Napa County

1195 THIRD STREET
SUITE 310
NAPA, CA 94559

Agenda

Thursday, September 14, 2023
1:30 PM

Board of Supervisors Chambers
1195 Third Street, Third Floor

Technical Advisory Group

Member Monica Cooper
Member Albert Filipelli
Member Mathias Kondolf
Member Julie Chambon
Member Miguel Garcia

Brian Bordona, Secretary- Director
Chris Apallas, County Counsel
Jamison Crosby, Natural Resources, Planning Manager
Brendan McGovern, Natural Resources, Planner III
Alexandria Quackenbush, Committee Clerk
Aime Ramos, Committee Clerk
Jason Hall, Committee Clerk

How to Watch or Listen to the Napa County Technical Advisory Group Meetings

The Napa County Technical Advisory Group will continue to meet the 2nd Thursday of each month.

The Napa County Technical Advisory Group realizes that not all County residents have the same ways to stay engaged, so several alternatives are offered. Remote Zoom participation for members of the public is provided for convenience only. In the event that the Zoom connection malfunctions for any reason, the Technical Advisory Group reserves the right to conduct the meeting without remote access.

Please watch or listen to the Technical Advisory Group meeting in one of the following ways:

1. Attend in-person at the Board of Supervisors Chambers, 1195 Third Street, Napa, Third Floor.
2. Watch on Zoom using the attendee link: https://countyofnapa.zoom.us/j/89426085834. Make sure the browser is up-to-date.
3. Listen on Zoom by calling 1-669-900-6833 (Meeting ID: 894-2608-5834).

If you are unable to attend the meeting in person and wish to submit a general public comment or a comment on a specific agenda item, please do the following:

1. Email your comment to meetingclerk@countyofnapa.org. Emails will not be read aloud but will still become part of the public record and shared with the Technical Advisory Group.
2. Use the Zoom attendee link: https://Countyofnapa.zoom.us/j/89426085834. Make sure the browser is up-to-date. When the Chair calls for the item on which you wish to speak, click "raise hand". Please limit your remarks to three minutes.
3. Call the Zoom phone number: 1-669-900-6833. (Meeting ID: 894-2608-5834). When the Chair calls for the item on which you wish to speak, press *9 to raise hand. Please limit your remarks to three minutes.

   Please note that phone numbers in their entirety will be visible online while speakers are speaking

For more information, please contact us via telephone at (707) 253-4417 or send an email to meetingclerk@countyofnapa.org.

1. CALL TO ORDER; ROLL CALL

2. PUBLIC COMMENTS AND RECOMMENDATIONS
(The Committee invites comments and recommendations from the public concerning issues relevant to the charge of the Technical Advisory Group. Anyone who wishes to speak to the Technical Advisory Group on such a matter, if it is not on the agenda, may do so at this time. At the discretion of the Chair, individuals will be limited to a three-minute presentation. No action will be taken by the Technical Advisory Group as a result of any item presented at this time.)

3. APPROVAL OF MINUTES

A. The Secretary of the committee requests approval of the minutes from the July 13, 2023 TAG meeting. **23-1585**

Attachments: Draft Meeting Minutes from July 13, 2023

4. AGENDA REVIEW

5. ADMINISTRATIVE ITEMS

A. The Technical Advisory Group (TAG) members will receive a presentation from Luhdorff and Scalmanini, Consulting Engineers (LSCE) featuring an overview of ongoing updates to the Napa Valley Integrated Hydrologic Model. This will include an overview of key model developments pertaining to the simulation of historical and projected hydrologic conditions and water use. Framing questions will also be provided to receive direction and feedback from the TAG. **23-1583**

Attachments: NVIHM Model Presentation

B. TAG will receive a debrief from the Joint meeting of the Technical Advisory Group (TAG) and Napa County Groundwater Sustainability Agency (NCGSA) on August 22, 2023, including direction received from the NCGSA summarized within this report. TAG will then continue the discussion and consider additional management questions it would like to define and work on during the next six-months to one-year period. **23-1581**

Attachments: TAG Framing Questions Oct to Dec 2022
TAG Framing Questions Jan to July 2023
Staff Report presented to the Joint Meeting of the NCGSA/TAG, August 22, 2023

