SAFER: IDENTIFYING AT-RISK PUBLIC WATER SYSTEMS – RISK ASSESSMENT 2.0 THRESHOLDS, SCORES, & WEIGHTS (Part 4)

December 14, 2020
9:00 am
Remote participation only
Water Board’s Mission Statement

Preserve, enhance, and restore the quality of California’s water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations.
What is the SAFER Drinking Water Program?

SAFER = Safe and Affordable Funding for Equity and Resilience
Presentation Outline

• Overview of Needs Assessment
• Risk Assessment 2.0 Development
• Proposed Expanded HR2W Criteria
• Proposed Risk Indicator **Thresholds and Scores**
• Proposed Risk Indicator and Category **Weights**
• Risk Assessment Options and Recommendations
• Next Steps and Timeline
WELCOME & INTRODUCTION

Kristyn Abhold
Needs Analysis Unit
Division of Drinking

CALIFORNIA WATER BOARDS

SAFER PROGRAM
Ways to Participate-

1. **Watch ONLY:** Visit [video.calepa.ca.gov](http://video.calepa.ca.gov)

2. **Email:** Submit a comment or ask a question that will be read aloud, send an email to: [safer@waterboards.ca.gov](mailto:safer@waterboards.ca.gov)

3. **Q&A:** Submit a question using the Q&A feature at the bottom of your Zoom Screen. You can UPVOTE any question you would like answered.

4. **Raise Hand:** Attendees will be given the opportunity to provide verbal comment or ask questions, if you’re interested in this option, please raise your virtual hand when the time is right.

- Please wait for your name to be called.
- Public comments are 3 minutes each.
Audience Poll Question 1

Have you participated in any of the last three webinar workshops on the Risk Assessment for Public Water Systems?

• Yes
• No

View recordings and materials here: https://www.waterboards.ca.gov/safer/calendar.html

Provide a written response to poll questions at the link below by January 6th:

• https://bit.ly/3oFVCpx
Audience Poll Question 2

Have you read the White Paper: “Recommendations for Risk Assessment 2.0 Thresholds, Scores, & Weights for Public Water Systems”?

- Yes, read the whole thing
- Yes, I skimmed it
- No, but I plan to
- No, I don’t intend to read it


Provide a written response to poll questions at the link below by January 6th:

SB 200 and the Needs Assessment

Senate Bill 200 created the Safe and Affordable Drinking Water Fund.

• Up to $130 million per year through 2030

• The annual Fund Expenditure Plan prioritizes projects for funding, documents past and planned expenditures, and is “based on data and analysis drawn from the drinking water Needs Assessment” (Health and Safety Code §116769).
Needs Assessment for Public Water Systems

**AFFORDABILITY ASSESSMENT**
- DAC Systems

**RISK ASSESSMENT**
- Public Water System
  - Affordability
  - Accessibility
  - Water Quality
  - TMF
- Systems with 3,300 Conn. or Less & K-12 Schools

**COST ASSESSMENT**
- At-Risk Systems & DWs
- HR2W Systems
- HR2W & At-Risk Systems and Domestic Wells

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SAFER Program and the Risk Assessment

- Human Right to Water Systems
  - Out of Compliance
- At-Risk Systems & Domestic Wells
- Potentially At-Risk Systems & Domestic Wells
- Not At-Risk Systems & Domestic Wells
Needs Assessment Uses

**NEEDS ASSESSMENT**

- Affordability Assessment
- Risk Assessment
- Cost Assessment

**Division of Financial Assistance (DFA)**

Annual Fund Expenditure Plan

**Funding and TA Prioritization**

**Engagement Unit Services Rendered**

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Risk Assessment for Public Water Systems (1/2)

RISK INDICATORS
Quantifiable measurements of key data used to assess a water system’s risk of becoming non-compliant with water quality standards.

THRESHOLDS
Values associated with a risk indicator that designates when a water system is more at-risk of becoming non-compliant with water quality standards.

