RISK ASSESSMENT RESULTS FOR STATE SMALL WATER SYSTEMS & DOMESTIC WELLS DASHBOARD

USER GUIDE

Lear more about the data here:
HTTPS://WWW.WATERBOARDS.CA.GOV/DRINKING_WATER/CERTLIC/DRINKINGWATER/DOCUMENTS/NEEDS/2023NEEDSASSESSMENT.PDF

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CONTENTS

INTRODUCTION

In 2023, the State Water Board released a new web-based dashboard displaying the results of the Risk Assessment for state small water systems and domestic wells. This is a core component of the State Water Board's annual Drinking Water Needs Assessment. Learn more about the Risk Assessment for state small water systems and domestic wells in Appendix B.

The dashboard displays risk drivers for communities served by state small water systems and domestic wells. The dashboard includes source data from the State Water Board, the Department of Water Resources, and the Office of Environmental Health Hazard Assessment. The dashboard is used by internal staff and members of the public to explore areas where state small water systems and domestic wells may encounter water quality risk, water shortage risk, socioeconomic risk, or risk from multiple categories. The dashboard displays summary statistics of the number of state small water systems and domestic wells in different risk categories and shows users the locations of these at-risk systems.

NAVIGATING THE DASHBOARD

The default dashboard view includes a central map window, a filtering menu on the left, and summary statistic indicators on the right. All areas of the dashboard except the filtering menu can be resized by the user. Links to other relevant pages are available in the top right corner of the dashboard.

The map window displays the risk results for state small water systems and domestic wells. The color ramp indicates the risk level, with at-risk areas in red, potentially at-risk areas in orange, and not at-risk areas in light yellow. At most zoom levels, state small water system locations are represented by a diamond shape and the number of domestic wells per square mile section is represented by the circle size, with larger circles indicating more domestic wells in that section. When the map is zoomed out to view all of California, the state small water systems and domestic well view is replaced with square mile section polygons. The map legend is available on the right-hand side of the map window.

The risk level for areas without a state small water systems or domestic well is not displayed on the dashboard, but that data is available in the underlying GIS data.

Figure F1: Default Dashboard View
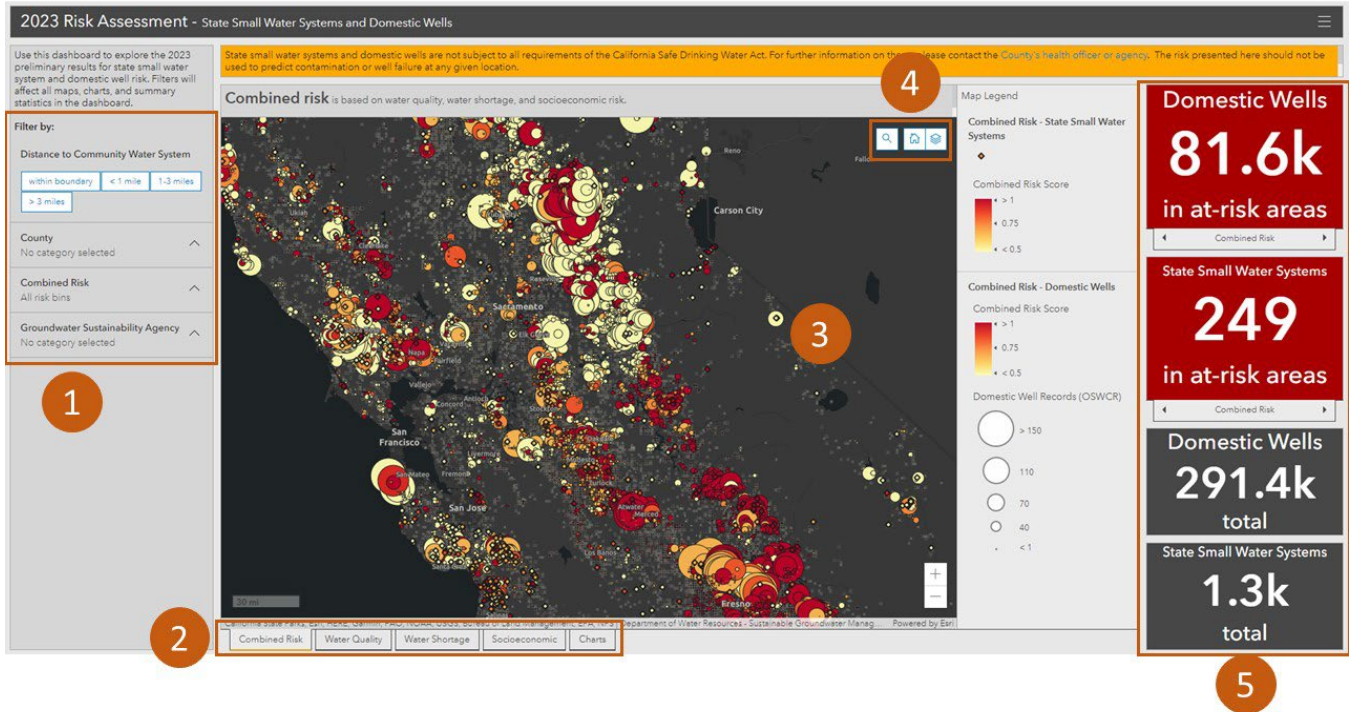
1. FILTER OPTIONS

