



Item 5. Consideration of the Approach to Addressing Interconnected Surface Water (ISW) in the Periodic Evaluation in response to the Department of Water Resources' Recommended Corrective Actions

Vina Stakeholder Advisory Committee
May 27, 2026

Christina Buck, PhD
Assistant Director
Butte County Dept. of Water and Resource Conservation
Providing technical staff support to the GSA

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Purpose of Today's Discussion

SHAC is being asked to consider a strawman proposal released by the GSA (5/18/26) for responding to DWR's ISW Recommended Corrective Action and provide input — potentially a recommendation — to the GSA Boards.

What is the regulatory framework?

DWR focused on estimating the location, timing, and volume of depletions of interconnected surface water caused by groundwater pumping.

What progress has been made?

The Larry Walker Associates ISW Technical Memo provides new information on where ISW likely occurs and when some streams are connected or disconnected — this information was not available in the 2022 GSP or during its development.

What remains?

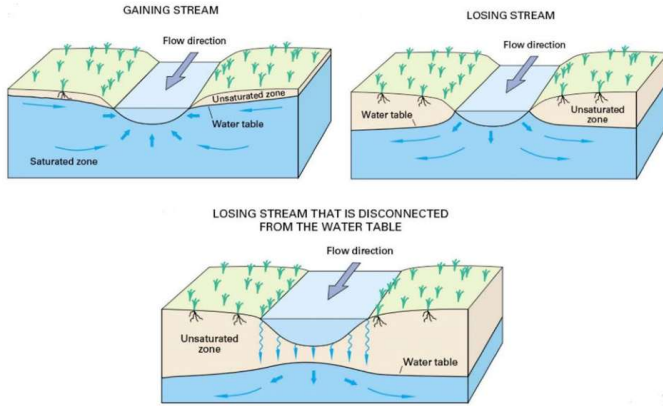
The volume (quantity) piece is the least resolved and depends most on DWR guidance, regional coordination, and continued monitoring — especially for the Sacramento River.

Key framing: demonstrate progress while avoiding premature ISW SMC decisions

The strawman proposal approach document's location and timing progress now, defines the monitoring path, and defers ISW-specific thresholds until the technical and policy foundation is stronger.

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Quick Orientation: What Is Interconnected Surface Water (ISW)?



Interconnected Surface Water (ISW) is where groundwater and rivers or streams are connected.

Why it matters

Under SGMA, the key question is whether groundwater pumping causes depletions of ISW that significantly and unreasonably affect beneficial uses of surface water.



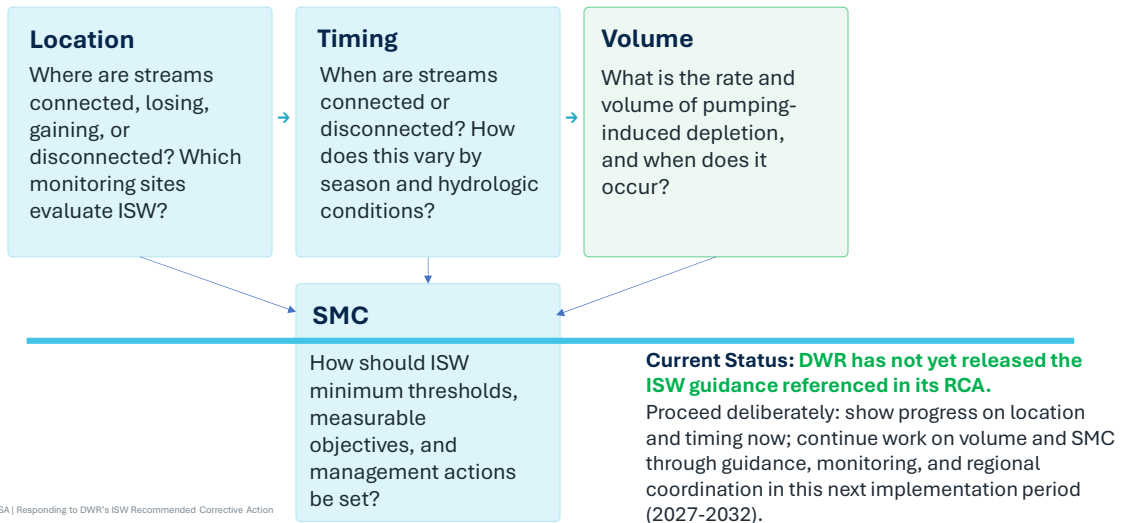
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DWR's ISW RCA: Location, Timing, and Volume

DWR recognized that estimating stream depletion from subbasin-wide pumping is complex, but expects progress by the first Periodic Evaluation.



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DWR's Recommended Corrective Action 6

Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic evaluation:

- a. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs' jurisdictional area.
- d. Clarify the groundwater level monitoring sites that will be used for the evaluation of depletions of interconnected surface water and provide site-specific information.

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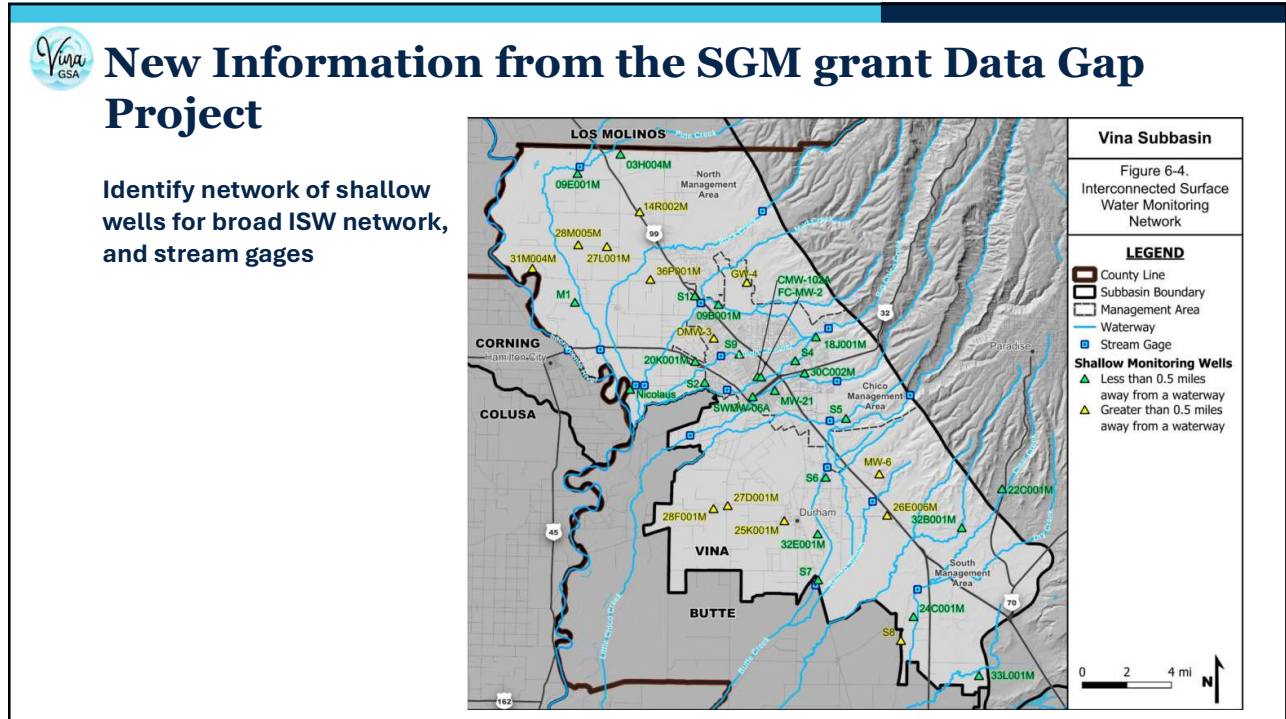


Notable Progress:

New information from the LWA ISW Technical Memorandum



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New Information from the SGM grant Data Gap Project: LWA ISW Tech Memo

The TM uses multiple lines of evidence to improve understanding of ISW in the Vina Subbasin

Butte Basin Groundwater Model
Updated BBGM v1.3 results identify likely connected, losing, gaining, and disconnected reaches.

Shallow Regional Groundwater
Seasonal groundwater level comparisons to stream bed elevations using LiDAR data help evaluate where connection occurs

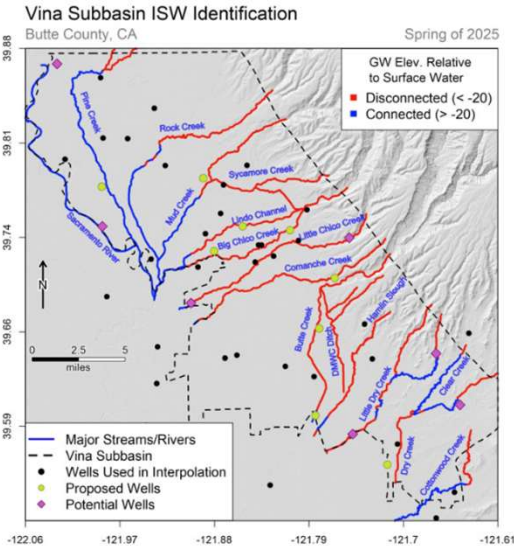
Isotope Sampling
Seasonal groundwater comparisons and May-October isotope sampling help evaluate when stream-aquifer connections occur or are absent.

Source: LWA ISW TM, April 2026
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Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



Preliminary location pattern

- Sacramento River is primarily connected and gaining.
- Lower western reaches of some creeks may be connected or mixed.
- Many central and eastern reaches appear disconnected much or all of the time.
- Connections may shift with hydrology and groundwater levels.

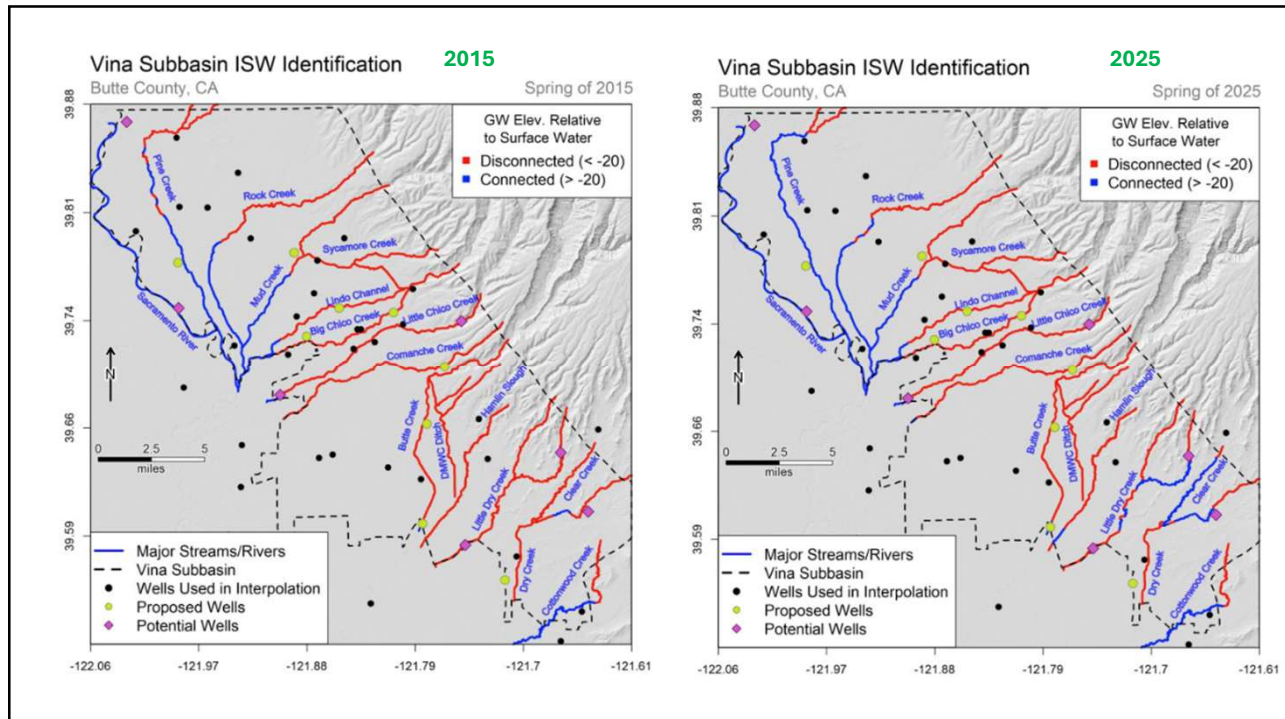
RCA progress

This directly addresses the "location" part of DWR's RCA by improving the basis for identifying connected stream segments and selecting monitoring locations.

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Source: LWA ISW TM, Fig. 7

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Location: Preliminary Status by Stream Reach

The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

Stream	Preliminary status	Approx. length
Sacramento River	Connected – gaining	23.4 mi
Pine Creek	Disconnected except lower ~5 mi	12.6 mi
Rock Creek	Disconnected except lower ~1 mi	13.4 mi
Mud Creek	Disconnected except lower ~2 mi	13.2 mi
Big Chico Creek	Disconnected except lower ~2 mi	10.7 mi
Little Chico Creek	Disconnected	11.9 mi
Butte Creek	Disconnected	11.8 mi
Little Dry / Dry Creek	Disconnected	10.8 mi

These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

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Source: LWA ISW TM, Table 3

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Timing: What We Learned So Far

Sacramento River

Primarily connected and gaining across the analysis period. This makes it the main surface water feature for continued ISW depletion evaluation.

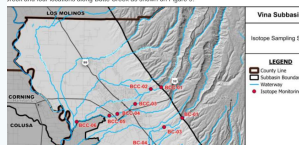
Important for both timing and volume because it borders multiple subbasins.

Big Chico + Butte Creeks

May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

2.1.3 ISW Identification through Isotope Sampling

To understand ISW interactions on a finer timescale than seasonal groundwater interpolations can provide, we collected and analyzed isotopes of the water molecule along Big Chico and Butte Creeks during the study period, June through October of 2023. Samples were taken from six locations along Big Chico Creek and four locations along Butte Creek, as shown in Figure 9.



Ephemeral Streams

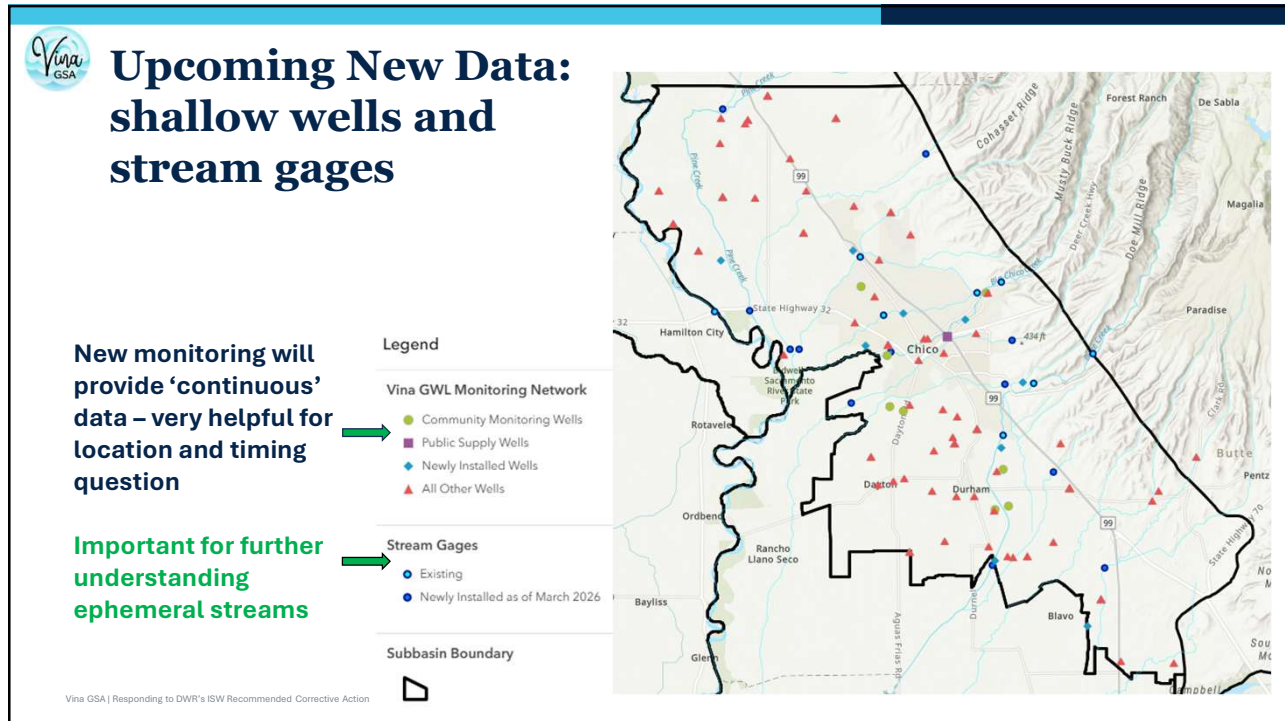
Potential depletions are limited to periods when streams are flowing and groundwater levels are high, making them connected to the aquifer. Streamflows typically end by June.

New continuous shallow groundwater data and stream gages will help characterize timing more clearly over the next implementation period.

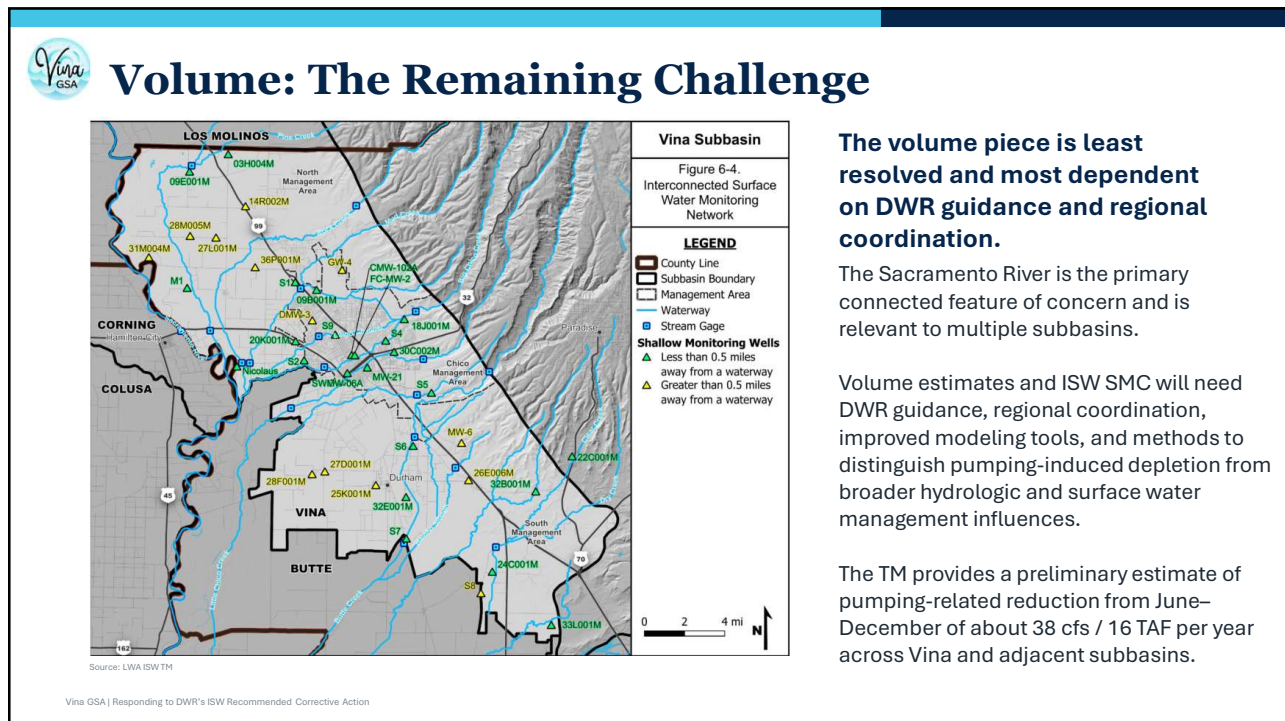
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Source: LWA ISW TM, Summary & Conclusions

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Proposed RCA Response Strategy:
Demonstrate meaningful progress now;
develop robust ISW SMC later

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## Range of Options for Responding to DWR's ISW RCA


**Strawman**

|                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                     |
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**The strawman is not "no action." It is a documented RCA response: location progress, timing progress, monitoring network definition, and a clear path for volume/SMC work.**

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## Strawman Proposal: What Would Be Done in the PE

- 1 Document location progress** Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.
- 2 Document timing progress** Describe seasonal/isotope findings and describe that new continuous data from newly installed wells in 2026 will help improve timing analysis in the future.
- 3 Define ISW monitoring network** Identify shallow wells, stream gages, and supporting data sources for continued evaluation – this is a big step forward from what was available previously
- 4 Defer ISW-specific SMC** Do not set MTs, MOs, undesirable results, or ISW RMS sites until DWR guidance/data/regional work support development of thresholds.
- 5 Coordinate regionally on volume aspect** Focus regional work on the Sacramento River and shared methods for depletion volume estimates.

**Intent: clearly respond to DWR’s RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.**

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## Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

**Move faster toward SMC**

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
- Include early-warning triggers before thresholds are reached.

**Show Progress**

- Define a broader ISW monitoring network now.
- Use new analysis to document location and timing progress.
- Improve visuals and explanations of stream connectivity, model outputs, and uncertainty.
- Collect new data - shallow groundwater and stream gage monitoring.

**Proceed carefully**

- Proceed cautiously given data gaps.
- Wait for DWR guidance
- Maintain flexibility; avoid locking in premature thresholds.
- Coordinate with neighboring subbasins on ISW and model calibration.
- Revisit SMC when DWR guidance, regional work, and new data are available.

**Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps**

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## SHAC Discussion and Potential Action

### Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

### Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River



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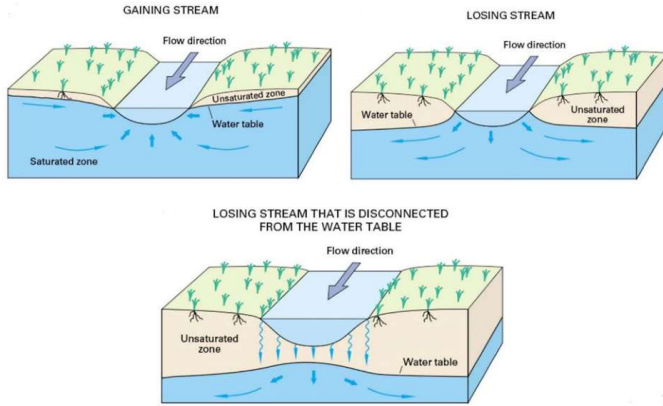
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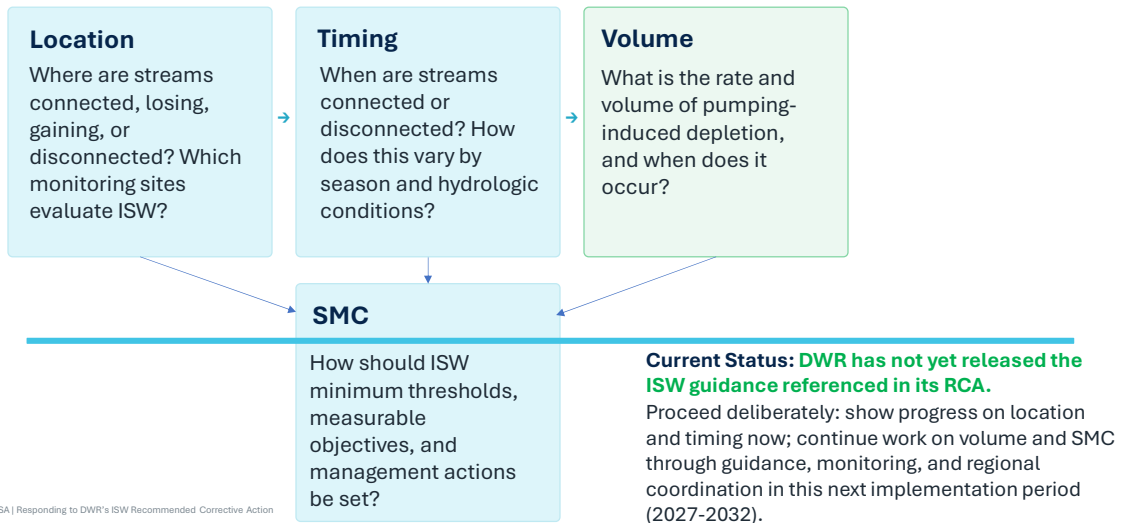
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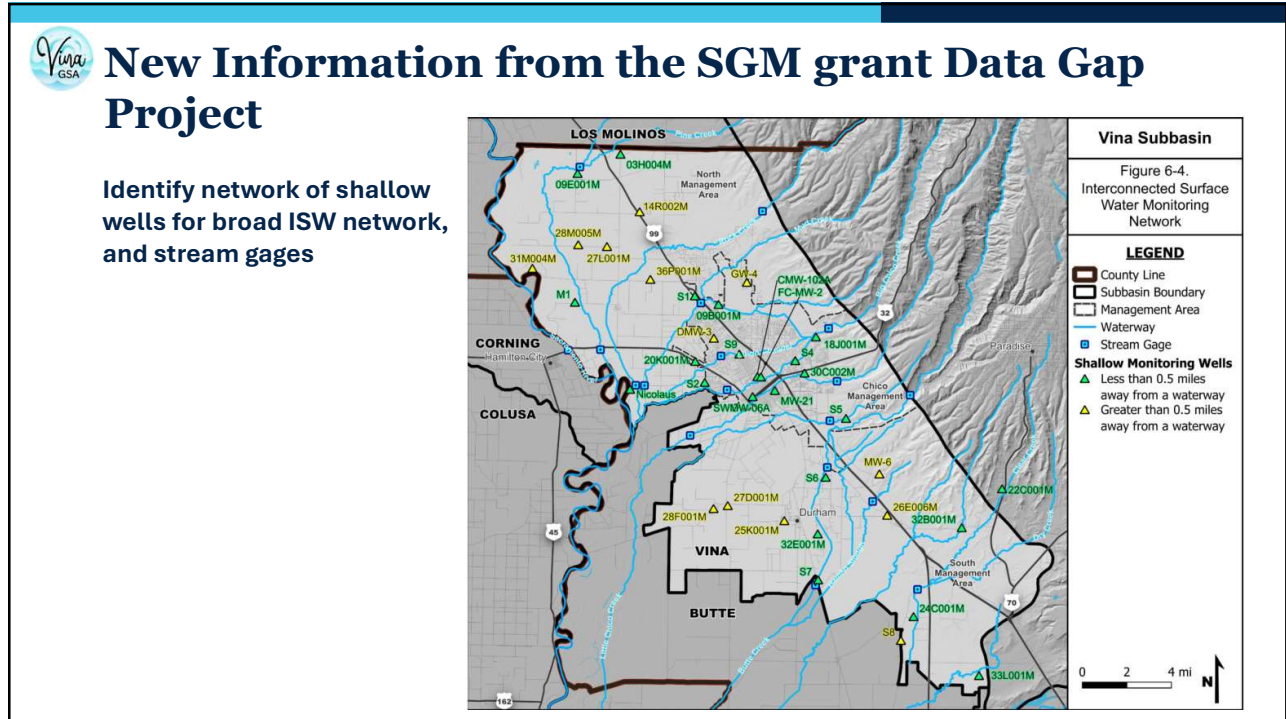


### Notable Progress:

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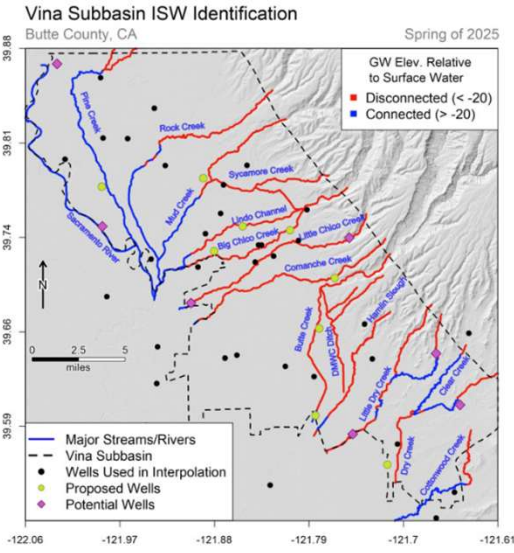
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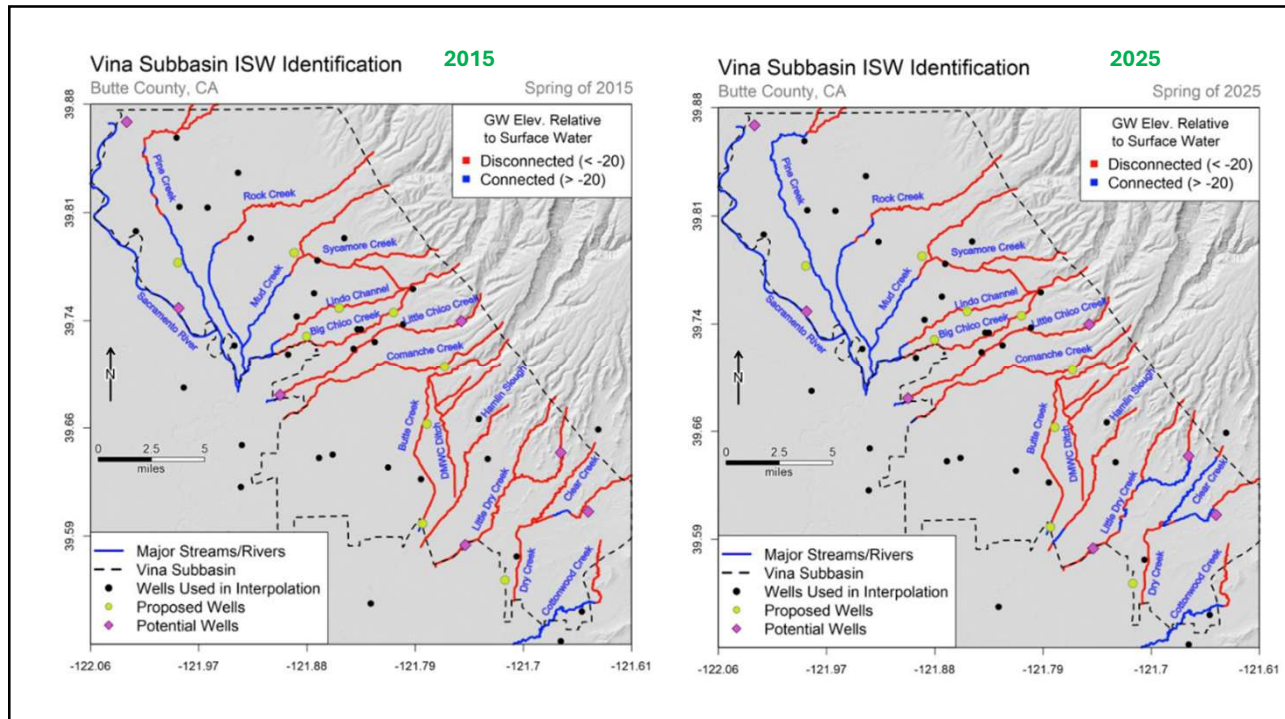
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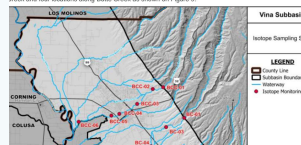
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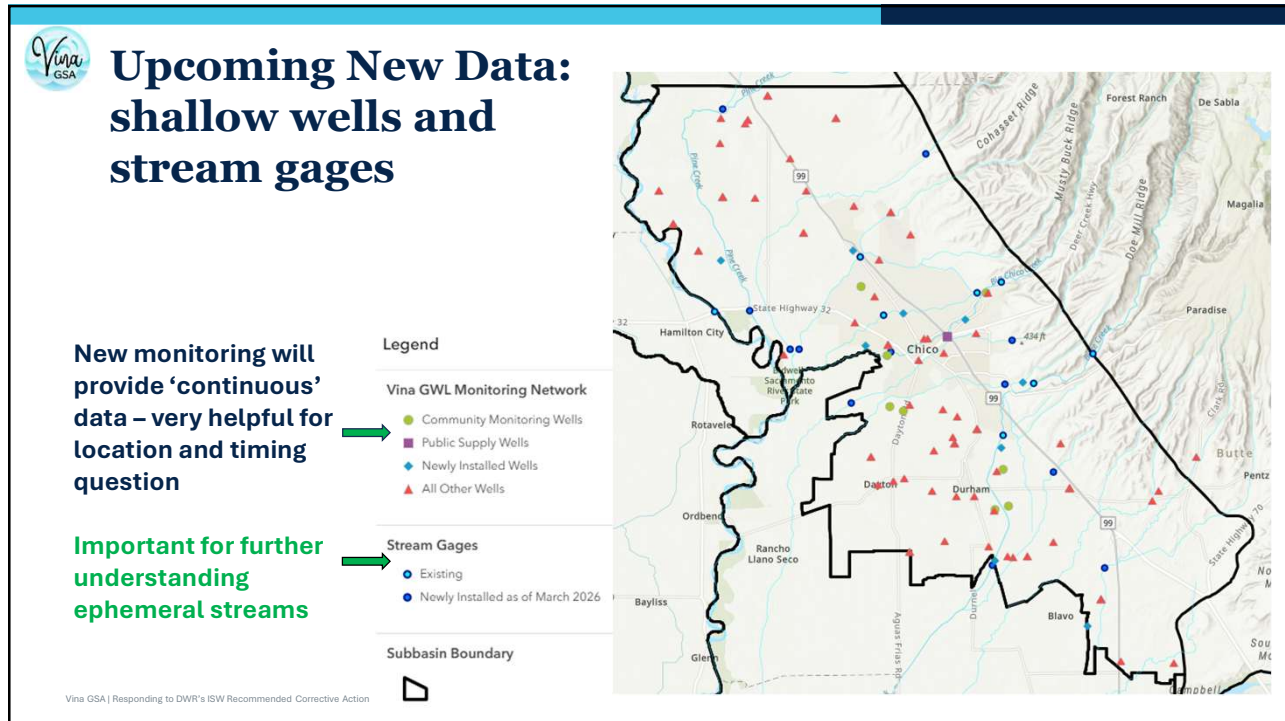
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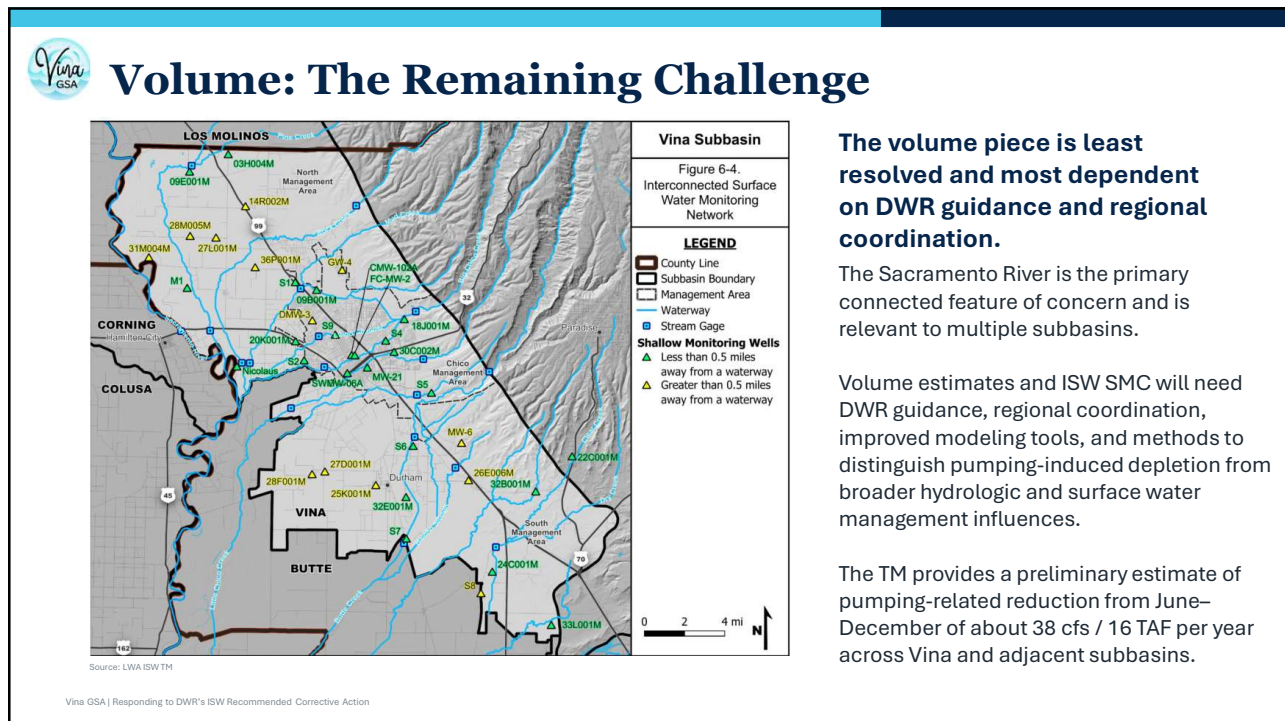
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**Proposed RCA Response Strategy:**  
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Range of Options for Responding to DWR's ISW RCA


Strawman

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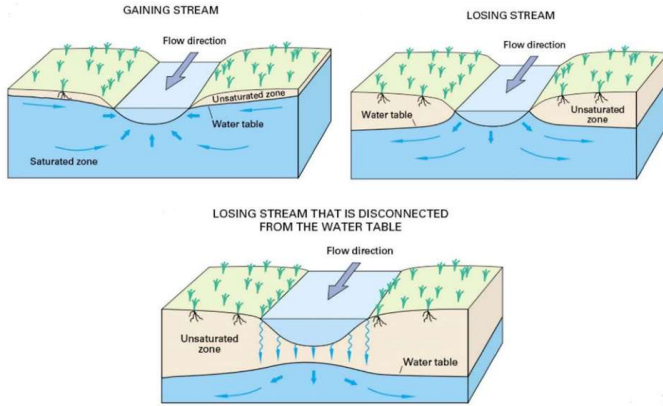
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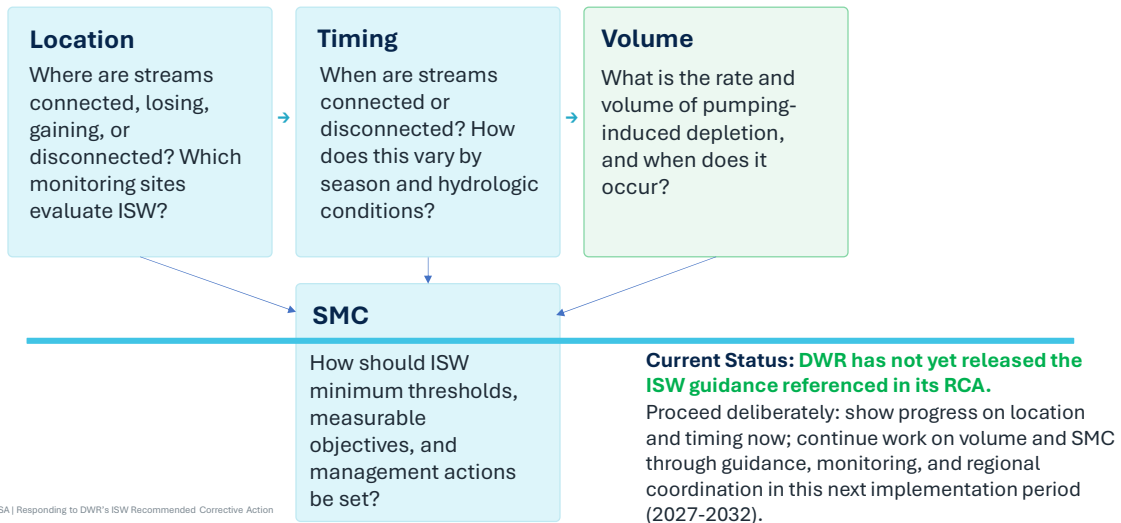
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Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic evaluation:

- a. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs' jurisdictional area.
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

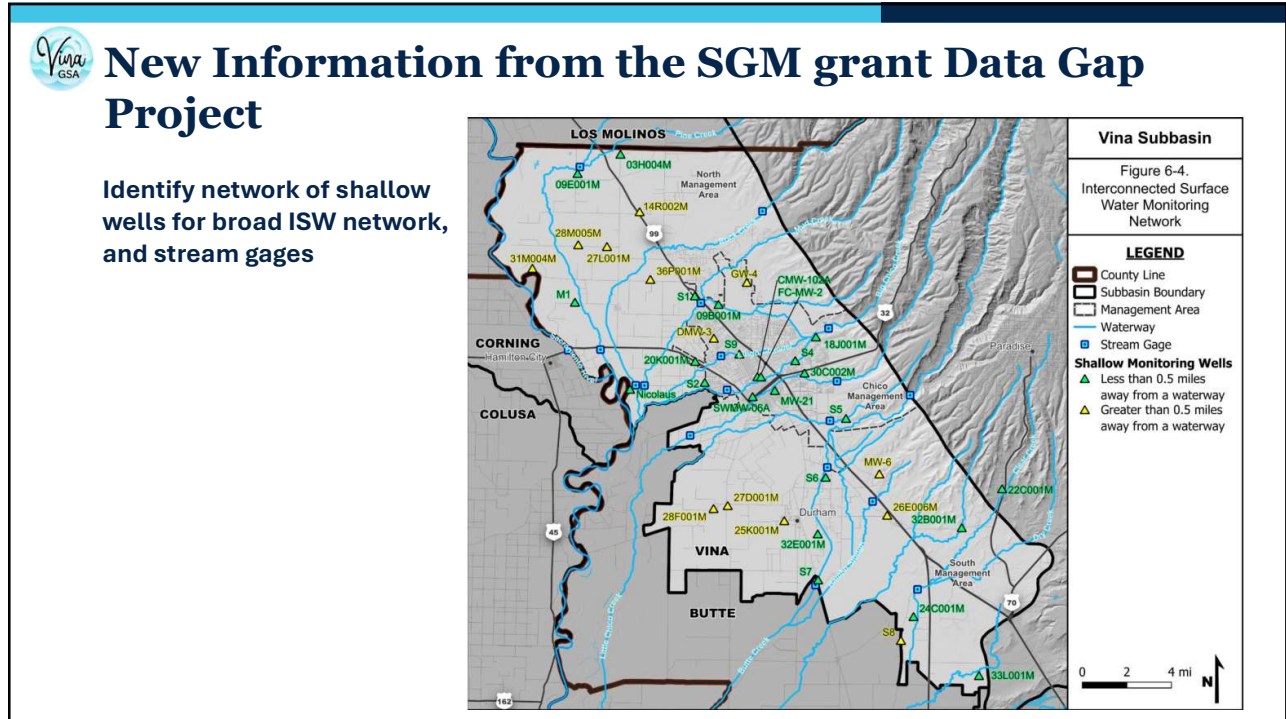
5



Notable Progress: New information from the LWA ISW Technical Memorandum



6



7

New Information from the SGM grant Data Gap Project: LWA ISW Tech Memo

The TM uses multiple lines of evidence to improve understanding of ISW in the Vina Subbasin

Butte Basin Groundwater Model
Updated BBGM v1.3 results identify likely connected, losing, gaining, and disconnected reaches.