C. Provide an update to the Technical Advisory Group (TAG) on progress for the Groundwater Pumping Reduction Workplan (GPR Workplan) and Water Conservation Workplan (WC Workplan). This will focus on discussions of a benchmarking conceptualization, incentivizing participation in certification programs, and next steps. Framing questions are included to receive feedback and direction from the TAG. **23-1580**

Attachments: GPR Workplan - ERA Economics Presentation

D. Provide an update to the Technical Advisory Group (TAG) on stakeholder interviews conducted in support of updating the Groundwater Sustainability Agency's Communication and Engagement Plan. **23-1590**

Attachments: Sample Interview Agenda and Questions
Interview Instructions
NapaStakeholderAssessment.pptx .pdf

6. FUTURE AGENDA ITEMS

7. ADJOURNMENT

I HEREBY CERTIFY THAT THE AGENDA FOR THE ABOVE STATED MEETING WAS POSTED AT A LOCATION FREELY ACCESSIBLE TO MEMBERS OF THE PUBLIC AT THE NAPA COUNTY ADMINISTRATIVE BUILDING, 1195 THIRD STREET, NAPA, CALIFORNIA ON 9/11/2023 BY 12:45PM. A HARDCOPY SIGNED VERSION OF THE CERTIFICATE IS ON FILE WITH THE COMMITTEE CLERK AND AVAILABLE FOR PUBLIC INSPECTION.

Jason Hall (By e-signature)

JASON HALL, Committee Clerk

Napa County

Board Agenda Letter

1195 THIRD STREET
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www.countyofnapa.org

Main: (707) 253-4580

Technical Advisory Group | **Agenda Date:** 9/14/2023 | **File ID #:** 23-1585

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: TAG Minutes from July 13, 2023

RECOMMENDATION

The Secretary of the committee requests approval of the minutes from the July 13, 2023 TAG meeting.

EXECUTIVE SUMMARY

The TAG held its eleventh meeting on July 13, 2023. Minutes were prepared and are ready for the committee's approval.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

The TAG held its eleventh meeting on July 13, 2023. Minutes were prepared and are ready for the committee's approval.

Draft Meeting Minutes

Technical Advisory Group

Monica Cooper
Albert Filipelli
Mathias Kondolf
Julie Chambon
Miguel Garcia

David Morrison, Secretary
Chris Apallas, County Counsel
Jamison Crosby, Natural Resources Planning Manager
Brendan McGovern, Natural Resources, Planner III
Alexandria Quackenbush, Committee Clerk
Jason Hall, Committee Clerk
Aime Ramos, Committee Clerk

Thursday, July 13, 2023	**1:30 PM**	**Board of Supervisors Chambers 1195 Third Street, Third Floor**

1. CALL TO ORDER / ROLL CALL

Group Members Present: Vice-Chair Monica Cooper, Miguel Garcia, Albert Filipelli, Chair Julie Chambon.

Group Members Excused: Matt Kondolf.

Staff Present: Jamison Crosby, Brendan McGovern, Alexandria Quackenbush, Aime Ramos.

2. PUBLIC COMMENTS AND RECOMMENDATIONS

None.

3. APPROVAL OF MINUTES

April 13, 2023, minutes were approved.
MG-AF-JC-MC-MK
X

4. AGENDA REVIEW

Jamison Crosby gave the agenda review.

5. ADMINISTRATIVE ITEMS

A. Provide information to the Technical Advisory Group (TAG) on the development of the Interconnected Surface Water (ISW) and Groundwater Dependent Ecosystems (GDEs) Workplan for the Napa Valley Subbasin with emphasis on Tasks 4 through 6 described in the Workplan Outline, including assessing potential effects of groundwater conditions and streamflow depletion on GDEs, hydrologic conditions supporting aquatic habitat and GDEs, and quantifying acceptable groundwater elevation ranges necessary to maintain or improve aquatic habitat and GDE conditions.
Christian Braudrick and Nick Newcomb gave the presentation with discussion. No action required. No public comments were heard.

B. The Napa County Technical Advisory Group (TAG) members will receive: 1) a brief overview of safe yield and sustainable yield estimates developed at different times between 1973 and 2022, 2) a summary of the basis for the 10% groundwater pumping reduction management action, 3) actions occurring in response to groundwater conditions including water use criteria, and 4) water management considerations for increased resilience in the face of climate change.
Vicki Kretsinger (LSCE) gave the presentation with discussion. No action required. (4) Public comments were heard.

