

**Small Water Suppliers and Rural Communities
at Risk of Drought and Water Shortage Vulnerability
and
Recommendations and Guidance to Address the
Planning Needs of these Communities**

Executive Summary

**REPORT PURSUANT TO
SECTION 10609.42 OF THE CALIFORNIA WATER CODE**

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California Department of Water Resources
Water Use Efficiency Branch

Notes: This report developed pursuant to Section 10609.42 of the California Water Code was informed by documents that provide methodology, assumptions, data, estimates, and other information. These supporting documents are provided as appendices in the back of this report.

*Definitions and key concepts used in this report are listed in glossary on page 51. Terms appearing in **purple** refer to **key definitions**; those appearing in **brown** refer to **key concepts**.*

Executive Summary

This report is submitted pursuant to CWC Section 10609.42 which directs DWR to identify **small water suppliers** and rural communities that may be at risk of **drought** and **water shortage vulnerability** and propose recommendations and information in support of improving the **drought** preparedness of **small water suppliers** and rural communities.

Specifically, Section 10609.42 requires:

1. DWR, in consultation with the State Water Resources Control Board (State Water Board) and other relevant State and local agencies and stakeholders, identify **small water suppliers** and areas of households on private supplies (termed “rural communities” in the legislation, and also called “**self-supplied communities** in this report”) that may be at **risk** of **drought** and **water shortage**. DWR must then notify counties and groundwater sustainability agencies (GSAs) of suppliers or communities that may be at **risk** within its jurisdiction and may make the information publicly accessible on the website (CWC Section 10609.42[a]).
2. DWR, in consultation with the State Water Board and stakeholders, develop recommendations and guidance relating to the development and implementation of countywide **drought** and **water shortage** contingency plans to address the planning needs of **small water suppliers** and rural communities. The legislation directs DWR to explain how the planning needs of **small water suppliers** and rural communities can be integrated into complementary existing planning processes (CWC Section 10609.42[b]).

To assess **drought** and **water shortage** vulnerability, a methodology for analyzing **risk** was developed and **small water suppliers** and **self-supplied communities** statewide were evaluated for their relative **risk** of **drought** and **water shortage**. Each supplier and community examined received a numeric **risk** score, which is derived from a set of indicators developed from a stakeholder process. Indicators used to estimate **risk** represented three key components: (1) the **exposure** of suppliers and

communities to hazardous conditions and events, (2) the physical and social **vulnerability** of suppliers and communities to the exposure, and (3) recent history of shortage and **drought** impacts. The **risk** scores for individual **small water suppliers** and **self-supplied communities** were calculated separately, using the same methodology but different **risk** indicators.

Importantly, the methodology used for analyzing **risk**, and this report as well, do not define thresholds whereby certain **small water suppliers** and **self-supplied communities** are considered “at **risk**” of **drought** and **water shortage** and others are not. Instead, the methodology inherently recognizes that all communities in California face some **risk** of **drought** and **water shortage** and thus provides a tool to calculate the relative **risk** of these suppliers and communities. Future thresholds may be defined and utilized to determine which suppliers and communities are particularly at **risk** of **drought** and **water shortage**; but for now, DWR believes the State is best served by understanding the relative **risk** of its **small water suppliers** and **self-supplied communities** and, perhaps more importantly, having a common methodology for calculating **risk** that can be applied at different levels of government and in different contexts.

In total, 4,100 **small water suppliers** were examined for their relative **risk** of **drought** and **water shortage**. The results show that a vast majority of the State’s counties (52 of the 58 counties) have **small water suppliers** in the top 10th percentile of **risk** scores based on the **risk** scoring method described above. As intimated above, the 10% cut-off is not intended to be viewed as a threshold whereby **small water suppliers** scoring in the top 10% are considered at **risk** of **drought** and **water shortage** and those outside the top 10% are not at **risk**. Instead, the 10% cut off is useful for summarizing results and providing an example of how the scoring methodology can be used. The primary benefit of this scoring exercise is to offer local and regionally-specific information to assist with **drought** and **water shortage** planning. Below, are some statistics among those scoring in the top 10% **risk** that offer a snapshot of patterns notable statewide:

- 68% are in a fractured rock area, and many of these high-**risk** suppliers on fractured rock rely on groundwater
- Over half of the high-**risk** suppliers located in groundwater basins are in high subsidence areas and/or basins identified by DWR in Bulletin 118 as subject to critical conditions of overdraft.

- Over half (58%, 241) of the top at-**risk** suppliers are in high or very high-**risk** zone for wildfire, as defined by CalFire.
- To evaluate rural community **risk** (referred to as *self-supplied community risk*), 5000 Census Block Groups (the geographical unit used by the United States Census Bureau, typically between 600 and 3,000 people) with record of a domestic well (1970-2019) were examined. The results of the evaluation show that 50 of the 58 counties contain one or more Block Groups that scored within the top 10% at **risk**. Counties with the highest number of Block Groups within the top 10% include:
 - Riverside County (60 Block Groups)
 - Kern County (55 Block Groups)
 - San Diego County (33 Block Groups)
 - Tuolumne County (30 Block Groups)
 - San Luis Obispo County (24 Block Groups)
 - Stanislaus County (24 Block Groups)
 - Lake County (15 Block Groups)
 - Madera County (14 Block Groups)
 - Monterey County (14 Block Groups)
 - Siskiyou County (13 Block Groups)

To develop recommendations and guidance on **drought** planning for small water systems and **self-supplied communities**, DWR utilized a public process involving State agencies, cities, counties, small communities, **small water suppliers** and other stakeholders by forming a stakeholder advisory group, the County Drought Advisory Group (CDAG). The CDAG had many discussions on the best way to improve preparation of small communities for the next **drought**. It offered a venue and process for close collaboration between State agencies and local agencies, as well as input from other key stakeholders.