The map display and summary statistics can be filtered by four different parameters. These parameters stack and selecting them automatically updates the map view and summary statistics.

Figure F1: Filter Options

Filter Option	About
Distance to Community Water System	The approximate distance (in miles) from a state small water system or centroid of a domestic well cluster to the nearest community water system service boundary.
County	The county that the domestic well cluster or state small water system is located in.
Combined Risk	The combined risk status of the domestic well cluster or state small water system (at-risk: ≥ 1; potentially at-risk: ≥ 0.5; not at-risk: < 0.5).
Groundwater Sustainability Agency	The groundwater sustainability agency that the domestic well cluster or state small water system is located in. If a square mile section (domestic well cluster area) is located in multiple GSA's the section is assigned to the GSA that contains the centroid of that section.

Figure F2: Filtering Options Example (Distance to Community Water System and County)
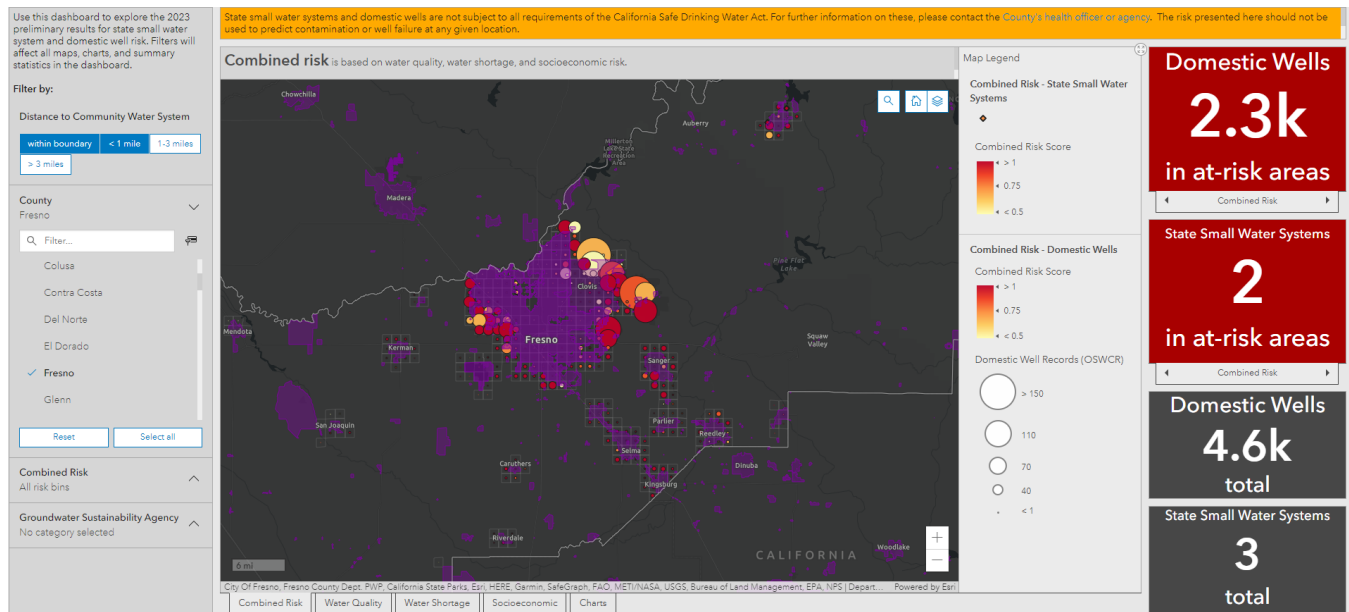
2. MAP TABS