C. The Technical Advisory Group (TAG) will receive an update on progress for the Groundwater Pumping Reduction Workplan (GPR Workplan). This will include: an overview of the GPR Workplan, the updated results of the water conservation practices summary matrix, a review of cost-share opportunities, a discussion regarding an example phased implementation plan, and a discussion of next steps. Several framing questions are included to receive feedback and direction from the TAG.
Richael Young (ERA Economics) gave the presentation with discussion. No action required. (3) Public comments were heard.

6. FUTURE AGENDA ITEMS

- Staff will deliver a compilation of the framing questions from January to the present time for the TAG members to ratify them and deliver to the GSA.
- An item on Integrated Hydrologic Model Updates will potentially be on the agenda for the August or September regular scheduled meeting.
- Andrew McElrone from USDA will potentially give a presentation.
- Staff is requesting a presentation from Garrett Buckland – Napa Valley Grapegrowers on the survey results that they have received this year.
- Staff is requesting an update on the ERA on the benchmarking system.

7. ADJOURNMENT

Meeting adjourned to August 10, 2023, regular meeting.

_____

ALEXANDRIA QUACKENBUSH, Clerk of the Committee

Key

Vote: MC = Monica Cooper; AF = Albert Filipelli; MK = Mathias Kondolf; JC = Julie Chambon; MG = Miguel Garcia.

The maker of the motion and second are reflected respectively in the order of the recorded vote.

Notations under vote: N = No; A = Abstain; X = Excused

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Technical Advisory Group | **Agenda Date:** 9/14/2023 | **File ID #:** 23-1583

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: Overview and Updates to the Napa Valley Integrated Hydrologic Model

RECOMMENDATION

The Technical Advisory Group (TAG) members will receive a presentation from Luhdorff and Scalmanini, Consulting Engineers (LSCE) featuring an overview of ongoing updates to the Napa Valley Integrated Hydrologic Model. This will include an overview of key model developments pertaining to the simulation of historical and projected hydrologic conditions and water use. Framing questions will also be provided to receive direction and feedback from the TAG.

EXECUTIVE SUMMARY

LSCE staff provided several presentations to the Groundwater Sustainability Plan Advisory Committee (GSPAC) during 2021 focused on the development and use of NVIHM in supporting the Groundwater Sustainability Plan (GSP) and sustainable management of groundwater. LSCE has continued to develop and update NVIHM as part of GSP implementation to better refine key elements identified through feedback and comments received from the GSPAC, recommendations in the GSP, and input from the TAG. This presentation introduces the current and planned efforts in updating the representation of surface water and watershed response, agricultural water use and soil moisture, subsurface geology, and climate (Supporting Document A). A presentation is also posted on the County's website summarizing relevant background information pertaining to NVIHM development (Supporting Document B).

Procedure
Staff introduces.
Questions and answers with the TAG.
Public comments.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

The Napa Valley Integrated Hydrologic Model (NVIHM) was developed by LSCE from 2020 through 2021 to support key elements of the Napa Valley Subbasin GSP. NVIHM is a numerical model which simulates landscape, surface water and groundwater processes and interactions using an integrated approach. LSCE provided several presentations to the GSPAC highlighting model development and results during 2021 and provided detailed documentation of NVIHM in the Napa Valley Subbasin GSP.

LSCE is developing updates and refinements to NVIHM to refine the representation of key physical processes and elements in the landscape, streams and groundwater dependent ecosystems, and the groundwater system based on feedback and information provided by the GSPAC, recommendations included in the GSP, input from the TAG, and public and stakeholder comments. NVIHM updates currently underway include:

- Refinement and enhancement of surface water processes. The Basin Characterization Model (BCM) used to represent the upper watershed response is being updated to better reflect local conditions and changes in land use. Additional complexity is being added to streams specified in NVIHM to better capture channel geometry and changes to channel morphology resulting from stream restoration.
- Updates to consumptive use and applied water. Estimates of the timing and amount of crop water use are being refined based on remote sensing and field measurements. LSCE is coordinating with the NVIHM model platform developers and the U.S. Geological Survey to enhance the representation of soil moisture storage and better accounting of on-farm surface water storage. LSCE is also working on updates to better estimate evapotranspiration and how it is represented in the model structure.
- Refinement of physical conceptualization. The representation of subsurface geologic structures and subsurface processes is being continually refined based on new data and information. This includes the refinement of aquifer geometry (thickness, distribution and physical properties of alluvium and volcanic geologic units) and depth and distribution of groundwater pumping wells.