WEIGHTS / SCORES
Application of weight to each risk indicator – as some may be deemed more critical than others in contributing to overall risk.
Risk Assessment for Public Water Systems (2/2)

**RISK ASSESSMENT METHODOLOGY**

**RISK INDICATORS**
Quantifiable measurements of key data used to assess a water system’s risk of becoming non-compliant with water quality standards.

**THRESHOLDS**
Values associated with a risk indicator that designates when a water system is more at-risk of becoming non-compliant with water quality standards.

**WEIGHTS / SCORES**
Application of weight to each risk indicator – as some may be deemed more critical than others in contributing to overall risk.

Public Water System

- Affordability
- Accessibility
- Water Quality
- TMF
### Phases of Risk Assessment Development (1/2)

1. **July 2020: Identify Potential Risk Indicators**
   - Align with HR2W goals
   - Develop methodology for evaluating potential indicators: Risk Indicator Evaluation Tool

2. **October 2020: Select Risk Indicators**
   - Share results of risk indicator evaluation with public
   - Determine final list of indicators for inclusion in Risk Assessment 2.0

3. **November 2020: Set Thresholds**
   - Determine thresholds for risk indicators

4. **December 2020: Determine Scoring/Weighting Approach**
   - Per indicator and/or indicator category
   - Test methodology options, ground truth results, share options for public feedback

5. **January 2021: Conduct Risk Assessment for 2021-22 Fund Expenditure Plan**
   - Finalize methodology using public feedback
   - Conduct Risk Assessment
Re-Cap Risk Assessment 1.0 Indicators

Risk Assessment 1.0 Indicators (water systems < 3,300 connections)

- Explored in April 17, 2020 Webinar: [https://www.waterboards.ca.gov/safer/calendar.html](https://www.waterboards.ca.gov/safer/calendar.html)

- Water Outages
- Waterborne Illness: Current and Historical
- Lead and Copper
- Extensive Treatment Required
- Treatment Technique Violations
- Single Groundwater Source
- Absence of Customer-Level Meters
- Monitoring and Reporting Violations
- Bacteriological Violations or E. coli
- Operator Certification Violations
- Disadvantaged Community Status
- Location In a High Priority Groundwater Basin
- Active Standing with California Secretary of State Status Requirements
Steps 1 & 2: Identify and Select 2.0 Risk Indicators

Solicited public and stakeholder recommendations through 3 webinar workshops:

- April 17, 2020
- July 22, 2020
- October 13, 2020

Webinar Recordings and Detailed Draft White Papers:
https://www.waterboards.ca.gov/safer/calendar.html
2.0 Risk Indicator Selection Process

① Assess 129 potential risk indicators for Applicability and Data Fitness using Evaluation Tool.

② Use evaluation results to refine list of potential risk indicators.

③ Identify and remove moderately duplicative potential risk indicators to further refine list.

④ Make recommendation and solicit public feedback to determine final list of indicators for Risk Assessment 2.0.

129 Potential Risk Indicators

51 Potential Risk Indicators

35 Potential Risk Indicators

22 Recommended Risk Indicators
# Recommended Water Quality Risk Indicators

## Table of Recommended Water Quality Risk Indicators

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Utilized By Others?</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Coli Presence</td>
<td>Risk Assessment 1.0</td>
</tr>
<tr>
<td>Increasing Presence of Water Quality Trends Toward MCL (2022-23 Needs Assessment)</td>
<td></td>
</tr>
<tr>
<td>Treatment Technique Violations</td>
<td>Risk Assessment 1.0</td>
</tr>
<tr>
<td>Past Presence on the HR2W List</td>
<td></td>
</tr>
<tr>
<td>Maximum Duration of High Potential Exposure (HPE)</td>
<td>OEHHA HR2W Tool</td>
</tr>
<tr>
<td>Percentage of Sources Exceeding an MCL</td>
<td></td>
</tr>
</tbody>
</table>
## Accessibility Risk Indicators