There are four map tabs and one chart tab available at the bottom of the map window. Clicking on the tabs allows the user to view risk information associated with the three categories (water quality, water shortage, and socioeconomic risk) as well as the overall combined risk. The chart tab shows the combined risk information in a bar graph format with totals by county and allows users to hover over the chart to view the exact numbers combined risk numbers by county.

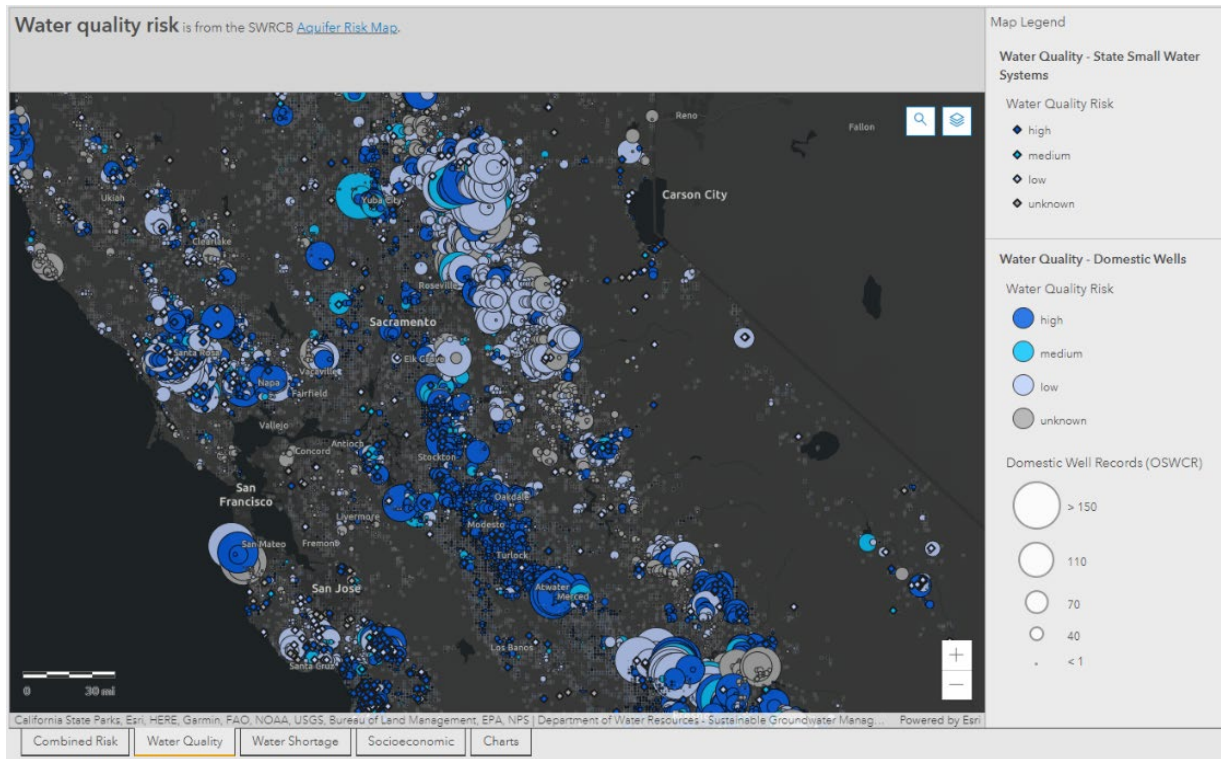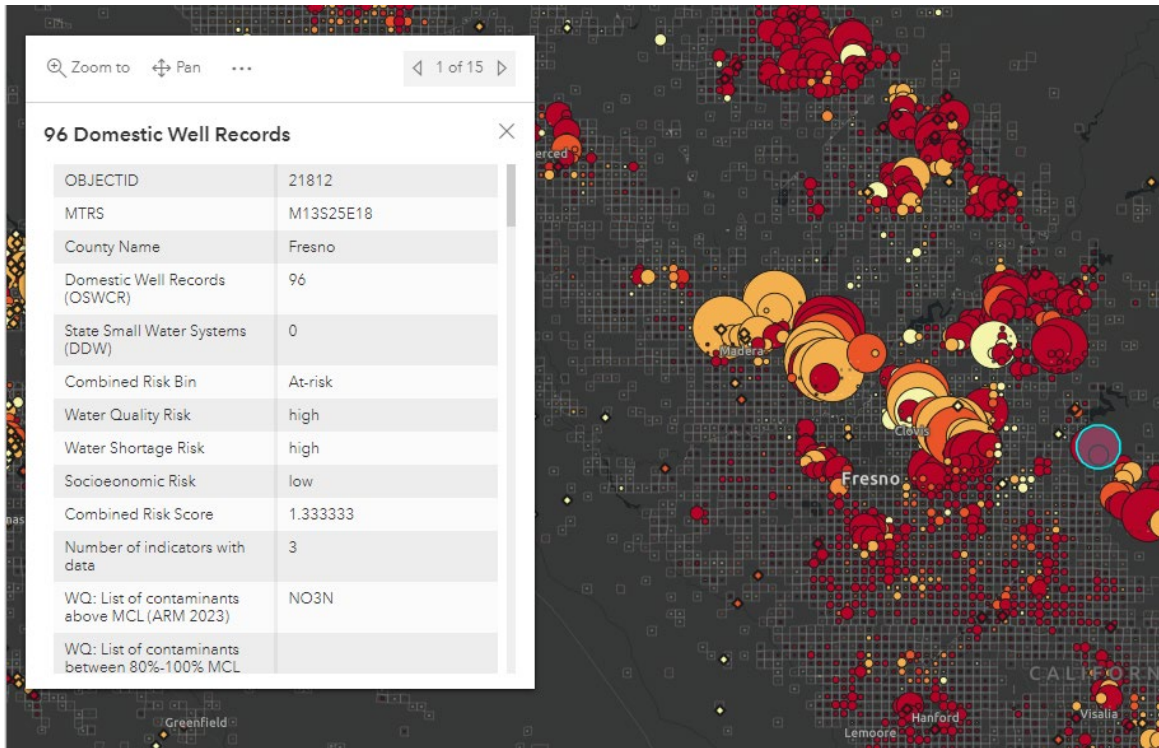## Figure F3: Water Quality Risk Tab

Figure F4: Chart Tab

3. MAP WINDOW

This screen allows users to zoom, scroll, and click on individual domestic well clusters or state small water systems to view all attributes of the area or system.

**Figure F5: Domestic Well Cluster Details**

4. SEARCH AND LAYER OPTIONS

The search bar can be used to look up a specific address or a state small water system name. The home icon can be used to reset the map to the default extent. The layer icon can be used to toggle map layers on and off. If a map layer is greyed out, it means that the layer cannot display at the current zoom level.