Future updates to NVIHM include:

- Update to model projections. Climate projections used to develop projected water budgets and hydrologic response will be updated to utilize climate scenarios from more recent global circulation models (GCMs) and current best practices.
- Updates to observations used to calibrate and constrain NVIHM. Additional measured or remotely sensed data (e.g., evapotranspiration, Stream Watch observations, interconnected surface water (ISW) monitoring sites) will be added as observations to NVIHM to better evaluate and constrain model results.

FRAMING QUESTIONS

The following framing questions will be asked for the TAG to solicit feedback and direction on updates to NVIHM.

1. What other watershed characteristics could be important to refine or update?
2. Are there any other data that could be leveraged to better represent surface water processes?

3. How can we best leverage available data to develop inputs that are representative of land and water use in the Napa Valley?
4. What are the questions we should be asking growers and other stakeholders to collect the information we need?

SUPPORTING DOCUMENTS

A. Presentation-Hydrologic Model Updates

B. Hydrologic Model Background Presentation -

<https://tinyurl.com/NVIHM-Model-Presentation>

Sustainable Groundwater Management Act and Groundwater Sustainability Plan for the Napa Valley Subbasin

Hydrologic Model Updates

Nick Newcomb

September 14, 2023

Luhdorff & Scalmanini
Consulting Engineers

Outline

Model Background

Surface Water Updates

- Upper Watershed Model Updates
- Channel Geometry Updates

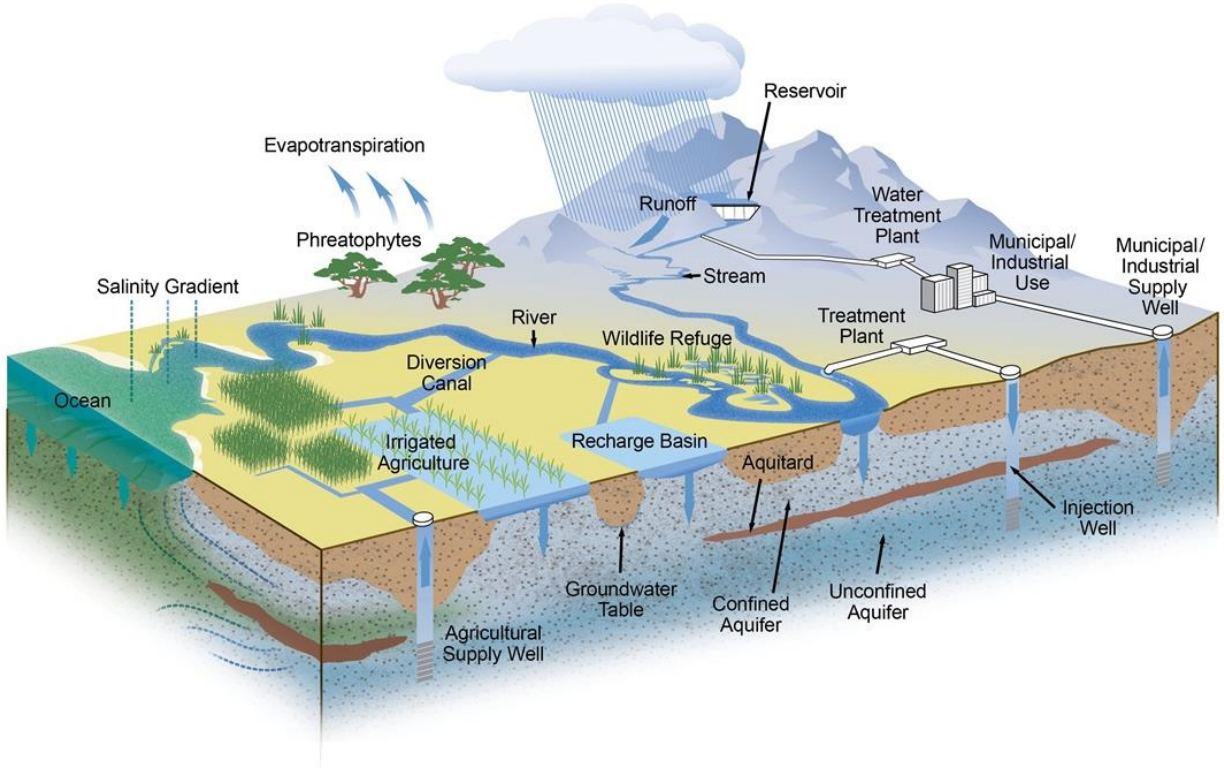
Water Use Estimates

- Background
- Soil Moisture Updates
- Data Gaps

Additional Updates

- Climate Change
- Geology
- Observations

Integrated Model Framework



Model Background

Napa Valley Integrated Hydrologic Model

- Simulates landscape processes, surface water processes and groundwater and how they interrelate

Integration of Various Data Types

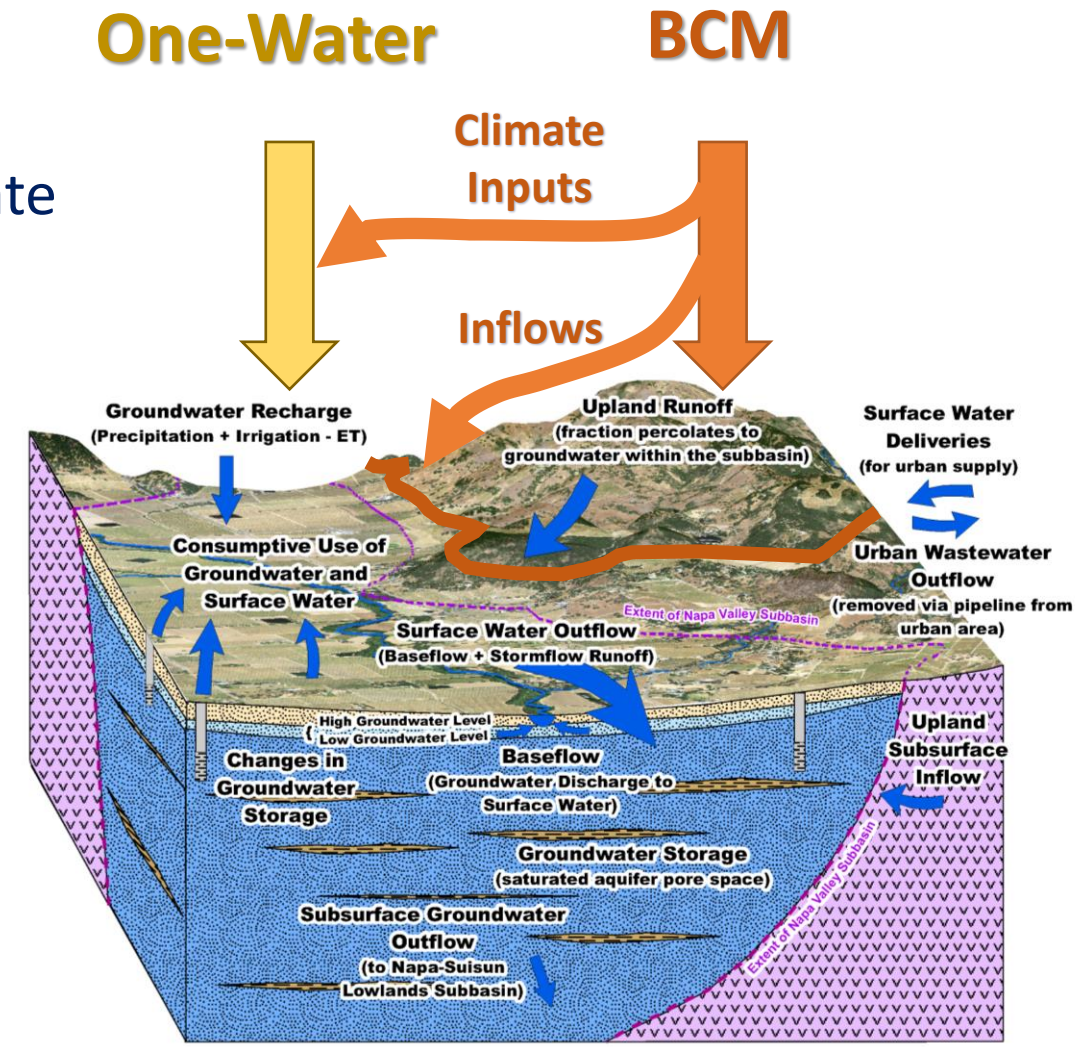
- Many different data types
- Data are spatially and temporally variable

Future Hydrologic Response

- Reasonably bound future hydrologic conditions
- Evaluate future changes to climate, land use, etc.