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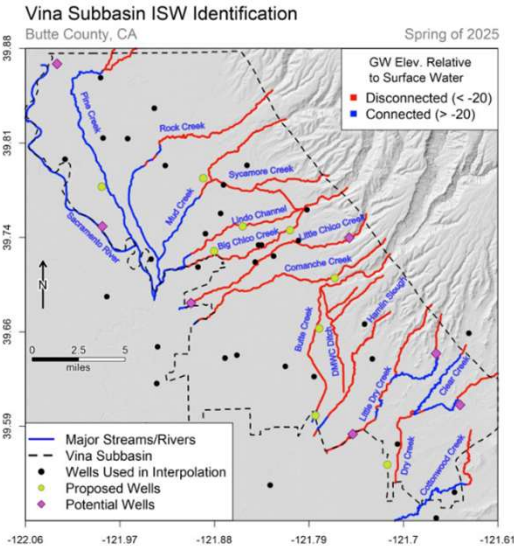
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Seasonal groundwater comparisons and May–October isotope sampling help evaluate when stream-aquifer connections occur or are absent.

Source: LWA ISW TM, April 2026
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

8



Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



Preliminary location pattern

- Sacramento River is primarily connected and gaining.
- Lower western reaches of some creeks may be connected or mixed.
- Many central and eastern reaches appear disconnected much or all of the time.
- Connections may shift with hydrology and groundwater levels.

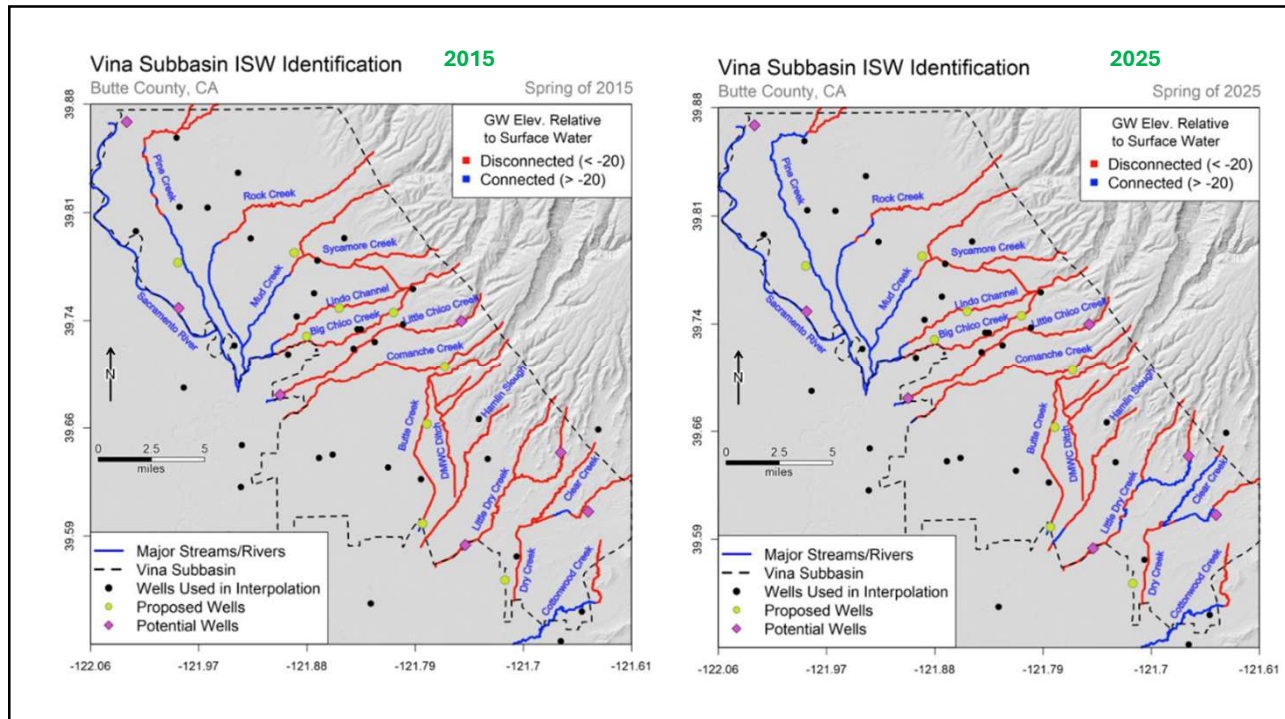
RCA progress

This directly addresses the "location" part of DWR's RCA by improving the basis for identifying connected stream segments and selecting monitoring locations.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Fig. 7

9



10



Location: Preliminary Status by Stream Reach

The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

Stream	Preliminary status	Approx. length
Sacramento River	Connected – gaining	23.4 mi
Pine Creek	Disconnected except lower ~5 mi	12.6 mi
Rock Creek	Disconnected except lower ~1 mi	13.4 mi
Mud Creek	Disconnected except lower ~2 mi	13.2 mi
Big Chico Creek	Disconnected except lower ~2 mi	10.7 mi
Little Chico Creek	Disconnected	11.9 mi
Butte Creek	Disconnected	11.8 mi
Little Dry / Dry Creek	Disconnected	10.8 mi

These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Table 3

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Timing: What We Learned So Far

Sacramento River

Primarily connected and gaining across the analysis period. This makes it the main surface water feature for continued ISW depletion evaluation.

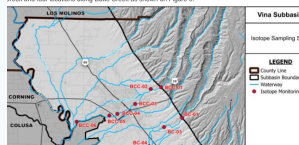
Important for both timing and volume because it borders multiple subbasins.

Big Chico + Butte Creeks

May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

2.1.3 ISW Identification through Isotope Sampling

To understand ISW interactions on a finer timescale than seasonal groundwater interpolations can provide, we collected and analyzed isotopes of the water molecule along Big Chico and Butte Creeks during the study period, June through October of 2023. Samples were taken from six locations along Big Chico Creek and four locations along Butte Creek, as shown in Figure 9.



Ephemeral Streams

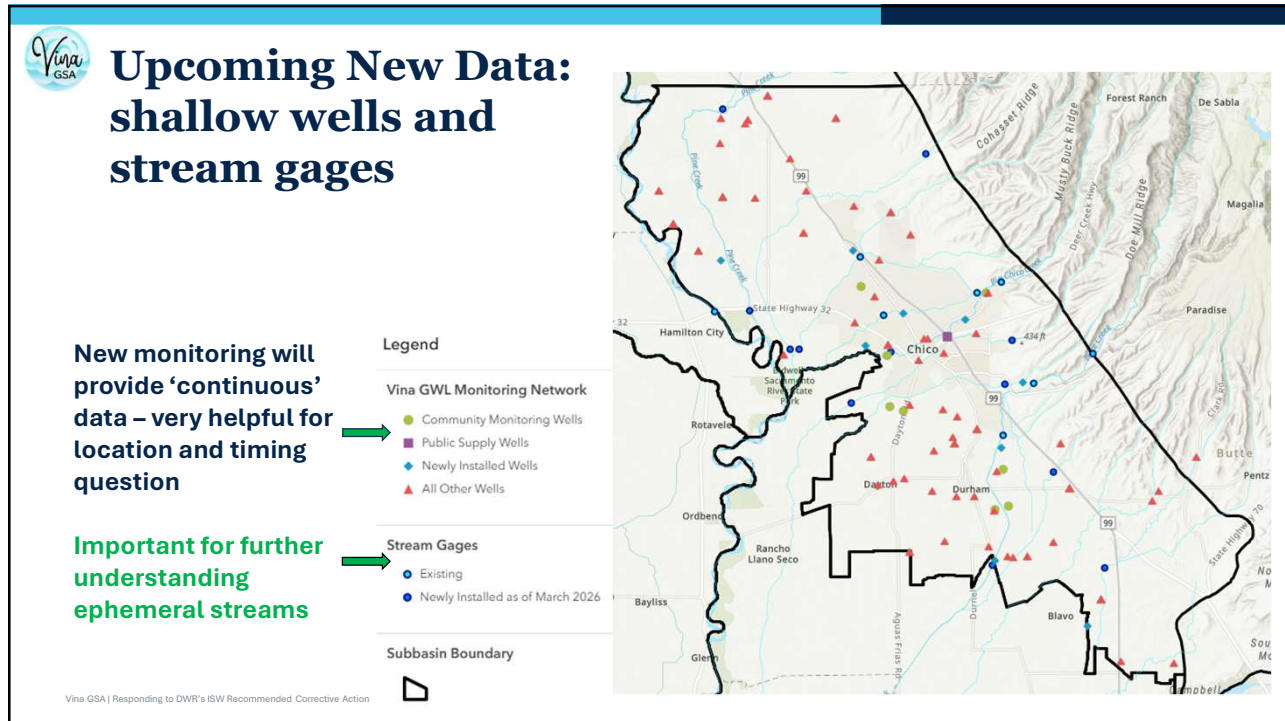
Potential depletions are limited to periods when streams are flowing and groundwater levels are high, making them connected to the aquifer. Streamflows typically end by June.

New continuous shallow groundwater data and stream gages will help characterize timing more clearly over the next implementation period.

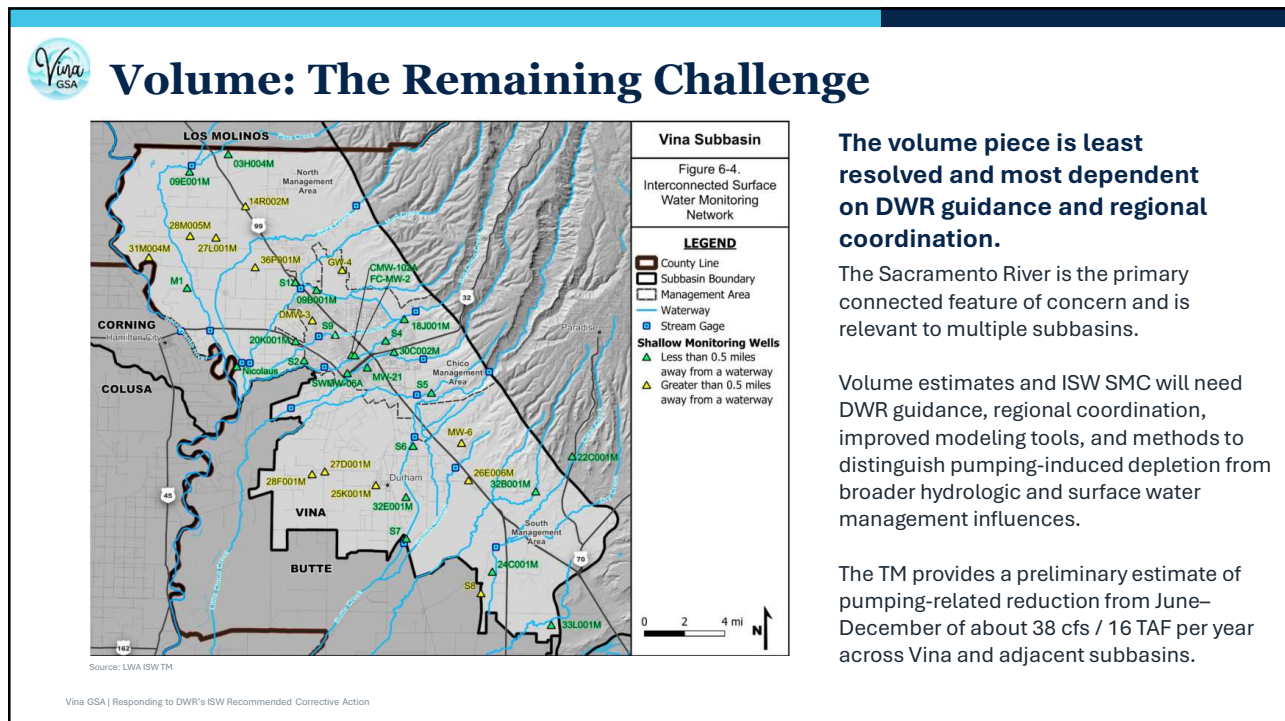
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Summary & Conclusions

12



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Proposed RCA Response Strategy:
Demonstrate meaningful progress now;
develop robust ISW SMC later

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15



## Range of Options for Responding to DWR's ISW RCA


**Strawman**

|                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**The strawman is not "no action." It is a documented RCA response: location progress, timing progress, monitoring network definition, and a clear path for volume/SMC work.**

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## Strawman Proposal: What Would Be Done in the PE

- 1 Document location progress** Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.
- 2 Document timing progress** Describe seasonal/isotope findings and describe that new continuous data from newly installed wells in 2026 will help improve timing analysis in the future.
- 3 Define ISW monitoring network** Identify shallow wells, stream gages, and supporting data sources for continued evaluation – this is a big step forward from what was available previously
- 4 Defer ISW-specific SMC** Do not set MTs, MOs, undesirable results, or ISW RMS sites until DWR guidance/data/regional work support development of thresholds.
- 5 Coordinate regionally on volume aspect** Focus regional work on the Sacramento River and shared methods for depletion volume estimates.

**Intent: clearly respond to DWR's RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.**

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

**Move faster toward SMC**

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
- Include early-warning triggers before thresholds are reached.

**Show Progress**

- Define a broader ISW monitoring network now.
- Use new analysis to document location and timing progress.
- Improve visuals and explanations of stream connectivity, model outputs, and uncertainty.
- Collect new data - shallow groundwater and stream gage monitoring.

**Proceed carefully**

- Proceed cautiously given data gaps.
- Wait for DWR guidance
- Maintain flexibility; avoid locking in premature thresholds.
- Coordinate with neighboring subbasins on ISW and model calibration.
- Revisit SMC when DWR guidance, regional work, and new data are available.

**Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps**

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## SHAC Discussion and Potential Action

### Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

### Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River



## Item 5. Consideration of the Approach to Addressing Interconnected Surface Water (ISW) in the Periodic Evaluation in response to the Department of Water Resources' Recommended Corrective Actions

Vina Stakeholder Advisory Committee  
May 27, 2026

Christina Buck, PhD  
Assistant Director  
Butte County Dept. of Water and Resource Conservation  
Providing technical staff support to the GSA

1



## Purpose of Today's Discussion

SHAC is being asked to consider a strawman proposal released by the GSA (5/18/26) for responding to DWR's ISW Recommended Corrective Action and provide input — potentially a recommendation — to the GSA Boards.

### What is the regulatory framework?

DWR focused on estimating the location, timing, and volume of depletions of interconnected surface water caused by groundwater pumping.

### What progress has been made?

The Larry Walker Associates ISW Technical Memo provides new information on where ISW likely occurs and when some streams are connected or disconnected — this information was not available in the 2022 GSP or during its development.

### What remains?

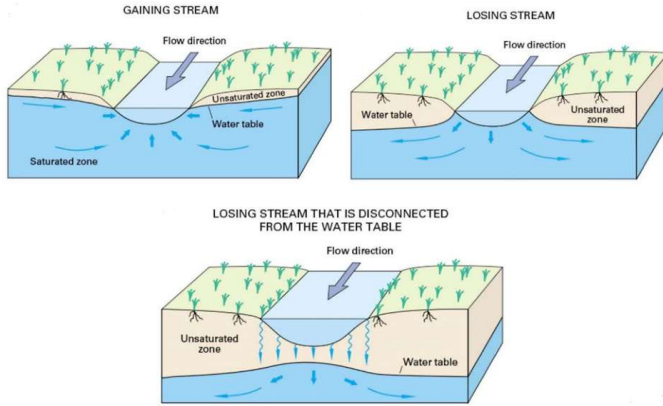
The volume (quantity) piece is the least resolved and depends most on DWR guidance, regional coordination, and continued monitoring — especially for the Sacramento River.

### Key framing: demonstrate progress while avoiding premature ISW SMC decisions

The strawman proposal approach document's location and timing progress now, defines the monitoring path, and defers ISW-specific thresholds until the technical and policy foundation is stronger.

2

## Quick Orientation: What Is Interconnected Surface Water (ISW)?



**Interconnected Surface Water (ISW) is where groundwater and rivers or streams are connected.**

### Why it matters

Under SGMA, the key question is whether groundwater pumping causes depletions of ISW that significantly and unreasonably affect beneficial uses of surface water.



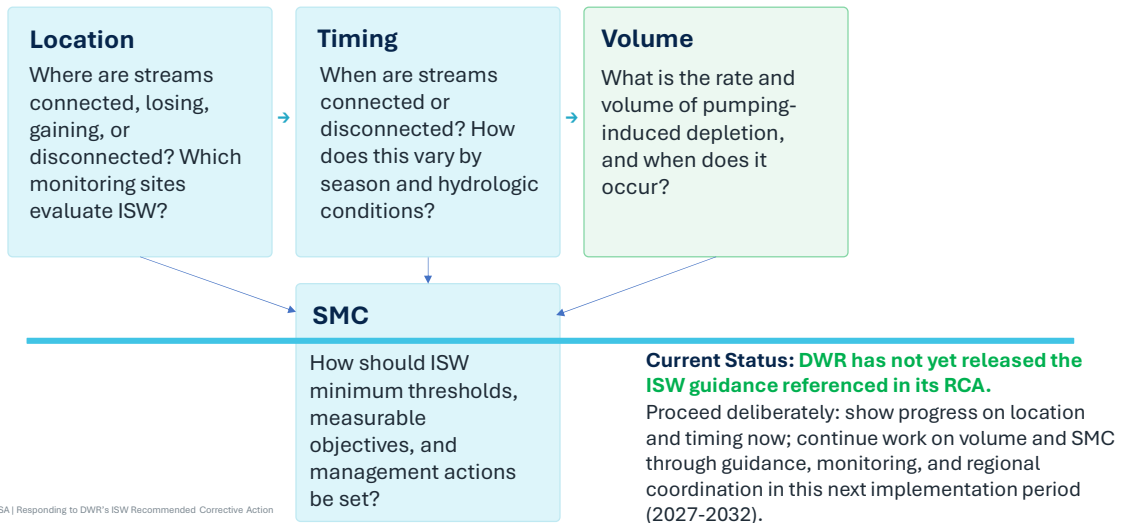
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

3



## DWR's ISW RCA: Location, Timing, and Volume

DWR recognized that estimating stream depletion from subbasin-wide pumping is complex, but expects progress by the first Periodic Evaluation.



Vina GSA | Responding to DWR's ISW Recommended Corrective Action

4



## DWR's Recommended Corrective Action 6

Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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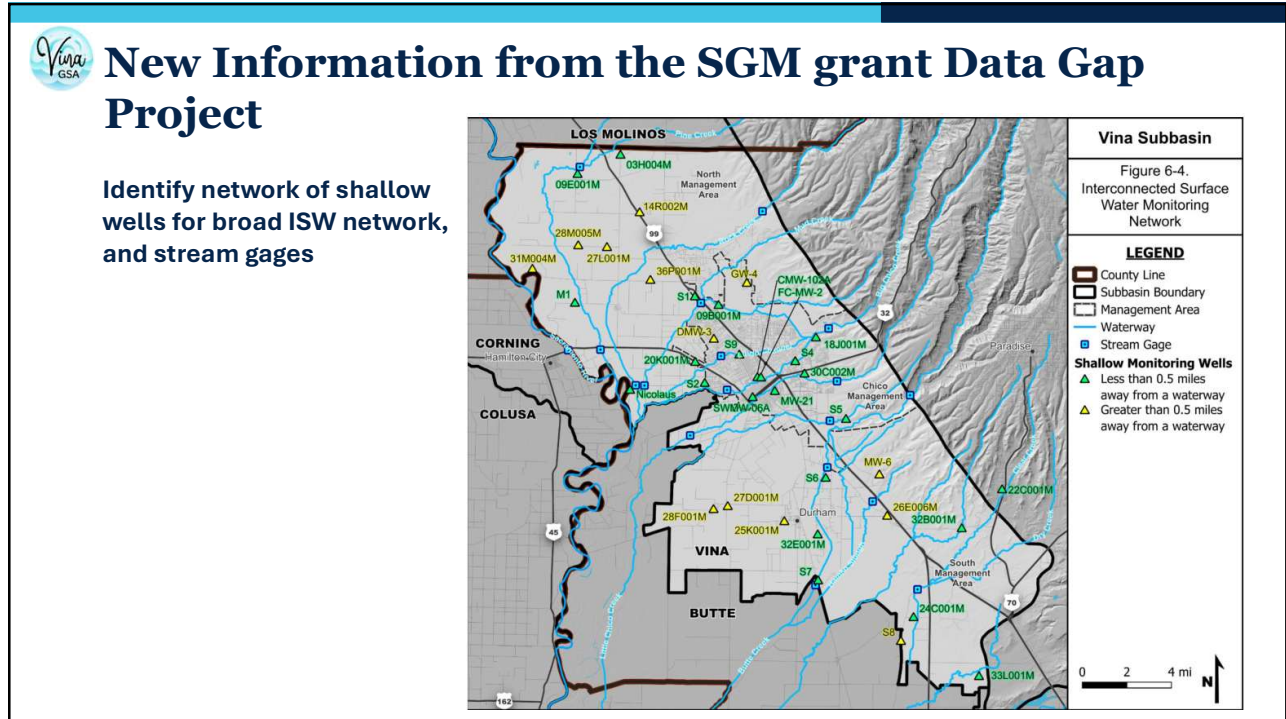


### Notable Progress:

## New information from the LWA ISW Technical Memorandum



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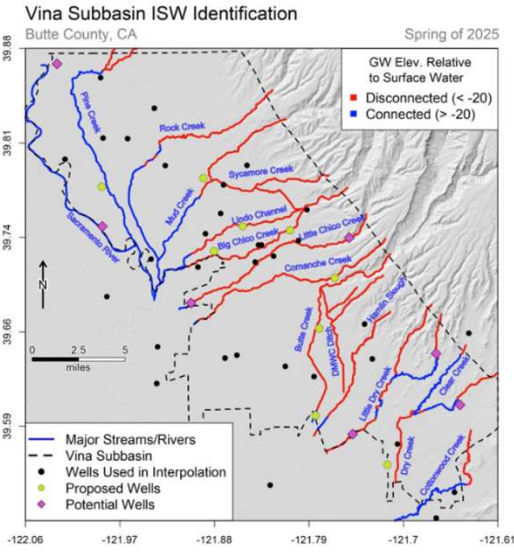
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

8



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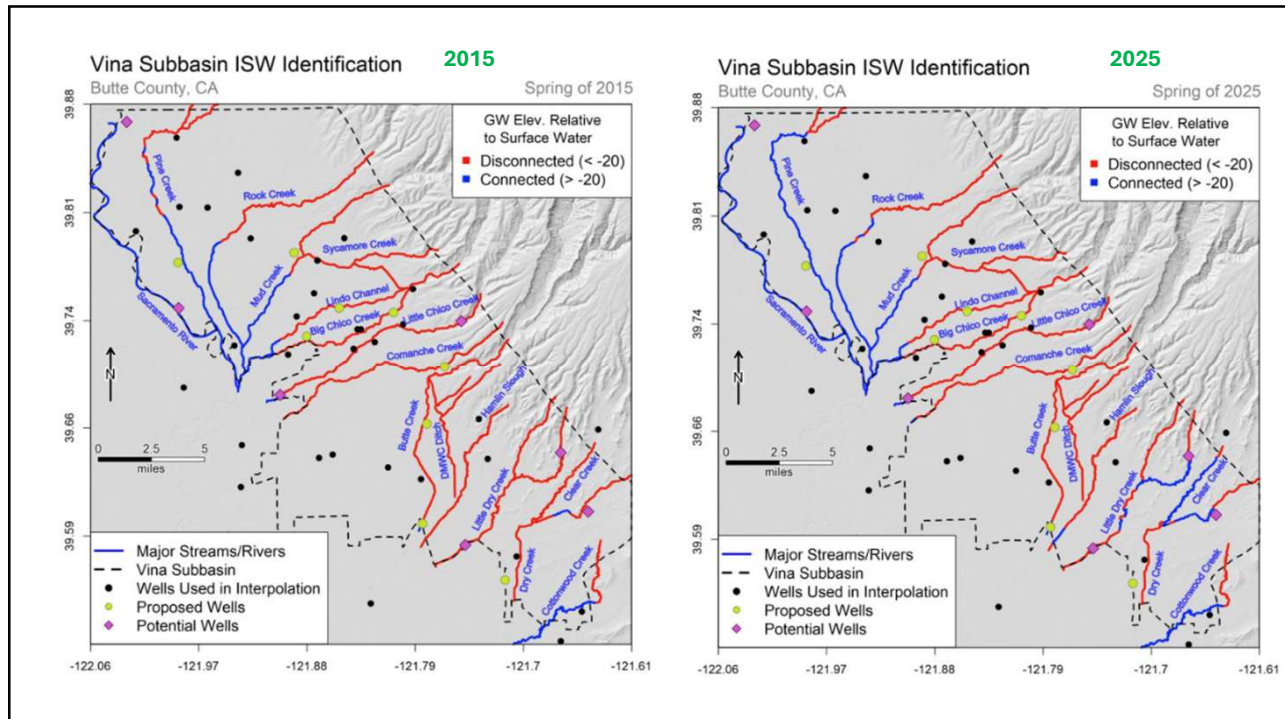
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Fig. 7

9



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These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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11



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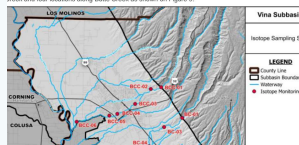
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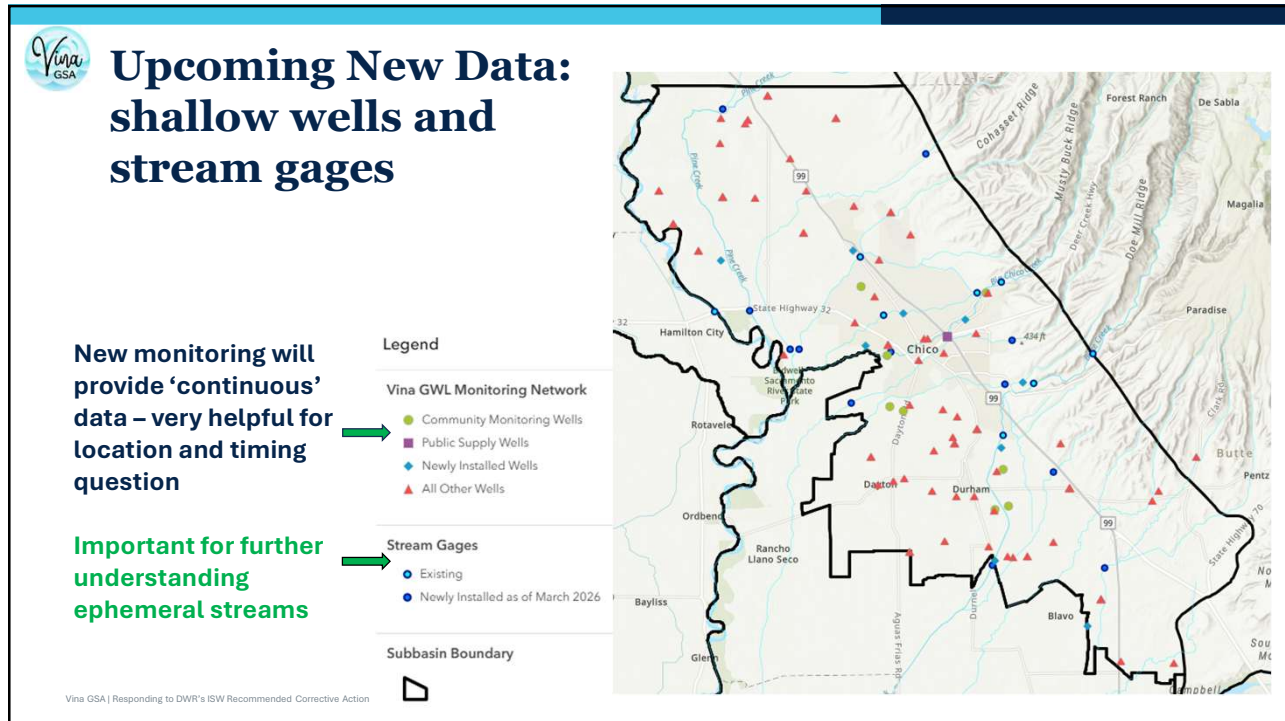
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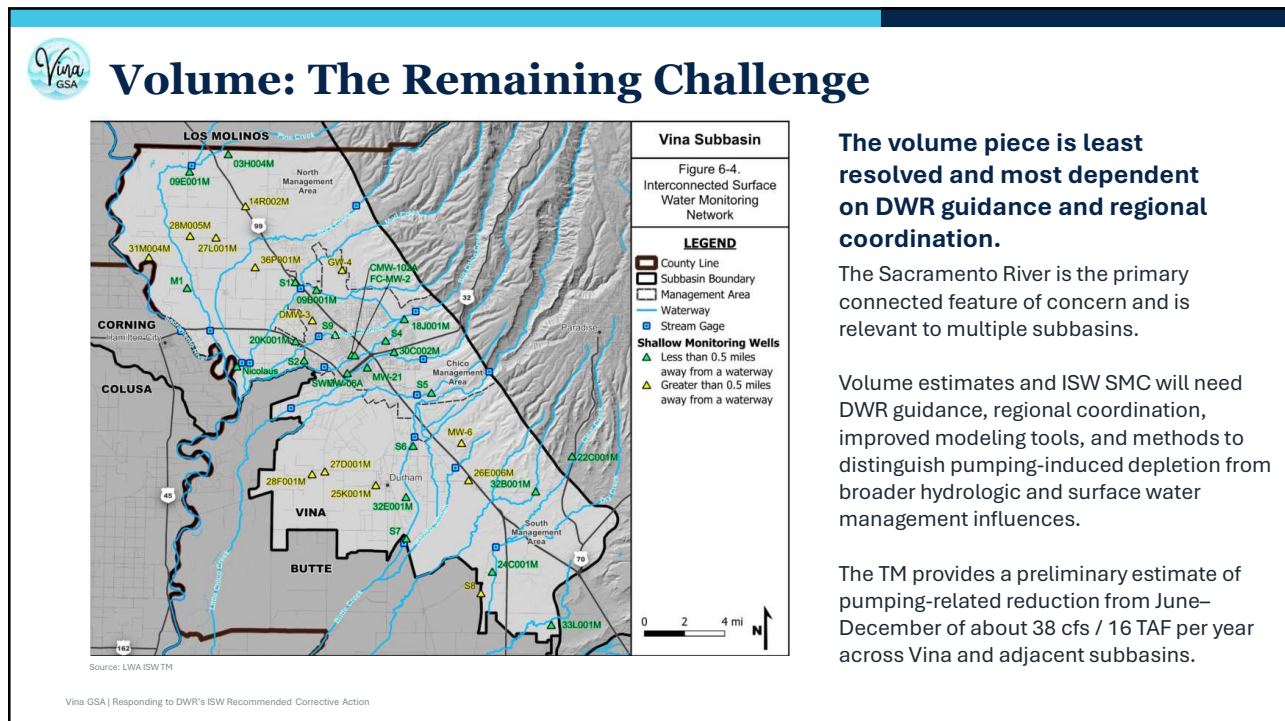
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14



**Proposed RCA Response Strategy:**  
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15



Range of Options for Responding to DWR's ISW RCA


Strawman

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Potential recommendation to the GSA Boards:

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Consideration of the Approach to
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Vina Stakeholder Advisory Committee
May 27, 2026

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Providing technical staff support to the GSA

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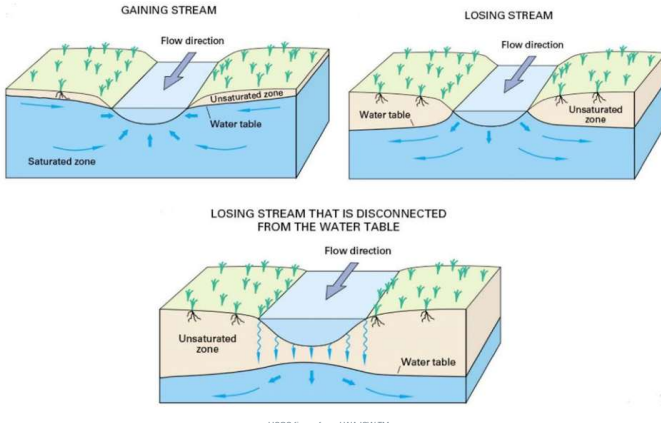
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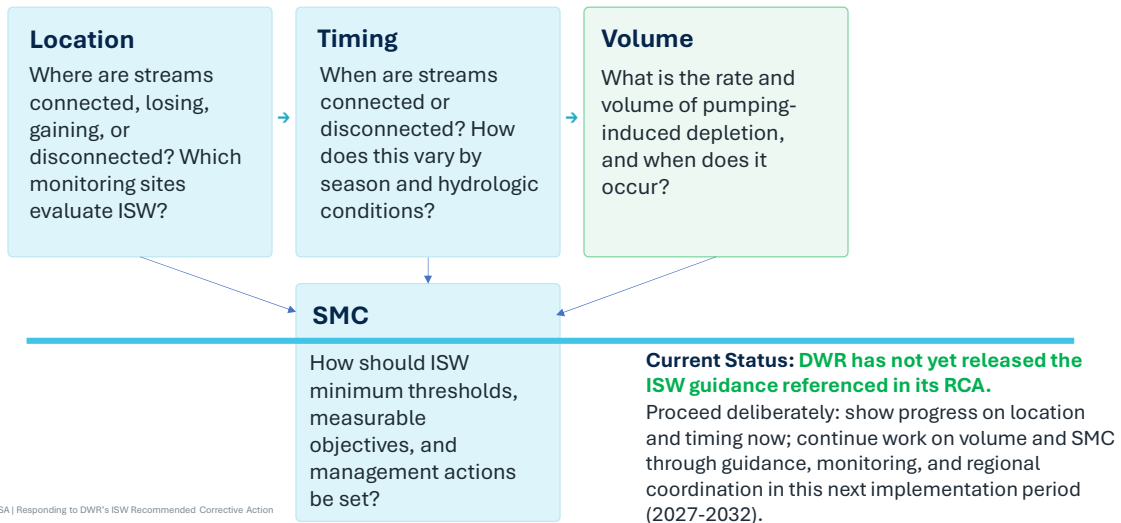
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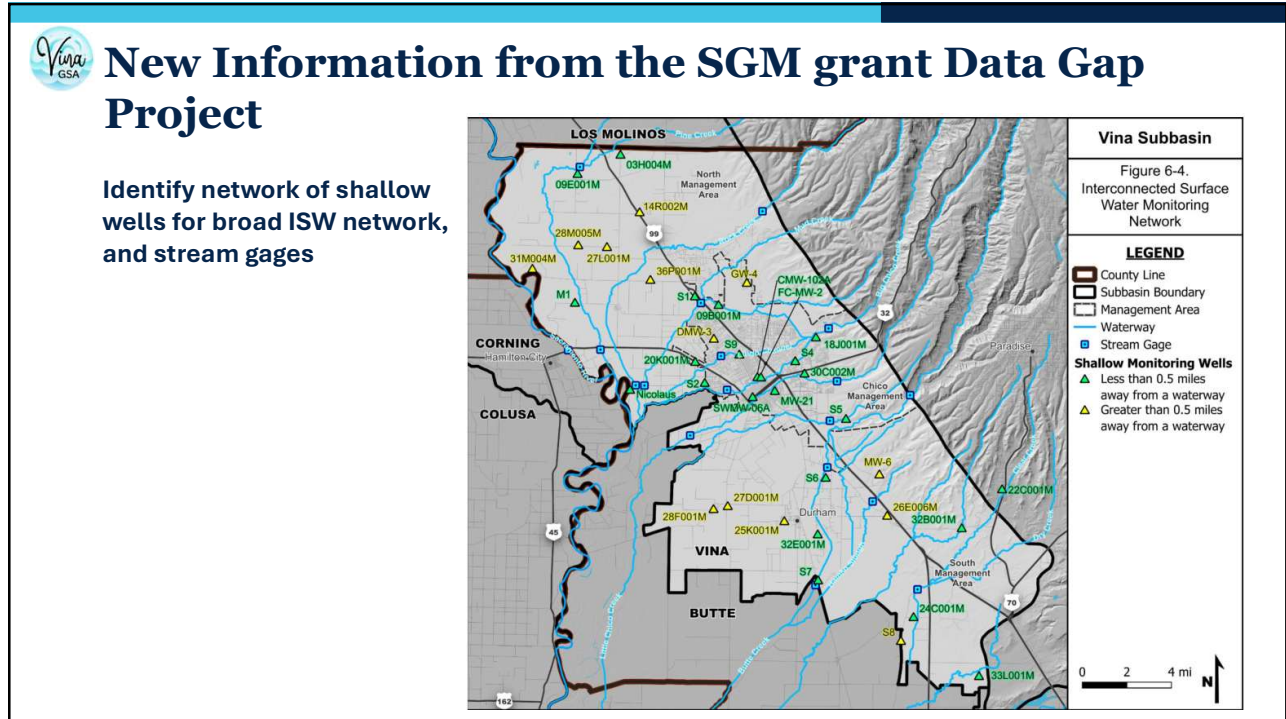


Notable Progress:

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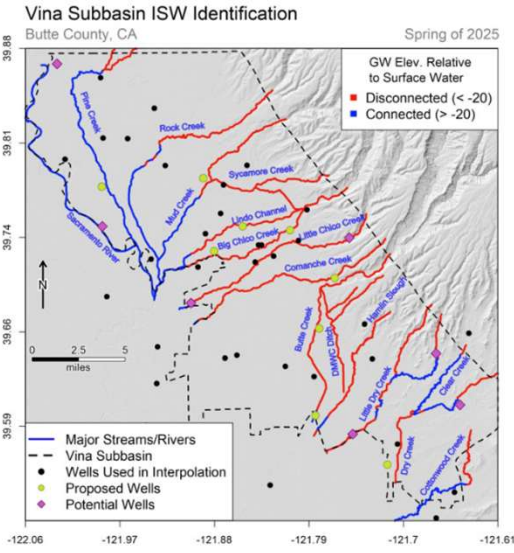
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

8



Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



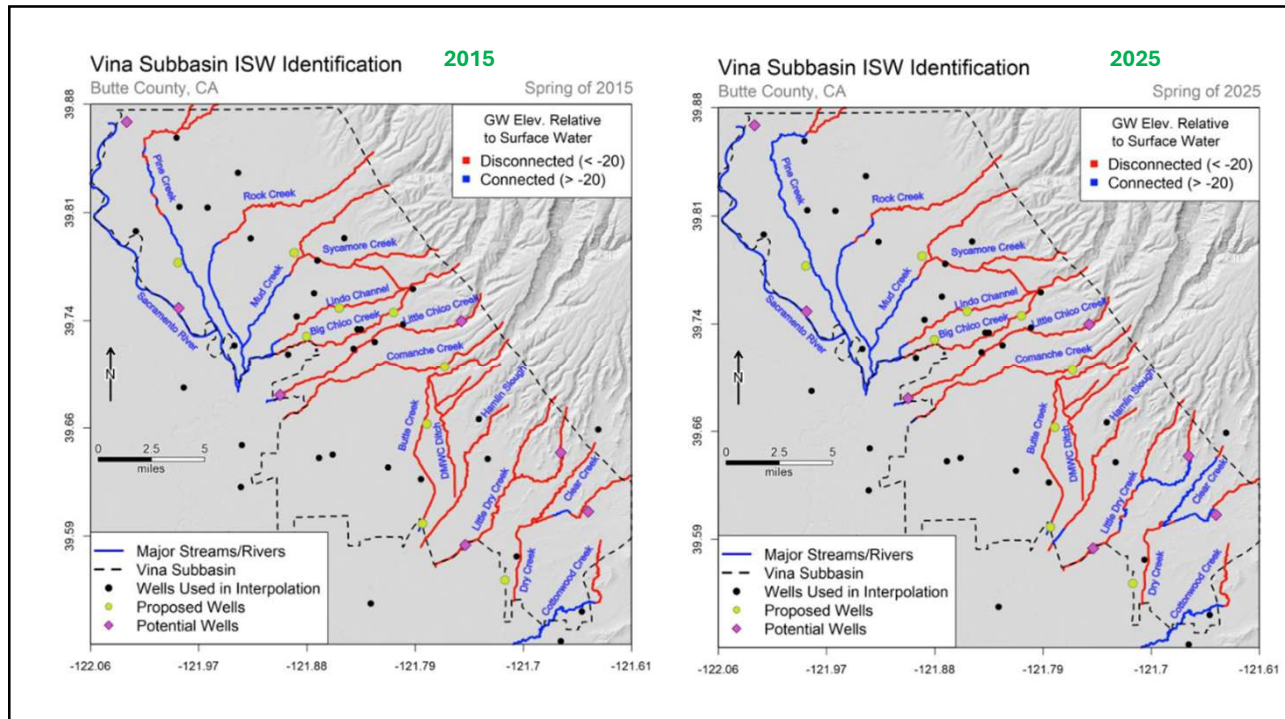
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The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Timing: What We Learned So Far