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Utilized By Others?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Sources</td>
<td>OEHHA HR2W Tool; DWR Water Shortage Risk Tool</td>
</tr>
<tr>
<td>Absence of Interties</td>
<td>OEHHA HR2W Tool; DWR Water Shortage Risk Tool</td>
</tr>
<tr>
<td>Water Source Types</td>
<td>OEHHA HR2W Tool</td>
</tr>
<tr>
<td>DWR – Drought &amp; Water Shortage Risk Assessment</td>
<td>DWR</td>
</tr>
<tr>
<td>Critically Overdrafted Groundwater Basin</td>
<td>DWR Water Shortage Risk Tool</td>
</tr>
</tbody>
</table>
# Affordability Risk Indicators

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Utilized By Others?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of Median Household Income (2021-22 Needs Assessment Only)</td>
<td>OEHHA HR2W Tool; SWRCB-FEP 2020/21; UNC Financial Dashboard</td>
</tr>
<tr>
<td>Household Burden Indicator for Drinking Water (2022-23 Needs Assessment)</td>
<td>UNC Financial Dashboard</td>
</tr>
<tr>
<td>Poverty Prevalence Indicator (2022-23 Needs Assessment)</td>
<td></td>
</tr>
<tr>
<td>Housing Burden (2022-23 Needs Assessment)</td>
<td></td>
</tr>
<tr>
<td>Extreme Water Bill (2021-22 and 2022-23 Needs Assessment)</td>
<td>SWRCB AB-401 Report</td>
</tr>
<tr>
<td>% Shut-Offs (2021-22 and 2022-23 Needs Assessment)</td>
<td></td>
</tr>
</tbody>
</table>
## TMF Capacity Risk Indicators

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Utilized By Others?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Service Connections</td>
<td></td>
</tr>
<tr>
<td>Operator Certification Violations</td>
<td>Risk Assessment 1.0</td>
</tr>
<tr>
<td>Monitoring and Reporting Violations</td>
<td>Risk Assessment 1.0; OEHHA HR2W Tool</td>
</tr>
<tr>
<td>Significant Deficiencies</td>
<td></td>
</tr>
<tr>
<td>Extensive Treatment Installed</td>
<td></td>
</tr>
</tbody>
</table>
Progress Since the October 13<sup>th</sup> Public Webinar

1. Incorporated public and internal-DDW recommendations to finalize list of **22 risk indicators** for Risk Assessment 2.0.

2. Developed proposed **expanded criteria** for the Human Right to Water (HR2W) List.

3. Identified potential **thresholds**, **scoring**, and **weighting** approaches for individual risk indicators.

4. Proposed aggregated Risk Assessment 2.0 options and recommended “At-Risk” and “Potentially At-Risk” thresholds in a published **White Paper** for public feedback.
Violation-Type Risk Indicators

• A number of the potential and recommended risk indicators are associated with non-MCL violations. The recommended indicators include:
  • Presence of E. Coli (includes E. coli violations)
  • Treatment Technique Violations
  • Operator Certification Violations
  • Monitoring and Reporting Violations

• Further consideration was given to define what it means for a water system to “consistently fail” or be “at-risk.”
HR2W Considerations

• CA Health and Safety Code Section 116275(c) states that “primary drinking water standards” mean:

  1. **Maximum levels of contaminants** that, in the judgment of the state board, may have an adverse effect on the health of persons.

  2. Specific **treatment techniques** adopted by the state board in lieu of maximum contaminant levels pursuant to subdivision (j) of Section 116365.

  3. The **monitoring and reporting** requirements as specified in regulations adopted by the state board that pertain to maximum contaminant levels.