Support Management and Policy Decisions

- Inform stakeholders and managers
- Inform monitoring and future data collection



Surface Water (Background)

Tributary Inflows

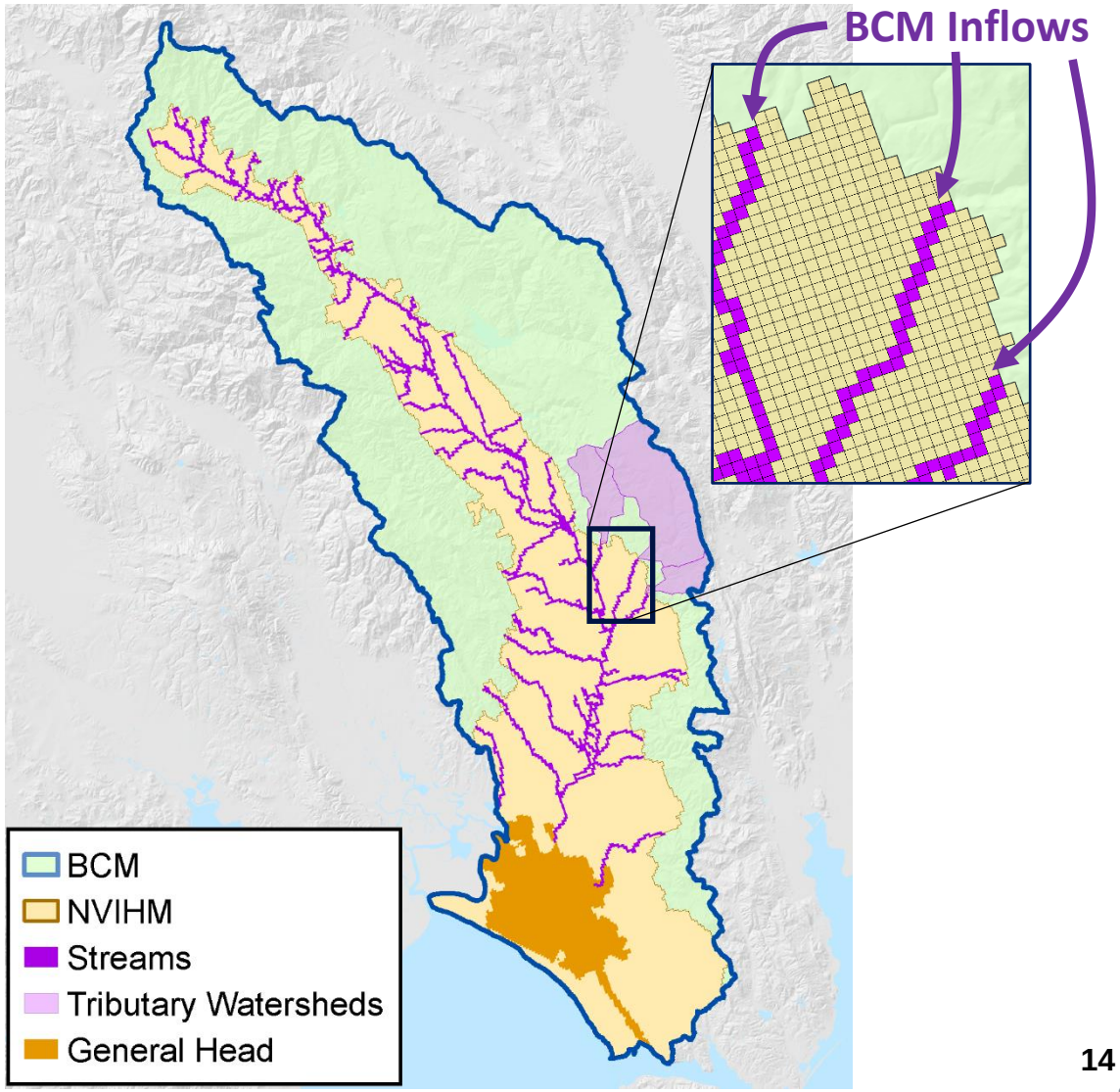
- Upper watershed response using the statewide Basin Characterization Model (BCM)
- BCM post-processed to provide tributary recharge & runoff

