

DRIP Collaborative Recommendation

Drought Indicators and Metrics (sample recommendation)

Part 0. Recommendation Declaration

Recommendation Proposer

Alvar Escriva-Bou, non-state DRIP member (expert in water resource management). Other DRIP members who have previously expressed interest in this idea: Nancy Vogel, Katie Ruby, Katy Landau.

Potential contributing partners outside of DRIP Collaborative: CA Water Data Consortium (CWDC) and CA Data Collaborative (CaDC)

Recommendation Idea

There is a need to develop a practical drought early warning system to inform drought management actions—both proactive mitigation measures and effective emergency responses—to minimize drought impacts.

Our ability to link drought conditions and expected impacts is not sufficiently specific and actionable. Given the complexity of California’s water system, it is not straightforward to understand different sectors’ potential impacts, and develop drought responses. We also lack useful summary statistics to characterize drought resilience at the highest level (the type of drought metrics that might appear in every DRIP report to show our collective effort in improving our resilience). To do this, we need an improved ability to monitor and integrate that data, working across all levels including local, state, federal and tribal.

This drought early warning system should be adopted as part of a larger narrative and communication plan. How these metrics should be visualized and communicated must be considered, likely as part of a potentially updated online dashboard.

Focus Area

- Drought Relevant Data Drought Narrative Drought Preparedness for Domestic Wells

Intended Benefit to the Drought Risk Management Cycle (Please check all that apply)

- Mitigation, Preparation and Capacity
 Forecasting and Monitoring
 Response
 Recovery

Part I: Recommendation Overview

Recommendation Title

Indicators and metrics to improve drought decisions, actions and resilience

Description

There is a need to develop a practical drought early warning system to inform drought management actions—both proactive mitigation measures and effective emergency responses—to minimize drought impacts. This early warning system would include drought indicators for risk and outcome metrics at a regional and sector-specific level. This came out explicitly from past DRIP Collaborative conversations related to the “Drought Relevant Data” focus area, and arguably would be the first key action to address the overall data problem statement.

The identification of the most actionable (both at state and local level) drought metrics would serve as a focal point for data sharing/coordination, data collection and interoperability, and then more predictive capabilities such as incorporating climate change data and projections. It could help pilot an improved level of coordination, where state requested data is used directly and transparently for shared metrics that multiple stakeholders believe are critical for tracking resilience.

Today, given an uncoordinated approach to drought metrics and dashboards (such as US Drought Monitor, CA Water Watch, separate drought websites from DWR, State Water Board, etc.) it is believed there is inefficient action and results. We can not measure or quantify drought resilience today, in a way that is easily communicated and understood by all critical stakeholders. Aligned upon metrics and indicators could be the foundation for improved drought communication and narratives.

Impacts

The practical outcome of this recommendation would be the identification of a master list of metrics that are aligned upon to be material and helpful for state and local agencies to improve drought response and preparation. These would be tracked and quantified, providing key agencies with the ability to quantify relative improvement in resilience over time. The desired outcome of this would be a measurable improvement in our overall drought resilience, achieved via better management actions and improved decision-making.

If this recommendation is not adopted, we believe the consequence would be continued lack of focus, misunderstanding of drought severity and impacts, lack of coordination on essential actions, and likely continued serious impacts on vulnerable communities. In short, the status quo would continue even though DRIP members believe this is a critical enabler for better decision making.

Implementing Parties and Partners

Implementation would undoubtedly require a mix of state and local agencies. During the evaluation and execution of this recommendation, a key question will need to be addressed: is there a lead agency and/or single home for this work? This is complicated given an existing mix of responsibilities being shared across many agencies and at different levels. Ideally, open data (housed in each authoritative agency) will be maintained, and these new metrics and indicators would have a highly transparent link back to source data and calculations. Whether these news metrics and indicators should simply be displayed on multiple dashboards (versus a single location) would need to be discussed.

Existing entities or stakeholders that would need to be involved cross five different groups: 1) groups reporting needed data 2) data collecting agencies 3) organizations performing metrics calculations 4) open data portals/dashboards communicating the metrics and 5) end users who utilize the metrics and indicators. These groups would cross all relevant state agencies, counties, tribal, local water agencies, non-profit groups (including environmental conservation and justice organizations), community based organizations, academics, and key sectors like agriculture and industrial. Any increase in effort needed to collect additional data, would need to be justified and communicated along with the desired metrics.