• The State Water Board used this definition to consider how to most appropriately expand the criteria for systems that are added to the HR2W list to ensure all aspects of public health were incorporated.
# Expanded Criteria for the Human Right to Water List (HR2W)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Before 3.2021</th>
<th>After 3.2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary MCL Violation with an open Enforcement Action</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Secondary MCL Violation with an open Enforcement Action</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E. Coli Violation with an open Enforcement Action</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Treatment Technique Violations (in lieu of an MCL):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• One or more Treatment Technique violations (in lieu of an MCL),</td>
<td>Partially</td>
<td>Expanded</td>
</tr>
<tr>
<td>related to a primary contaminant, with an open enforcement action;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and/or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Three or more Treatment Technique violations (in lieu of an MCL),</td>
<td></td>
<td></td>
</tr>
<tr>
<td>related to a primary contaminant, within the last three years.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Monitoring and Reporting Violations (related to an MCL and TTs):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 3 Monitoring and Reporting violations (related to an MCL) within the</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>last three years where at least one violation has been open for 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>months or greater.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Approximately 40 water systems would be added to the HR2W list with the expanded criteria*
Audience Poll Question 3

Does the expanded criteria for the HR2W list better align with the primary drinking water standard definitions for systems that are out of compliance or consistently failing?

• Yes, I like this expanded criteria
• Maybe, I need more time to consider the expanded criteria
• No, I disagree with expanding the criteria for the HR2W list


Provide a written response to poll questions at the link below by January 6th:

• https://bit.ly/3oFVCpx
Discussion Topic: Expanded HR2W Criteria

Do you have any immediate feedback on the proposed expanded HR2W criteria or the definition of what is “consistently failing”?

Ways to Participate:

1. Watch ONLY: Visit video.calepa.ca.gov
2. Email: Submit a comment or ask a question that will be read aloud, send an email to: safer@waterboards.ca.gov
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## Determining Risk Indicator Thresholds

### DISTINGUISH BETWEEN THRESHOLD TYPES

<table>
<thead>
<tr>
<th>Threshold Type</th>
<th>Number of Risk Indicators*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derived from Legislative or regulatory definitions</td>
<td>7</td>
</tr>
<tr>
<td>Supported by empirical evidence</td>
<td>9</td>
</tr>
<tr>
<td>Utilized by other California agencies, other state government or the U.S. EPA</td>
<td>14</td>
</tr>
<tr>
<td>Recognized by sector experience</td>
<td>4</td>
</tr>
<tr>
<td>No Past Precedent</td>
<td>4</td>
</tr>
</tbody>
</table>

*Many of the 18 risk indicators have more than one threshold type*
The State Water Board and UCLA analyzed the distribution of each risk indicator and looks for natural breaks and clusters in order to determine appropriate threshold(s).
Normalizing Individual Risk Indicator Thresholds with Scores

- Many risk indicators are measured in different units and scales.
- To enable the evaluation and comparison of risk indicators, a standardized score range between 0 and 1 was applied to each set of proposed thresholds.
- Example:

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Proposed Threshold &amp; Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Duration of High Potential Exposure (HPE)</td>
<td>Threshold 0 = 0 years (0)</td>
</tr>
<tr>
<td></td>
<td>Threshold 1 = 1 year (.25)</td>
</tr>
<tr>
<td></td>
<td>Threshold 2 = 2 years (.5)</td>
</tr>
<tr>
<td></td>
<td>Threshold 3 = 3 or more years (1)</td>
</tr>
</tbody>
</table>
Risk Indicator Weight Options

• The application of weights to risk indicators allows the State Water Board to indicate which risk indicators are comparatively more critical.

• Weights between 1 and 3 are proposed for each risk indicator.

Individual risk indicators can have the same weight or different weights based on comparative criticality.
## Water Quality Risk Indicator Recommended Thresholds & Scores (1/2)

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Proposed Thresholds &amp; Scores</th>
<th>Proposed Weight</th>
</tr>
</thead>
</table>
| E. Coli Presence                                    | Threshold 0 = No (0)  
Threshold 1 = Yes (1)                                                                               | 3               |
| Increasing Presence of Water Quality Trends Toward MCL | To be determined through a stakeholder driven process in 2021.                               | N/A             |
| Treatment Technique Violations                      | Threshold 0 = 0 (0)  
Threshold 1 = 1 or more (1)                                                                     | 1               |
## Water Quality Risk Indicator Recommended Thresholds & Scores