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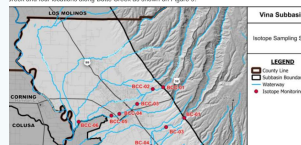
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May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

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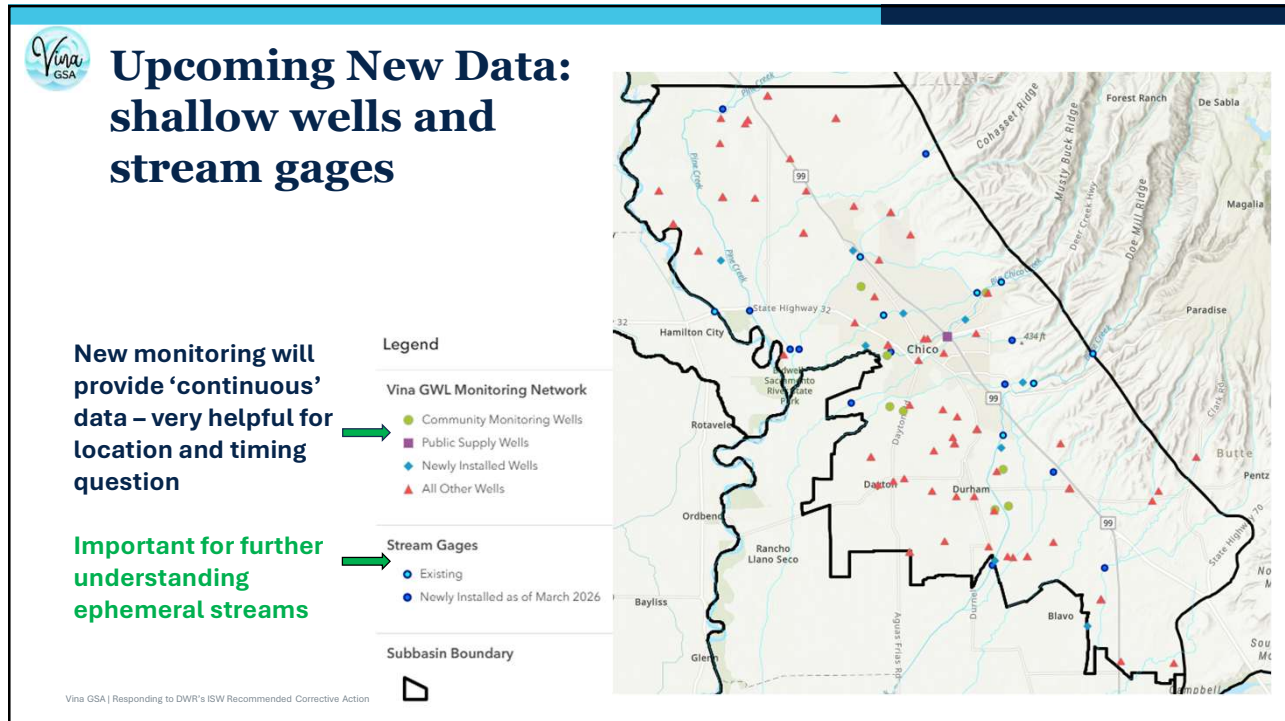
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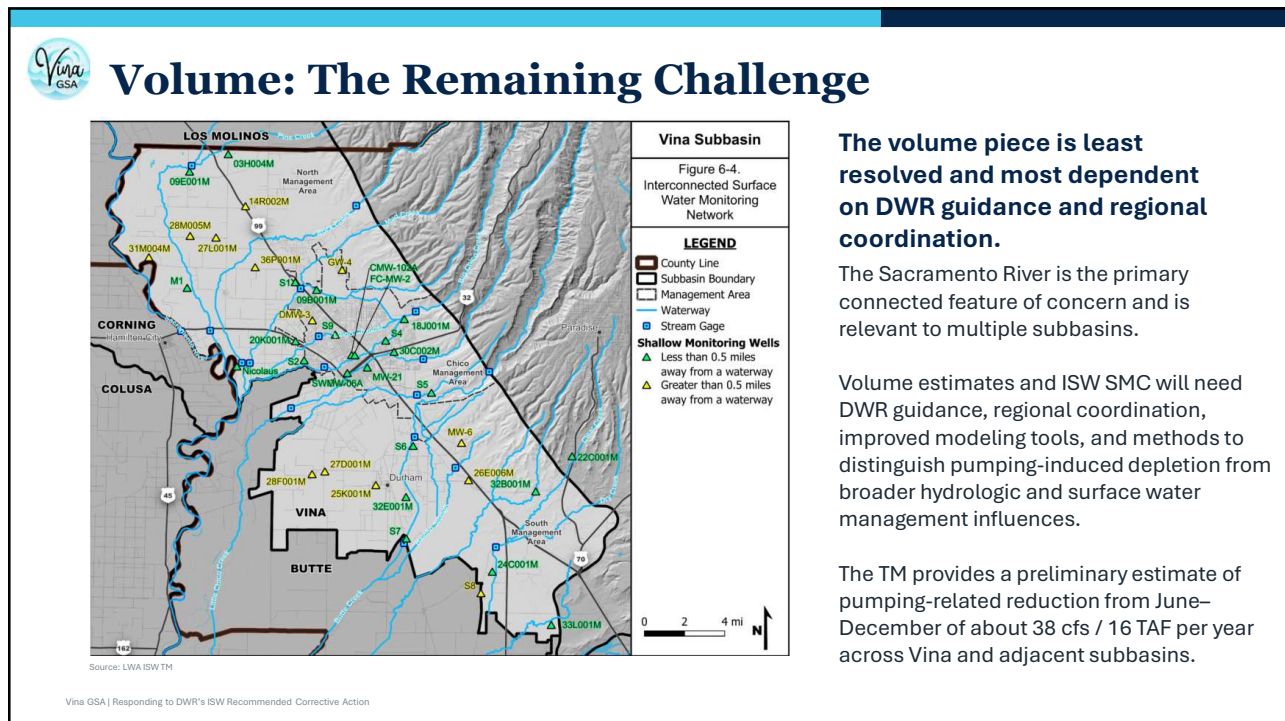
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Proposed RCA Response Strategy:
Demonstrate meaningful progress now;
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15



## Range of Options for Responding to DWR's ISW RCA


**Strawman**

|                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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**The strawman is not "no action." It is a documented RCA response: location progress, timing progress, monitoring network definition, and a clear path for volume/SMC work.**

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

16




## Strawman Proposal: What Would Be Done in the PE

- 1 Document location progress** Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.
- 2 Document timing progress** Describe seasonal/isotope findings and describe that new continuous data from newly installed wells in 2026 will help improve timing analysis in the future.
- 3 Define ISW monitoring network** Identify shallow wells, stream gages, and supporting data sources for continued evaluation – this is a big step forward from what was available previously
- 4 Defer ISW-specific SMC** Do not set MTs, MOs, undesirable results, or ISW RMS sites until DWR guidance/data/regional work support development of thresholds.
- 5 Coordinate regionally on volume aspect** Focus regional work on the Sacramento River and shared methods for depletion volume estimates.

**Intent: clearly respond to DWR’s RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.**

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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## Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

**Move faster toward SMC**

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
- Include early-warning triggers before thresholds are reached.

**Show Progress**

- Define a broader ISW monitoring network now.
- Use new analysis to document location and timing progress.
- Improve visuals and explanations of stream connectivity, model outputs, and uncertainty.
- Collect new data - shallow groundwater and stream gage monitoring.

**Proceed carefully**

- Proceed cautiously given data gaps.
- Wait for DWR guidance
- Maintain flexibility; avoid locking in premature thresholds.
- Coordinate with neighboring subbasins on ISW and model calibration.
- Revisit SMC when DWR guidance, regional work, and new data are available.

**Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps**

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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## SHAC Discussion and Potential Action

### Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

### Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River



**Item 5.  
Consideration of the Approach to  
Addressing Interconnected  
Surface Water (ISW) in the  
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Resources’ Recommended  
Corrective Actions**

Vina Stakeholder Advisory Committee  
May 27, 2026

Christina Buck, PhD  
Assistant Director  
Butte County Dept. of Water and Resource Conservation  
Providing technical staff support to the GSA

1



**Purpose of Today’s Discussion**

SHAC is being asked to consider a strawman proposal released by the GSA (5/18/26) for responding to DWR’s ISW Recommended Corrective Action and provide input — potentially a recommendation — to the GSA Boards.

**What is the regulatory framework?**  
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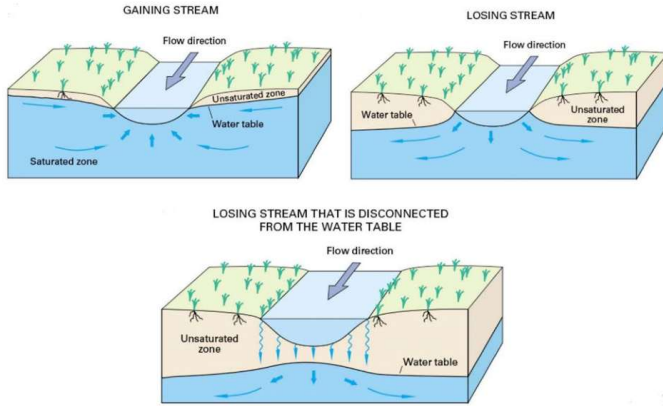
**What progress has been made?**  
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**What remains?**  
The volume (quantity) piece is the least resolved and depends most on DWR guidance, regional coordination, and continued monitoring — especially for the Sacramento River.

**Key framing: demonstrate progress while avoiding premature ISW SMC decisions**  
The strawman proposal approach document's location and timing progress now, defines the monitoring path, and defers ISW-specific thresholds until the technical and policy foundation is stronger.

2

## Quick Orientation: What Is Interconnected Surface Water (ISW)?



**Interconnected Surface Water (ISW) is where groundwater and rivers or streams are connected.**

### Why it matters

Under SGMA, the key question is whether groundwater pumping causes depletions of ISW that significantly and unreasonably affect beneficial uses of surface water.



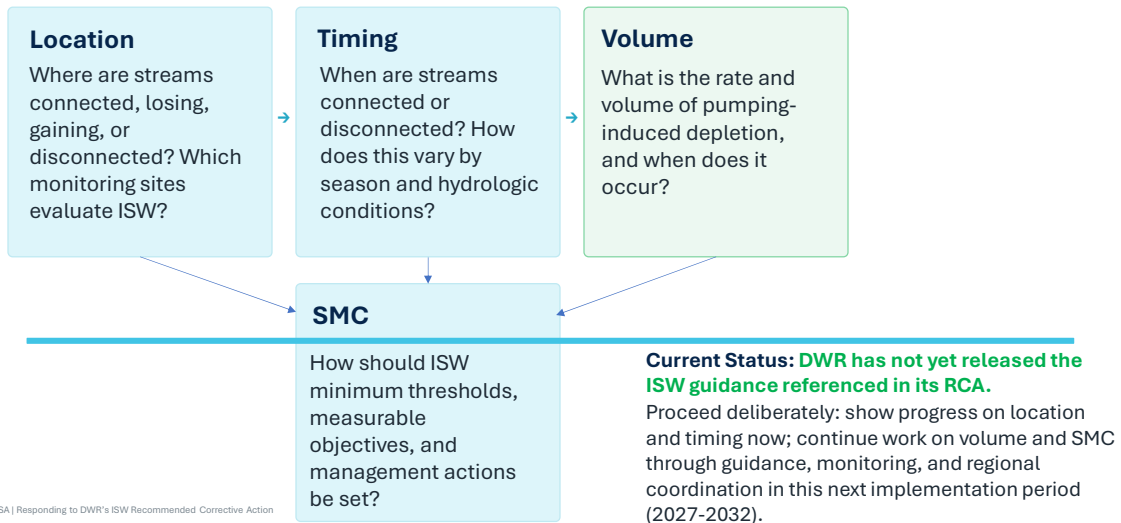
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

3



## DWR's ISW RCA: Location, Timing, and Volume

DWR recognized that estimating stream depletion from subbasin-wide pumping is complex, but expects progress by the first Periodic Evaluation.



Vina GSA | Responding to DWR's ISW Recommended Corrective Action

4



## DWR's Recommended Corrective Action 6

**Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:**

Department staff understand that estimating the **location, quantity, and timing** of stream depletion due to ongoing, Subbasin-wide pumping is a **complex task and that developing suitable tools may take additional time**; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the **rate, timing, and volume of depletions** of interconnected surface water and **support for establishing specific sustainable management criteria** in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic evaluation:

- a. Consider **utilizing the interconnected surface water guidance, as appropriate, when issued** by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
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- c. Prioritize **collaborating and coordinating with local, state, and federal regulatory agencies** as well as interested parties to better **understand the full suite of beneficial uses and users** that may be impacted by pumping induced surface water depletion within the GSAs' jurisdictional area.
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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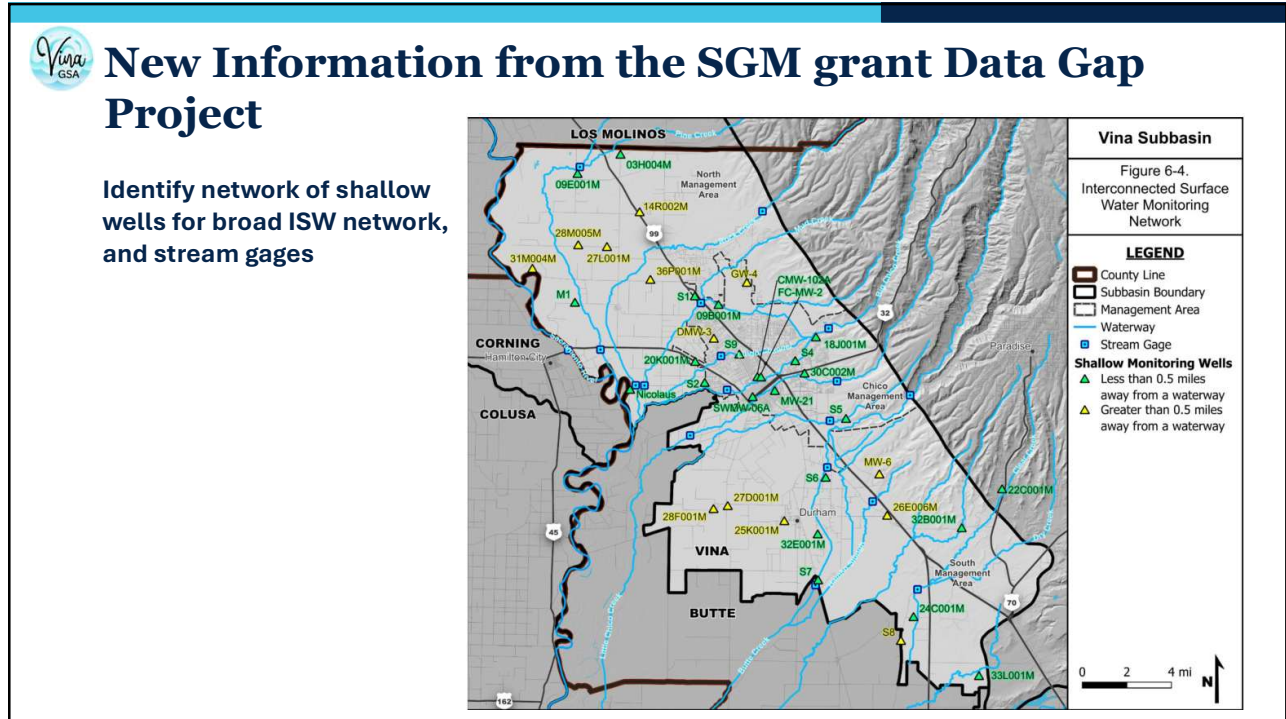


### Notable Progress:

## New information from the LWA ISW Technical Memorandum



6



7

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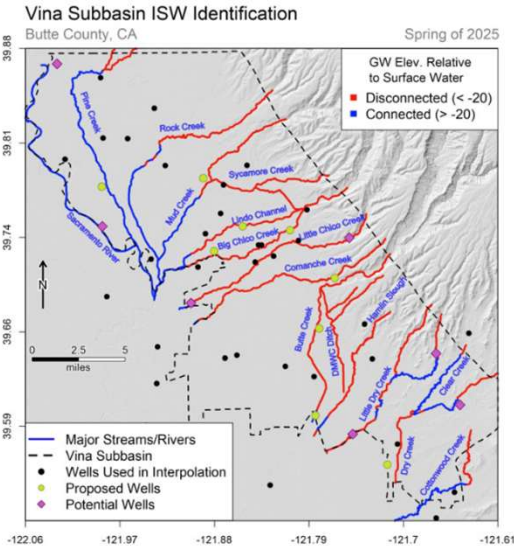
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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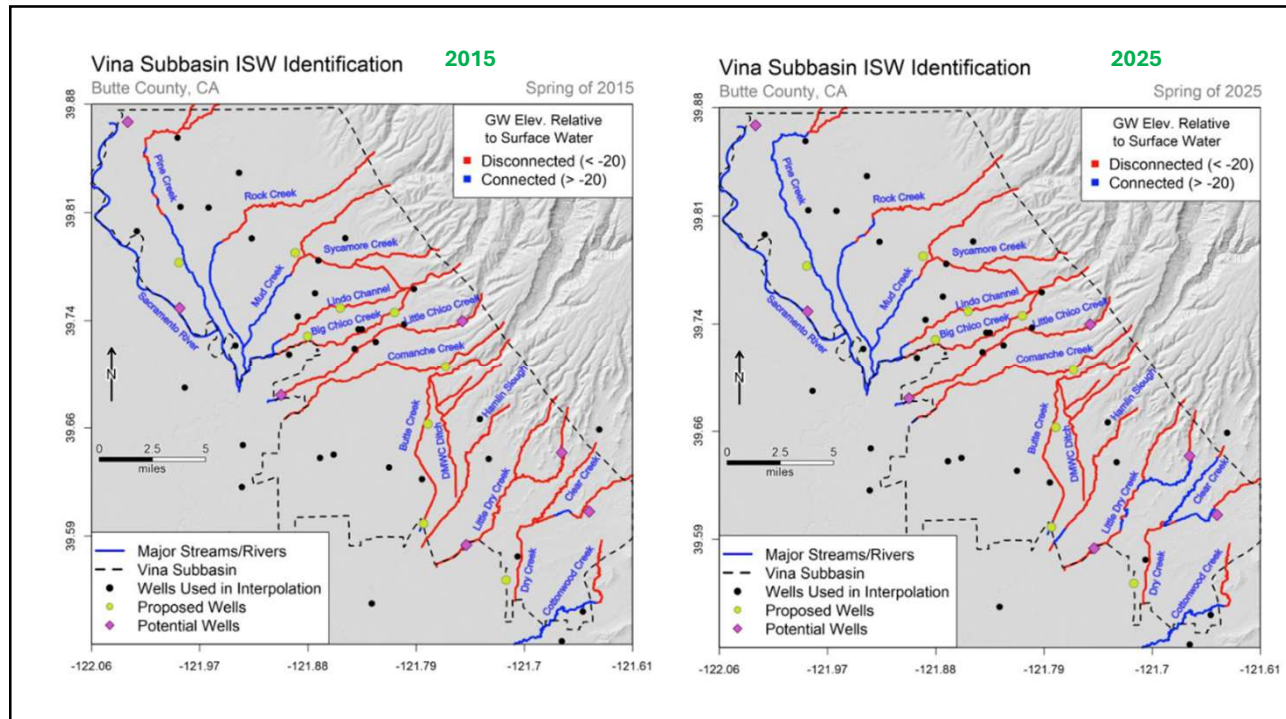
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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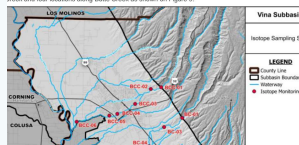
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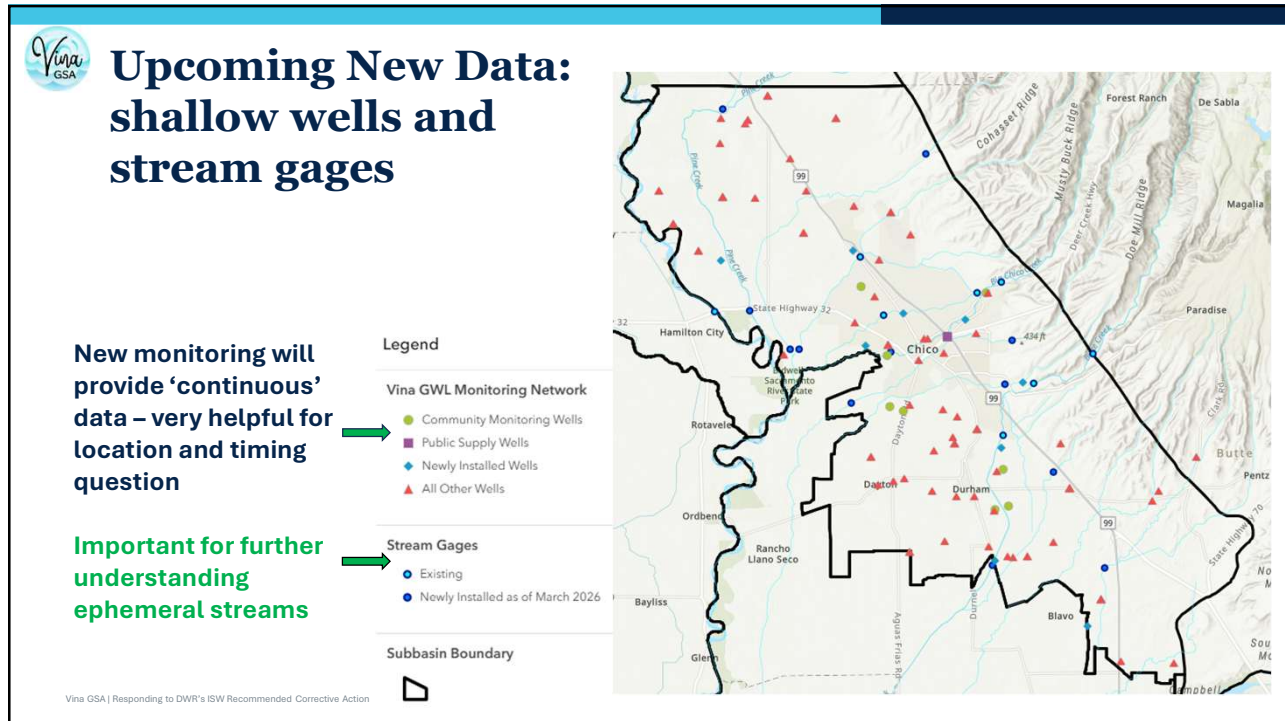
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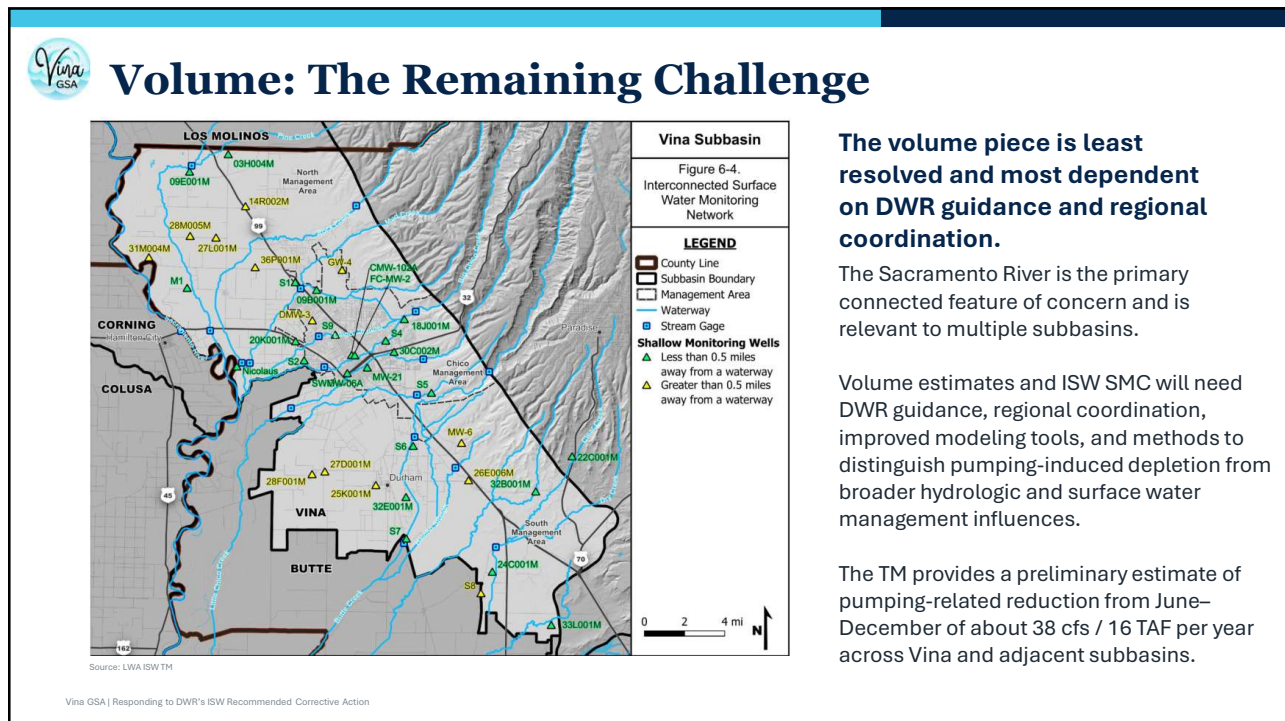
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Range of Options for Responding to DWR's ISW RCA


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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Vina Stakeholder Advisory Committee
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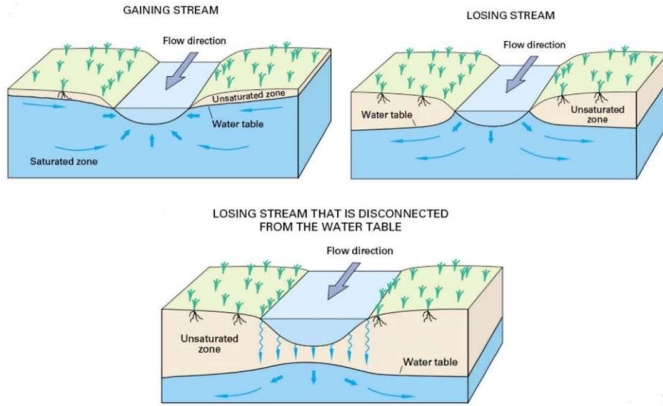
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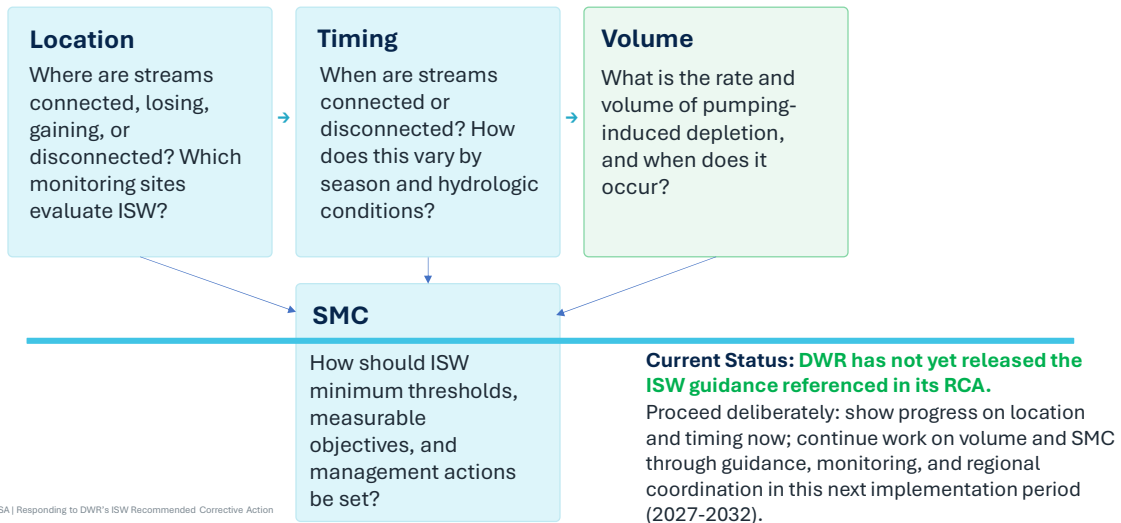
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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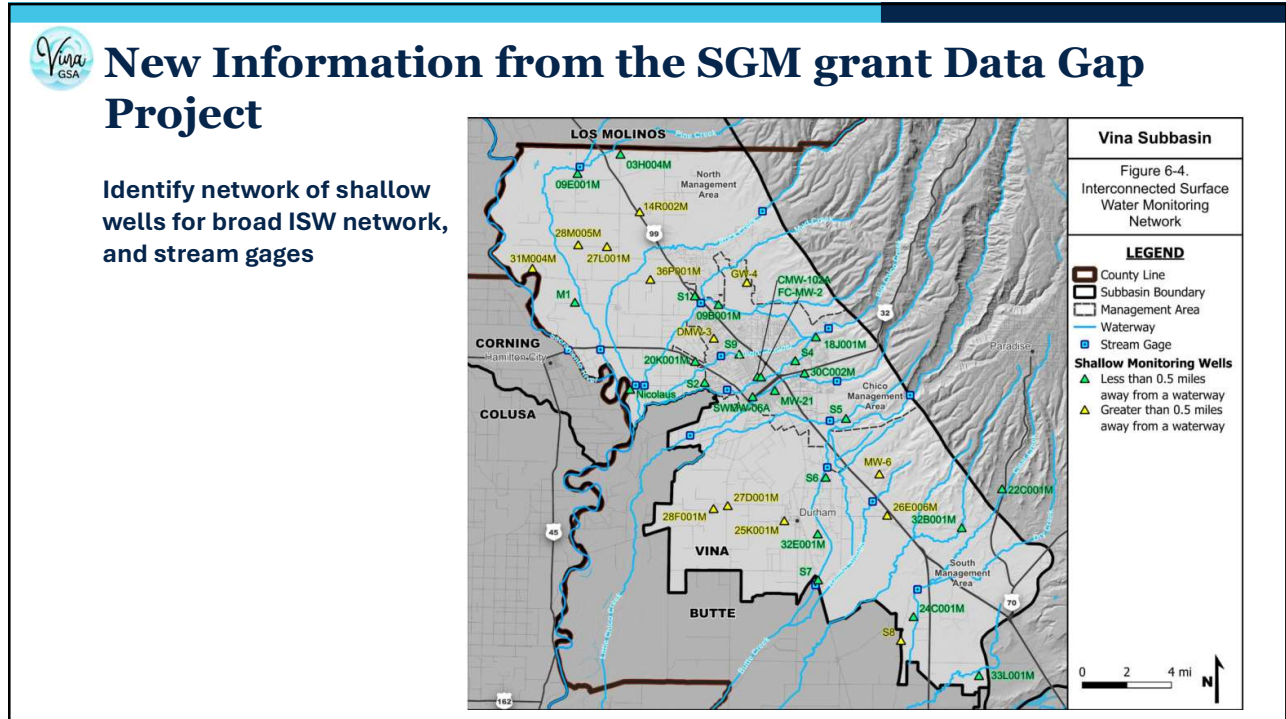


Notable Progress:

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6



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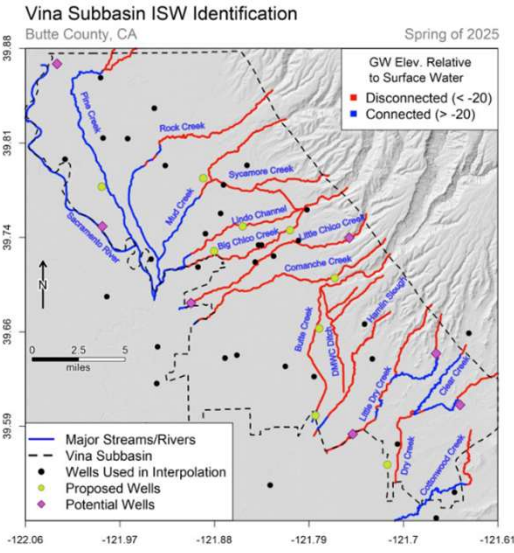
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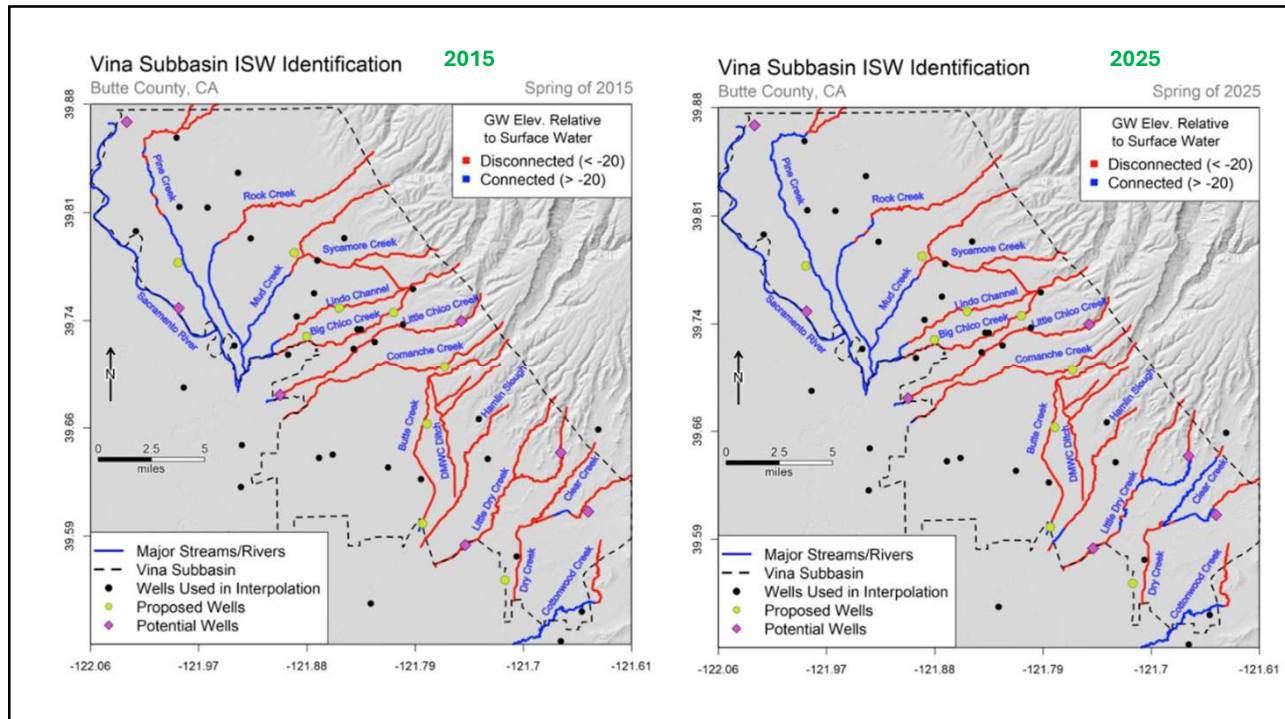
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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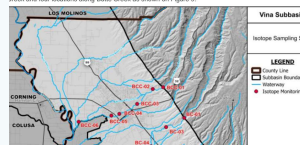
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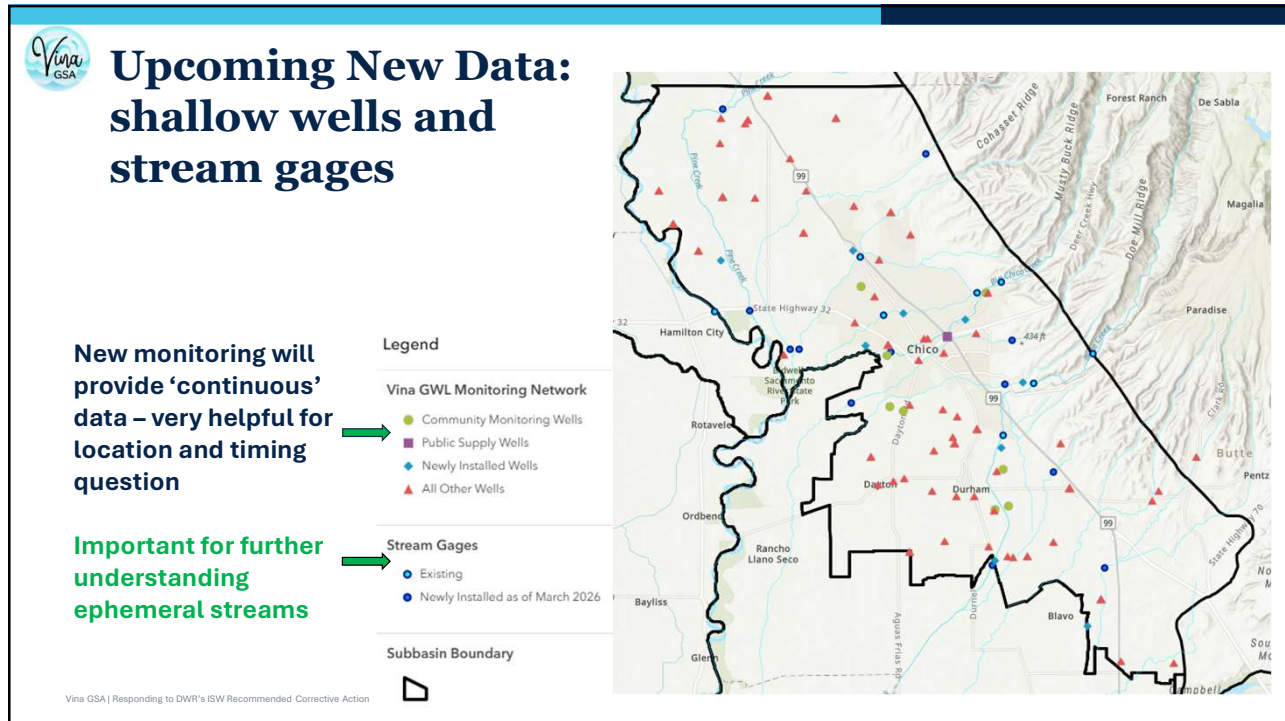
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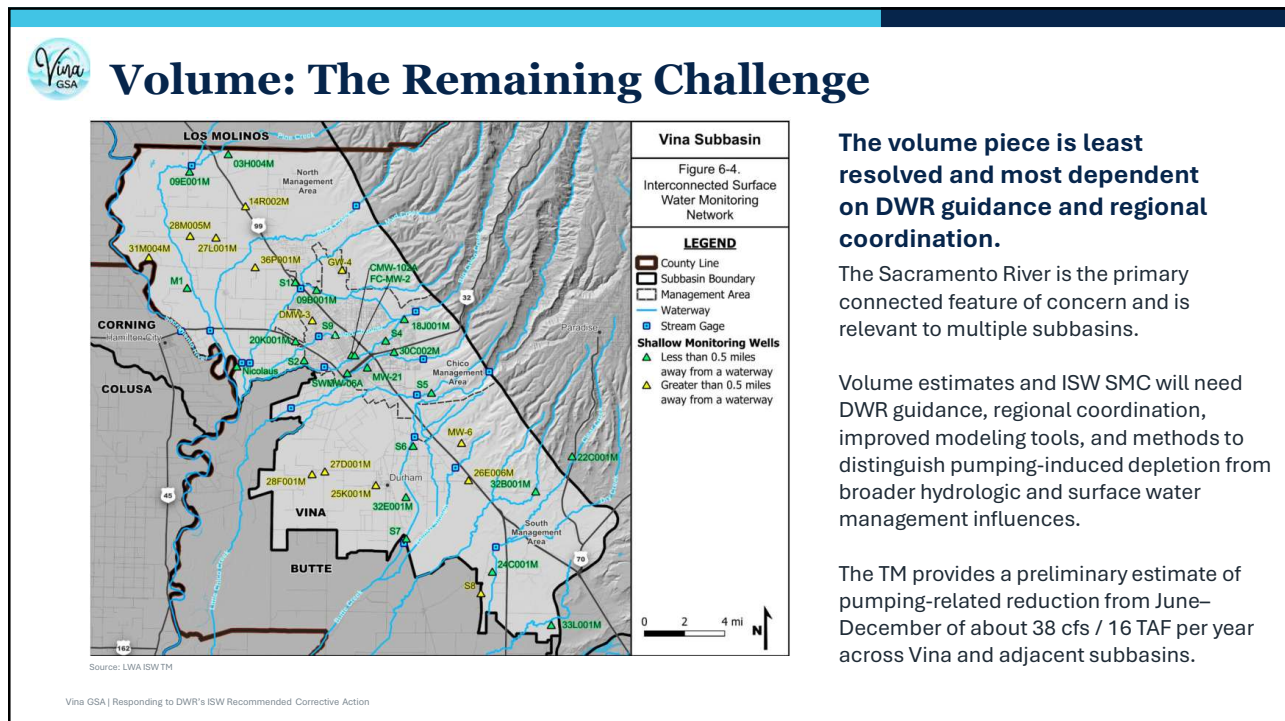
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Summary & Conclusions

12



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Proposed RCA Response Strategy:
Demonstrate meaningful progress now;
develop robust ISW SMC later

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## Range of Options for Responding to DWR's ISW RCA


**Strawman**

|                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**The strawman is not "no action." It is a documented RCA response: location progress, timing progress, monitoring network definition, and a clear path for volume/SMC work.**

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## Strawman Proposal: What Would Be Done in the PE

|                 |                                                      |                                                                                                                                                                     |
|-----------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1</b></p> | <p><b>Document location progress</b></p>             | <p>Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.</p>                                                                |
| <p><b>2</b></p> | <p><b>Document timing progress</b></p>               | <p>Describe seasonal/isotope findings and describe that new continuous data from newly installed wells in 2026 will help improve timing analysis in the future.</p> |
| <p><b>3</b></p> | <p><b>Define ISW monitoring network</b></p>          | <p>Identify shallow wells, stream gages, and supporting data sources for continued evaluation – this is a big step forward from what was available previously</p>   |
| <p><b>4</b></p> | <p><b>Defer ISW-specific SMC</b></p>                 | <p>Do not set MTs, MOs, undesirable results, or ISW RMS sites until DWR guidance/data/regional work support development of thresholds.</p>                          |
| <p><b>5</b></p> | <p><b>Coordinate regionally on volume aspect</b></p> | <p>Focus regional work on the Sacramento River and shared methods for depletion volume estimates.</p>                                                               |

**Intent: clearly respond to DWR's RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.**

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

**Move faster toward SMC**

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
- Include early-warning triggers before thresholds are reached.