To ensure successful implementation of this recommendation, it is believed the wide range stakeholders need to be involved from the very beginning, most notably in defining the metrics and indicators. Each stakeholder representation should be given influence to inform and select the metrics, given careful consideration of the effort/cost required to gather the data and the resulting value of the metrics to decision making.

Alignment with Other Initiatives

There are a number of ongoing initiatives already underway that would need to be considered in implementing this recommendation. These would serve as a starting point and foundation for creating the drought metrics and indicators. Lessons learned from these efforts should be addressed.

For example (not an exhaustive list):

- DWR work to assess vulnerability per SB 552 (Water Shortage Vulnerability Scoring and Tool)
- SWB SAFER Drinking Water Needs Assessment, Clearinghouse, other drought tools and methods
- UCLA work with NIDIS to define drought hazard and indicators at section and sub-regional level
- CA Water Data Consortium work on urban water reporting and data streamlining
- Community Water Center Drinking Water Tool
- US Drought Monitor and other federal, tribal efforts

Implementation Time Frame

Approximately how quickly could the proposed recommendation be implemented? Factor time needed to develop, design, permit, construct (if applicable). Select one timeframe:

- Short term (1-2 yrs.) Medium term (2-4 yrs.) Long term (4-5+ yrs.)

Key outstanding questions (for discussion on 2/23 VM meeting or later in 2024)

1. **Scope.** Is it optimal to limit the scope to just recommending metrics? Or should it go further, for example to link metrics to specific decisions or thresholds (that trigger actions)?
2. **Timing.** When will we define the actual metrics/indicators? Worth doing a short-list in the next few months to make this more tangible? Or does it happen AFTER the rec is approved?
3. **Quantity.** How many metrics should we aim for? Less than 10 or more like 30-40? Should it include metrics that track actual (not just expected) impacts, so is not just “early warning”?
4. **Home.** Should we do a formal vote (likely in Oct 2024) without first determining the eventual home for the dashboard/metrics? Is it possible or preferred to intentionally avoid some of the authority issues or complicated politics that may exist with ownership of the metrics?

Part II: Implementation Considerations [This section has not been completed]

Necessary Steps & Measuring Success

What are the key steps to adopt and implement action?

To help monitor progress and success, what thresholds and reporting can be identified to reflect successful implementation?

Potential Challenges

What issues or challenges might arise during implementation (e.g. authority or need for additional authority, funding or revenue streams, public awareness and perception, technical, interagency coordination)? List these hurdles and offer a brief description of how to address/mitigate them.

Are there foreseeable potential negative consequences or unintended impacts associated with implementing this recommendation?

Funding

What are the potential (estimated) costs to implement the recommendation? Is there both an implementation cost and ongoing costs? Briefly describe any assumptions behind the estimate.

What potential existing and/or future funding sources or mechanisms are available (e.g., grants, general fund, bond funds, rate payers, philanthropic foundations, etc.)? Does the recommendation require funding from the state and potentially matching funds?

Equity and Outreach

How does this recommendation align with established agency equity policies and how might the recommendation address any specific equity or justice concerns, as defined by the DWR Racial Equity Vision, during its implementation?

What sort of outreach is necessary for the successful implementation of the recommendation? Describe the target audience and the methods of outreach needed (e.g., communication, technical or financial assistance, partnering assistance).

Appendix I

Recommendation Process

1. Identification

Objective: Identify initial recommendation ideas and a DRIP member lead.

Lead Role: Confirm availability and identify support needed from DRIP members and other entities. Provide initial information and details.

Support Role: Lead and document discussion based on existing focus area problem statements and DRIP member's shared understanding.

2. Development

Objective: Build out the details of the recommendation using the provided template.

Lead Role: Build out recommendation, ensuring it aligns with broad problem statements. Identify required SME input. Attend at least one VM.

Support Role: Provide guidance, coordinate with SMEs, communicate with members, facilitate and document VMs.

3. Review

Objective: Facilitate member feedback and public input. Gauge the level of support and identify concerns.

Lead Role: Present recommendation and engage in discussions to gather feedback.

Support Role: Facilitate and document discussion, including action items to address. Initiate straw poll and summarize action items to address in refinement.

4. Refinement

Objective: Address concerns and build out implementation strategy.

Lead Role: Address concerns and action items to develop a complete recommendation for member determination.

Support Role: Provide guidance, coordinate with SMEs, communicate with members who voiced concerns, facilitate and document VMs.

5. Determination

Objective: Final review. Conduct a formal poll to determine collective support, assigning appropriate designations.

Lead Role: Present the final recommendation and answer clarifying questions.

Support Role: Facilitate and document discussion. Initiate poll and determine designation.