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<tr>
<th>Risk Indicator</th>
<th>Proposed Thresholds &amp; Scores</th>
<th>Proposed Weight</th>
</tr>
</thead>
</table>
| Past Presence on the HR2W List                           | Threshold 0 = 0 occurrences (0)  
                  Threshold 1 = 1 occurrence (.5)  
                  Threshold 2 = 2 or more occurrences (1)                                        | 2               |
| Maximum Duration of High Potential Exposure (HPE)        | Threshold 0 = 0 years (0)  
                  Threshold 1 = 1 year (.25)  
                  Threshold 2 = 2 years (.5)  
                  Threshold 3 = 3 or more years (1)                                            | 3               |
| Percentage of Sources Exceeding an MCL                  | Threshold 0 = less than 49.9% (0)  
                  Threshold 1 = greater than 49.9% (1)                                          | 3               |
## Accessibility Risk Indicator Recommended Thresholds & Scores (1/2)

<table>
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<tr>
<th>Risk Indicator</th>
<th>Proposed Thresholds &amp; Scores</th>
<th>Proposed Weight</th>
</tr>
</thead>
</table>
| **Number of Sources**     | Threshold X = 0 *(automatically At-Risk)*  
Threshold 0 = 2 or more *(0)*  
Threshold 1 = 1 *(1)*       | 3               |
| **Absence of Interties**  | Threshold 0 = 1 or more *(0)*  
Threshold 1 = 0 *(1)*         | 1               |
| **Water Source Types**    | Threshold 0 = 2 or more *(0)*  
Threshold 1 = 1 that is purchased *(0.5)*  
Threshold 2 = 1 that is groundwater or surface water *(1)* | 1               |
# Accessibility Risk Indicator Recommended Thresholds & Scores

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Proposed Thresholds &amp; Scores</th>
<th>Proposed Weight</th>
</tr>
</thead>
</table>
| DWR – Drought & Water Shortage Risk Assessment Results | Threshold 0 = Below top 25% (0)  
Threshold 1 = Top 25% (.25)  
Threshold 2 = Top 10% (1) | 2               |
| Critically Overdrafted Groundwater Basin            | Threshold 0 = Less than 75% (0)  
Threshold 1 = 75% or greater (1) | 2               |
## Affordability Risk Indicator Recommended Thresholds & Scores (1/2)

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Proposed Thresholds &amp; Scores</th>
<th>Proposed Weight</th>
</tr>
</thead>
</table>
| **Percent of Median Household Income (2021-22 Needs Assessment Only)** | Threshold 0 = Less than 1.5% (0)  
Threshold 1 = 1.5% or greater (.75)  
Threshold 2 = 2.5% or greater (1) | 3               |
| **Extreme Water Bill (2021-22 and 2022-23 Needs Assessment)** | Threshold 0 = Below 150% of the statewide average (0)  
Threshold 1 = greater than 150% of the statewide average (.5)  
Threshold 2 = greater than 200% of the statewide average (1) | 1               |
| **% Shut-Offs (2021-22 and 2022-23 Needs Assessment)**   | Threshold 0 = less than 10% over the last calendar year (0)  
Threshold 1 = 10% or greater over the last calendar year (1) | 2               |
<table>
<thead>
<tr>
<th>Risk Indicator</th>
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<th>Proposed Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Burden Indicator for Drinking Water (2022-23 Needs Assessment)</td>
<td>To be determined through a stakeholder driven process in 2021.</td>
<td>N/A</td>
</tr>
<tr>
<td>Poverty Prevalence Indicator (2022-23 Needs Assessment)</td>
<td>To be determined through a stakeholder driven process in 2021.</td>
<td>N/A</td>
</tr>
<tr>
<td>Housing Burden (2022-23 Needs Assessment)</td>
<td>To be determined through a stakeholder driven process in 2021.</td>
<td>N/A</td>
</tr>
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</table>
# TMF Capacity Risk Indicator Recommended Thresholds & Scores

