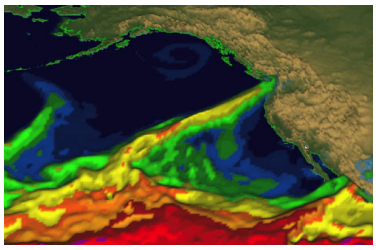
Sonoma Water Climate Adaptation Plan – Fact Sheet

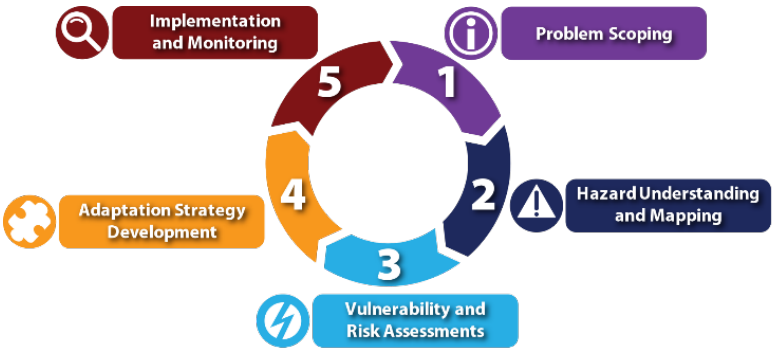
Protecting the drinking water supply of more than 600,000 North Bay residents, wastewater collection and treatment of 70,000 residents and managing flood control facilities that impact thousands of residents and homes is the mission of Sonoma Water. However, climate risks pose a serious threat to how Sonoma Water continues to operate and maintain these services to its community. Sonoma Water is developing a Climate Adaptation Plan (CAP) to **guide the assessment of climate risks to water supply, sanitation, and flood management infrastructure and operations**, and to **serve as a roadmap for developing, evaluating, and implementing adaptation strategies** to improve the resilience of Sonoma Water's systems.

Plan Objectives

The key objectives of the CAP are to:

- **Improve understanding** of the relationship between climate variability and change and regional water supply, sanitation, and flood management systems
- **Document and describe** the historical and projected **climate and hydrologic threats** to Sonoma Water's water supply, sanitation, and flood management infrastructure and operations
- **Assess the vulnerability** of Sonoma Water's **water supply, sanitation, and flood management infrastructure and operations** to past and future projected climate conditions
- **Identify high risk infrastructure and operations** and identify inter-related risks between critical system components
- **Identify, prioritize, and cost adaptation measures** to improve the system resiliency
- **Develop a strategy for improving the resilience** of Sonoma Water's infrastructure and operations and to assist in guiding future operations and infrastructure investments





Sonoma Water has applied a robust five-step resiliency planning framework that has helped organize and guide the planning process.

Science-Based Approach to Regional Climate Change

The CAP has evaluated the historical climate trends and a range of future climate projections to develop scenarios of climate threats in the region. Building from global climate model projections, statewide assessments, and regional downscaling, the CAP summarizes the state of climate science and utilizes consistent, best-available science projections to develop scenarios of increasing temperature, rising sea levels, increases in extreme precipitation and river flooding, and changes in drought and wildfire frequency and severity.

Temperature	• Increases up to 1.3 – 3.1°C by mid-century • Increased frequency of temperature extremes (days > 30°C or 86°F)
Sea Level Rise	• MSL increases by 0.1-0.6 m (0.3-2 ft) by mid-century • Storm surge will cause additional increases
Precipitation	• Extreme precipitation increases (ARs) by 15% • Increased winter, decreased summer precipitation (more variability)
Drought	• Increasing intensity of drought conditions • Increasing frequency and duration of dry weather conditions
Wildfire	• More frequent and intense wildfires due to warmer temperatures and drier conditions • Increase in probability of wildfires by 15-33%
River Flooding	• Potential increase in AR-driven floods on Russian River • 100-year flood magnitudes could increase by 10-20%

System Vulnerabilities & Risks

Climate threats to Sonoma Water's water supply, flood management, and sanitation systems were comprehensively assessed. Climate change maps were developed; water supply and flood modeling was conducted on the Russian River and Santa Rosa Creek; and major facilities were visited and studied to assess vulnerabilities to future climate change. Vulnerability and risk assessments were conducted for all major components of the systems. Major areas of risk identified in the CAP include:

Water Supply – River flooding and wildfire risk at Mirabel and Wohler diversion facilities; river flooding and extreme precipitation risk at River Road and Wohler chlorination facilities; and extreme precipitation risk at Ely Booster and Kawana Boosters.

Flood Management – Extreme precipitation, river flooding and wildfire risk at Central Sonoma Watershed Project infrastructure; sea level rise and river flooding risk on the Petaluma River and on Sonoma Creek; river flooding risk on the upper Russian River; and sea level rise and river flooding risk on the lower Russian River and estuary.

Sanitation – Extreme precipitation, river flooding, and sea level rise risks at wastewater treatment plants, collection systems, and reclamation systems.

Adaptation Strategies

Sonoma Water's CAP team identified a range of adaptation project concepts and strategies to improve resilience through a series of interactive workshops. Over 200 specific concepts were initially suggested and through synthesis about 80 concepts were retained and evaluated. Draft adaptation strategies and portfolios of projects have been developed for **water supply**, **flood management**, and **sanitation** systems to improve climate resiliency. Some common, integrated concepts have been identified that will likely provide the largest improvements in climate resiliency:

- Watershed Resilience Program
- Water Diversion Facilities Protection
- Regional Water Supply Strategies
- Forecast-Informed Operations
- Regional Flood Management Strategy
- Hydroclimate Program
- Dynamic and Resilient SCADA
- Integrated Sanitation Level Planning

Program

Report Schedule

The CAP final report is going to Sonoma Water's Board of Directors for approval in October 2021.