**Show Progress**

- Define a broader ISW monitoring network now.
- Use new analysis to document location and timing progress.
- Improve visuals and explanations of stream connectivity, model outputs, and uncertainty.
- Collect new data - shallow groundwater and stream gage monitoring.

**Proceed carefully**

- Proceed cautiously given data gaps.
- Wait for DWR guidance
- Maintain flexibility; avoid locking in premature thresholds.
- Coordinate with neighboring subbasins on ISW and model calibration.
- Revisit SMC when DWR guidance, regional work, and new data are available.

**Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps**

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## SHAC Discussion and Potential Action

### Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

### Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River



## Item 5. Consideration of the Approach to Addressing Interconnected Surface Water (ISW) in the Periodic Evaluation in response to the Department of Water Resources' Recommended Corrective Actions

Vina Stakeholder Advisory Committee  
May 27, 2026

Christina Buck, PhD  
Assistant Director  
Butte County Dept. of Water and Resource Conservation  
Providing technical staff support to the GSA

1



## Purpose of Today's Discussion

SHAC is being asked to consider a strawman proposal released by the GSA (5/18/26) for responding to DWR's ISW Recommended Corrective Action and provide input — potentially a recommendation — to the GSA Boards.

### What is the regulatory framework?

DWR focused on estimating the location, timing, and volume of depletions of interconnected surface water caused by groundwater pumping.

### What progress has been made?

The Larry Walker Associates ISW Technical Memo provides new information on where ISW likely occurs and when some streams are connected or disconnected — this information was not available in the 2022 GSP or during its development.

### What remains?

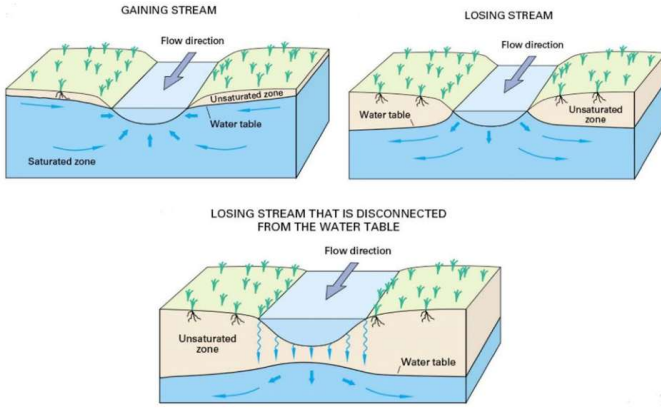
The volume (quantity) piece is the least resolved and depends most on DWR guidance, regional coordination, and continued monitoring — especially for the Sacramento River.

### Key framing: demonstrate progress while avoiding premature ISW SMC decisions

The strawman proposal approach document's location and timing progress now, defines the monitoring path, and defers ISW-specific thresholds until the technical and policy foundation is stronger.

2

# Quick Orientation: What Is Interconnected Surface Water (ISW)?



**Interconnected Surface Water (ISW) is where groundwater and rivers or streams are connected.**

### Why it matters

Under SGMA, the key question is whether groundwater pumping causes depletions of ISW that significantly and unreasonably affect beneficial uses of surface water.



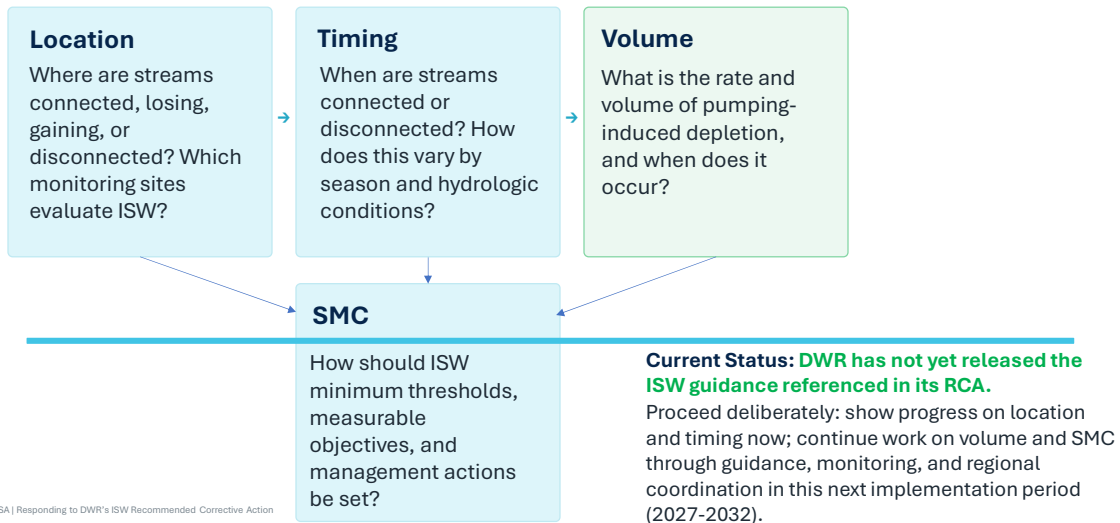
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

3



# DWR's ISW RCA: Location, Timing, and Volume

DWR recognized that estimating stream depletion from subbasin-wide pumping is complex, but expects progress by the first Periodic Evaluation.



Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## DWR's Recommended Corrective Action 6

Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic evaluation:

- a. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs' jurisdictional area.
- d. Clarify the groundwater level monitoring sites that will be used for the evaluation of depletions of interconnected surface water and provide site-specific information.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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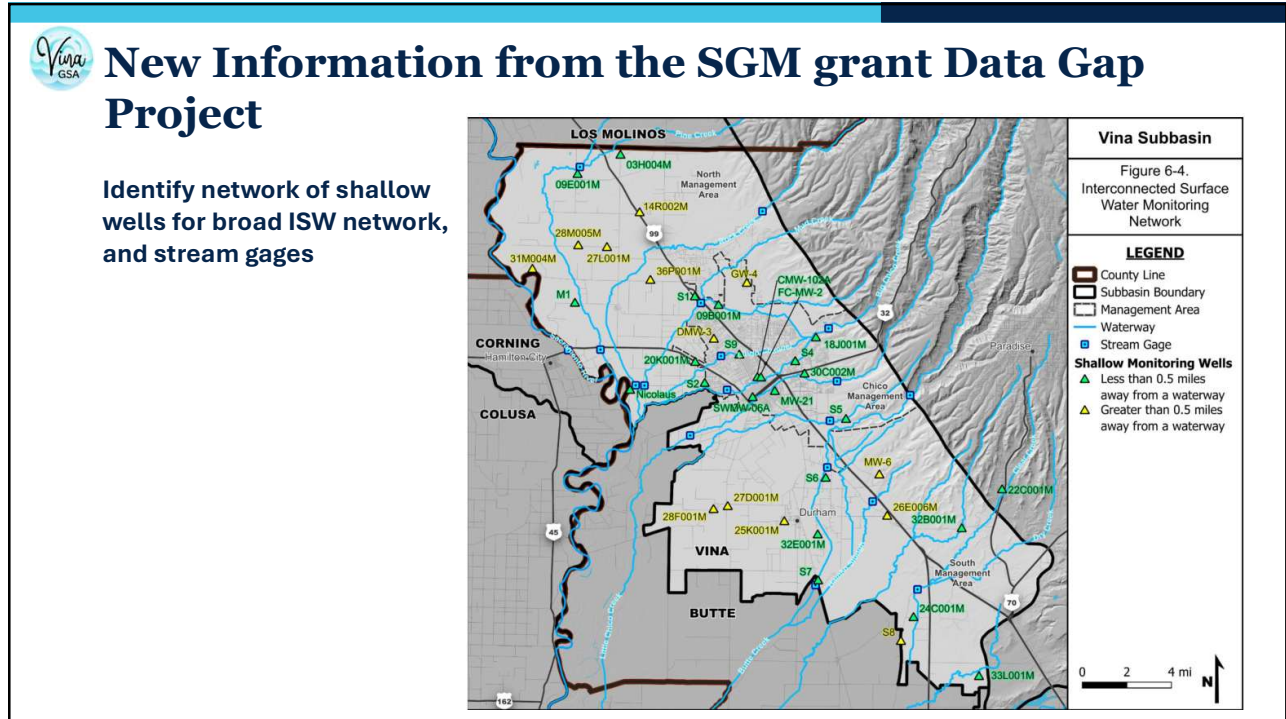


### Notable Progress:

## New information from the LWA ISW Technical Memorandum



6



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## New Information from the SGM grant Data Gap Project: LWA ISW Tech Memo

The TM uses multiple lines of evidence to improve understanding of ISW in the Vina Subbasin

**Butte Basin Groundwater Model**  
Updated BBGM v1.3 results identify likely connected, losing, gaining, and disconnected reaches.

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Seasonal groundwater level comparisons to stream bed elevations using LiDAR data help evaluate where connection occurs

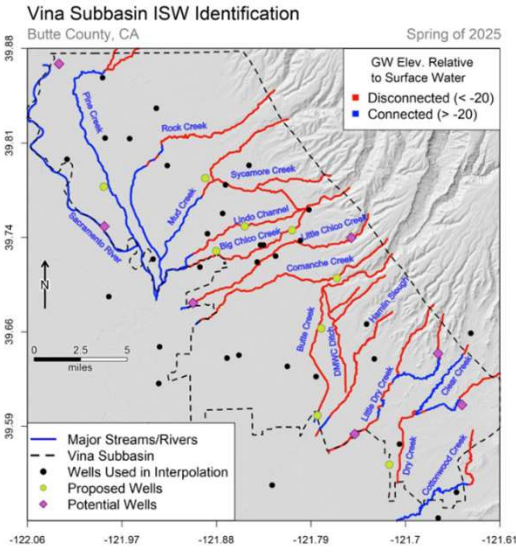
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Seasonal groundwater comparisons and May–October isotope sampling help evaluate when stream-aquifer connections occur or are absent.

Source: LWA ISW TM, April 2026  
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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# Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



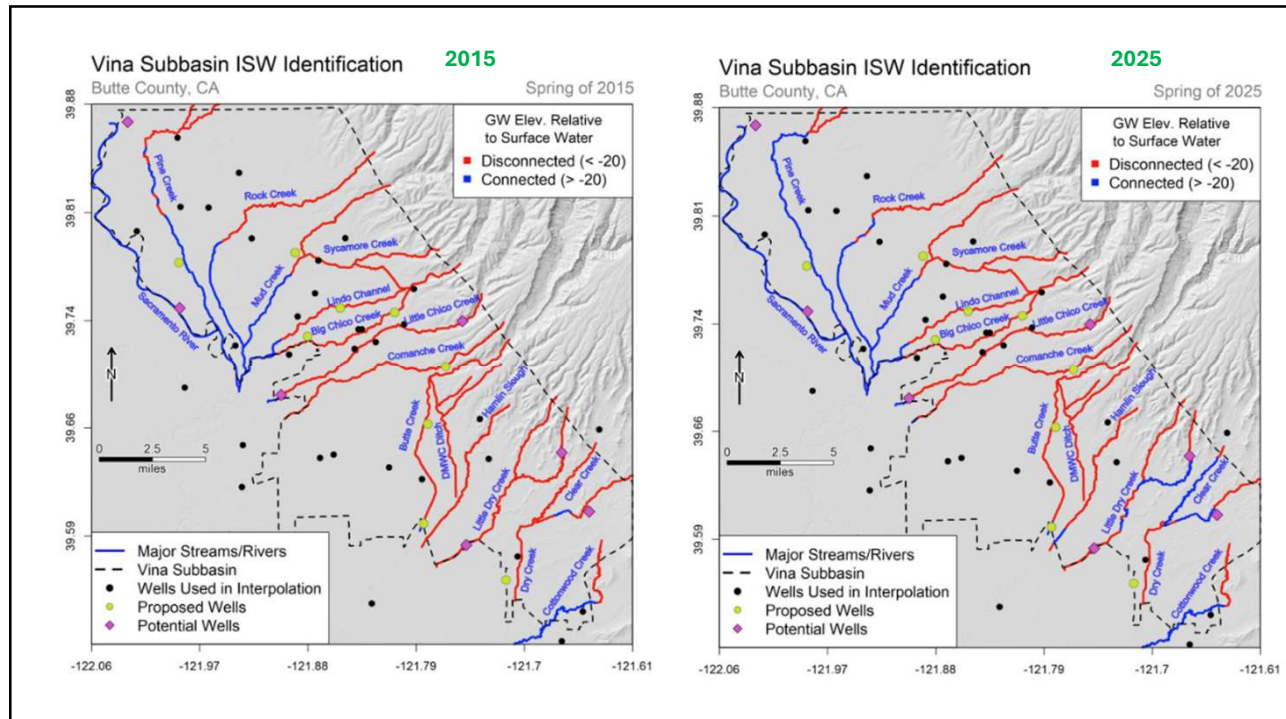
## Preliminary location pattern

- Sacramento River is primarily connected and gaining.
- Lower western reaches of some creeks may be connected or mixed.
- Many central and eastern reaches appear disconnected much or all of the time.
- Connections may shift with hydrology and groundwater levels.

## RCA progress

This directly addresses the "location" part of DWR's RCA by improving the basis for identifying connected stream segments and selecting monitoring locations.

9



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## Location: Preliminary Status by Stream Reach

The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

| Stream                 | Preliminary status              | Approx. length |
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| Sacramento River       | Connected – gaining             | 23.4 mi        |
| Pine Creek             | Disconnected except lower ~5 mi | 12.6 mi        |
| Rock Creek             | Disconnected except lower ~1 mi | 13.4 mi        |
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| Big Chico Creek        | Disconnected except lower ~2 mi | 10.7 mi        |
| Little Chico Creek     | Disconnected                    | 11.9 mi        |
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These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Table 3

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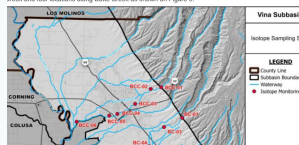
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May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

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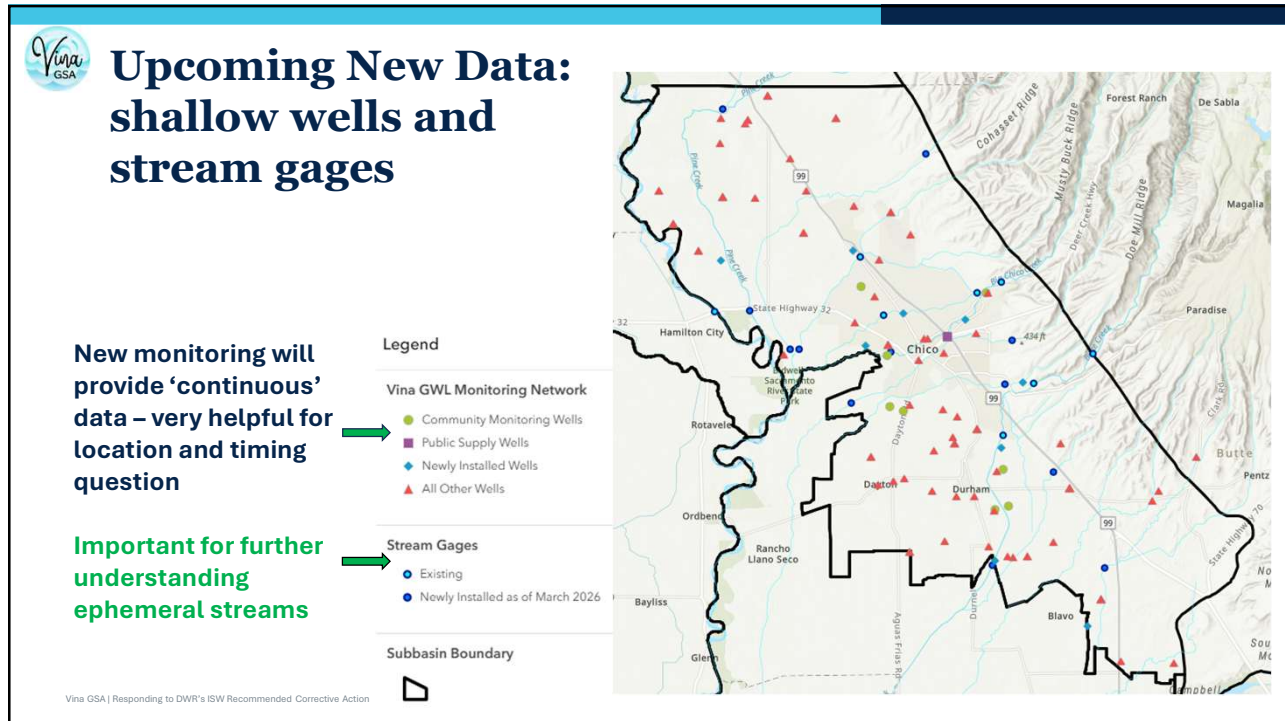
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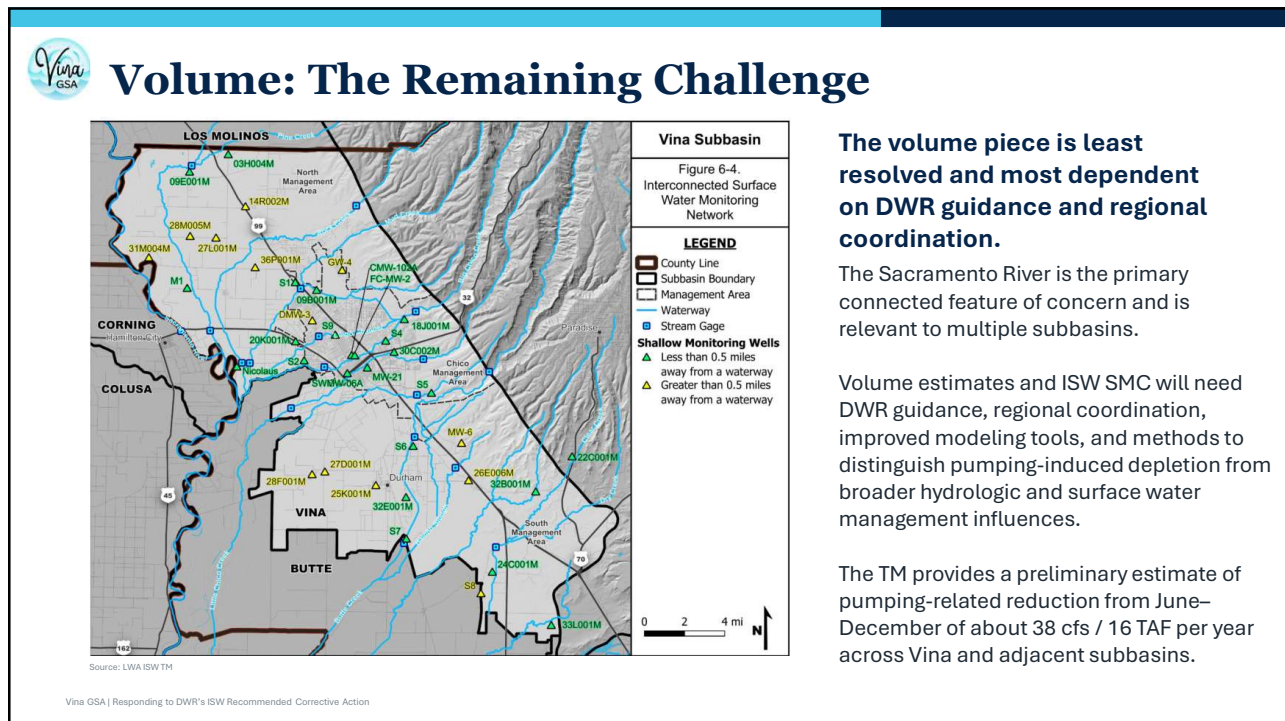
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Range of Options for Responding to DWR's ISW RCA


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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

18



SHAC Discussion and Potential Action

Potential recommendation to the GSA Boards:

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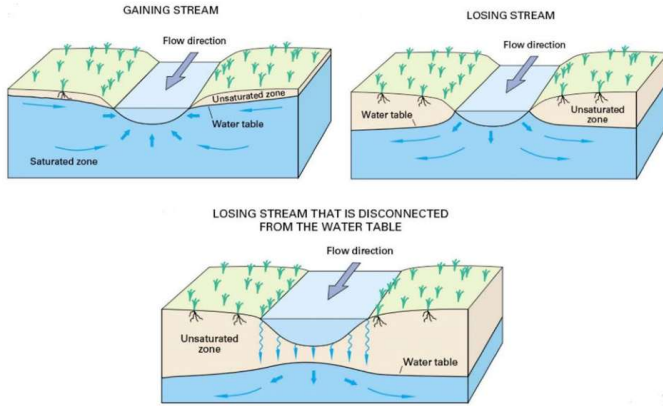
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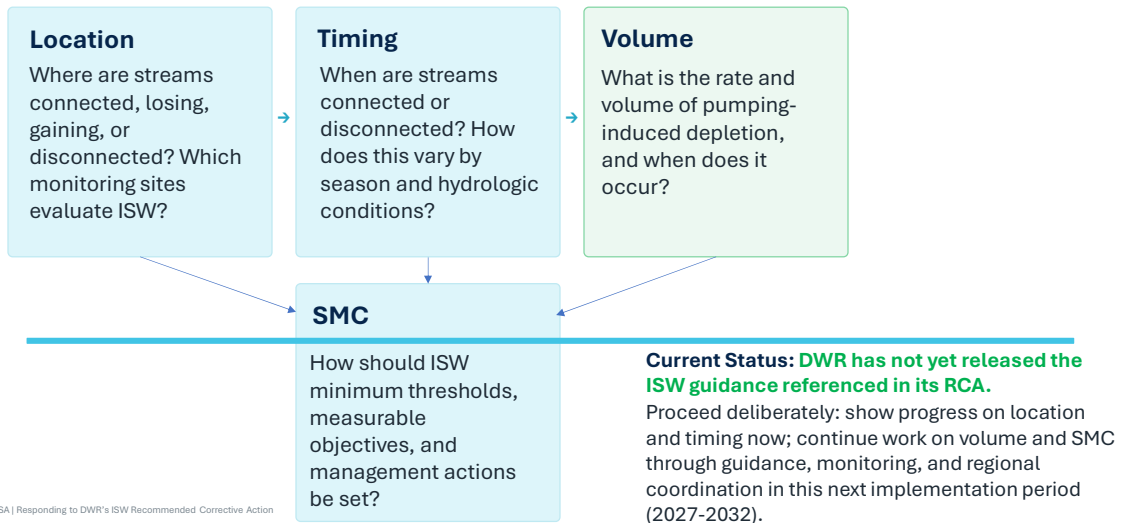
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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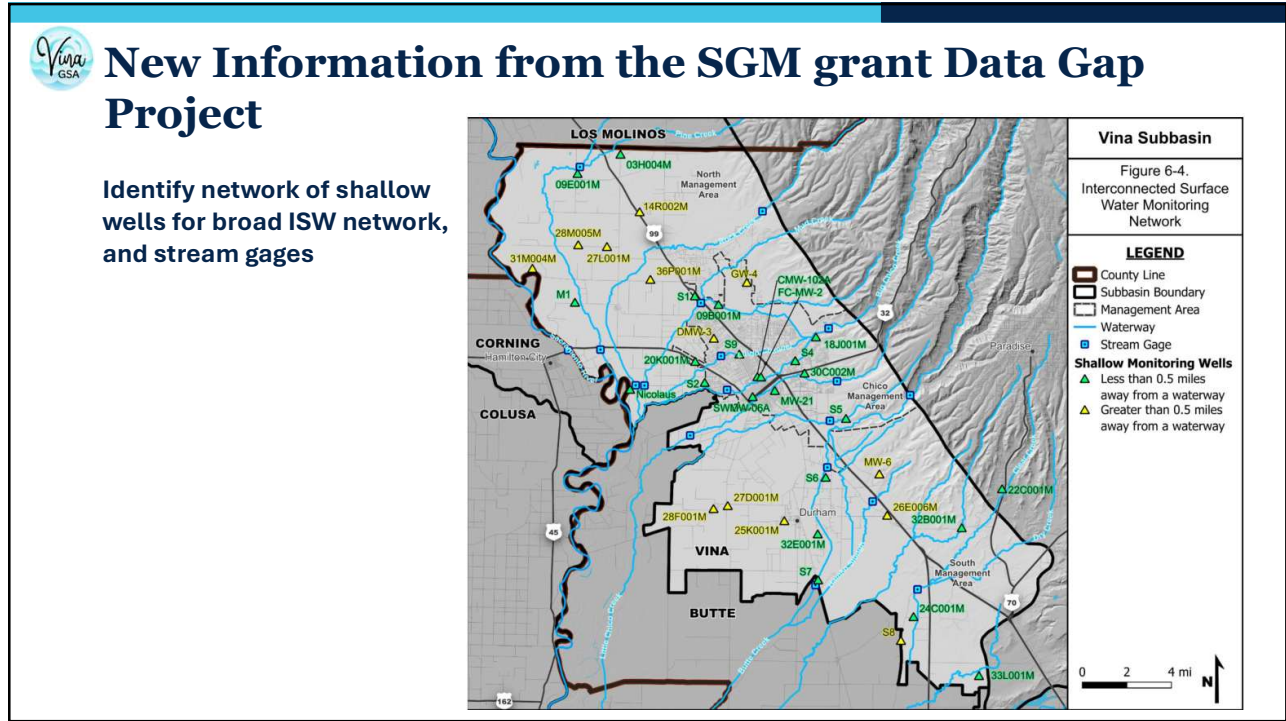


Notable Progress:

New information from the LWA ISW Technical Memorandum



6



7

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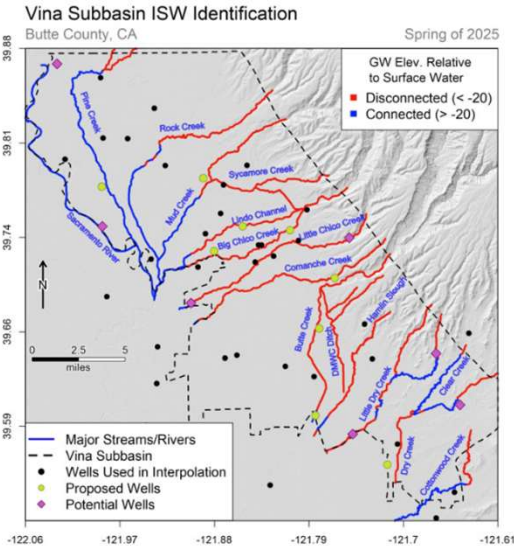
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

8



Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



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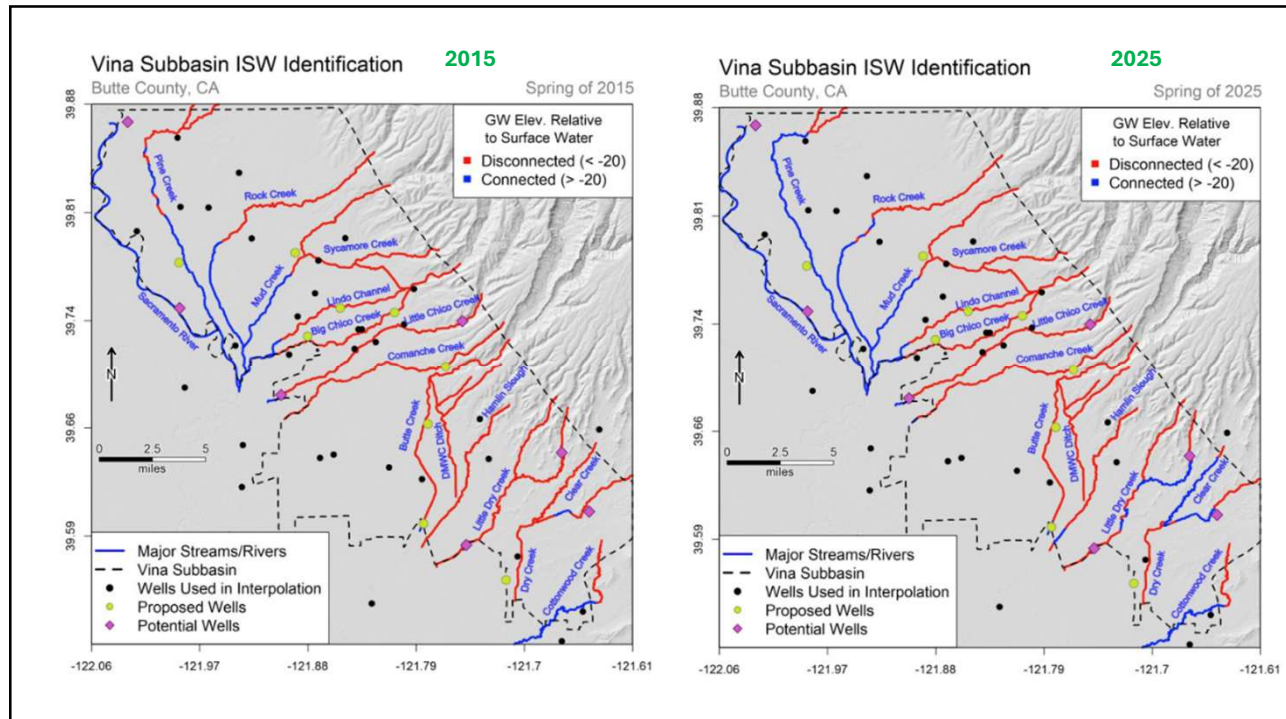
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Fig. 7

9



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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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11



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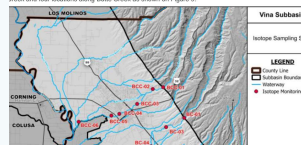
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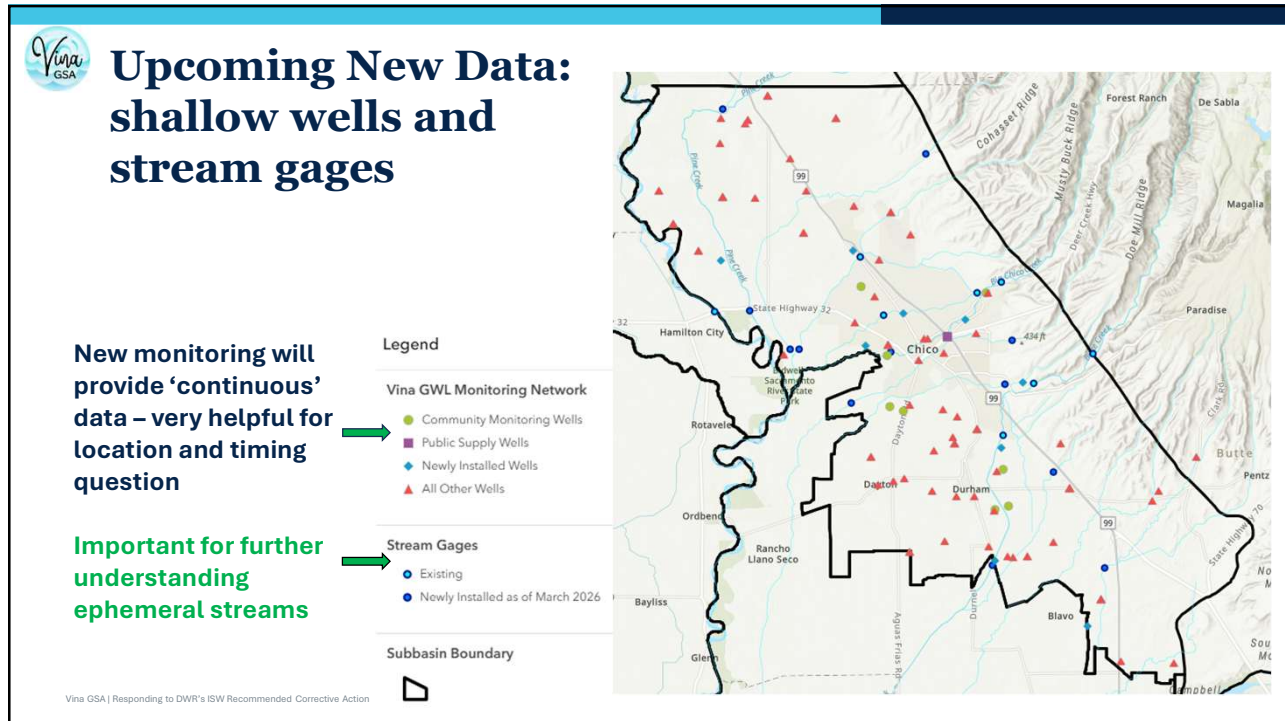
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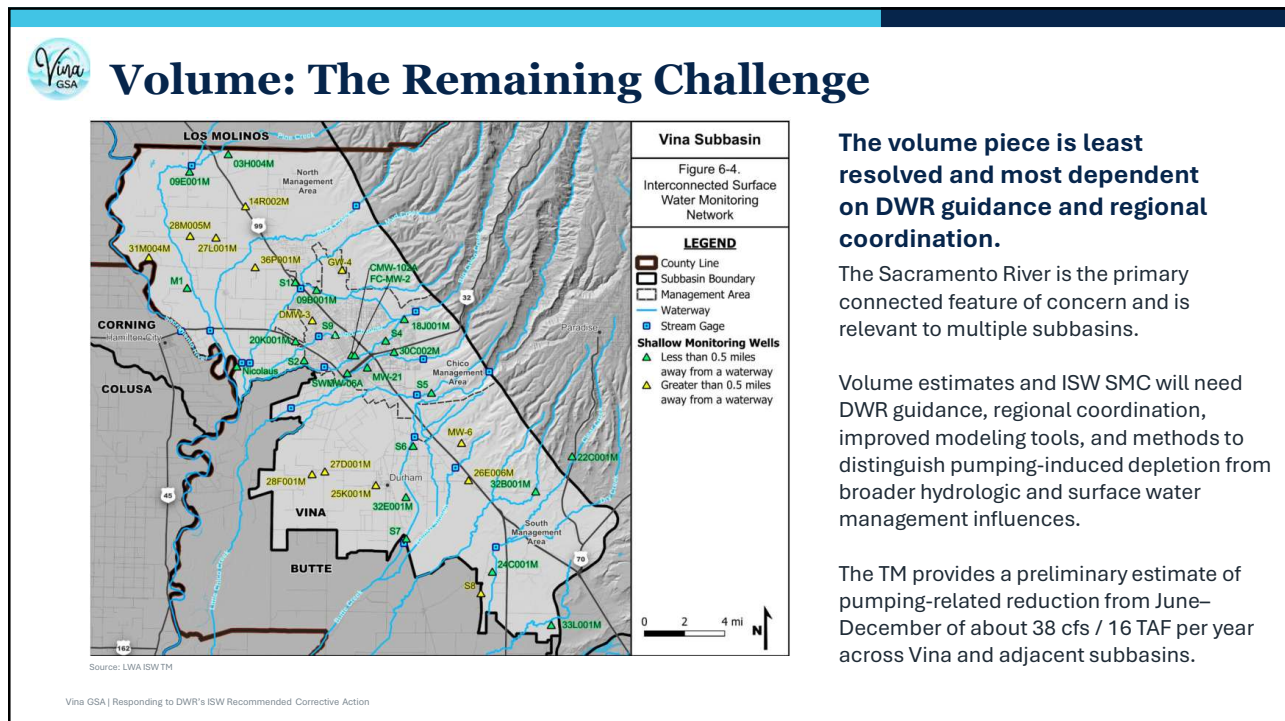
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Summary & Conclusions

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Proposed RCA Response Strategy:
Demonstrate meaningful progress now;
develop robust ISW SMC later

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## Range of Options for Responding to DWR's ISW RCA


**Strawman**

|                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                     |
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**The strawman is not "no action." It is a documented RCA response: location progress, timing progress, monitoring network definition, and a clear path for volume/SMC work.**

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## Strawman Proposal: What Would Be Done in the PE

- 1 Document location progress** Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.
- 2 Document timing progress** Describe seasonal/isotope findings and describe that new continuous data from newly installed wells in 2026 will help improve timing analysis in the future.
- 3 Define ISW monitoring network** Identify shallow wells, stream gages, and supporting data sources for continued evaluation – this is a big step forward from what was available previously
- 4 Defer ISW-specific SMC** Do not set MTs, MOs, undesirable results, or ISW RMS sites until DWR guidance/data/regional work support development of thresholds.
- 5 Coordinate regionally on volume aspect** Focus regional work on the Sacramento River and shared methods for depletion volume estimates.

**Intent: clearly respond to DWR’s RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.**

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## Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

**Move faster toward SMC**

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
- Include early-warning triggers before thresholds are reached.

**Show Progress**

- Define a broader ISW monitoring network now.
- Use new analysis to document location and timing progress.
- Improve visuals and explanations of stream connectivity, model outputs, and uncertainty.
- Collect new data - shallow groundwater and stream gage monitoring.

**Proceed carefully**

- Proceed cautiously given data gaps.
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- Maintain flexibility; avoid locking in premature thresholds.
- Coordinate with neighboring subbasins on ISW and model calibration.
- Revisit SMC when DWR guidance, regional work, and new data are available.

**Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps**

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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## SHAC Discussion and Potential Action

### Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

### Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River



## Item 5. Consideration of the Approach to Addressing Interconnected Surface Water (ISW) in the Periodic Evaluation in response to the Department of Water Resources' Recommended Corrective Actions

Vina Stakeholder Advisory Committee  
May 27, 2026

Christina Buck, PhD  
Assistant Director  
Butte County Dept. of Water and Resource Conservation  
Providing technical staff support to the GSA

1



## Purpose of Today's Discussion

SHAC is being asked to consider a strawman proposal released by the GSA (5/18/26) for responding to DWR's ISW Recommended Corrective Action and provide input — potentially a recommendation — to the GSA Boards.

### What is the regulatory framework?

DWR focused on estimating the location, timing, and volume of depletions of interconnected surface water caused by groundwater pumping.

### What progress has been made?

The Larry Walker Associates ISW Technical Memo provides new information on where ISW likely occurs and when some streams are connected or disconnected — this information was not available in the 2022 GSP or during its development.

### What remains?

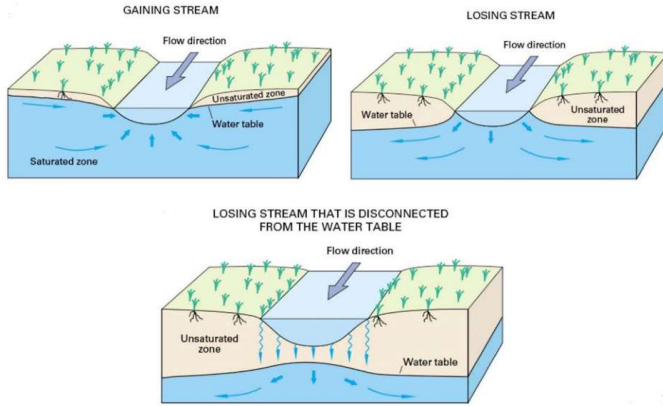
The volume (quantity) piece is the least resolved and depends most on DWR guidance, regional coordination, and continued monitoring — especially for the Sacramento River.

### Key framing: demonstrate progress while avoiding premature ISW SMC decisions

The strawman proposal approach document's location and timing progress now, defines the monitoring path, and defers ISW-specific thresholds until the technical and policy foundation is stronger.

2

## Quick Orientation: What Is Interconnected Surface Water (ISW)?



**Interconnected Surface Water (ISW) is where groundwater and rivers or streams are connected.**

### Why it matters

Under SGMA, the key question is whether groundwater pumping causes depletions of ISW that significantly and unreasonably affect beneficial uses of surface water.



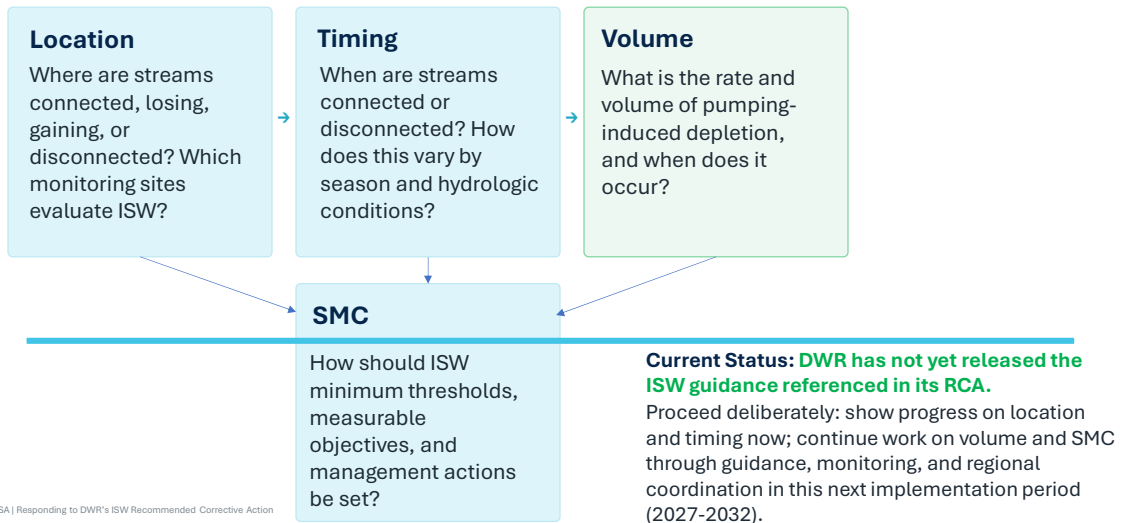
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## DWR's ISW RCA: Location, Timing, and Volume

DWR recognized that estimating stream depletion from subbasin-wide pumping is complex, but expects progress by the first Periodic Evaluation.



Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## DWR's Recommended Corrective Action 6

Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic evaluation:

- a. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs' jurisdictional area.
- d. Clarify the groundwater level monitoring sites that will be used for the evaluation of depletions of interconnected surface water and provide site-specific information.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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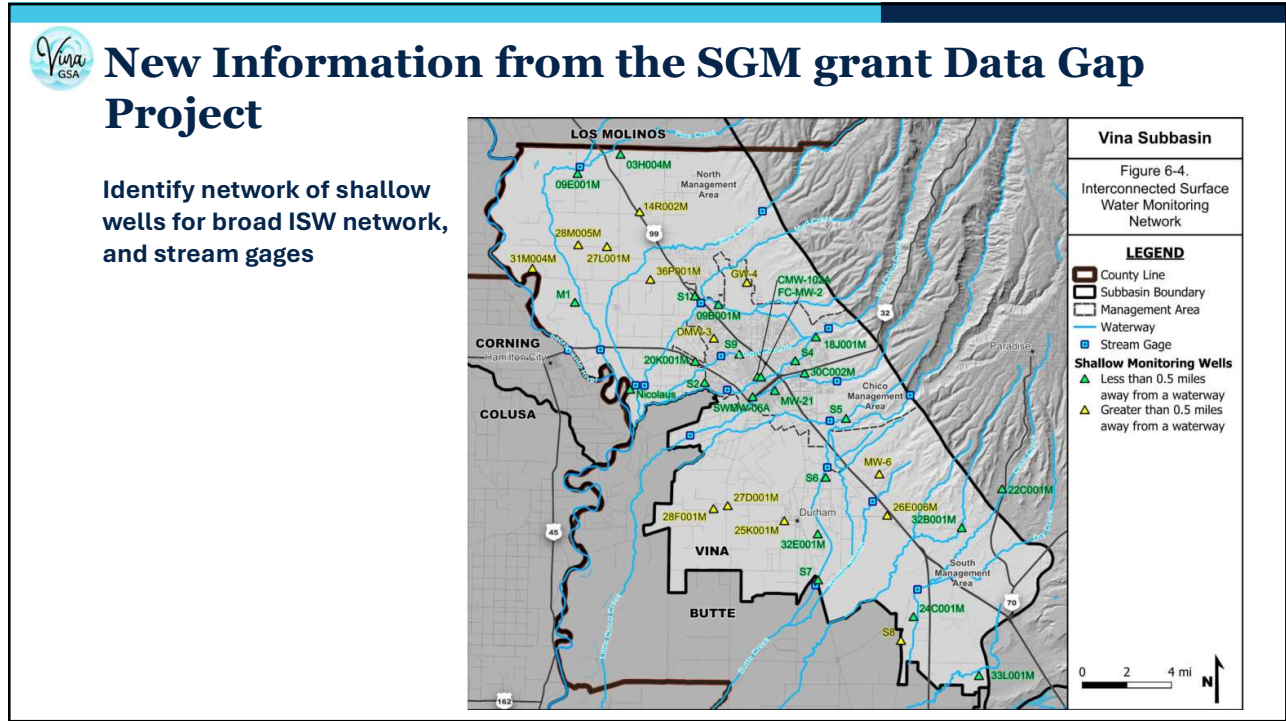


### Notable Progress:

## New information from the LWA ISW Technical Memorandum



6



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## New Information from the SGM grant Data Gap Project: LWA ISW Tech Memo

The TM uses multiple lines of evidence to improve understanding of ISW in the Vina Subbasin

**Butte Basin Groundwater Model**  
Updated BBGM v1.3 results identify likely connected, losing, gaining, and disconnected reaches.

**Shallow Regional Groundwater**  
Seasonal groundwater level comparisons to stream bed elevations using LiDAR data help evaluate where connection occurs

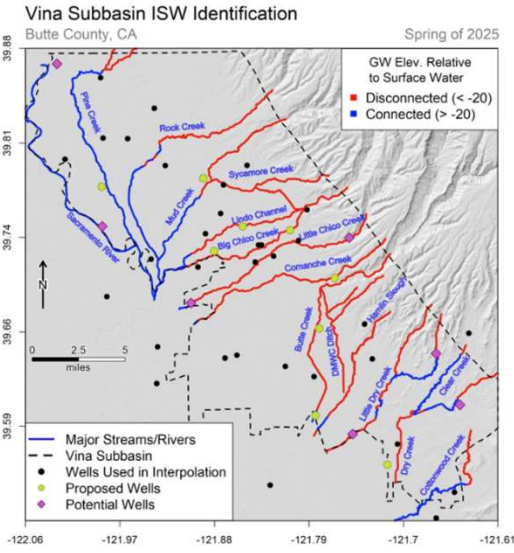
**Isotope Sampling**  
Seasonal groundwater comparisons and May–October isotope sampling help evaluate when stream-aquifer connections occur or are absent.

Source: LWA ISW TM, April 2026  
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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# Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



## Preliminary location pattern

- Sacramento River is primarily connected and gaining.
- Lower western reaches of some creeks may be connected or mixed.
- Many central and eastern reaches appear disconnected much or all of the time.
- Connections may shift with hydrology and groundwater levels.

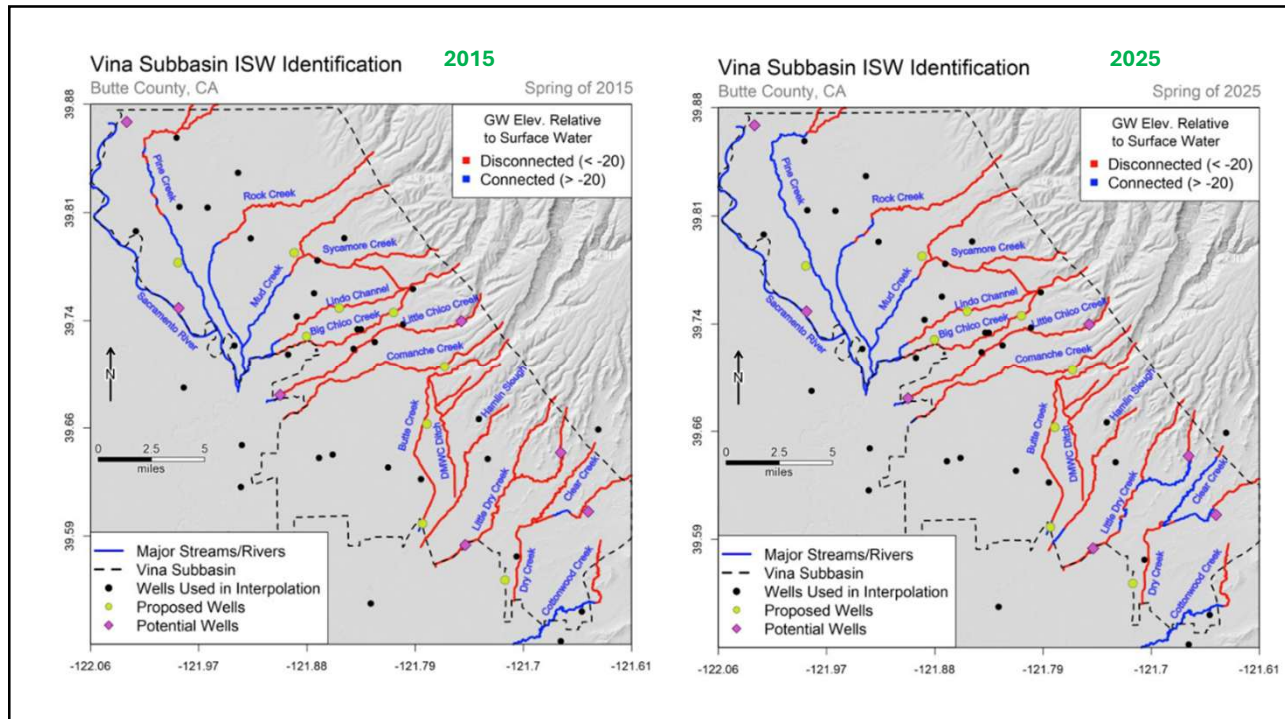
## RCA progress

This directly addresses the "location" part of DWR's RCA by improving the basis for identifying connected stream segments and selecting monitoring locations.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Fig. 7

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## Location: Preliminary Status by Stream Reach

The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

| Stream                 | Preliminary status              | Approx. length |
|------------------------|---------------------------------|----------------|
| Sacramento River       | Connected – gaining             | 23.4 mi        |
| Pine Creek             | Disconnected except lower ~5 mi | 12.6 mi        |
| Rock Creek             | Disconnected except lower ~1 mi | 13.4 mi        |
| Mud Creek              | Disconnected except lower ~2 mi | 13.2 mi        |
| Big Chico Creek        | Disconnected except lower ~2 mi | 10.7 mi        |
| Little Chico Creek     | Disconnected                    | 11.9 mi        |
| Butte Creek            | Disconnected                    | 11.8 mi        |
| Little Dry / Dry Creek | Disconnected                    | 10.8 mi        |

These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Table 3

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## Timing: What We Learned So Far

### Sacramento River

Primarily connected and gaining across the analysis period. This makes it the main surface water feature for continued ISW depletion evaluation.

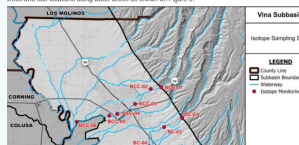
Important for both timing and volume because it borders multiple subbasins.

### Big Chico + Butte Creeks

May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

#### 2.1.3 ISW Identification through Isotope Sampling

To understand ISW interactions on a finer timescale than seasonal groundwater interpolations can provide, we collected and analyzed isotopes of the water molecule along Big Chico and Butte Creeks during the study period, June through October of 2023. Samples were taken from six locations along Big Chico Creek and four locations along Butte Creek, as shown in Figure 9.



### Ephemeral Streams

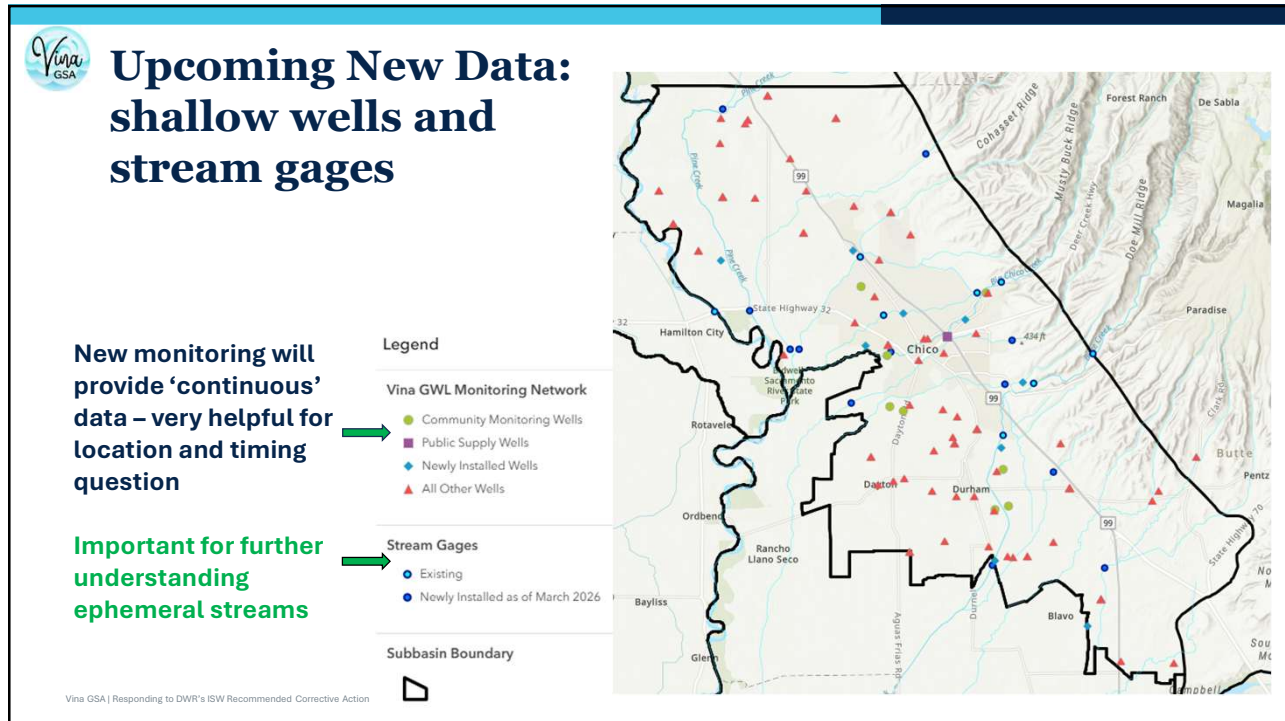
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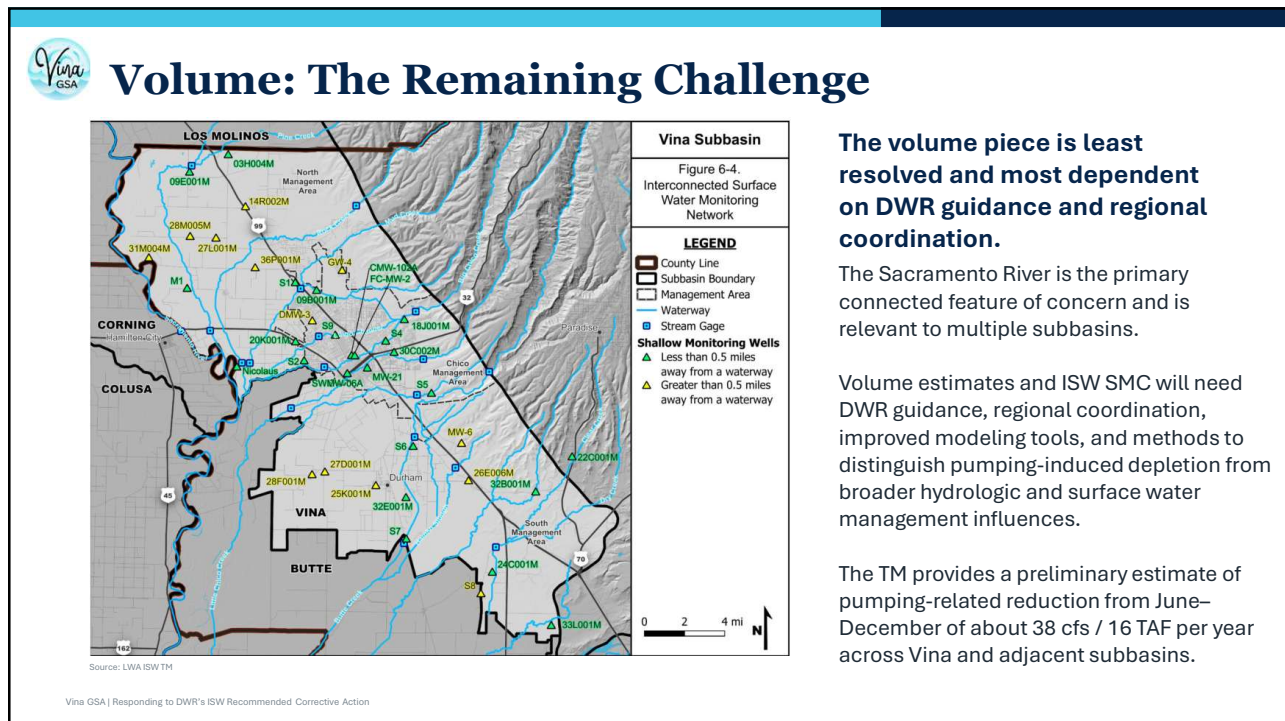
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Range of Options for Responding to DWR's ISW RCA


Strawman

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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SHAC Discussion and Potential Action

Potential recommendation to the GSA Boards:

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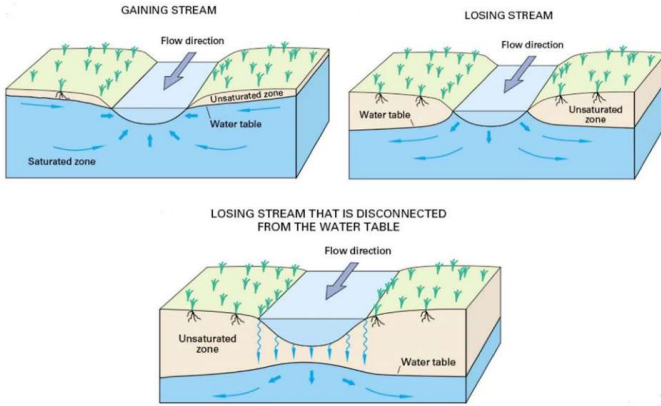
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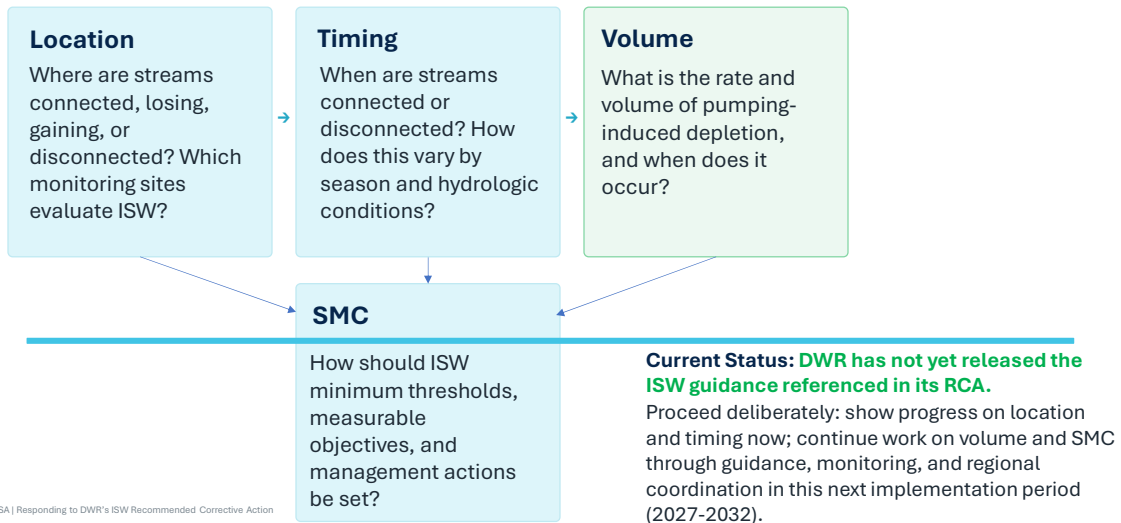
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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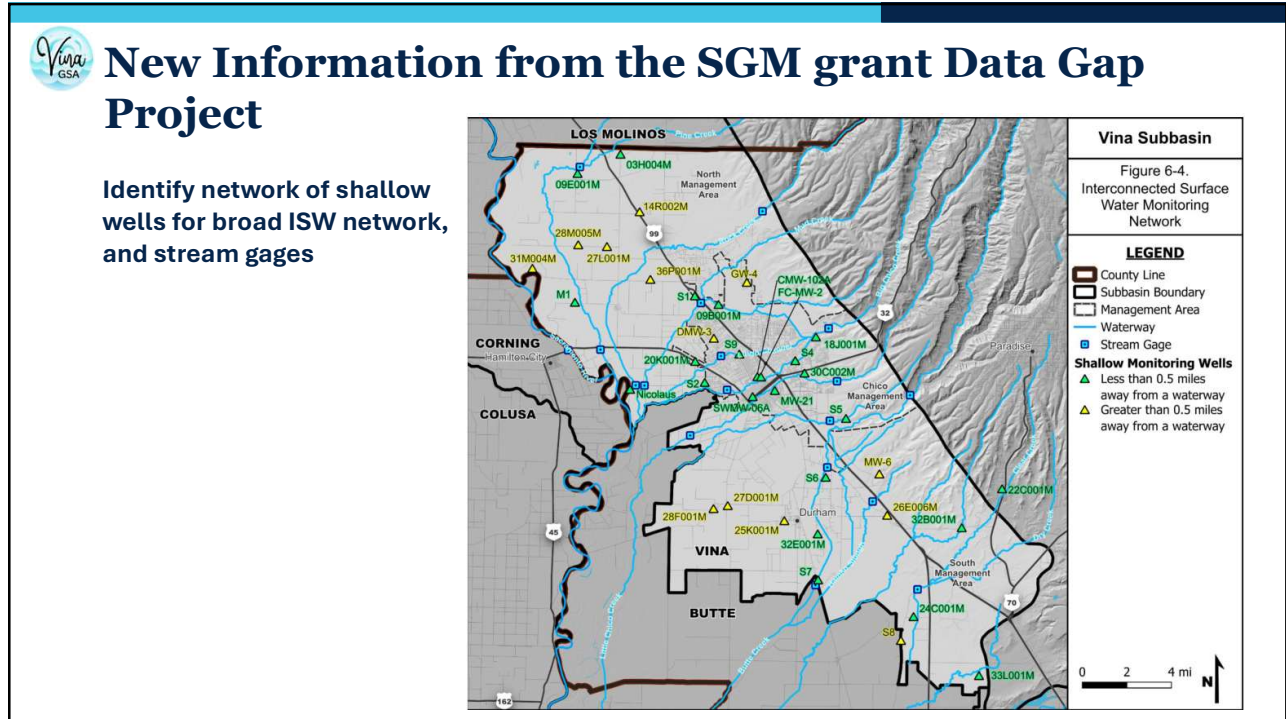


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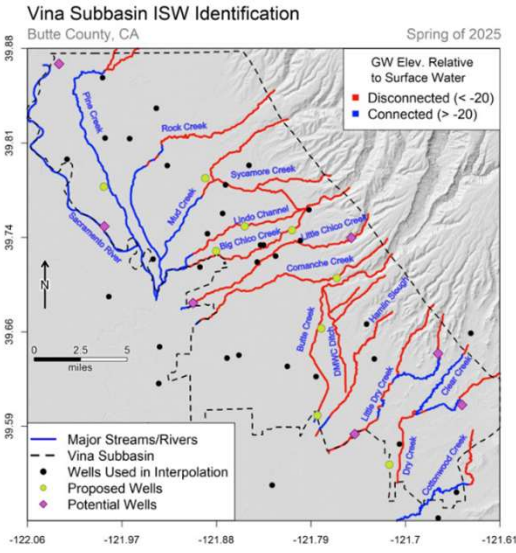
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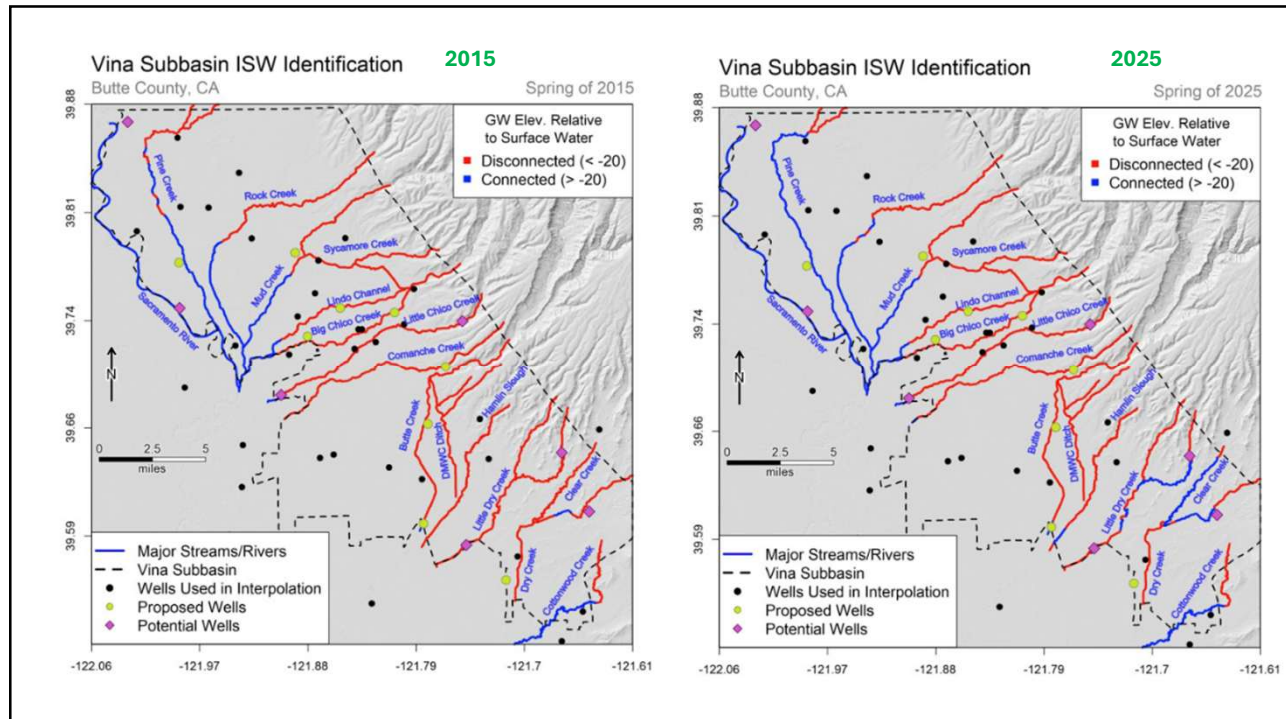
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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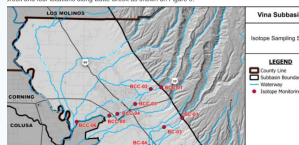
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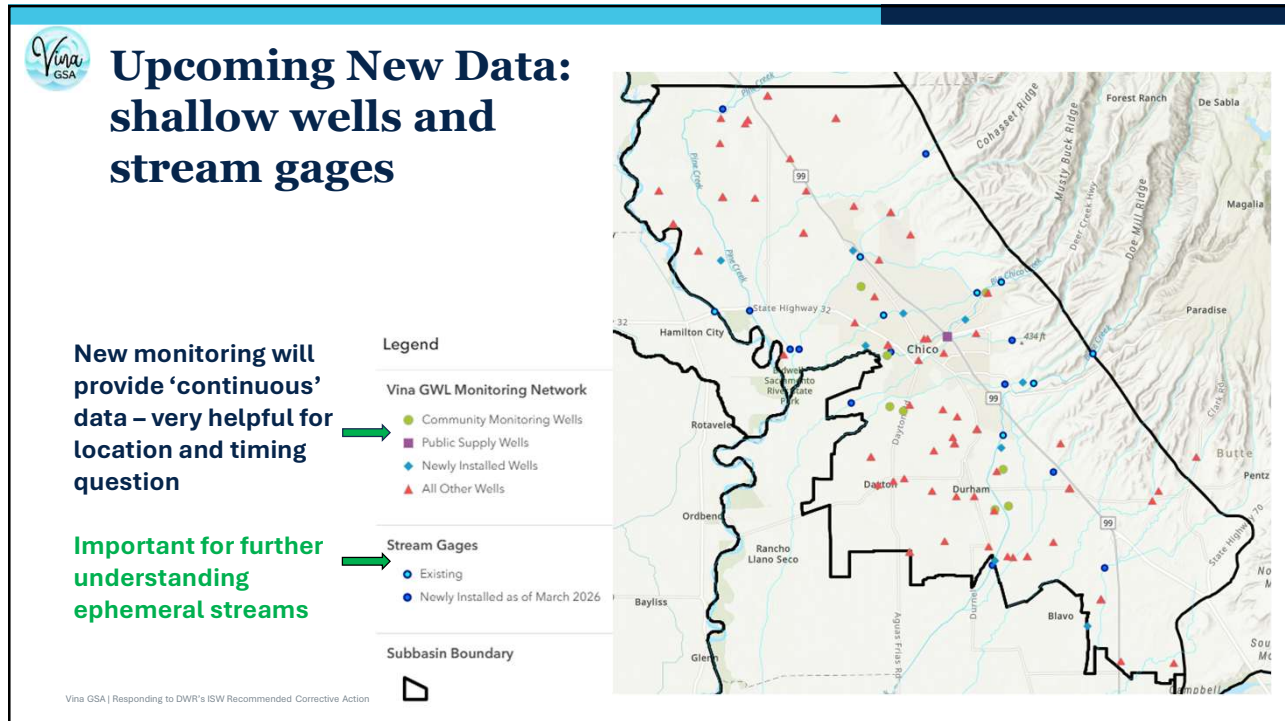
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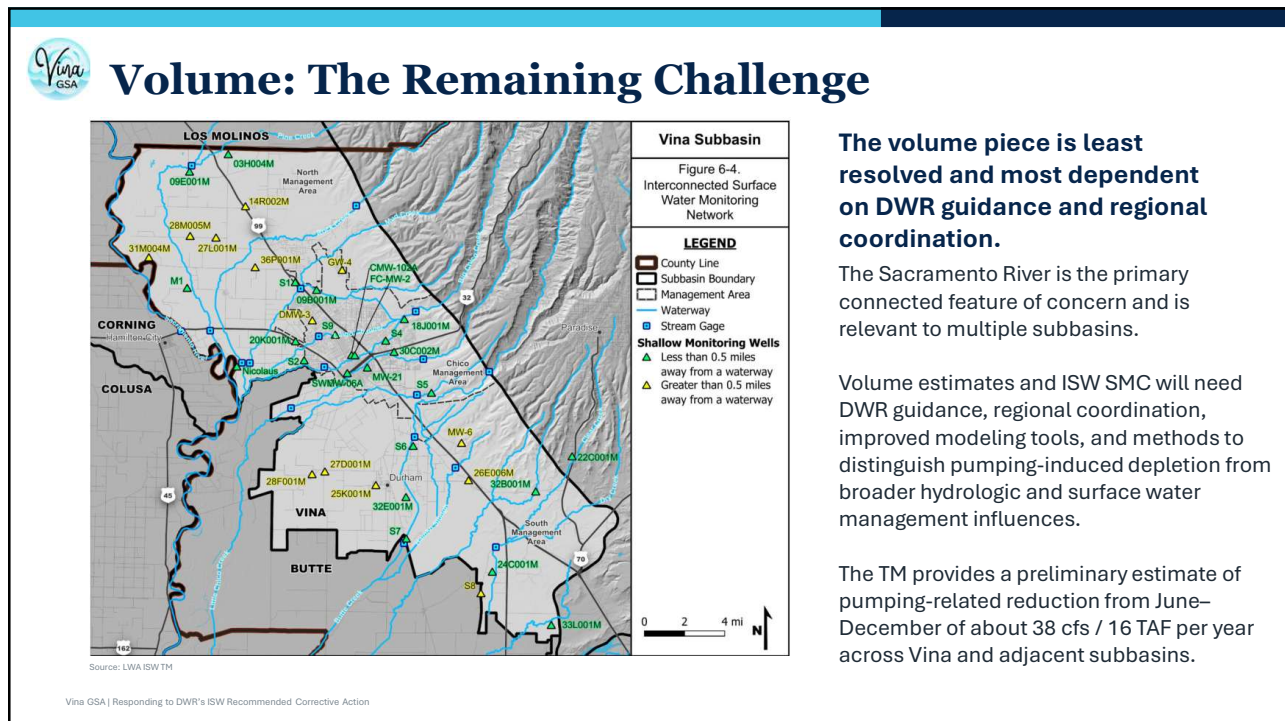
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**Strawman**

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

16




## Strawman Proposal: What Would Be Done in the PE

- 1 Document location progress** Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.
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**Intent: clearly respond to DWR’s RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.**

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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## Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

**Move faster toward SMC**

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
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**Show Progress**

- Define a broader ISW monitoring network now.
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- Proceed cautiously given data gaps.
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**Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps**

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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## SHAC Discussion and Potential Action

### Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

### Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River



**Item 5.  
Consideration of the Approach to  
Addressing Interconnected  
Surface Water (ISW) in the  
Periodic Evaluation in response to  
the Department of Water  
Resources’ Recommended  
Corrective Actions**

Vina Stakeholder Advisory Committee  
May 27, 2026

Christina Buck, PhD  
Assistant Director  
Butte County Dept. of Water and Resource Conservation  
Providing technical staff support to the GSA

1



**Purpose of Today’s Discussion**

SHAC is being asked to consider a strawman proposal released by the GSA (5/18/26) for responding to DWR’s ISW Recommended Corrective Action and provide input — potentially a recommendation — to the GSA Boards.

**What is the regulatory framework?**  
DWR focused on estimating the location, timing, and volume of depletions of interconnected surface water caused by groundwater pumping.

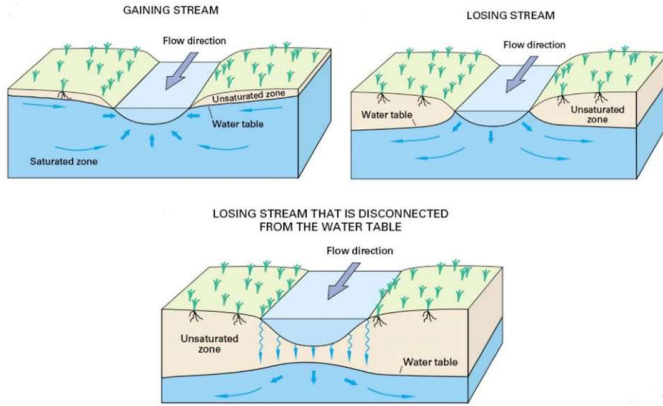
**What progress has been made?**  
The Larry Walker Associates ISW Technical Memo provides new information on where ISW likely occurs and when some streams are connected or disconnected — this information was not available in the 2022 GSP or during its development.

**What remains?**  
The volume (quantity) piece is the least resolved and depends most on DWR guidance, regional coordination, and continued monitoring — especially for the Sacramento River.

**Key framing: demonstrate progress while avoiding premature ISW SMC decisions**  
The strawman proposal approach document's location and timing progress now, defines the monitoring path, and defers ISW-specific thresholds until the technical and policy foundation is stronger.

2

## Quick Orientation: What Is Interconnected Surface Water (ISW)?



**Interconnected Surface Water (ISW) is where groundwater and rivers or streams are connected.**

### Why it matters

Under SGMA, the key question is whether groundwater pumping causes depletions of ISW that significantly and unreasonably affect beneficial uses of surface water.



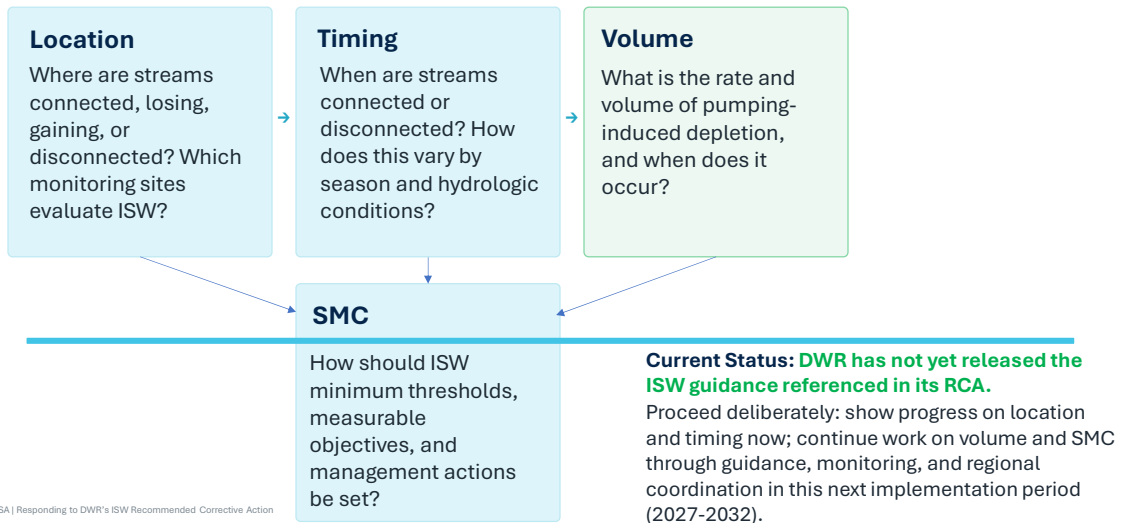
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

3



## DWR's ISW RCA: Location, Timing, and Volume

DWR recognized that estimating stream depletion from subbasin-wide pumping is complex, but expects progress by the first Periodic Evaluation.



Vina GSA | Responding to DWR's ISW Recommended Corrective Action

4



## DWR's Recommended Corrective Action 6

Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic evaluation:

- a. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs' jurisdictional area.
- d. Clarify the groundwater level monitoring sites that will be used for the evaluation of depletions of interconnected surface water and provide site-specific information.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

5

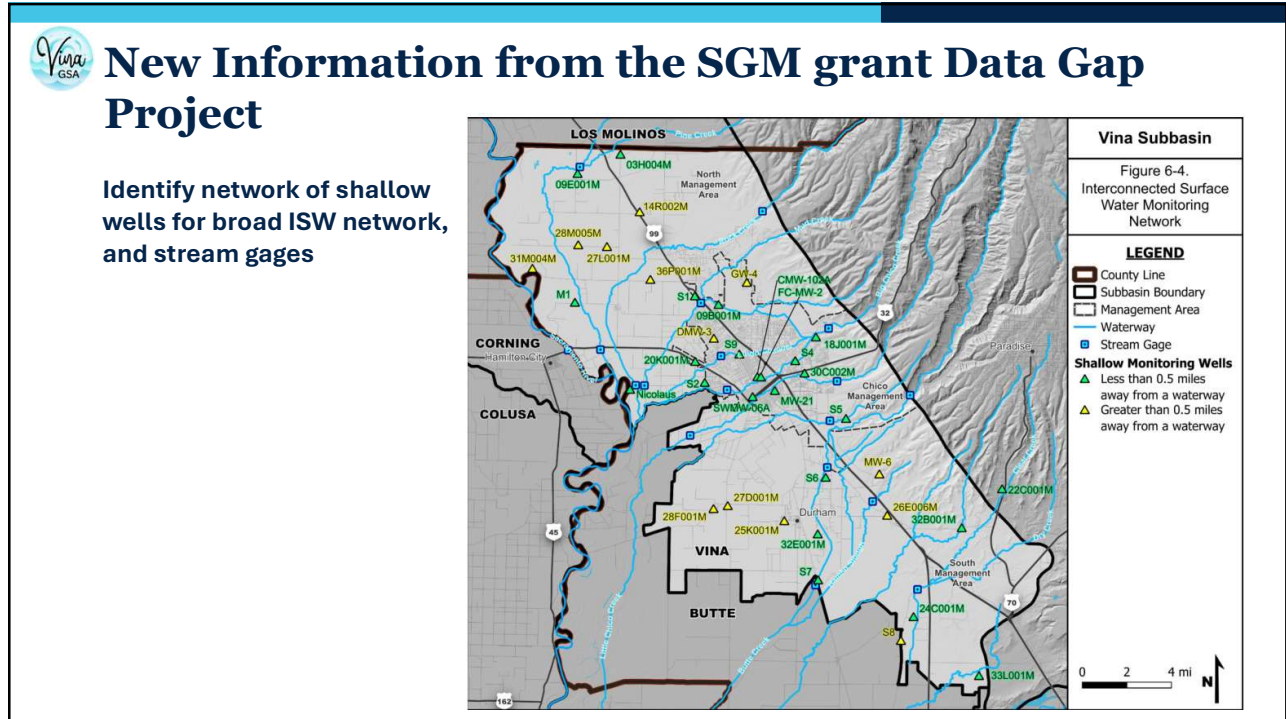


### Notable Progress:

## New information from the LWA ISW Technical Memorandum



6



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## New Information from the SGM grant Data Gap Project: LWA ISW Tech Memo

The TM uses multiple lines of evidence to improve understanding of ISW in the Vina Subbasin

**Butte Basin Groundwater Model**  
Updated BBGM v1.3 results identify likely connected, losing, gaining, and disconnected reaches.

**Shallow Regional Groundwater**  
Seasonal groundwater level comparisons to stream bed elevations using LiDAR data help evaluate where connection occurs

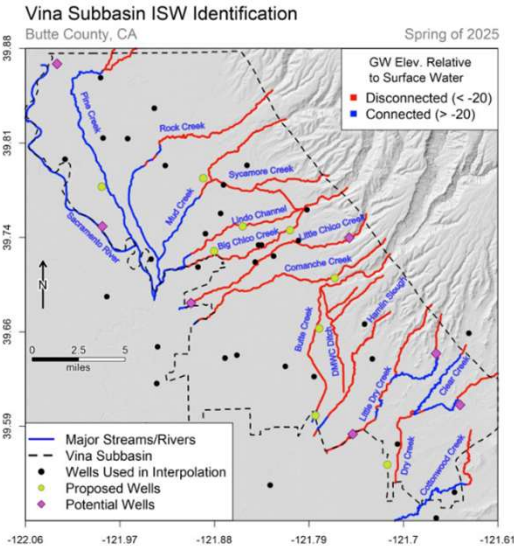
**Isotope Sampling**  
Seasonal groundwater comparisons and May–October isotope sampling help evaluate when stream-aquifer connections occur or are absent.