<table>
<thead>
<tr>
<th>Risk Indicator</th>
<th>Proposed Thresholds &amp; Scores</th>
<th>Proposed Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WATER QUALITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ACCESSIBILITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AFFORDABILITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TMF CAPACITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Risk Indicator</strong></td>
<td><strong>Proposed Thresholds &amp; Scores</strong></td>
<td><strong>Proposed</strong></td>
</tr>
<tr>
<td><strong>Number of Service Connections</strong></td>
<td>Threshold 0 = greater than 500 (0)</td>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td></td>
<td>Threshold 1 = 500 or less (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Operator Certification Violations</strong></td>
<td>Threshold 0 = 0 (0)</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td>Threshold 1 = 1 or more over the last 3 years (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Monitoring and Reporting Violations</strong></td>
<td>Threshold 0 = 1 or less over the last 3 years (0)</td>
<td><strong>2</strong></td>
</tr>
<tr>
<td></td>
<td>Threshold 1 = 2 or more over the last 3 years (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Significant Deficiencies</strong></td>
<td>Threshold 0 = 0 (0)</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td>Threshold 1 = 1 or more over the last 3 years (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Extensive Treatment Installed</strong></td>
<td>Threshold 0 = No (0)</td>
<td><strong>2</strong></td>
</tr>
<tr>
<td></td>
<td>Threshold 1 = Yes (1)</td>
<td></td>
</tr>
</tbody>
</table>
Audience Poll Question 4

Do these individual risk indicator thresholds and scoring recommendations align with your expectations?

- Yes, these thresholds and scores align with my expectations
- Maybe, I haven’t had a chance to review all the threshold and score recommendations
- Maybe, there are some thresholds and/or scores I don’t agree with
- No, I disagree with a majority of the recommend thresholds and scores

Access White Paper here: [https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf](https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf)

Category Weight Options

• The application of weights to risk indicator categories allows the State Water Board to indicate which sets of risk indicators are more comparatively critical.

• Weights between 1 and 3 are proposed for each risk indicator category.

Same Weight

<table>
<thead>
<tr>
<th>Water Quality</th>
<th>Accessibility</th>
<th>Affordability</th>
<th>TMF Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Different Weights

Risk Indicator categories can have the same weight or different weights
Aggregated Risk Assessment Calculation Methodology

Water Quality Risk Indicators

(Adjusted Category Score) \times (Category Weight)

Accessibility Risk Indicators

(Adjusted Category Score) \times (Category Weight)

Affordability Risk Indicators

(Adjusted Category Score) \times (Category Weight)

TMF Capacity Risk Indicators

(Adjusted Category Score) \times (Category Weight)

\[ \text{Aggregated Risk Assessment Score} = \text{Water Quality Risk Indicators} + \text{Accessibility Risk Indicators} + \text{Affordability Risk Indicators} + \text{TMF Capacity Risk Indicators} \]
Adjusting for Missing Risk Indicator Data

- May have missing data for certain systems, either because:
  - a system failed to report necessary data or
  - the system may not have data to report.

- Risk Assessment 2.0 will omit any value for a missing risk indicator and redistribute the scores/weights to risk indicators within the same category which did have valid values.

<table>
<thead>
<tr>
<th>Risk Indicator Category</th>
<th>With No Missing Indicator</th>
<th>Risk Indicator Category</th>
<th>With Missing Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 + 1 + .5 + .25 + 0</td>
<td>5</td>
<td>1 + 1 + .5 + N/A + 0</td>
<td>4</td>
</tr>
</tbody>
</table>
Adjusting for Missing Risk Indicator Data

Category with No Missing Risk Indicator Data

\[1.1 \times 3 + 0.3 \times 3 + 1 \times 1 + 0.8 \times 2 = 4\]

Category with Missing Risk indicator Data

\[1.1 \times 3 + 0.3 \times 3 + \text{N/A} + 0.8 \times 2 = 3\]
Audience Poll Question 5

Do you like this approach for adjusting to missing risk indicator data?

