over year.

Follow a Clear Near-Term Timeline for Plan Adoption and Early Implementation

In the immediate term, complete public review, finalize the VRWRP, and update the Council Charter to reflect implementation roles. Convene working groups to refine early action priorities, assess funding opportunities, and prepare near-term implementation roadmaps. By June 2026, the Council will vote on plan adoption, updated governance structures, and initial implementation priorities.

Maintain the Watershed Resilience Plan as a Dynamic Resource

The VRWRP is a valuable resource reflecting a comprehensive, collaborative and intentional planning process made possible through the Watershed Resilience Pilot Program grant from the State. To help ensure long-term relevance and successful implementation of the strategies and actions outlined in the VRWRP, engage targeted working groups focused on achieving and monitoring specific actions. These groups will support the work of the Coordinator and the Council's Leadership Committee in monitoring the ongoing performance of the VRWRP.