Source: LWA ISW TM, April 2026  
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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# Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



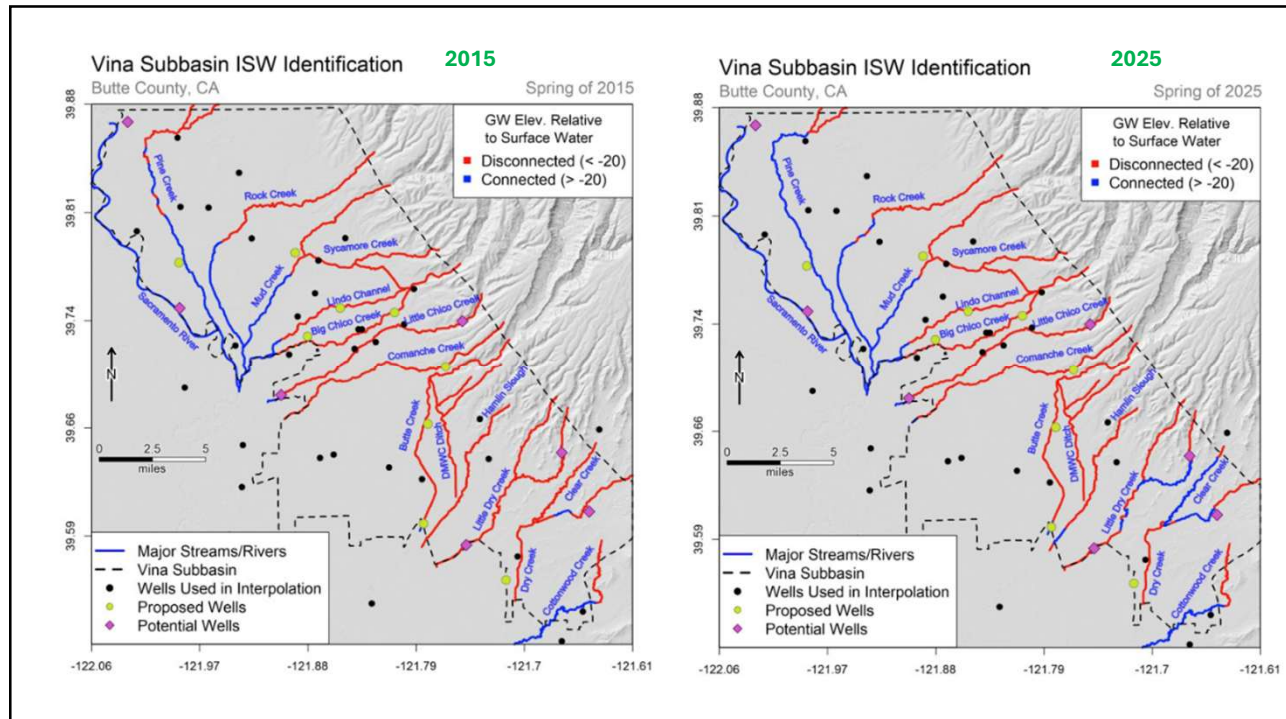
## Preliminary location pattern

- Sacramento River is primarily connected and gaining.
- Lower western reaches of some creeks may be connected or mixed.
- Many central and eastern reaches appear disconnected much or all of the time.
- Connections may shift with hydrology and groundwater levels.

## RCA progress

This directly addresses the "location" part of DWR's RCA by improving the basis for identifying connected stream segments and selecting monitoring locations.

9



10



## Location: Preliminary Status by Stream Reach

The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

| Stream                 | Preliminary status              | Approx. length |
|------------------------|---------------------------------|----------------|
| Sacramento River       | Connected – gaining             | 23.4 mi        |
| Pine Creek             | Disconnected except lower ~5 mi | 12.6 mi        |
| Rock Creek             | Disconnected except lower ~1 mi | 13.4 mi        |
| Mud Creek              | Disconnected except lower ~2 mi | 13.2 mi        |
| Big Chico Creek        | Disconnected except lower ~2 mi | 10.7 mi        |
| Little Chico Creek     | Disconnected                    | 11.9 mi        |
| Butte Creek            | Disconnected                    | 11.8 mi        |
| Little Dry / Dry Creek | Disconnected                    | 10.8 mi        |

These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Table 3

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## Timing: What We Learned So Far

### Sacramento River

Primarily connected and gaining across the analysis period. This makes it the main surface water feature for continued ISW depletion evaluation.

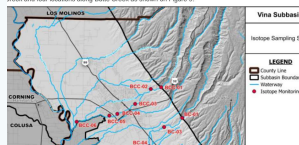
Important for both timing and volume because it borders multiple subbasins.

### Big Chico + Butte Creeks

May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

#### 2.1.3 ISW Identification through Isotope Sampling

To understand ISW interactions on a finer timescale than seasonal groundwater interpolations can provide, we collected and analyzed isotopes of the water molecule along Big Chico and Butte Creeks during the study period, June through October of 2023. Samples were taken from six locations along Big Chico Creek and four locations along Butte Creek, as shown in Figure 9.



### Ephemeral Streams

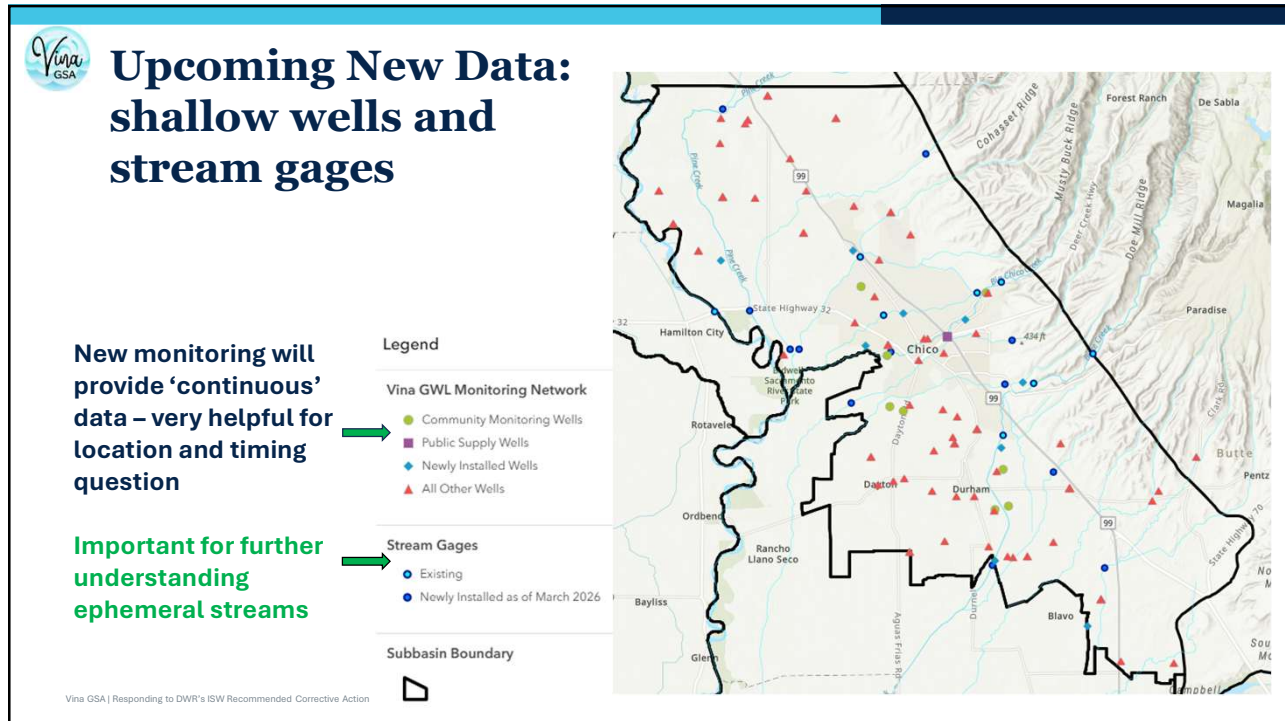
Potential depletions are limited to periods when streams are flowing and groundwater levels are high, making them connected to the aquifer. Streamflows typically end by June.

New continuous shallow groundwater data and stream gages will help characterize timing more clearly over the next implementation period.

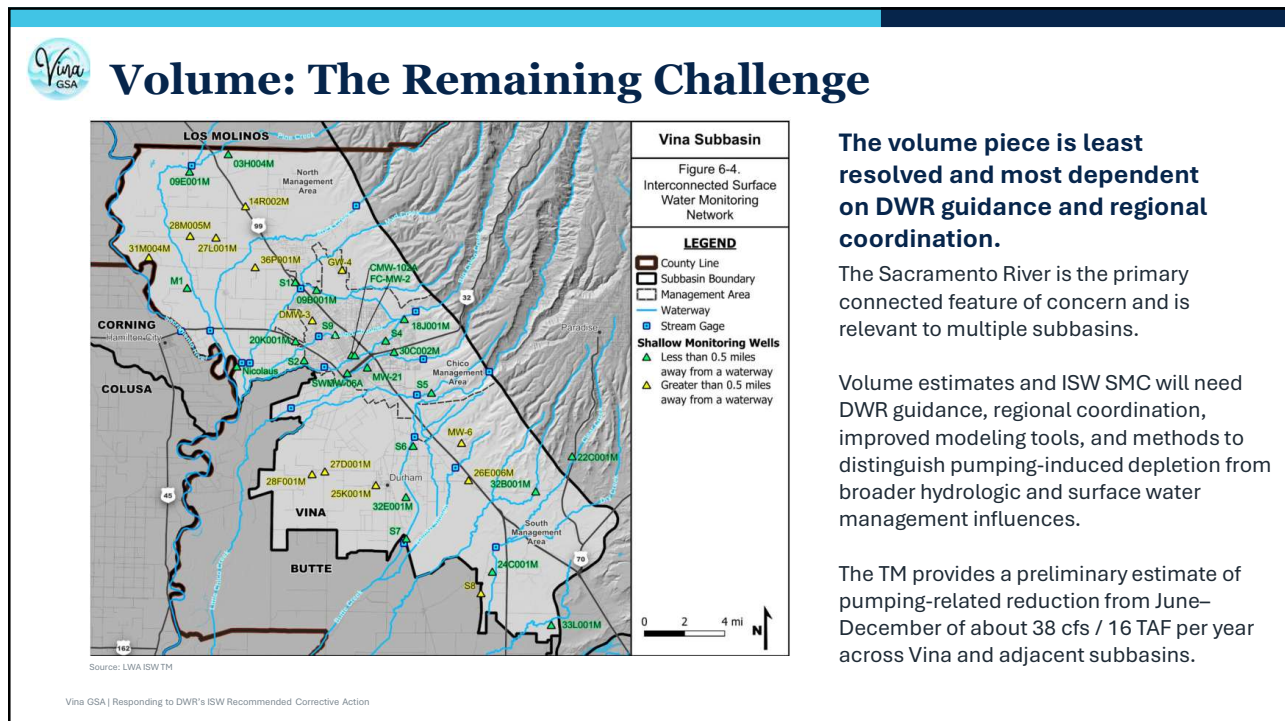
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Summary & Conclusions

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**Proposed RCA Response Strategy:**  
**Demonstrate meaningful progress now;**  
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Range of Options for Responding to DWR's ISW RCA


Strawman

<p style="text-align: center;">Minimal wait-and-see</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Describe uncertainty and defer most ISW decisions.</p> <p style="text-align: center;">Consideration</p> <p>Avoids premature decisions but may not show enough progress on DWR's location / timing / volume framework.</p>	<p style="text-align: center;">Incremental approach</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Document location and timing progress; define ISW monitoring network; wait on volume and SMC.</p> <p style="text-align: center;">Consideration</p> <p>Recommended strawman: demonstrates RCA progress while preserving flexibility for more robust development of thresholds in the future.</p>	<p style="text-align: center;">More immediate SMC</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Select ISW RMS sites and set preliminary MTs/MOs now.</p> <p style="text-align: center;">Consideration</p> <p>Proactive, but risks premature thresholds before DWR guidance, regional coordination, and sufficient monitoring data.</p>
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Vina Stakeholder Advisory Committee
May 27, 2026

Christina Buck, PhD
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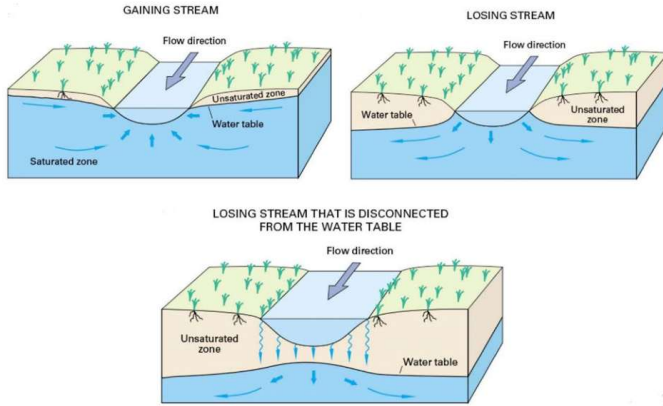
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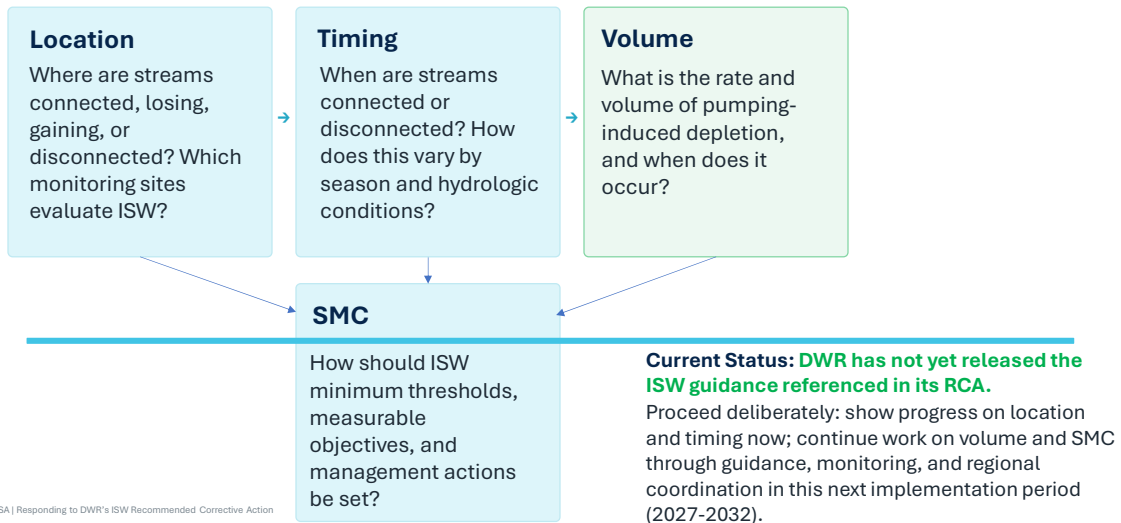
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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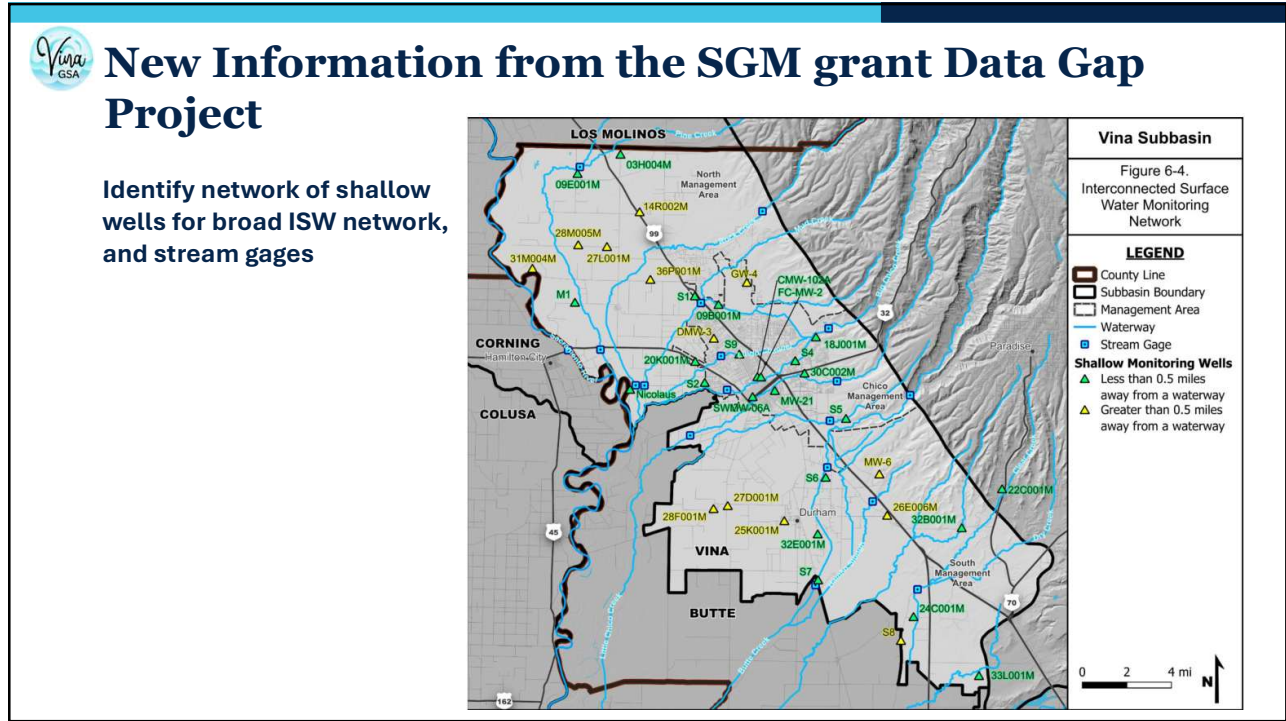


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6



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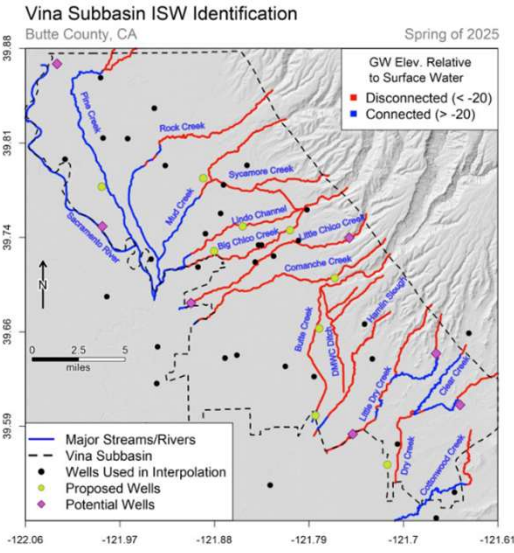
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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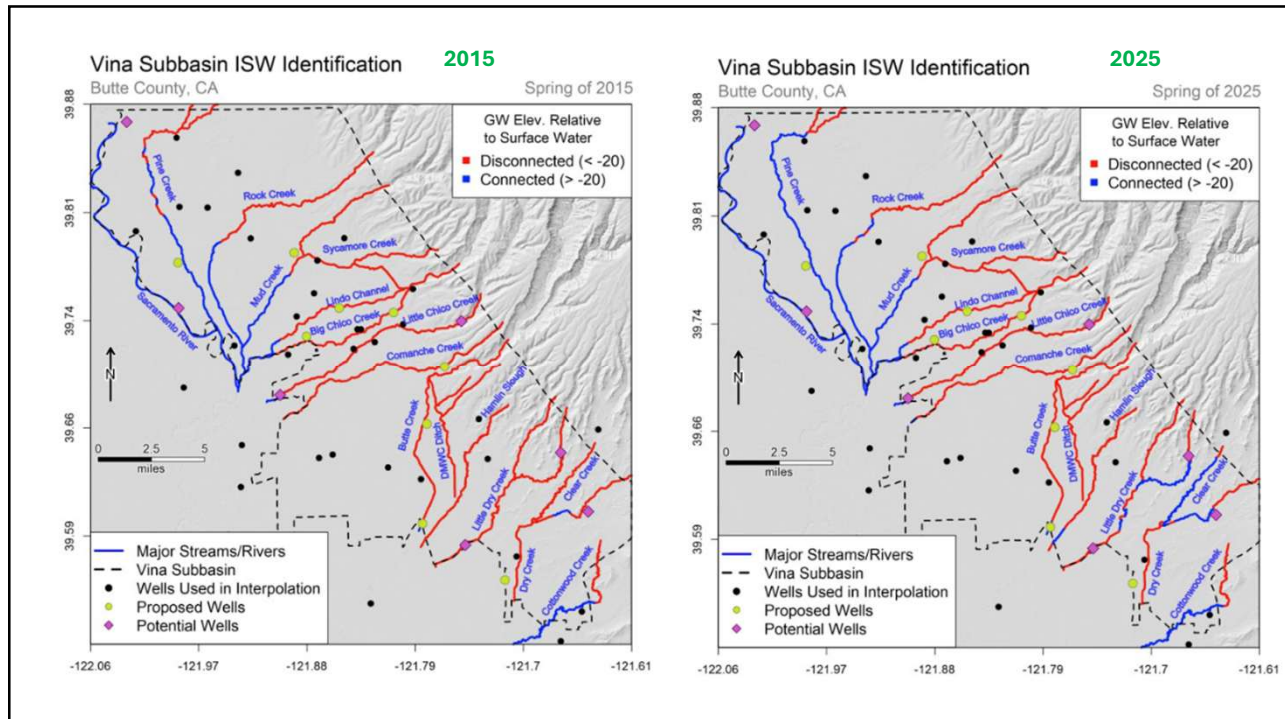
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Fig. 7

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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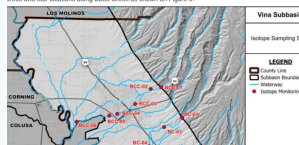
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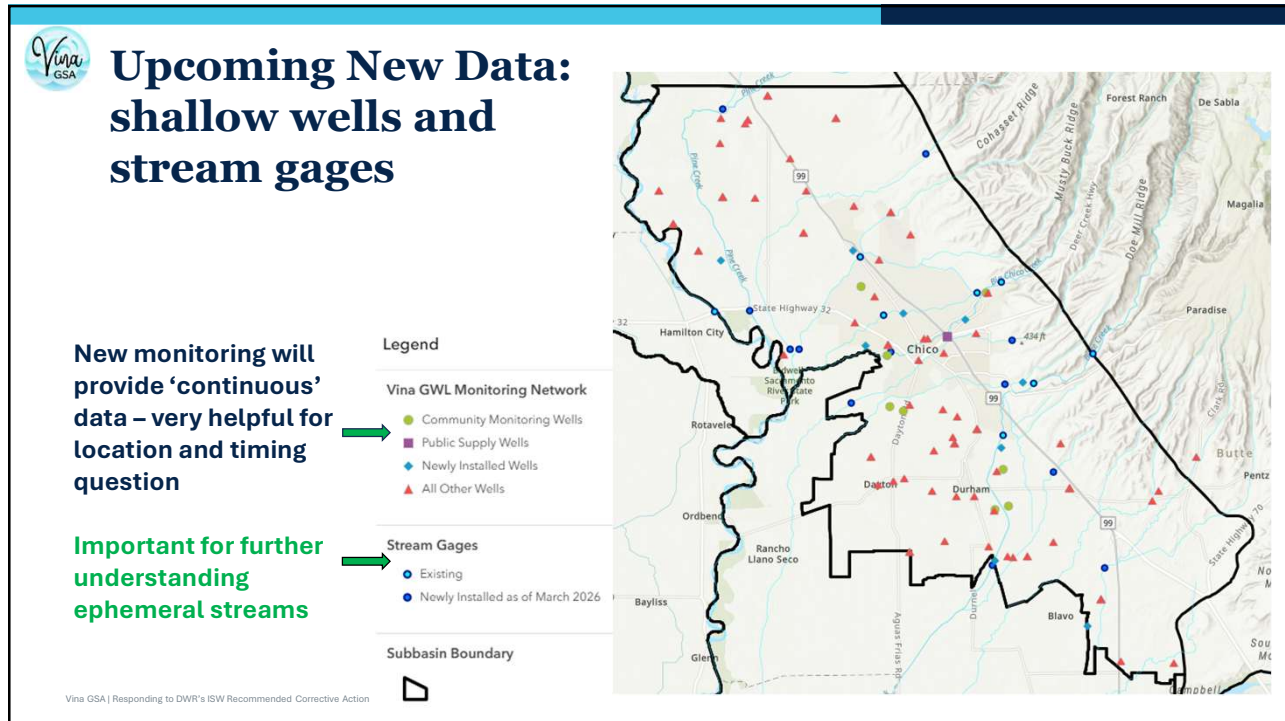
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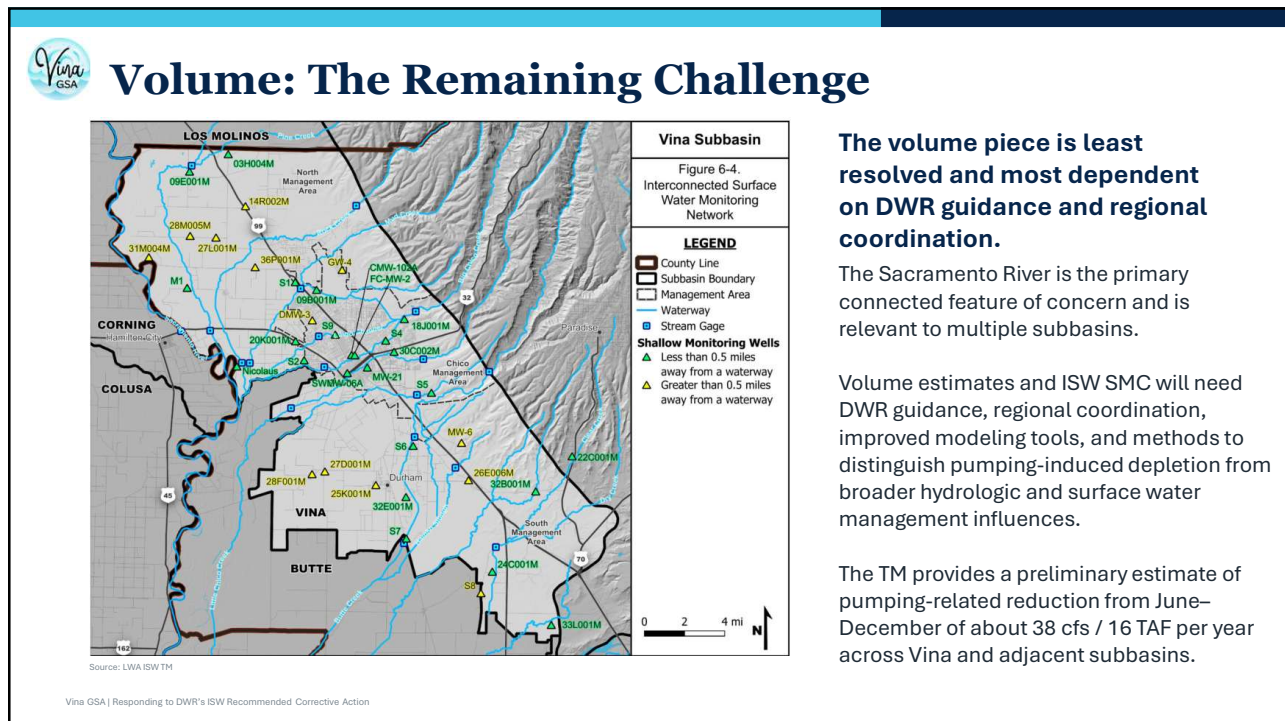
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Proposed RCA Response Strategy:
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## Range of Options for Responding to DWR's ISW RCA


**Strawman**

|                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                     |
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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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## SHAC Discussion and Potential Action

### Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

### Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River



**Item 5.  
Consideration of the Approach to  
Addressing Interconnected  
Surface Water (ISW) in the  
Periodic Evaluation in response to  
the Department of Water  
Resources’ Recommended  
Corrective Actions**

Vina Stakeholder Advisory Committee  
May 27, 2026

Christina Buck, PhD  
Assistant Director  
Butte County Dept. of Water and Resource Conservation  
Providing technical staff support to the GSA

1



**Purpose of Today’s Discussion**

SHAC is being asked to consider a strawman proposal released by the GSA (5/18/26) for responding to DWR’s ISW Recommended Corrective Action and provide input — potentially a recommendation — to the GSA Boards.

**What is the regulatory framework?**  
DWR focused on estimating the location, timing, and volume of depletions of interconnected surface water caused by groundwater pumping.

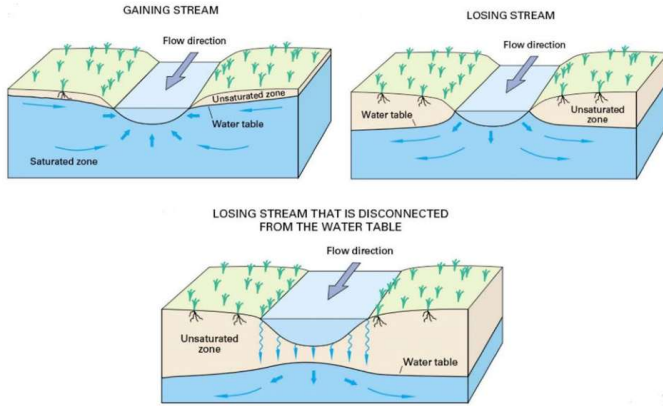
**What progress has been made?**  
The Larry Walker Associates ISW Technical Memo provides new information on where ISW likely occurs and when some streams are connected or disconnected — this information was not available in the 2022 GSP or during its development.

**What remains?**  
The volume (quantity) piece is the least resolved and depends most on DWR guidance, regional coordination, and continued monitoring — especially for the Sacramento River.

**Key framing: demonstrate progress while avoiding premature ISW SMC decisions**  
The strawman proposal approach document's location and timing progress now, defines the monitoring path, and defers ISW-specific thresholds until the technical and policy foundation is stronger.

2

## Quick Orientation: What Is Interconnected Surface Water (ISW)?



**Interconnected Surface Water (ISW) is where groundwater and rivers or streams are connected.**

### Why it matters

Under SGMA, the key question is whether groundwater pumping causes depletions of ISW that significantly and unreasonably affect beneficial uses of surface water.



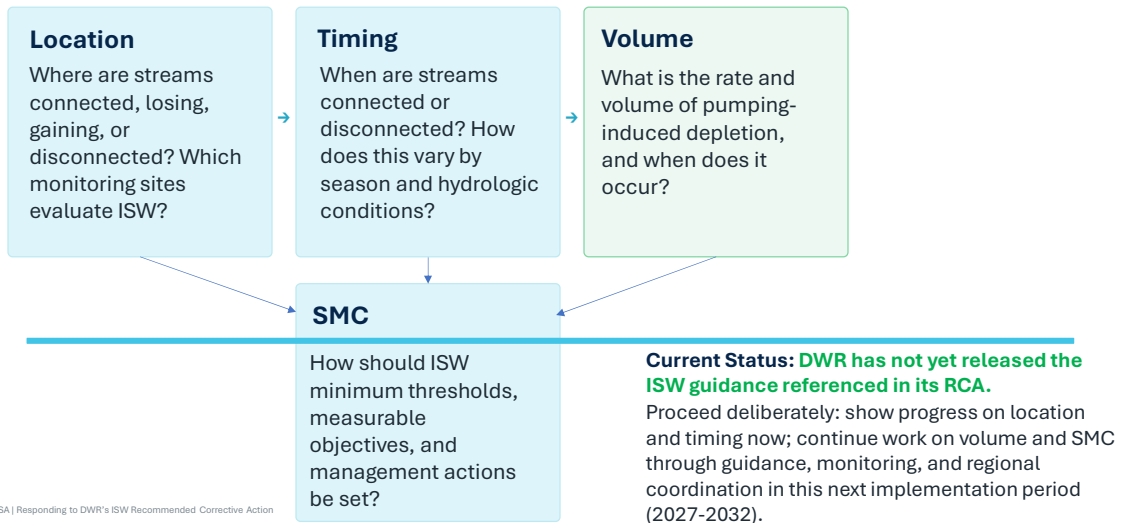
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## DWR's ISW RCA: Location, Timing, and Volume

DWR recognized that estimating stream depletion from subbasin-wide pumping is complex, but expects progress by the first Periodic Evaluation.



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## DWR's Recommended Corrective Action 6

Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic evaluation:

- a. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs' jurisdictional area.
- d. Clarify the groundwater level monitoring sites that will be used for the evaluation of depletions of interconnected surface water and provide site-specific information.

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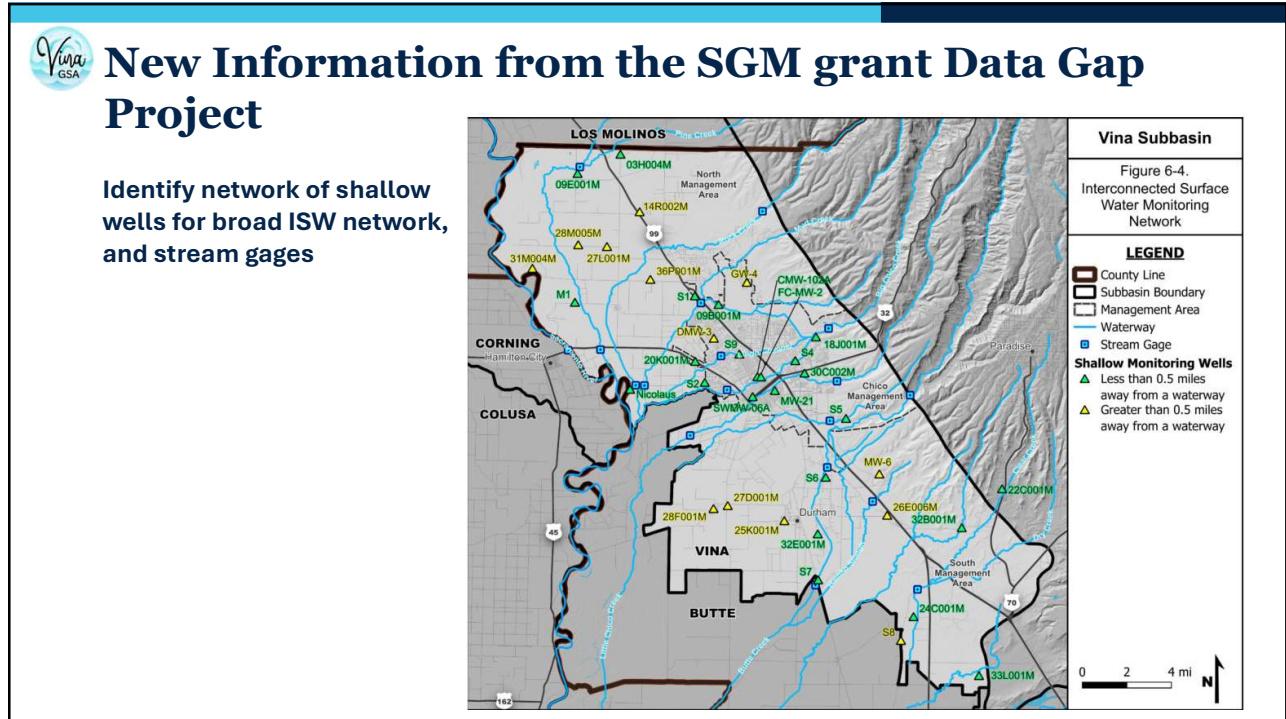


### Notable Progress:

## New information from the LWA ISW Technical Memorandum



6



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## New Information from the SGM grant Data Gap Project: LWA ISW Tech Memo

The TM uses multiple lines of evidence to improve understanding of ISW in the Vina Subbasin

**Butte Basin Groundwater Model**  
Updated BBGM v1.3 results identify likely connected, losing, gaining, and disconnected reaches.

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Seasonal groundwater level comparisons to stream bed elevations using LiDAR data help evaluate where connection occurs

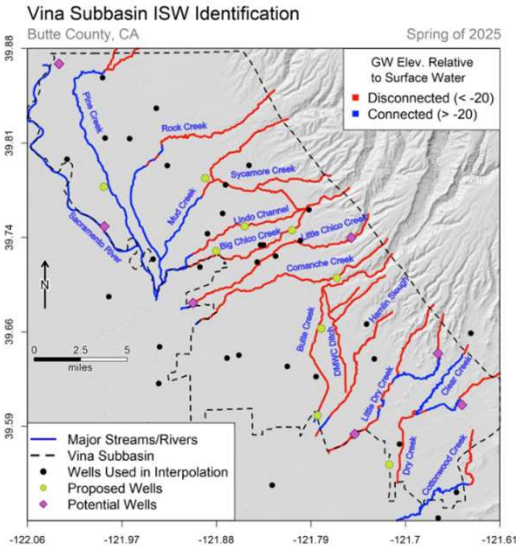
**Isotope Sampling**  
Seasonal groundwater comparisons and May–October isotope sampling help evaluate when stream-aquifer connections occur or are absent.

Source: LWA ISW TM, April 2026  
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# Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



## Preliminary location pattern

- Sacramento River is primarily connected and gaining.
- Lower western reaches of some creeks may be connected or mixed.
- Many central and eastern reaches appear disconnected much or all of the time.
- Connections may shift with hydrology and groundwater levels.

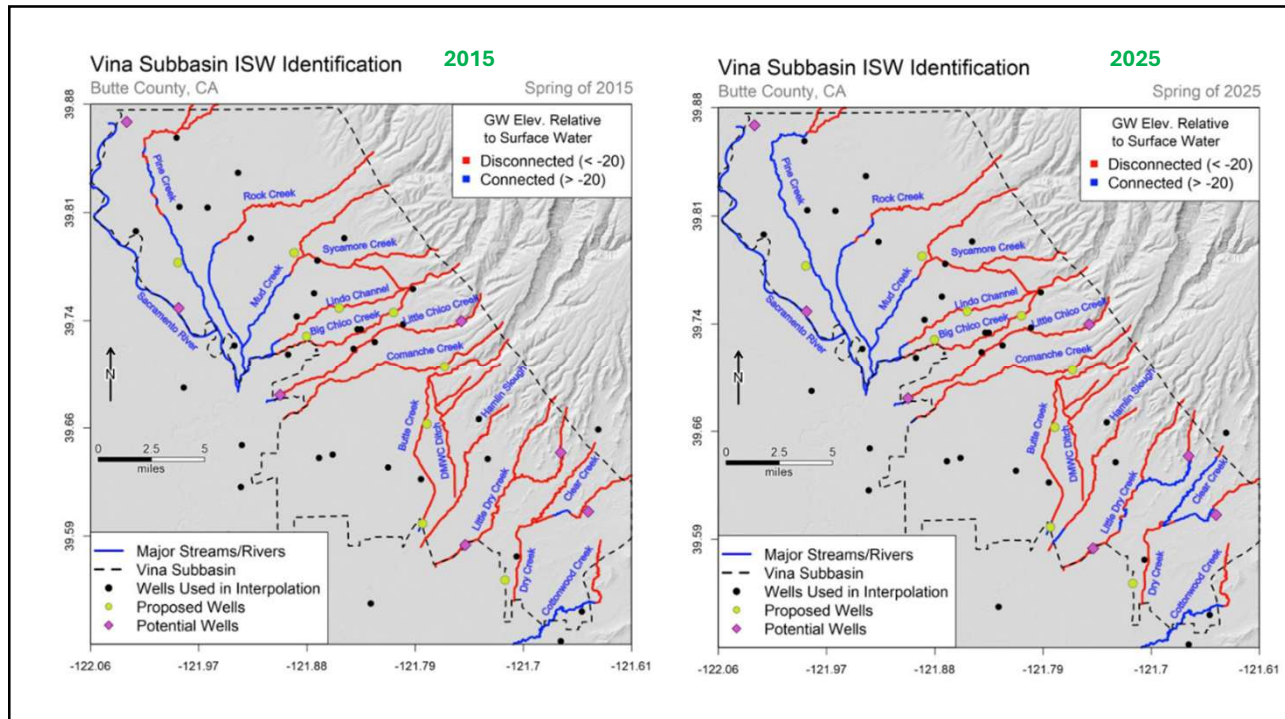
## RCA progress

This directly addresses the “location” part of DWR’s RCA by improving the basis for identifying connected stream segments and selecting monitoring locations.

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

Source: LWA ISW TM, Fig. 7

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## Location: Preliminary Status by Stream Reach

The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

| Stream                 | Preliminary status              | Approx. length |
|------------------------|---------------------------------|----------------|
| Sacramento River       | Connected – gaining             | 23.4 mi        |
| Pine Creek             | Disconnected except lower ~5 mi | 12.6 mi        |
| Rock Creek             | Disconnected except lower ~1 mi | 13.4 mi        |
| Mud Creek              | Disconnected except lower ~2 mi | 13.2 mi        |
| Big Chico Creek        | Disconnected except lower ~2 mi | 10.7 mi        |
| Little Chico Creek     | Disconnected                    | 11.9 mi        |
| Butte Creek            | Disconnected                    | 11.8 mi        |
| Little Dry / Dry Creek | Disconnected                    | 10.8 mi        |

These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Table 3

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## Timing: What We Learned So Far

### Sacramento River

Primarily connected and gaining across the analysis period. This makes it the main surface water feature for continued ISW depletion evaluation.

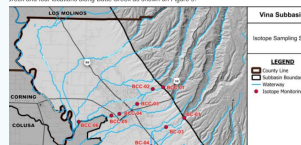
Important for both timing and volume because it borders multiple subbasins.

### Big Chico + Butte Creeks

May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

#### 2.1.3 ISW Identification through Isotope Sampling

To understand ISW interactions on a finer timescale than seasonal groundwater interpolations can provide, we collected and analyzed isotopes of the water molecule along Big Chico and Butte Creeks during the study period, June through October of 2023. Samples were taken from six locations along Big Chico Creek and four locations along Butte Creek, as shown in Figure 9.