- Yes, I like this approach
- No, I don’t like this approach
- I need more time to consider this question before I can provide feedback

Access White Paper here:
https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf

Provide a written response to poll questions at the link below by January 6th:

“At-Risk” Determination Approaches (1/2)

When conducting an aggregated Risk Assessment, there are a number of approaches available for consideration for determining At-Risk systems:

1. At-Risk due to a Risk Indicator Threshold
2. At-Risk due to a Risk Indicator Category Threshold
3. At-Risk from Combined Assessment

The assessment methodology could have a combined approach across all three approaches above.
“At-Risk” Determination Approaches (1/2)

Approaches 1 and 3 are recommended for Risk Assessment 2.0. Approach 2 was not incorporated due to the distribution of system performance across the risk indicator categories.
Option 1: No Weights - Raw

Individual risk indicators with equal weights.

4 risk categories with equal weights. Can analyze risk within each category if desired.
Option 2: Risk Indicator Weights Only

Individual risk indicators with **different** weights.

4 risk categories with **equal** weights. Can analyze risk within each category if desired.
Option 3: Risk Indicator & Category Weights

Risk Indicators

Water Quality  Accessibility  Affordability  TMF Capacity

Combined Risk Assessment

Potentially At-Risk  At-Risk

Individual risk indicators with different weights.

4 risk categories with different weights. Can analyze risk within each category if desired.
Water Quality Category Assessment Results (1,359 systems of 2,850 included)

Option 1: No Risk Indicator Weights

Option 2 & 3: Risk Indicator Weights Included

1491 Systems score 0 points

Not HR2W  Current HR2W  Expanded HR2W
Accessibility Category Assessment Results (2,674 systems of 2,850 included)

Option 1: No Risk Indicator Weights

- 176 Systems score 0 points

Option 2 & 3: Risk Indicator Weights Included

- Not HR2W
- Current HR2W
- Expanded HR2W
Affordability Category Assessment Results (519 systems of 1,903 included)

Option 1: No Risk Indicator Weights

- Current HR2W
- Not HR2W
- Expanded HR2W

1384 Systems score 0 points

Option 2 & 3: Risk Indicator Weights Included

- Current HR2W
- Not HR2W
- Expanded HR2W
TMF Capacity Category Assessment Results (2,608 systems of 2,850 included)

Option 1: No Risk Indicator Weights
- 242 Systems score 0 points

Option 2 & 3: Risk Indicator Weights Included

CALIFORNIA WATER BOARDS
SAFER PROGRAM
Audience Poll Question 6

After reviewing the category assessment results, do you support different “weights” for individual risk indicators?

• Yes, I support different weights
• No, all risk indicators should have the same weight
• I need more time to consider this question before I can provide feedback

Access White Paper here:
https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf

Provide a written response to poll questions at the link below by January 6th:
• https://bit.ly/3oFVCpx
Risk Assessment Option 2: Risk Indicator Weights Only Results

- Not HR2W
- Current HR2W
- Expanded HR2W
Risk Assessment Option 3: Risk Indicator & Category Weights Results

- Not HR2W
- Current HR2W
- Expanded HR2W
Audience Poll Question 7

Do you support different “weights” for risk indicator categories?

- Yes, I support different weights
- No, all risk indicators should have the same weight
- I need more time to consider this question before I can provide feedback


Provide a written response to poll questions at the link below by January 6th:

Audience Poll Question 8

Do you support any of the Risk Assessment methodology options presented here?

- Yes, I like Option 1
- Yes, I like Option 2
- Yes, I like Option 3
- I need more time to consider these options before I can provide feedback
- No, I don’t like any of these options

Access White Paper here: [https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf](https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf)

Provide a written response to poll questions at the link below by **January 6th**:

The State Water Board recommends **Option 3** for Risk Assessment 2.0. This option is recommended due to the distribution of the current and expanded HR2W systems.
Recommended Risk Assessment Thresholds

The State Water Board recommends the following Risk Assessment 2.0 thresholds for public consideration:

- **“Potentially At-Risk”** threshold of **0.75** (584 systems - excluding HR2W; 23%)
- **“At-Risk”** threshold of **1.0** (702 systems - excluding HR2W; 28%)

These thresholds were determined based on where the current and expanded HR2W systems started to cluster.
Audience Poll Question 9

Do you support the recommended methodology Option 3?