Some layers that users may find helpful but are not turned on by default include the Public Water System Boundaries Layer, the DWR Dry Household Wells layer (available in the Water Shortage category tab), legislative boundaries (available in the Combined Risk tab), and CalEnviroScreen 4.0 scores (available in the Combined Risk tab).

Figure F6: Layer Options
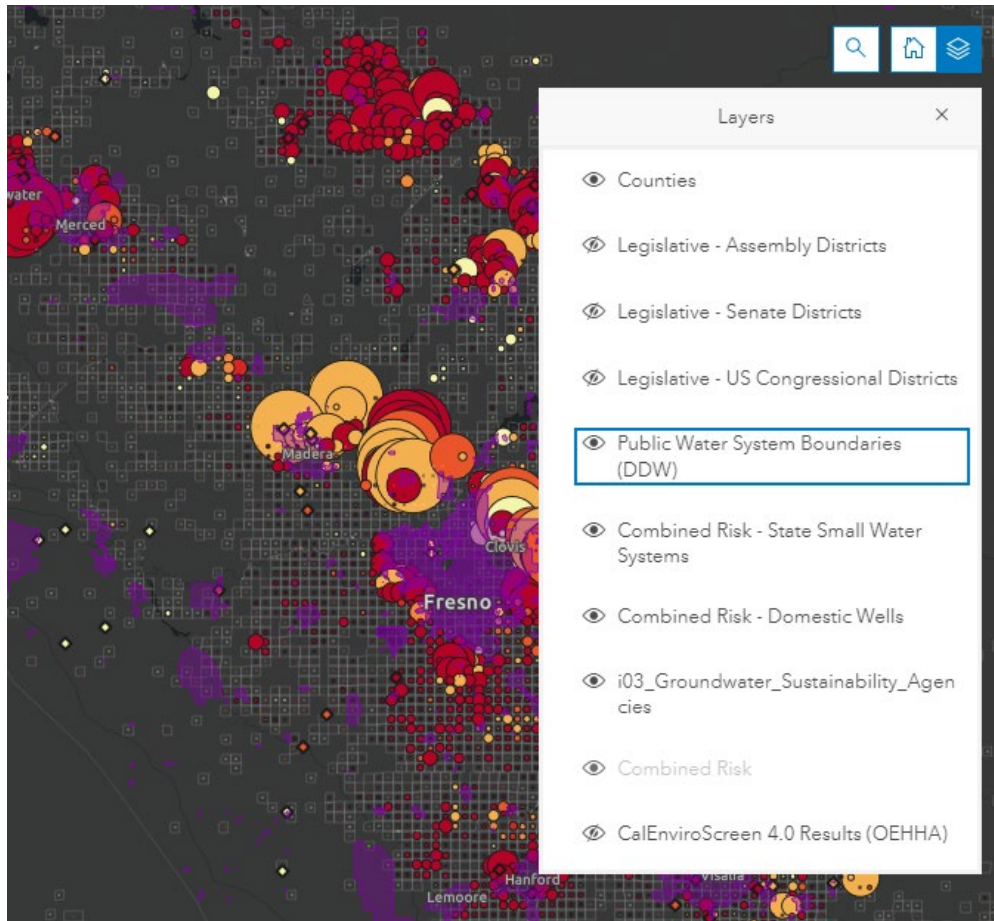
5. SUMMARY STATISTICS

There are four summary statistic indicators displayed on the right-hand side of the dashboard. These indicators are automatically updated when any filtering criteria is applied. The indicators are not affected by the map zoom or by clicking on an individual domestic well cluster or state small water system on the map. To cycle through the at-risk category indicators, click on the arrows at the bottom of indicators.