### Ephemeral Streams

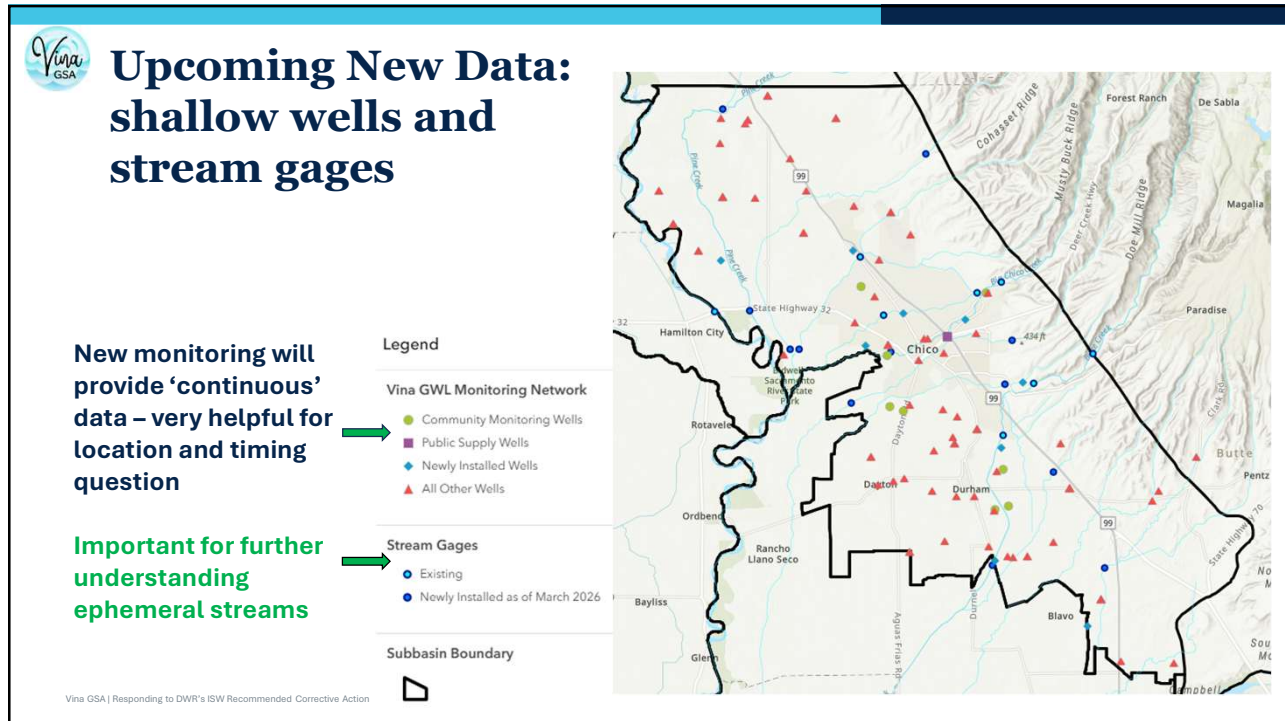
Potential depletions are limited to periods when streams are flowing and groundwater levels are high, making them connected to the aquifer. Streamflows typically end by June.

New continuous shallow groundwater data and stream gages will help characterize timing more clearly over the next implementation period.

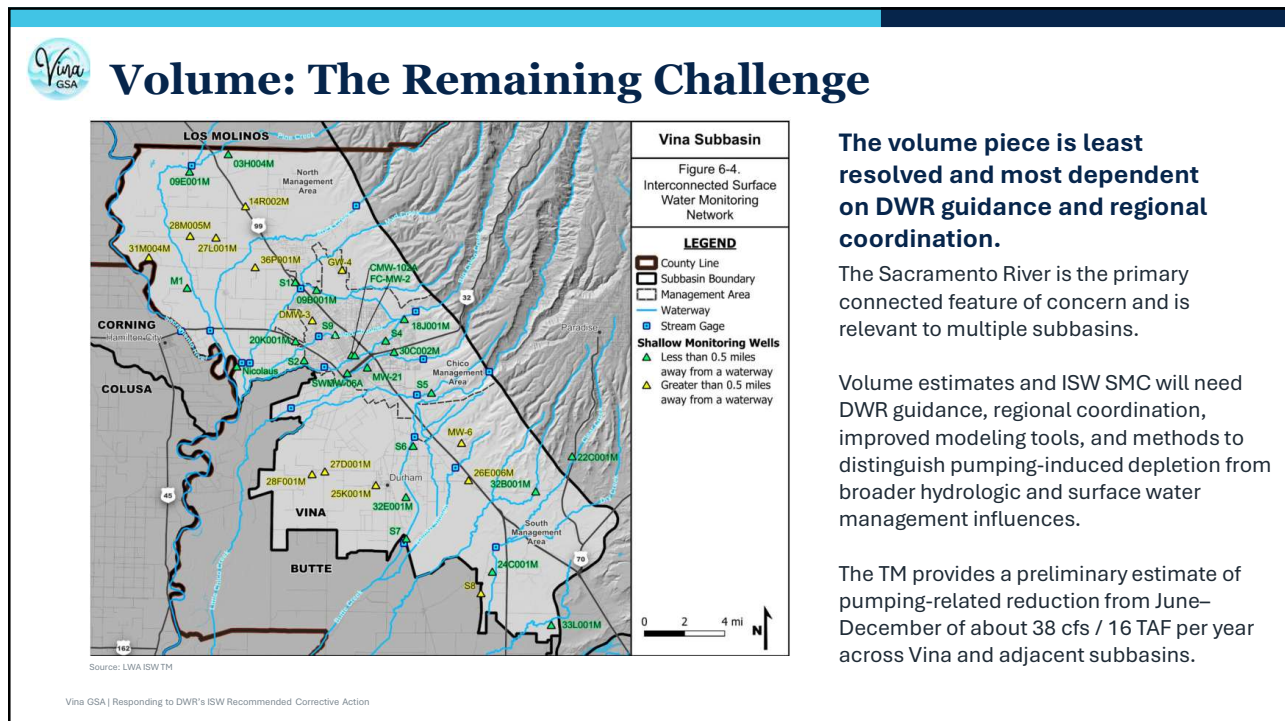
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Summary & Conclusions

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**Proposed RCA Response Strategy:**  
**Demonstrate meaningful progress now;**  
**develop robust ISW SMC later**

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Range of Options for Responding to DWR's ISW RCA


Strawman

<p style="text-align: center;">Minimal wait-and-see</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Describe uncertainty and defer most ISW decisions.</p> <p style="text-align: center;">Consideration</p> <p>Avoids premature decisions but may not show enough progress on DWR's location / timing / volume framework.</p>	<p style="text-align: center;">Incremental approach</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Document location and timing progress; define ISW monitoring network; wait on volume and SMC.</p> <p style="text-align: center;">Consideration</p> <p>Recommended strawman: demonstrates RCA progress while preserving flexibility for more robust development of thresholds in the future.</p>	<p style="text-align: center;">More immediate SMC</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Select ISW RMS sites and set preliminary MTs/MOs now.</p> <p style="text-align: center;">Consideration</p> <p>Proactive, but risks premature thresholds before DWR guidance, regional coordination, and sufficient monitoring data.</p>
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The strawman is not "no action." It is a documented RCA response: location progress, timing progress, monitoring network definition, and a clear path for volume/SMC work.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Strawman Proposal: What Would Be Done in the PE

- 1 Document location progress** Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.
- 2 Document timing progress** Describe seasonal/isotope findings and describe that new continuous data from newly installed wells in 2026 will help improve timing analysis in the future.
- 3 Define ISW monitoring network** Identify shallow wells, stream gages, and supporting data sources for continued evaluation – this is a big step forward from what was available previously
- 4 Defer ISW-specific SMC** Do not set MTs, MOs, undesirable results, or ISW RMS sites until DWR guidance/data/regional work support development of thresholds.
- 5 Coordinate regionally on volume aspect** Focus regional work on the Sacramento River and shared methods for depletion volume estimates.

Intent: clearly respond to DWR’s RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

Move faster toward SMC

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
- Include early-warning triggers before thresholds are reached.

Show Progress

- Define a broader ISW monitoring network now.
- Use new analysis to document location and timing progress.
- Improve visuals and explanations of stream connectivity, model outputs, and uncertainty.
- Collect new data - shallow groundwater and stream gage monitoring.

Proceed carefully

- Proceed cautiously given data gaps.
- Wait for DWR guidance
- Maintain flexibility; avoid locking in premature thresholds.
- Coordinate with neighboring subbasins on ISW and model calibration.
- Revisit SMC when DWR guidance, regional work, and new data are available.

Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Vina Stakeholder Advisory Committee
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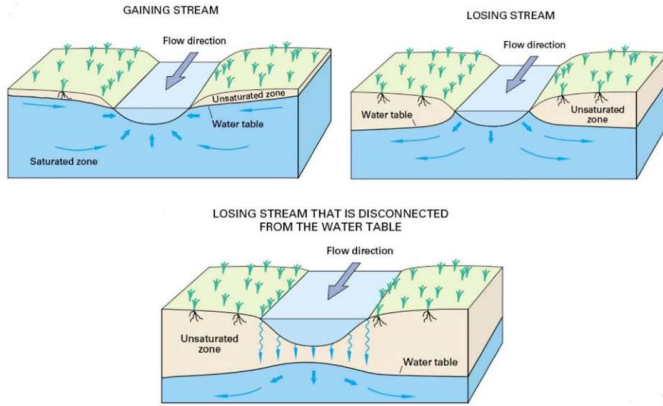
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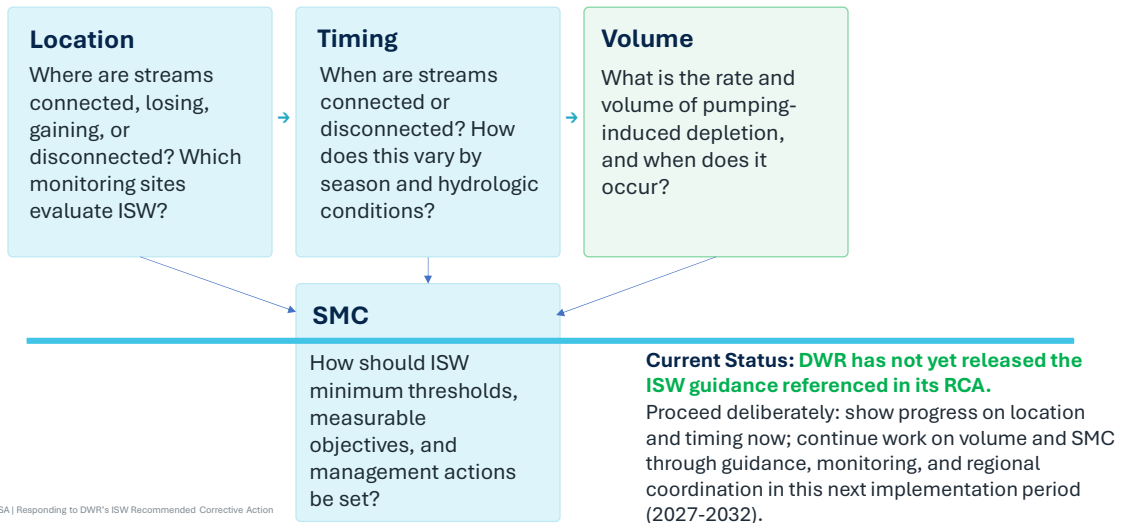
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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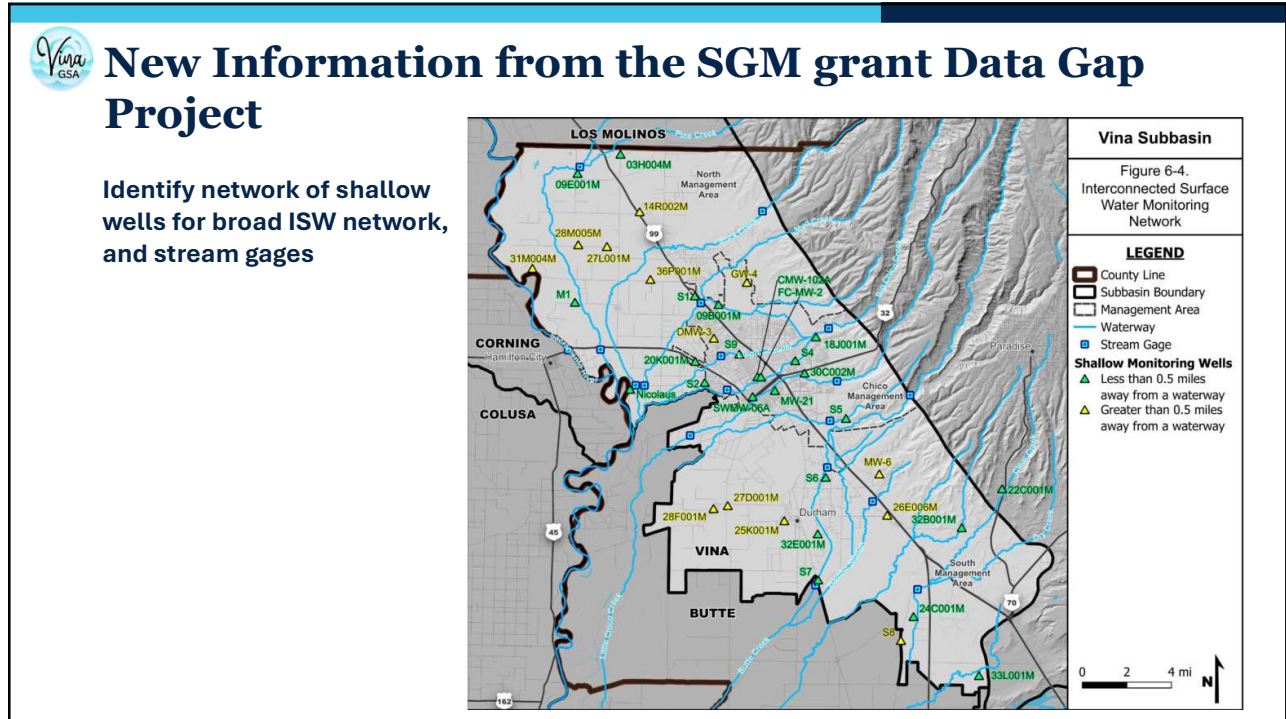


Notable Progress:

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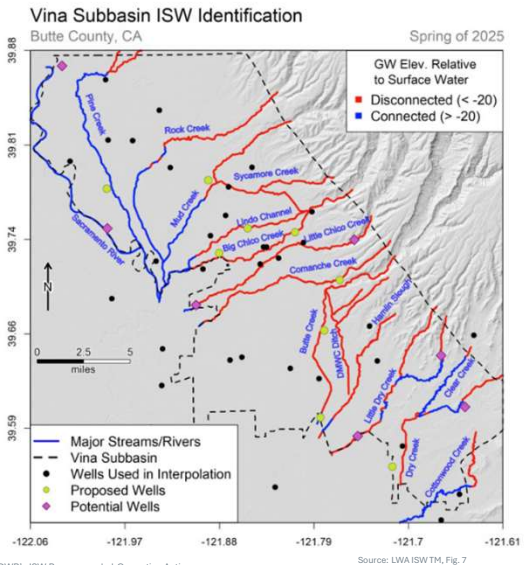
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



Preliminary location pattern

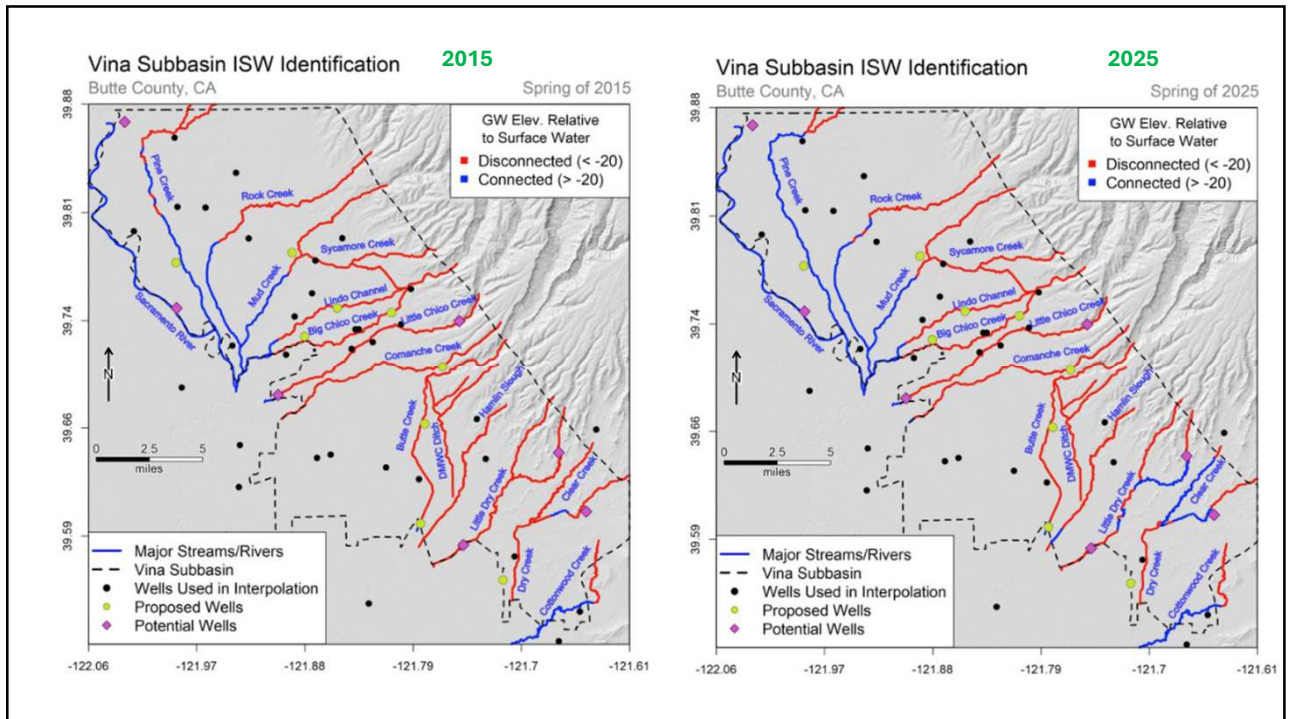
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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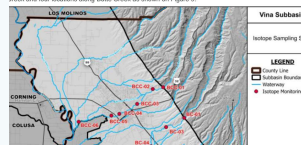
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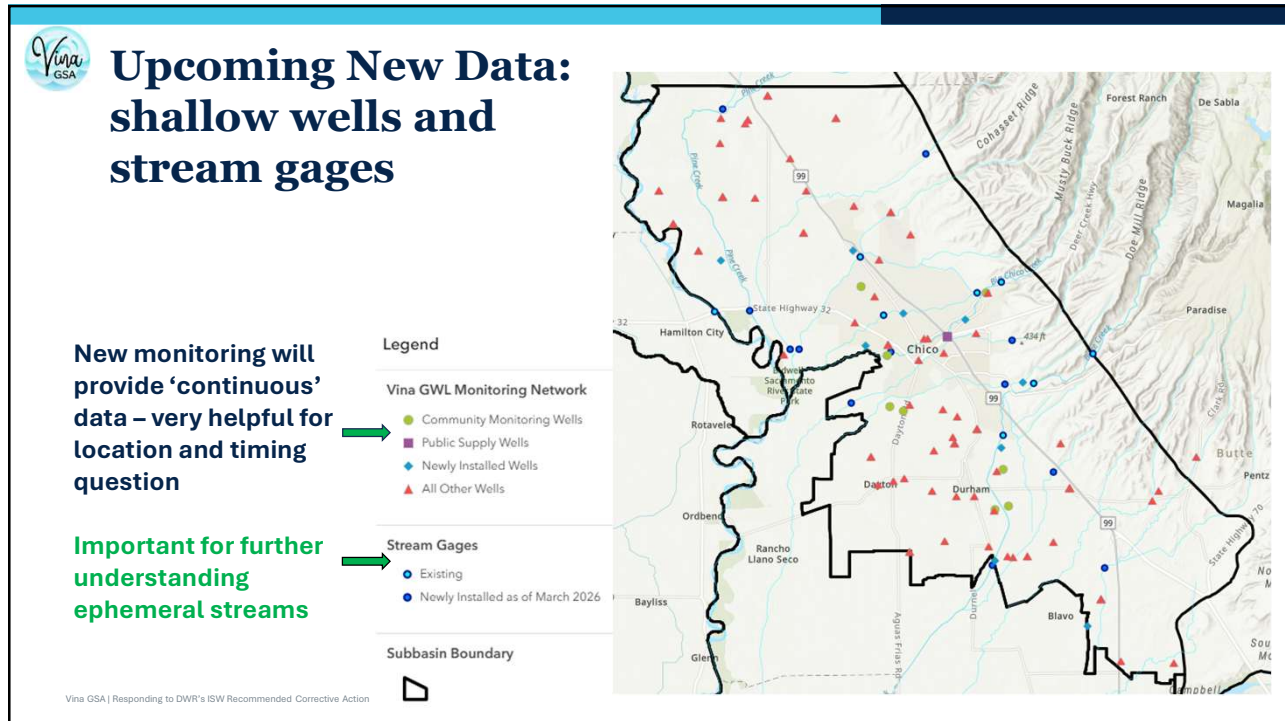
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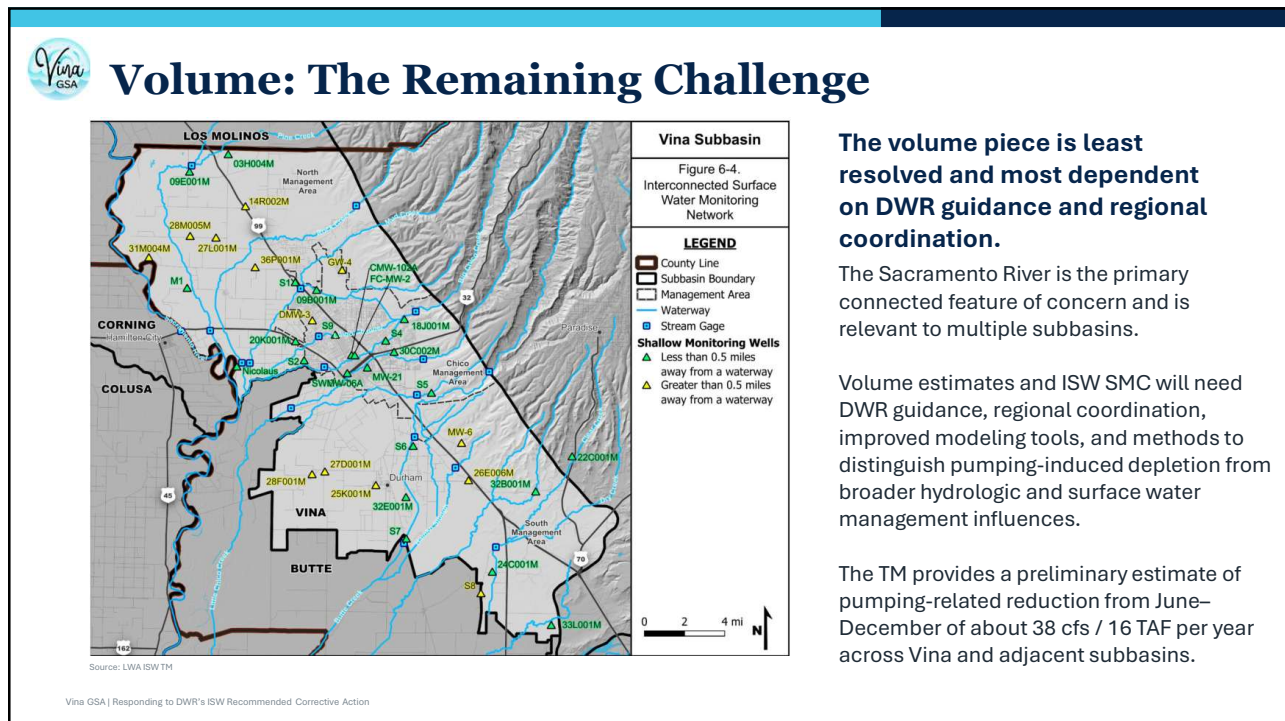
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Proposed RCA Response Strategy:
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## Range of Options for Responding to DWR's ISW RCA


**Strawman**

|                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                     |
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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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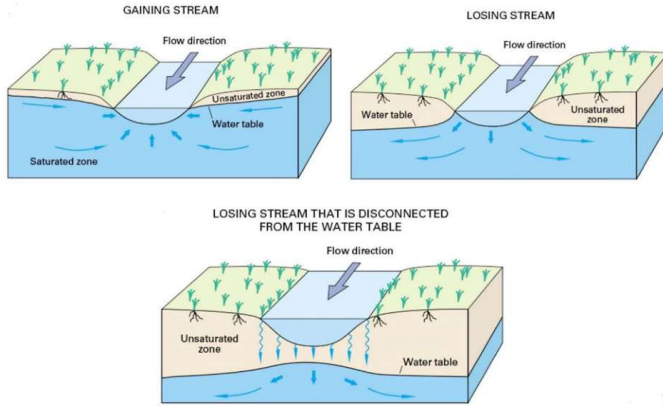
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## Quick Orientation: What Is Interconnected Surface Water (ISW)?



**Interconnected Surface Water (ISW) is where groundwater and rivers or streams are connected.**

### Why it matters

Under SGMA, the key question is whether groundwater pumping causes depletions of ISW that significantly and unreasonably affect beneficial uses of surface water.



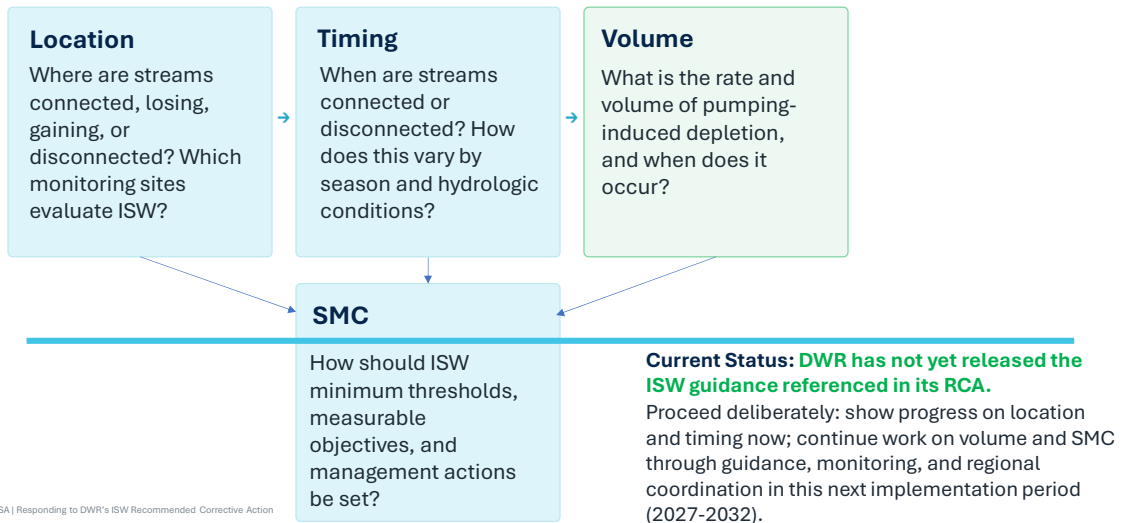
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

3



## DWR's ISW RCA: Location, Timing, and Volume

DWR recognized that estimating stream depletion from subbasin-wide pumping is complex, but expects progress by the first Periodic Evaluation.



Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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## DWR's Recommended Corrective Action 6

Provided below is Recommended Corrective Action 6, as stated in the Determination Letter:

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic evaluation:

- a. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs' jurisdictional area.
- d. Clarify the groundwater level monitoring sites that will be used for the evaluation of depletions of interconnected surface water and provide site-specific information.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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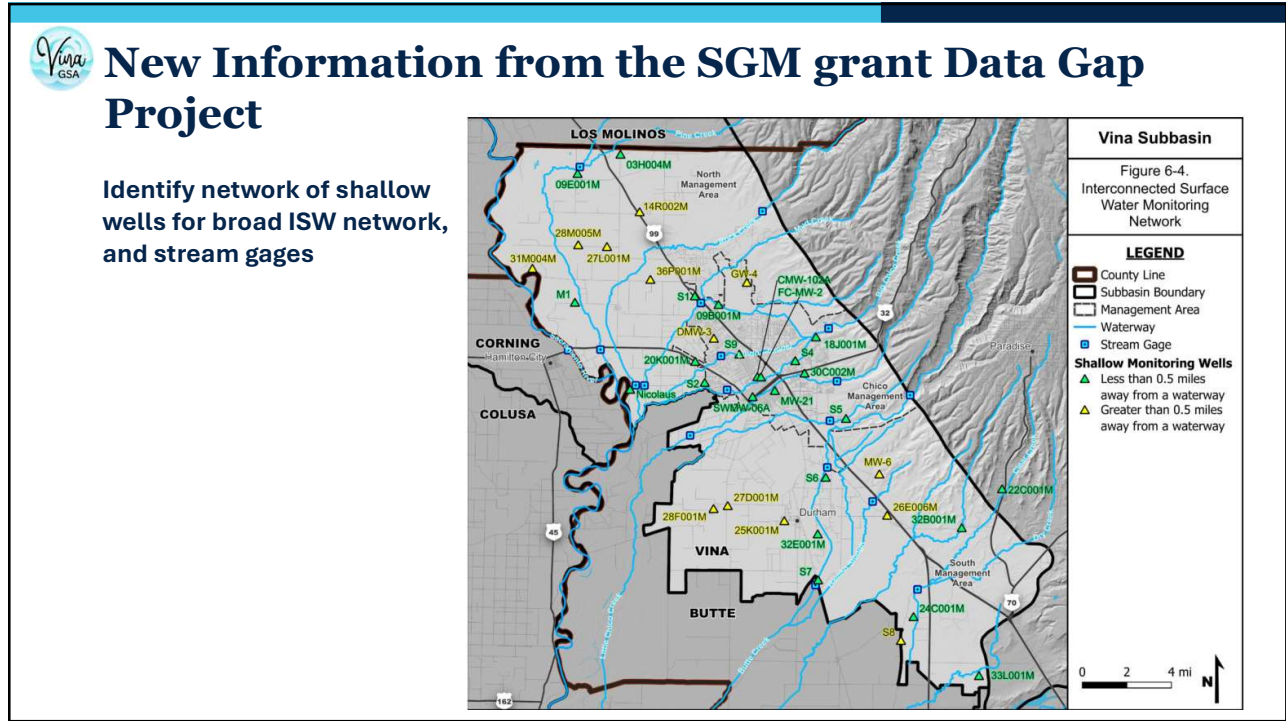


### Notable Progress:

## New information from the LWA ISW Technical Memorandum



6



7

## New Information from the SGM grant Data Gap Project: LWA ISW Tech Memo

The TM uses multiple lines of evidence to improve understanding of ISW in the Vina Subbasin

**Butte Basin Groundwater Model**  
Updated BBGM v1.3 results identify likely connected, losing, gaining, and disconnected reaches.

**Shallow Regional Groundwater**  
Seasonal groundwater level comparisons to stream bed elevations using LiDAR data help evaluate where connection occurs

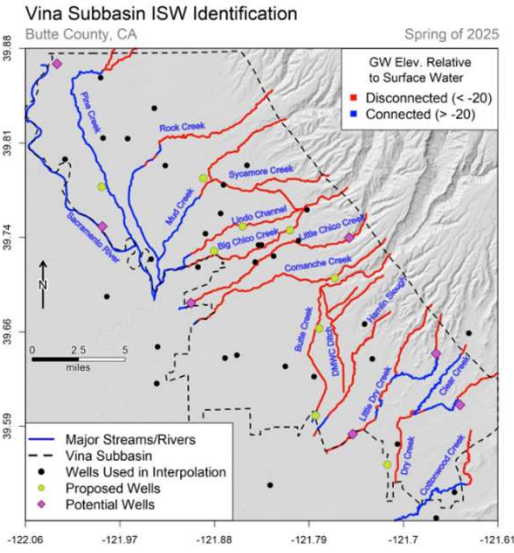
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Seasonal groundwater comparisons and May–October isotope sampling help evaluate when stream-aquifer connections occur or are absent.

Source: LWA ISW TM, April 2026  
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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# Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



## Preliminary location pattern

- Sacramento River is primarily connected and gaining.
- Lower western reaches of some creeks may be connected or mixed.
- Many central and eastern reaches appear disconnected much or all of the time.
- Connections may shift with hydrology and groundwater levels.

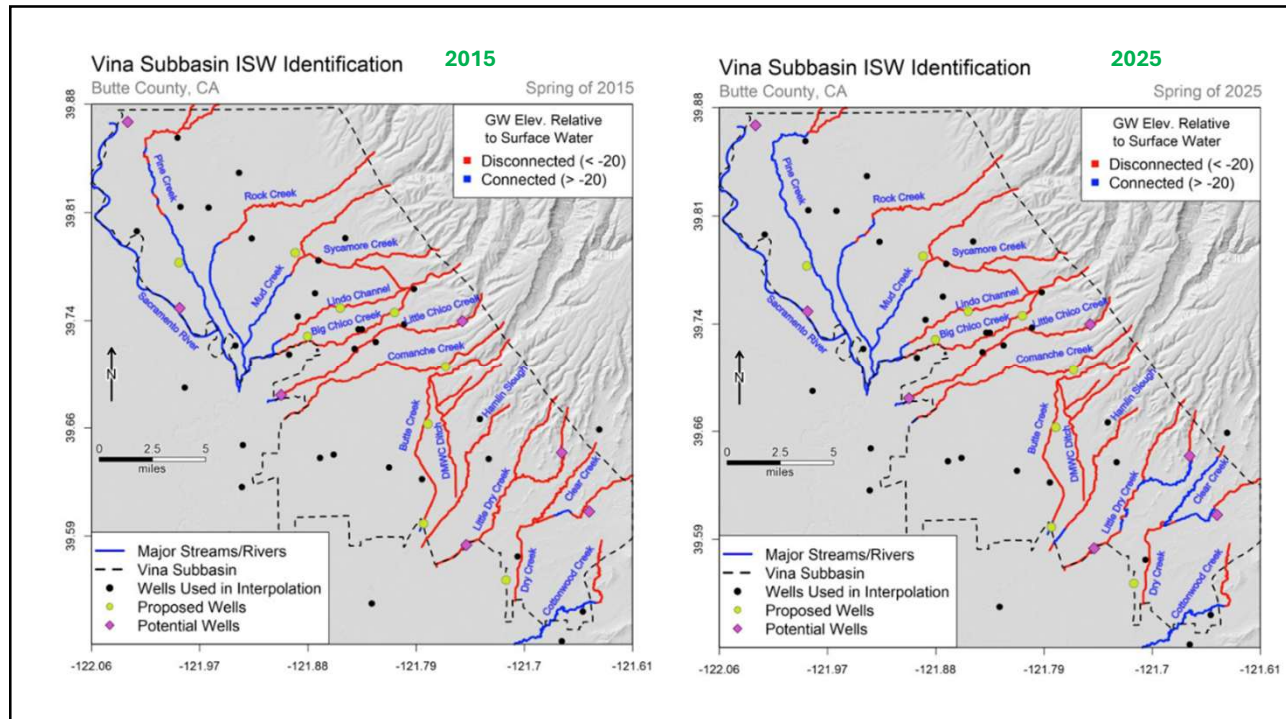
## RCA progress

This directly addresses the "location" part of DWR's RCA by improving the basis for identifying connected stream segments and selecting monitoring locations.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Fig. 7

9



10



## Location: Preliminary Status by Stream Reach

The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

| Stream                 | Preliminary status              | Approx. length |
|------------------------|---------------------------------|----------------|
| Sacramento River       | Connected – gaining             | 23.4 mi        |
| Pine Creek             | Disconnected except lower ~5 mi | 12.6 mi        |
| Rock Creek             | Disconnected except lower ~1 mi | 13.4 mi        |
| Mud Creek              | Disconnected except lower ~2 mi | 13.2 mi        |
| Big Chico Creek        | Disconnected except lower ~2 mi | 10.7 mi        |
| Little Chico Creek     | Disconnected                    | 11.9 mi        |
| Butte Creek            | Disconnected                    | 11.8 mi        |
| Little Dry / Dry Creek | Disconnected                    | 10.8 mi        |

These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Table 3

11



## Timing: What We Learned So Far

### Sacramento River

Primarily connected and gaining across the analysis period. This makes it the main surface water feature for continued ISW depletion evaluation.

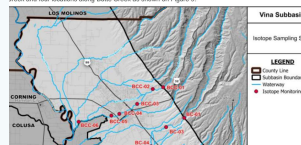
Important for both timing and volume because it borders multiple subbasins.

### Big Chico + Butte Creeks

May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

#### 2.1.3 ISW Identification through Isotope Sampling

To understand ISW interactions on a finer timescale than seasonal groundwater interpolations can provide, we sampled and analyzed isotopes of the water molecule along Big Chico and Butte Creeks during the study period, June through October of 2023. Samples were taken from six locations along Big Chico Creek and four locations along Butte Creek, as shown in Figure 9.



### Ephemeral Streams

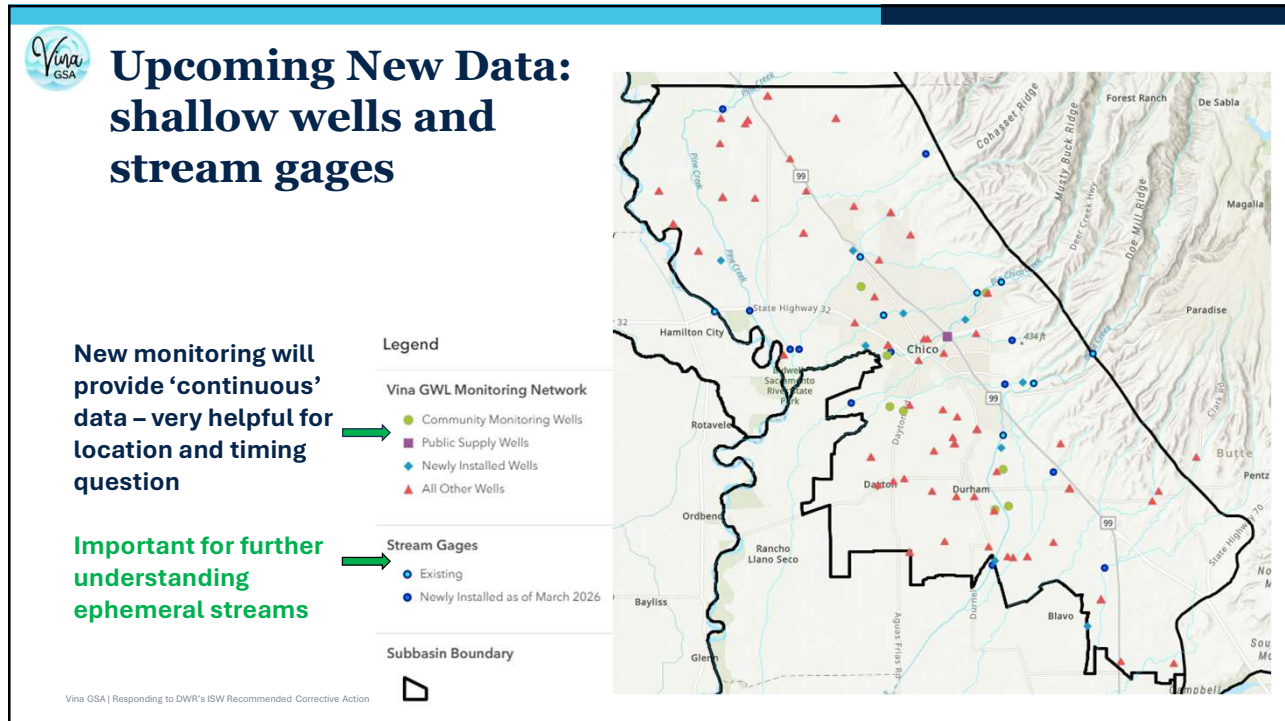
Potential depletions are limited to periods when streams are flowing and groundwater levels are high, making them connected to the aquifer. Streamflows typically end by June.

New continuous shallow groundwater data and stream gages will help characterize timing more clearly over the next implementation period.

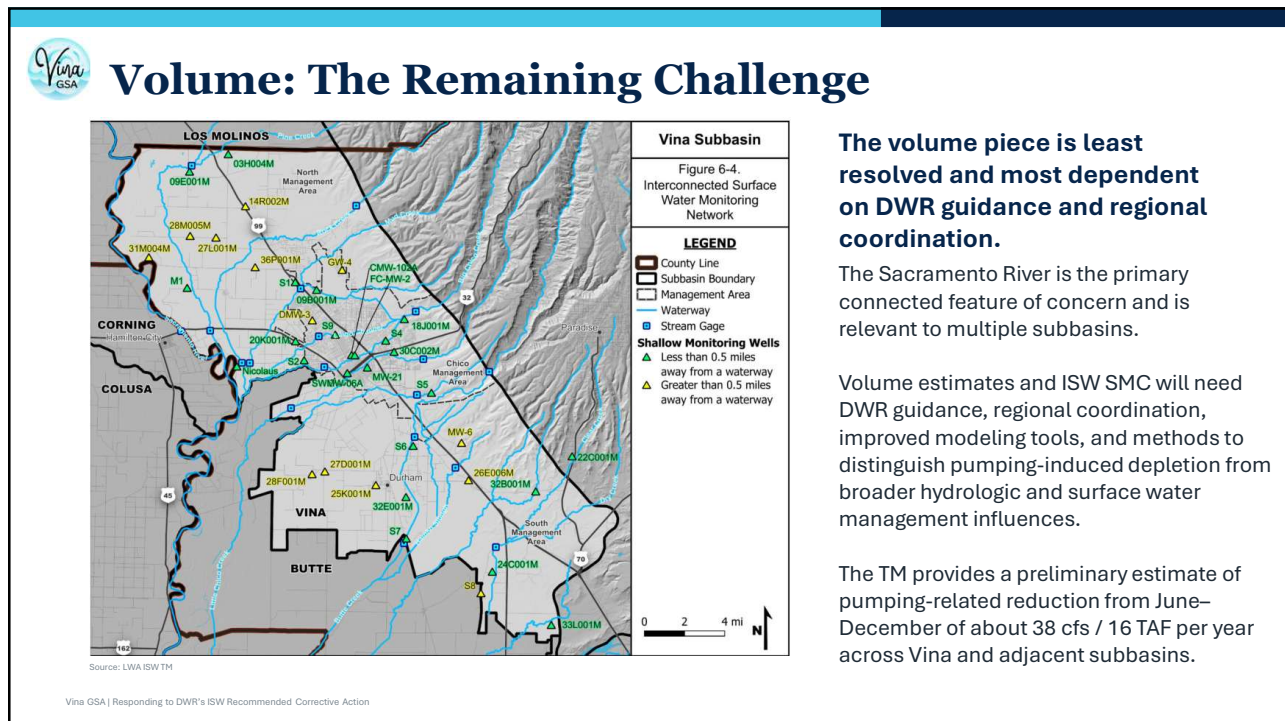
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

Source: LWA ISW TM, Summary & Conclusions

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**Proposed RCA Response Strategy:**  
**Demonstrate meaningful progress now;**  
**develop robust ISW SMC later**

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15



Range of Options for Responding to DWR's ISW RCA


Strawman

<p style="text-align: center;">Minimal wait-and-see</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Describe uncertainty and defer most ISW decisions.</p> <p style="text-align: center;">Consideration</p> <p>Avoids premature decisions but may not show enough progress on DWR's location / timing / volume framework.</p>	<p style="text-align: center;">Incremental approach</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Document location and timing progress; define ISW monitoring network; wait on volume and SMC.</p> <p style="text-align: center;">Consideration</p> <p>Recommended strawman: demonstrates RCA progress while preserving flexibility for more robust development of thresholds in the future.</p>	<p style="text-align: center;">More immediate SMC</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Select ISW RMS sites and set preliminary MTs/MOs now.</p> <p style="text-align: center;">Consideration</p> <p>Proactive, but risks premature thresholds before DWR guidance, regional coordination, and sufficient monitoring data.</p>
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The strawman is not "no action." It is a documented RCA response: location progress, timing progress, monitoring network definition, and a clear path for volume/SMC work.

Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Strawman Proposal: What Would Be Done in the PE

- 1 Document location progress** Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.
- 2 Document timing progress** Describe seasonal/isotope findings and describe that new continuous data from newly installed wells in 2026 will help improve timing analysis in the future.
- 3 Define ISW monitoring network** Identify shallow wells, stream gages, and supporting data sources for continued evaluation – this is a big step forward from what was available previously
- 4 Defer ISW-specific SMC** Do not set MTs, MOs, undesirable results, or ISW RMS sites until DWR guidance/data/regional work support development of thresholds.
- 5 Coordinate regionally on volume aspect** Focus regional work on the Sacramento River and shared methods for depletion volume estimates.

Intent: clearly respond to DWR’s RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

Move faster toward SMC

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
- Include early-warning triggers before thresholds are reached.

Show Progress

- Define a broader ISW monitoring network now.
- Use new analysis to document location and timing progress.
- Improve visuals and explanations of stream connectivity, model outputs, and uncertainty.
- Collect new data - shallow groundwater and stream gage monitoring.

Proceed carefully

- Proceed cautiously given data gaps.
- Wait for DWR guidance
- Maintain flexibility; avoid locking in premature thresholds.
- Coordinate with neighboring subbasins on ISW and model calibration.
- Revisit SMC when DWR guidance, regional work, and new data are available.

Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps

Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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SHAC Discussion and Potential Action

Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River



**Item 5.
Consideration of the Approach to
Addressing Interconnected
Surface Water (ISW) in the
Periodic Evaluation in response to
the Department of Water
Resources' Recommended
Corrective Actions**

Vina Stakeholder Advisory Committee
May 27, 2026

Christina Buck, PhD
Assistant Director
Butte County Dept. of Water and Resource Conservation
Providing technical staff support to the GSA

1



Purpose of Today's Discussion

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What is the regulatory framework?
DWR focused on estimating the location, timing, and volume of depletions of interconnected surface water caused by groundwater pumping.

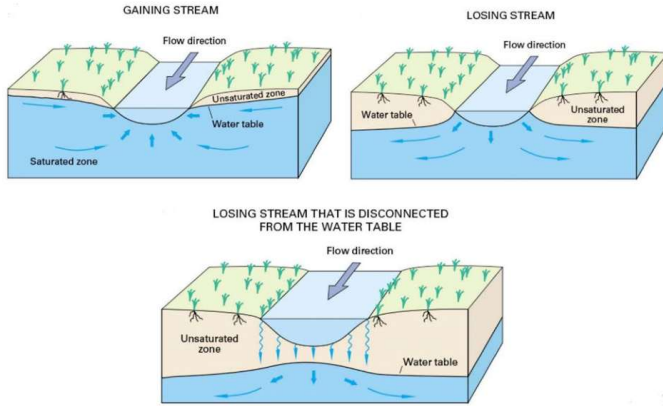
What progress has been made?
The Larry Walker Associates ISW Technical Memo provides new information on where ISW likely occurs and when some streams are connected or disconnected — this information was not available in the 2022 GSP or during its development.

What remains?
The volume (quantity) piece is the least resolved and depends most on DWR guidance, regional coordination, and continued monitoring — especially for the Sacramento River.

Key framing: demonstrate progress while avoiding premature ISW SMC decisions
The strawman proposal approach document's location and timing progress now, defines the monitoring path, and defers ISW-specific thresholds until the technical and policy foundation is stronger.

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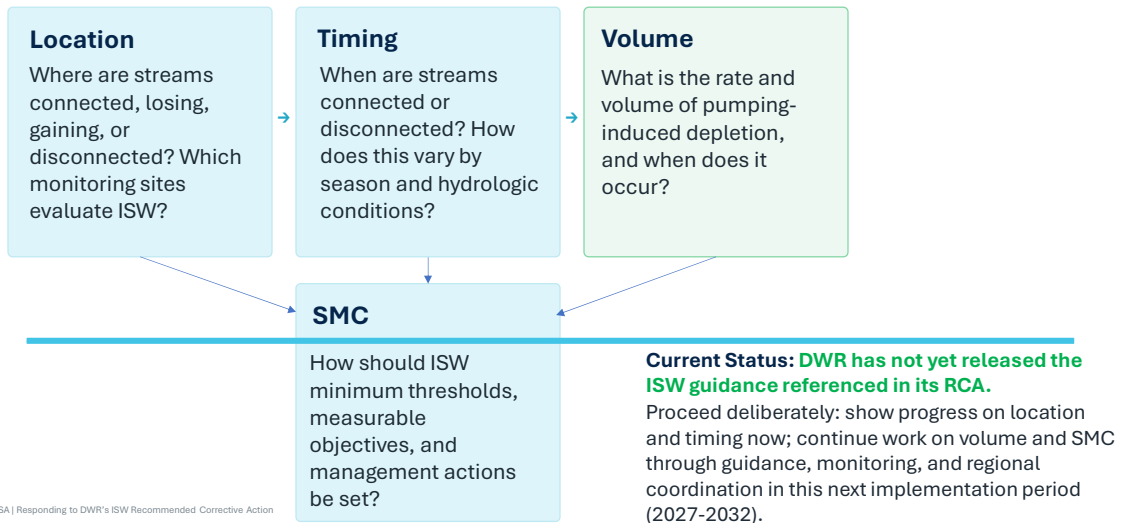
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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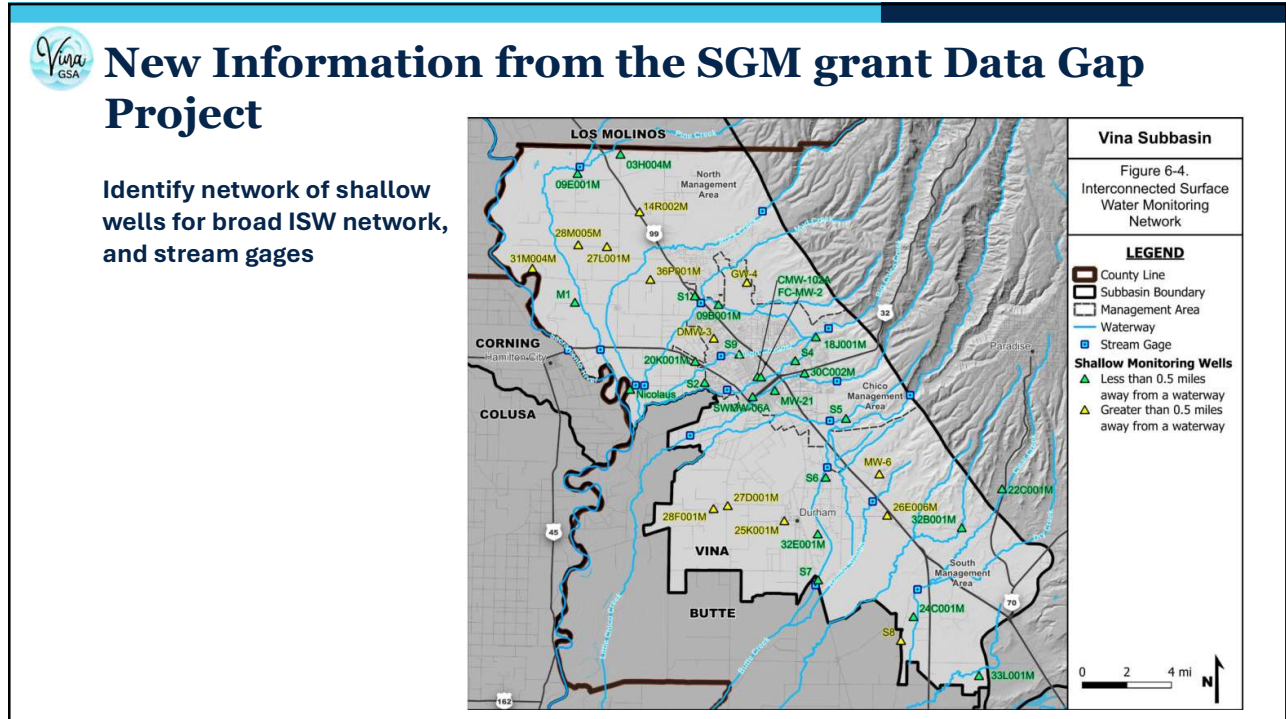


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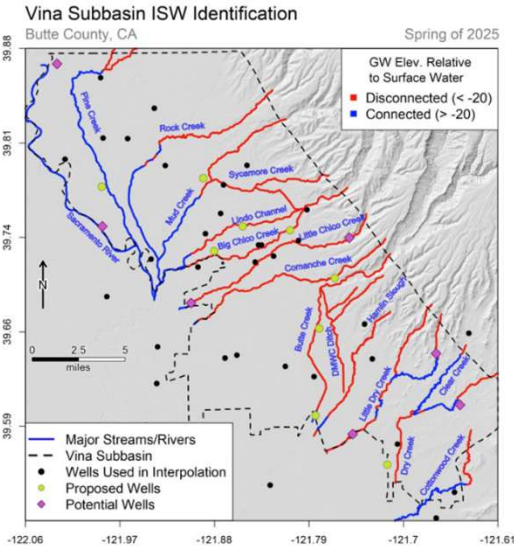
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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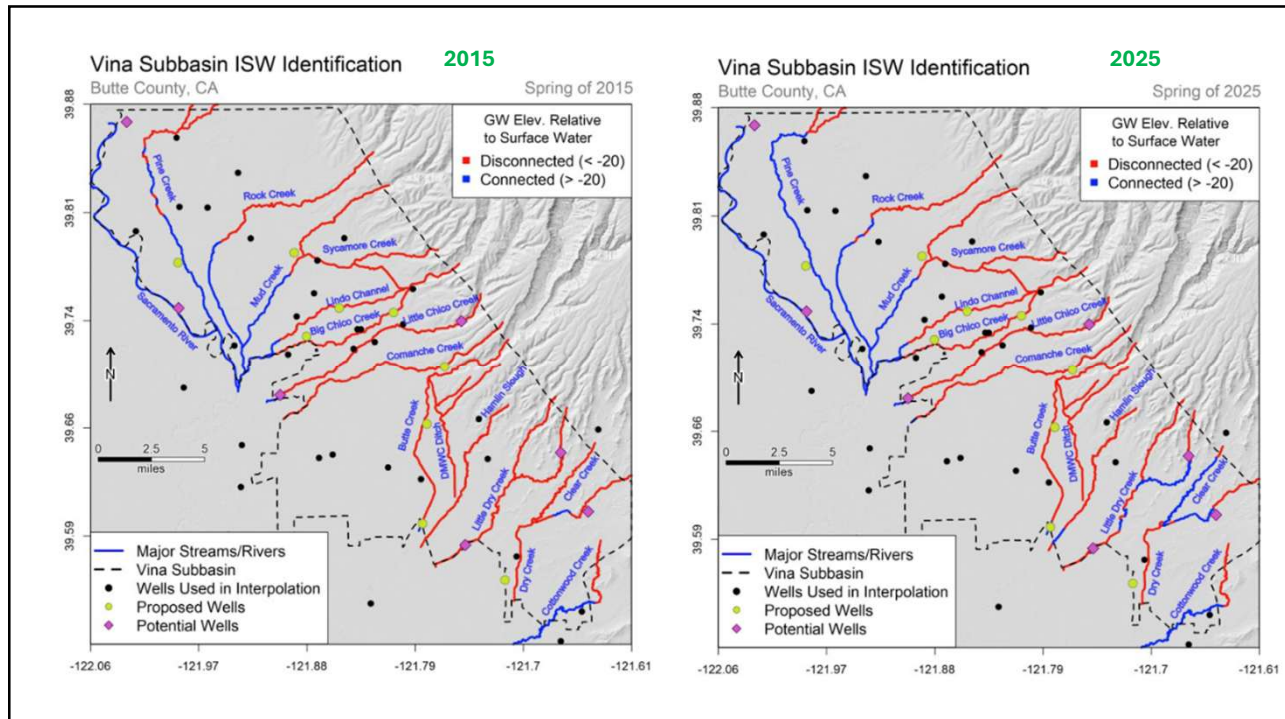
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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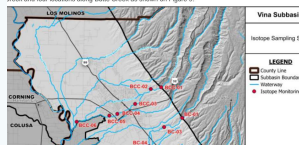
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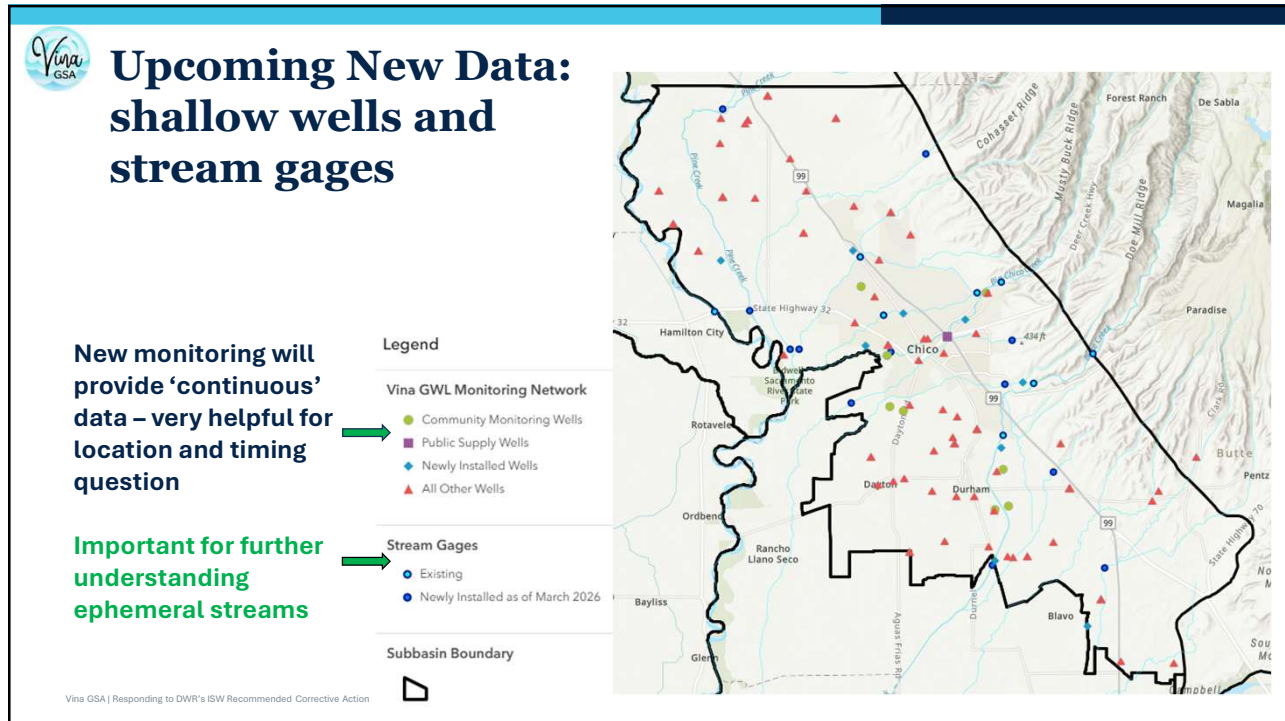
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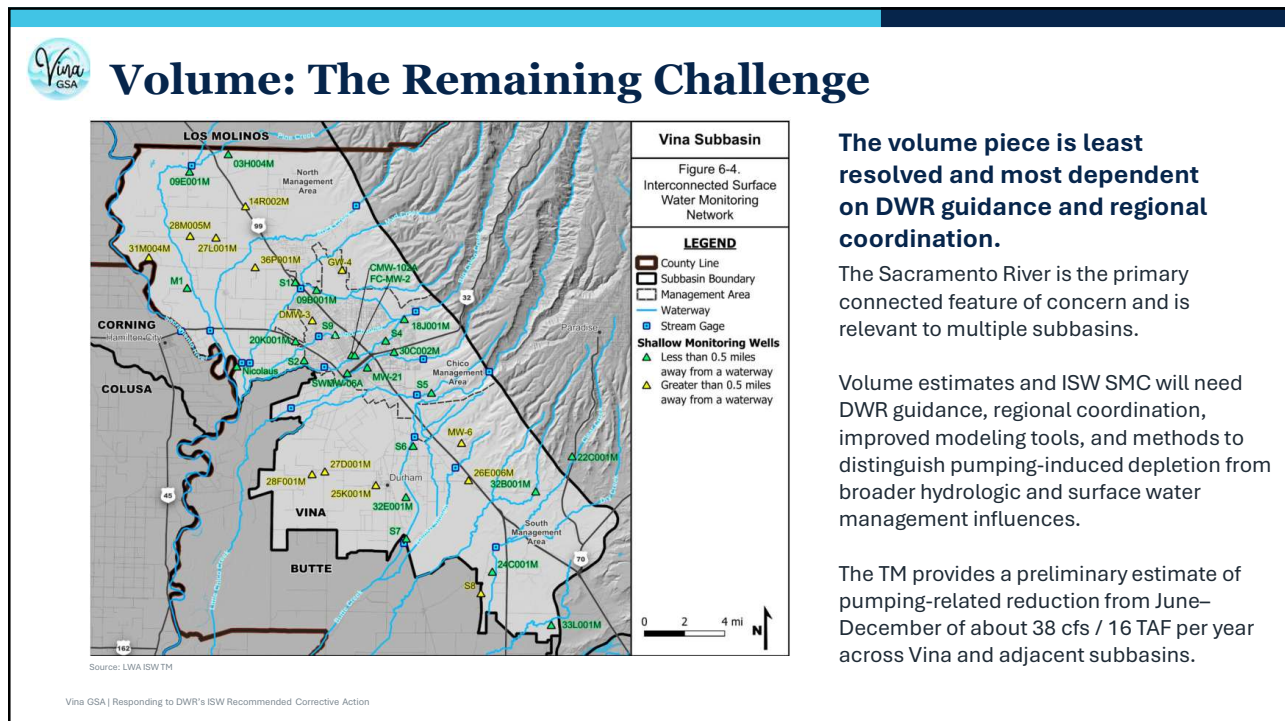
Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Proposed RCA Response Strategy:
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15



## Range of Options for Responding to DWR's ISW RCA


**Strawman**

|                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

17



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Vina GSA | Responding to DWR’s ISW Recommended Corrective Action

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## SHAC Discussion and Potential Action

### Potential recommendation to the GSA Boards:

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## Item 5. Consideration of the Approach to Addressing Interconnected Surface Water (ISW) in the Periodic Evaluation in response to the Department of Water Resources' Recommended Corrective Actions

Vina Stakeholder Advisory Committee  
May 27, 2026

Christina Buck, PhD  
Assistant Director  
Butte County Dept. of Water and Resource Conservation  
Providing technical staff support to the GSA

1



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### What remains?

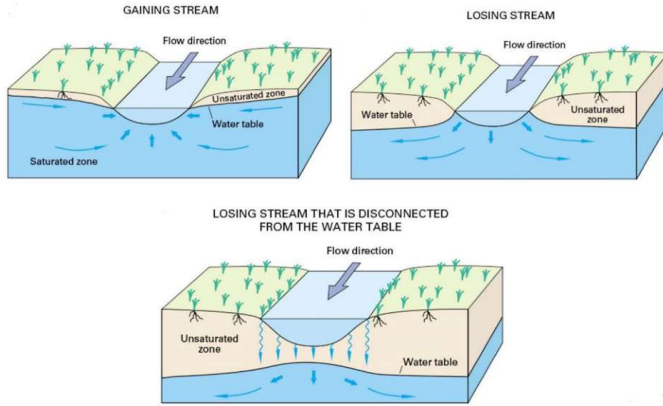
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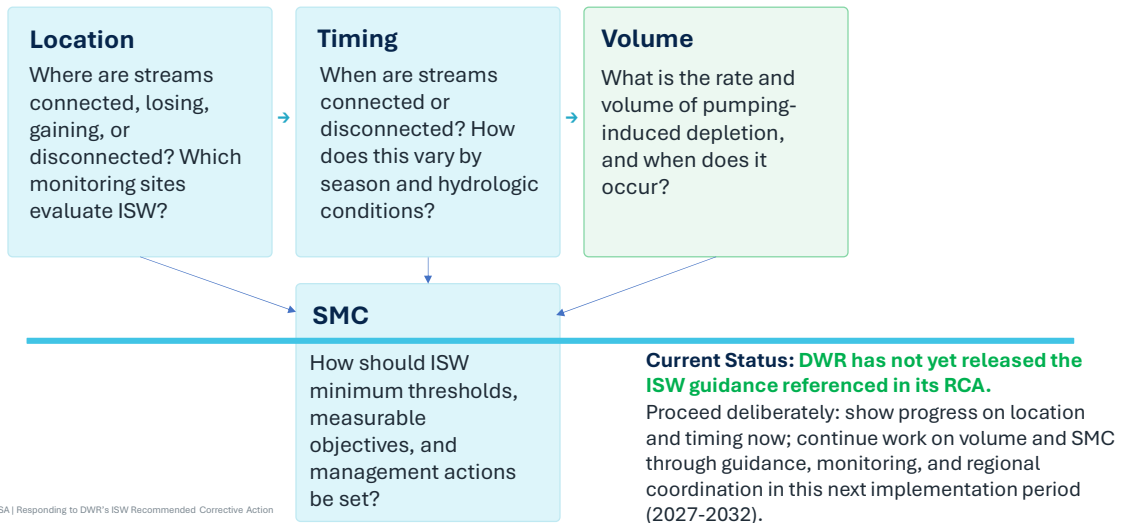
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Vina GSA | Responding to DWR's ISW Recommended Corrective Action

5



### Notable Progress:

## New information from the LWA ISW Technical Memorandum

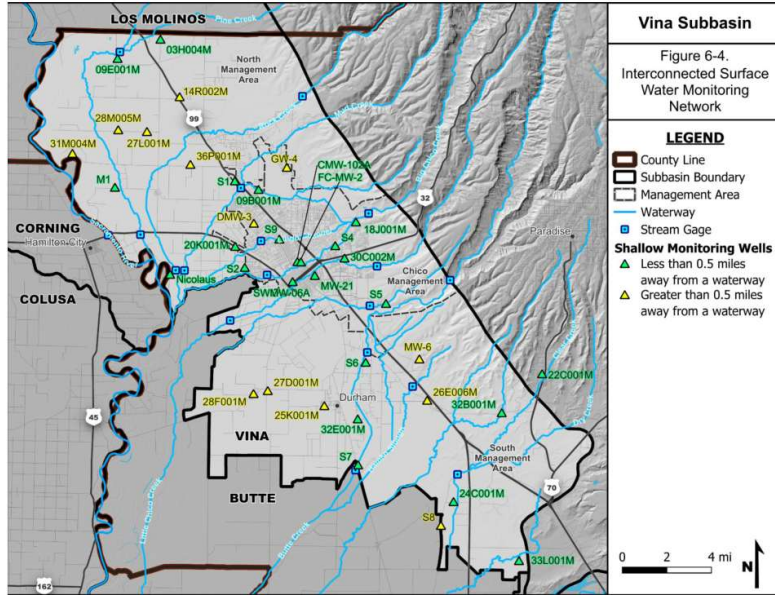


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# New Information from the SGM grant Data Gap Project

Identify network of shallow wells for broad ISW network, and stream gages

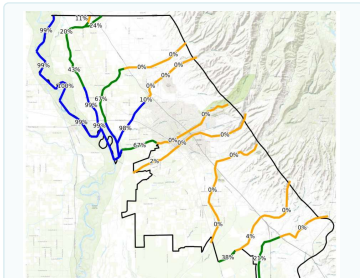


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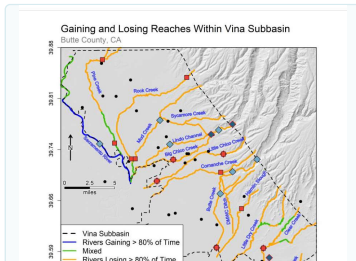


# New Information from the SGM grant Data Gap Project: LWA ISW Tech Memo

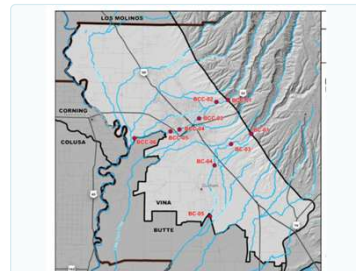
The TM uses multiple lines of evidence to improve understanding of ISW in the Vina Subbasin



**Butte Basin Groundwater Model**  
Updated BBGM v1.3 results identify likely connected, losing, gaining, and disconnected reaches.



**Shallow Regional Groundwater**  
Seasonal groundwater level comparisons to stream bed elevations using LiDAR data help evaluate where connection occurs



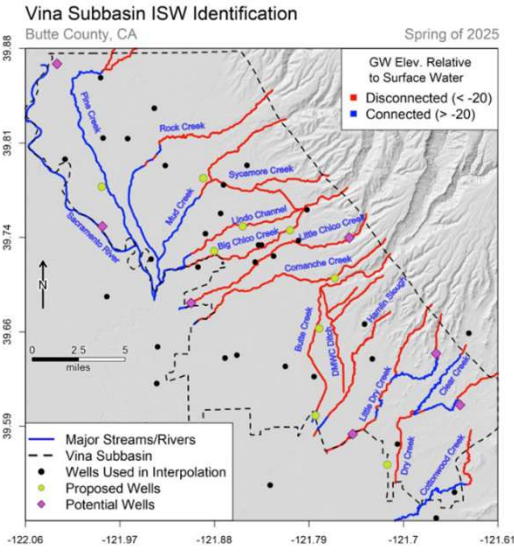
**Isotope Sampling**  
Seasonal groundwater comparisons and May–October isotope sampling help evaluate when stream-aquifer connections occur or are absent.

Source: LWA ISW TM, April 2026  
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# Location: Big Strides in Identifying Where ISW Likely Occurs, and Doesn't



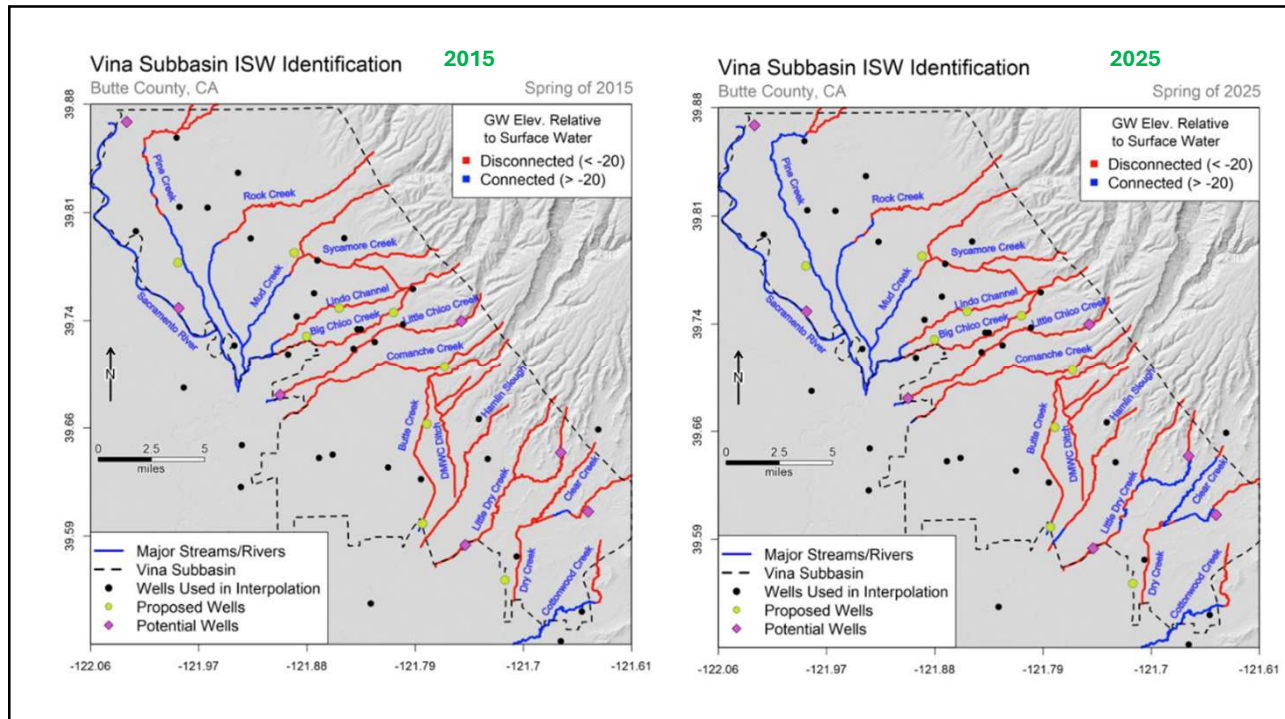
## Preliminary location pattern

- Sacramento River is primarily connected and gaining.
- Lower western reaches of some creeks may be connected or mixed.
- Many central and eastern reaches appear disconnected much or all of the time.
- Connections may shift with hydrology and groundwater levels.

## RCA progress

This directly addresses the "location" part of DWR's RCA by improving the basis for identifying connected stream segments and selecting monitoring locations.

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## Location: Preliminary Status by Stream Reach

The TM summarizes preliminary stream connectivity status based on the current multiple-lines-of-evidence analysis.

| Stream                 | Preliminary status              | Approx. length |
|------------------------|---------------------------------|----------------|
| Sacramento River       | Connected – gaining             | 23.4 mi        |
| Pine Creek             | Disconnected except lower ~5 mi | 12.6 mi        |
| Rock Creek             | Disconnected except lower ~1 mi | 13.4 mi        |
| Mud Creek              | Disconnected except lower ~2 mi | 13.2 mi        |
| Big Chico Creek        | Disconnected except lower ~2 mi | 10.7 mi        |
| Little Chico Creek     | Disconnected                    | 11.9 mi        |
| Butte Creek            | Disconnected                    | 11.8 mi        |
| Little Dry / Dry Creek | Disconnected                    | 10.8 mi        |

These findings provide a stronger foundation than the 2022 GSP but should be revisited as new shallow well and stream gage data are collected.

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Source: LWA ISW TM, Table 3

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## Timing: What We Learned So Far

### Sacramento River

Primarily connected and gaining across the analysis period. This makes it the main surface water feature for continued ISW depletion evaluation.

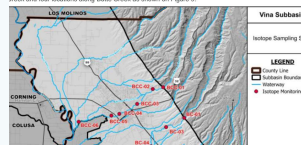
Important for both timing and volume because it borders multiple subbasins.

### Big Chico + Butte Creeks

May–October isotope results indicate these streams did not show a groundwater-input signal and were disconnected from groundwater during the time sampled.

#### 2.1.3 ISW Identification through Isotope Sampling

To understand ISW interactions on a finer timescale than seasonal groundwater interpolations can provide, we collected and analyzed isotopes of the water molecule along Big Chico and Butte Creeks during the study period, June through October of 2023. Samples were taken from six locations along Big Chico Creek and four locations along Butte Creek, as shown in Figure 9.



### Ephemeral Streams

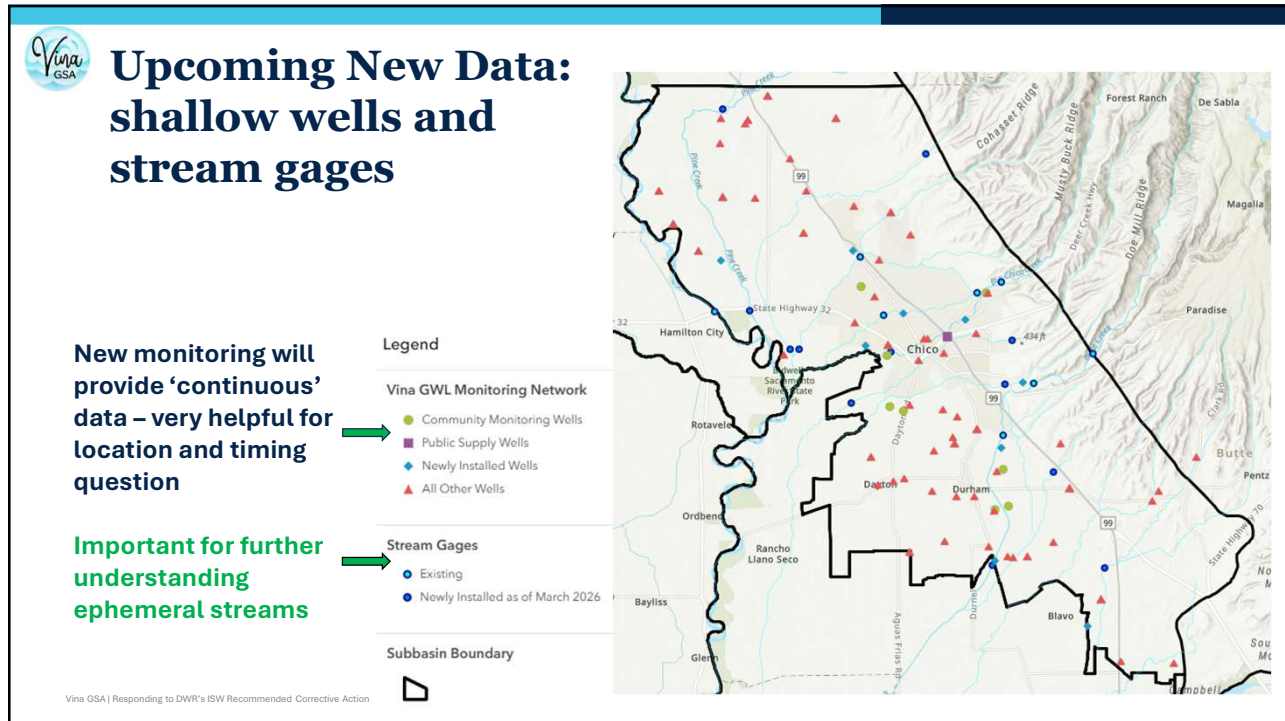
Potential depletions are limited to periods when streams are flowing and groundwater levels are high, making them connected to the aquifer. Streamflows typically end by June.

New continuous shallow groundwater data and stream gages will help characterize timing more clearly over the next implementation period.

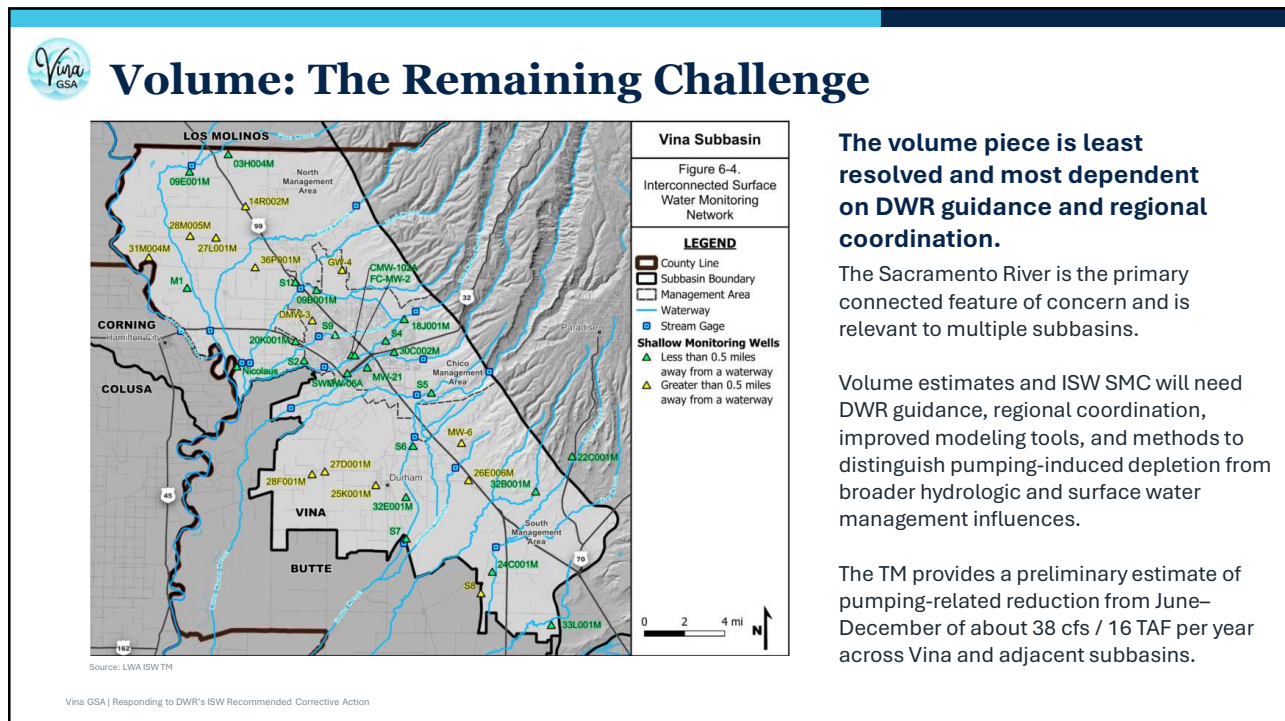
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Source: LWA ISW TM, Summary & Conclusions

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**Proposed RCA Response Strategy:**  
**Demonstrate meaningful progress now;**  
**develop robust ISW SMC later**

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Range of Options for Responding to DWR's ISW RCA


Strawman

<p style="text-align: center;">Minimal wait-and-see</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Describe uncertainty and defer most ISW decisions.</p> <p style="text-align: center;">Consideration</p> <p>Avoids premature decisions but may not show enough progress on DWR's location / timing / volume framework.</p>	<p style="text-align: center;">Incremental approach</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Document location and timing progress; define ISW monitoring network; wait on volume and SMC.</p> <p style="text-align: center;">Consideration</p> <p>Recommended strawman: demonstrates RCA progress while preserving flexibility for more robust development of thresholds in the future.</p>	<p style="text-align: center;">More immediate SMC</p> <hr style="width: 20%; margin: 0 auto;"/> <p style="text-align: center;">What it would do</p> <p>Select ISW RMS sites and set preliminary MTs/MOs now.</p> <p style="text-align: center;">Consideration</p> <p>Proactive, but risks premature thresholds before DWR guidance, regional coordination, and sufficient monitoring data.</p>
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The strawman is not "no action." It is a documented RCA response: location progress, timing progress, monitoring network definition, and a clear path for volume/SMC work.

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Strawman Proposal: What Would Be Done in the PE

- 1 Document location progress** Use the LWA TM to characterize where ISW likely occurs and where streams appear disconnected.
- 2 Document timing progress** Describe seasonal/isotope findings and describe that new continuous data from newly installed wells in 2026 will help improve timing analysis in the future.
- 3 Define ISW monitoring network** Identify shallow wells, stream gages, and supporting data sources for continued evaluation – this is a big step forward from what was available previously
- 4 Defer ISW-specific SMC** Do not set MTs, MOs, undesirable results, or ISW RMS sites until DWR guidance/data/regional work support development of thresholds.
- 5 Coordinate regionally on volume aspect** Focus regional work on the Sacramento River and shared methods for depletion volume estimates.

Intent: clearly respond to DWR’s RCA by showing progress on location and timing while explaining why volume/SMC decisions will come in the next implementation period.

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Stakeholder Feedback Along a Response Spectrum

Feedback received to date can be viewed along a spectrum: from moving quickly to set ISW protections, to an incremental approach, to a more cautious approach that preserves flexibility while data gaps remain.

Most proactive
Middle path
Most cautious

Move faster toward SMC

- Set ISW-specific SMC sooner.
- Raise thresholds to protect GDEs and ISWs.
- Use ecological indicators, such as valley oaks, urban canopy, and rooting depths to set thresholds
- Include early-warning triggers before thresholds are reached.

Show Progress

- Define a broader ISW monitoring network now.
- Use new analysis to document location and timing progress.
- Improve visuals and explanations of stream connectivity, model outputs, and uncertainty.
- Collect new data - shallow groundwater and stream gage monitoring.

Proceed carefully

- Proceed cautiously given data gaps.
- Wait for DWR guidance
- Maintain flexibility; avoid locking in premature thresholds.
- Coordinate with neighboring subbasins on ISW and model calibration.
- Revisit SMC when DWR guidance, regional work, and new data are available.

Common thread: refine the monitoring network, be transparent about assumptions, and acknowledge remaining data gaps

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SHAC Discussion and Potential Action

Potential recommendation to the GSA Boards:

Support the strawman approach as a measured response to DWR's ISW Recommended Corrective Action: document the new location and timing information developed through the LWA ISW TM, define a broader ISW monitoring network, stop relying on the existing groundwater level RMS network as the primary proxy, and defer ISW-specific SMC until additional monitoring data, DWR guidance, and regional coordination provide a stronger basis for volume estimates and development of SMC

Next steps

1. SHAC discussion and potential recommendation
2. GSA Boards consider ISW approach for the PE and any amendments
3. Continue coordination with North Sacramento River Corridor Inter-basin Coordination group to pursue monitoring and regional coordination, especially for the Sacramento River