- Yes, I support this recommendation
- Maybe, I think this recommendation needs minor changes
- Maybe, I need more time to consider before I can provide feedback
- No, I don’t support this recommendation

Access White Paper here:
https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf

Provide a written response to poll questions at the link below by January 6th:
Audience Poll Question 10

Do you support the recommended proposed “Potentially At-Risk” and “At-Risk” thresholds?

• Yes, I support these recommendations
• Maybe, I think these recommendations need minor changes
• Maybe, I need more time to consider before I can provide feedback
• No, I don’t support these recommendations

Access White Paper here:
https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf

Provide a written response to poll questions at the link below by January 6th:
• https://bit.ly/3oFVCpx
Immediate Next Steps

- Incorporate public feedback to finalize Risk Assessment 2.0.
  - White Paper: [https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf](https://www.waterboards.ca.gov/safer/docs/draft_white_paper.pdf)
  - Submit feedback by **January 6th** to: SAFER@waterboards.ca.gov
    - Email Title: Public Water System Risk Assessment


- The State Water Board will release a white paper in February 2021 detailing the final Risk Assessment 2.0 methodology.

- Results of Risk Assessment will be published in the Draft Fund Expenditure Plan.
Projected Risk Assessment 2.0 Timeline

<table>
<thead>
<tr>
<th>PHASES</th>
<th>2020</th>
<th>2020</th>
<th>2020</th>
<th>2020</th>
<th>2021</th>
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</thead>
<tbody>
<tr>
<td>1: Identify Potential Risk Indicators</td>
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<tr>
<td>2: Select Risk Indicators</td>
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<tr>
<td>3: Set Thresholds</td>
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<tr>
<td>4: Determine Scoring/Weighting Approach</td>
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<tr>
<td>5: Conduct 2021-22 Risk Assessment</td>
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</tr>
</tbody>
</table>

- **Q1 2020**: 04.17 Workshop
- **Q2 2020**: 07.22 Workshop
- **Q3 2020**: 10.13 Workshop
- **Q4 2020**: 12.14 Workshop
- **Q1 2021**:
Proposed Needs Assessment Timeline

January: Conduct Needs Assessment:
- Conduct **Risk Assessment**.
- Conduct **Costs Assessment**.
- Conduct **Affordability Assessment**.

February:
- **Risk Assessment** white paper published with final methodology.
- **Cost Assessment**: 02.26 webinar highlighting draft results of potential costs and overview of funding gap analysis methodology.

March:
- **Needs Assessment** contract with UCLA concludes.
- **Needs Assessment** results delivered to DFA for Fund Expenditure Plan.

April: Draft **Fund Expenditure Plan** released for 30-day public comment.

June: **Fund Expenditure Plan** considered by Board for adoption.
Risk Assessment 3.0 + Vision for the Future

1. Risk Assessment Methodology
2. Refine Risk Assessment methodology with stakeholder engagement
3. Refine data collection & data quality
4. Learn from success/failure in the field with HR2W and At-Risk Systems & Domestic Wells
5. Conduct studies to support existing/new indicators & thresholds
Discussion Topic: Open Q&A

Do you have any questions or comments about the development of the Risk Assessment methodology?

Ways to Participate:

1. Watch ONLY: Visit video.calepa.ca.gov
2. Email: Submit a comment or ask a question that will be read aloud, send an email to: safer@waterboards.ca.gov
3. Q&A: Submit a question using the Q&A feature at the bottom of your Zoom Screen. You can UPVOTE any question you would like answered.
4. Raise Hand: Attendees will be given the opportunity to provide verbal comment or ask questions, if you’re interested in this option, please raise your virtual hand when the time is right.

- Please wait for your name to be called.
- Public comments are 3 minutes each.
Next Steps and Announcements
Closing Remarks & Gratitude