Figure F2: Summary Statistics

Summary Statistic Indicator	Details
Domestic Wells in at-risk areas	The count of domestic wells that are in at-risk areas and match any filtering criteria. There are four risk categories that this indicator can cycle through: • The default shows the combined risk, where at-risk is defined as a score ≥ 1. • For water quality risk, at-risk is defined as an area with one or more contaminants above the MCL.

Summary Statistic Indicator	Details
	• For water shortage risk, at-risk is defined as an area with a water shortage vulnerability score in the top 20th percentile. • For socioeconomic risk, at-risk is defined as an area with a socioeconomic score in the top 20th percentile.
State Small Water Systems in at-risk areas	The count of state small water systems that are in at-risk areas and match any filtering criteria. There are four risk categories that this indicator can cycle through: • The default shows the combined risk, where at-risk is defined as a score ≥ 1. • For water quality risk, at-risk is defined as an area with one or more contaminants above the MCL. • For water shortage risk, at-risk is defined as an area with a water shortage vulnerability score in the top 20th percentile. • For socioeconomic risk, at-risk is defined as an area with a socioeconomic score in the top 20th percentile.
Domestic Wells (total)	The total count of domestic wells that match the selected filtering criteria.
State Small Water Systems (total)	The total count of state small water systems that match the selected filtering criteria.

DATA REFRESH RATE

The combined risk data by square mile section is updated **yearly** to include updated category data and/or updates location information for state small water systems and domestic wells.

The datasets used to create the category risk scores are updated:

- **Water Quality**: The State Water Board's Aquifer Risk Map is updated each year on January 1st.
- **Water Shortage**: DWR's Water Shortage Vulnerability Tool is planned to be updated yearly in the fall.
- **Socioeconomic**: Census datapoints will be updated annually, however, the County-level data may be updated less frequently.

CATEGORY RISK DETERMINATION

The Risk Assessment for state small water systems and domestic wells first analyzes risk in each category and then aggregates those scores to determine total risk for the location. The table below summarizes the thresholds used per category. Learn more about how these calculations are conducted in Appendix B of the annual Drinking Water Needs Assessment report.

Figure F3: Category Risk Thresholds

Risk Category	High Risk	Medium Risk	Low Risk	Unknown
Water Quality	One or more contaminants above MCL	One or more contaminants above 80% of MCL	All contaminants < 80% of MCL	No water quality data
Water Shortage	≥ 0.534	0.452 – 0.534	< 0.452	N/A
Socioeconomic	≥ 0.885	0.667 – 0.885	< 0.667	N/A

DISTANCE TO NEARBY COMMUNITY WATER SYSTEMS

Distance to the nearest community water system was calculated for state small water systems by measuring the shortest distance between the state small water system point location and the edge of the community water system service area boundary[1]. For domestic wells, the distance was calculated by measuring the shortest distance between the centroid of each PLSS section with a domestic well and the edge of the community water system service boundary.

ACCESSING THE DATA

The GIS data can be accessed through the REST endpoint using this URL:

https://gispublic.waterboards.ca.gov/portalserver/rest/services/Hosted/Combined_Risk_Domestic_Wells_and_State_Small_Water_Systems/FeatureServer.

To connect to the GIS data using your own computer, click on the "Add Data From Path" option within your GIS platform. Copy and paste the above URL and press "Add". The GIS layer will appear in your map and the user can save a local copy of the data,

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[1] Community water systems were identified from the "California Drinking Water System Area Boundaries" map and filtering by "Community" in the "Federal Classification" attribute column.
https://gispublic.waterboards.ca.gov/portalserver/rest/services/Drinking_Water/California_Drinking_Water_System_Area_Boundaries/FeatureServer

select/filter/summarize based on all available attributes, or create a live connection to the data from their own web service.

The tabular data with all risk indicators and scores per PLSS section is available online,[2] as well as a table with the risk indicators and scores joined to the list of state small water system locations.

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[2] State Small Water Systems and Domestic Wells Risk Assessment Spreadsheet:
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2023sswsdwrisk.xlsx