Throughout the stakeholder process the four-phase model of disaster **risk** management helped to frame the **drought** and **water shortage** planning approach: (1) Mitigation, Preparation, and **Capacity** Building; (2) Forecasting and Monitoring; (3) **Drought** and **Water Shortage** Response; and (4) Recovery and Relief (Wilhite 2000 & 2014).

State agencies and stakeholders alike agreed that additional planning requirements for the suppliers and communities for **drought** preparedness and long-term resiliency should leverage and extend existing processes when possible. The recurring theme in the recommendations in this report is to incorporate **water shortage** contingency plans into existing planning documents for **small water suppliers** serving 1,000 to 3,000 **service connections** and emergency response plans for all **small water suppliers**. Leveraging existing DWR processes to develop and implement **water shortage** contingency planning and State Water Board processes to develop and implement emergency response planning will help minimize costs to both local and State agencies.

Rural communities with water systems serving fewer than 15 **service connections** and self-supplied households are likely to be unable to perform meaningful **water shortage** planning themselves, so integrating planning within existing County plans is more feasible. Counties use a variety of tools to plan for and mitigate against future disasters and hazards; including local hazard mitigation plans, general plan elements, emergency operations plans, climate adaptation plans, Groundwater Sustainability Plans, and others. Providing counties the flexibility to use one or more of these plans is intended to leverage existing processes and organizational capacities in efforts to improve preparation for future **droughts**.

Regional planning solutions that transcend county boundaries were discussed towards the end of the CDAG stakeholder process. Further discussion is necessary to advance a holistic and regional approach for **drought** and **water shortage** planning solutions that include **urban water suppliers**, **small water suppliers** and **self-supplied communities**.

Because Tribes are sovereign governments with data and regulatory systems that are not structured within the State or Counties, their planning systems will be different. This report proposes that Indian Health Services continues to promote the **water shortage** contingency plan they developed during the last **drought**.

Technical assistance for helping approximately 250 small **community water systems**, serving 1,000 to 2,999 **service connections**, develop **water shortage** contingency plans would cost approximately \$1 to \$2 million. Additional funding would be needed to help small **community water**

systems serving less than 1,000 **service connections** and non**community water systems** that are schools for technical assistance to develop their emergency response plans and comply with minimum resiliency requirements.

The recommendations in this report, as shown in Tables 1 – 4 below, should be considered in the context of other statewide efforts around water including water resiliency, water conservation, safe and affordable drinking water, Human Right to Water, the Sustainable Groundwater Management Act, and biodiversity.

Table 1 Summary of Recommendations for Small Water Suppliers

S1. All small community water systems serving 15 to 2,999 service connections and noncommunity water system that are schools, should be required to develop an Emergency Response Plan and a drought supply evaluation to submit to the State Water Board.
S2. State Water Board should work with small community water systems serving less than 1,000 service connections and noncommunity water systems that are schools to establish minimum resiliency measures.
S3. All small community water systems serving 1,000 to 2,999 service connections should be required to develop a drought and water shortage contingency plan and coordinate with groundwater sustainability agencies where applicable.
S4. The State should provide technical assistance to small water systems on drought and water shortage planning, preparation and response.
S5. In developing a water shortage contingency plan, small water systems should use the proposed annual statewide drought and water shortage risk assessment prepared by the State, unless justifiably better data is available to improve drought and water shortage resiliency.
S6. All water suppliers should be required to provide and maintain accurate water service area boundaries on a designated site to be maintained by the State Water Board.
S7. The State should make funding available to small community water systems and noncommunity water system that are schools to install additional infrastructure to improve drought and water shortage preparedness and response (e.g., backup well, water meters).

Table 2 Summary of Recommendations for Self-supplied Communities

R1. Counties should complete drought and water shortage contingency plans for self-supplied communities, specify drought as a risk in their LHMPs, and have Emergency Operations Plans covering the entire county that include planned response to drought and water shortage conditions.
R2. The County or State should provide technical assistance to self-supplied households to improve reliability of their water supply.
R3. Update statutory requirements and guidelines for General Plans to ensure that drought resilience and water shortage contingency policies or implementation programs are incorporated into the safety element, conservation element, or other appropriate elements.
R4. Counties and regional planning agencies should use the proposed annual statewide drought and water shortage risk assessment prepared by the State to prioritize needs for drought and water shortage contingency planning.
R5. The State should improve its understanding of domestic well locations and well depths.

Table 3 Summary of Recommendations for Tribes

T1. Tribes are encouraged to develop drought and water shortage contingency plans and formally adopt them through a resolution of the Tribal Council or other Tribal authority with jurisdiction.
T2. The State should coordinate with Indian Health Services when preparing the proposed annual statewide drought and water shortage risk assessment to also include tribal water systems.

Table 4 Summary of General Recommendations

G1. The State should conduct an annual statewide drought and water shortage risk assessment and generate risk scores for each small water system, noncommunity water system that is a school, and self-supplied community using best available statewide information.
G2. Drought and water shortage contingency planning and response should be incorporated into implementation of the Safe and Affordable Drinking Water Fund.
G3. Establish a standing interagency drought and water shortage task force to facilitate proactive State planning and coordination, both for pre-drought planning and post-drought emergency response composed of Department of Water Resources, State Water Board, California Public Utilities Commission, California Office of Emergency Services and Governor’s Office of Planning and Research.