Flow

- Calculated internally from Manning's Equation
- Diversions and runoff & returns from landscape

Stream Properties

- Channel geometry is fixed
- Channel elevation (LIDAR)
- Channel width estimated using areal lidar & imagery



Surface Water (Upper Watershed Updates)

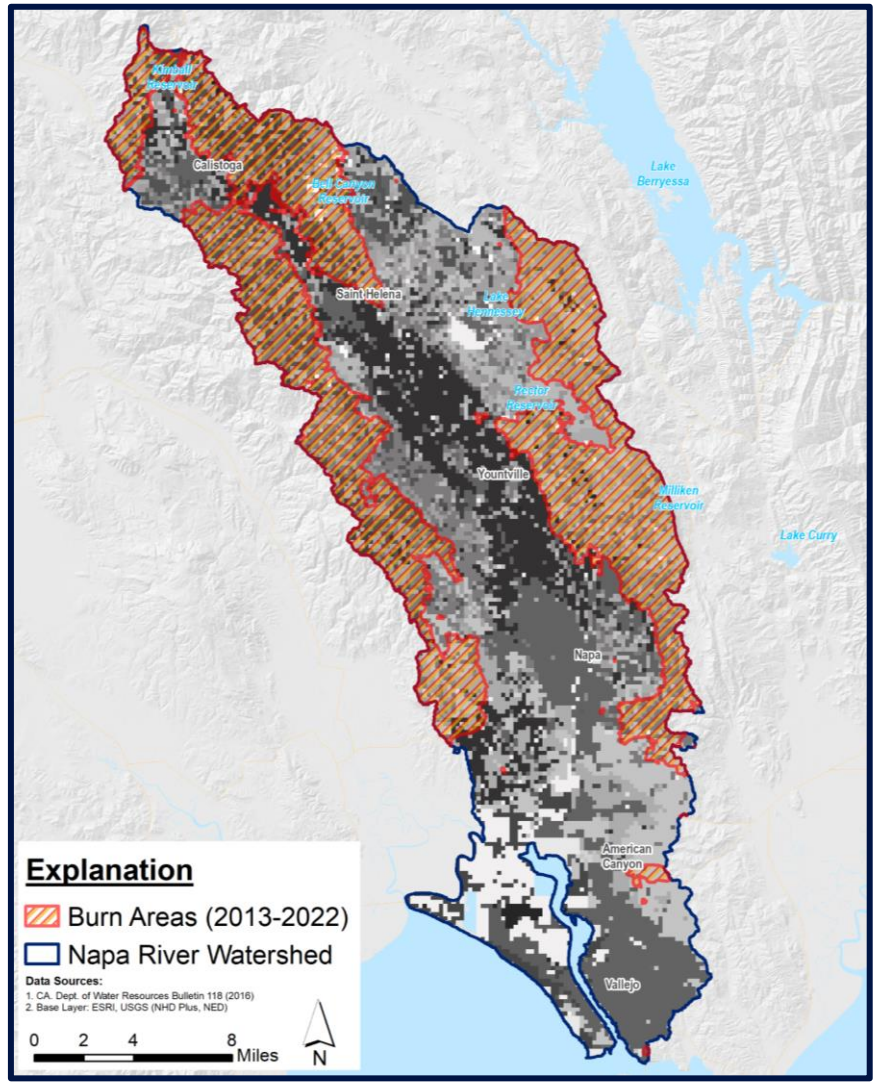
Rationale

- Statewide datasets may not reflect local conditions (land use, geology, climate, other characteristics)
- Land use is fixed over time (e.g., fires)
- Reliant on USGS for updated input and output
- Climate change models outdated

Updates

- In-house model (local inputs and refined scale)
- Time-variant land use
- Update climate change models

Napa Watershed Burned Areas (2013-2022)



Surface Water (Channel Geometry Refinements)

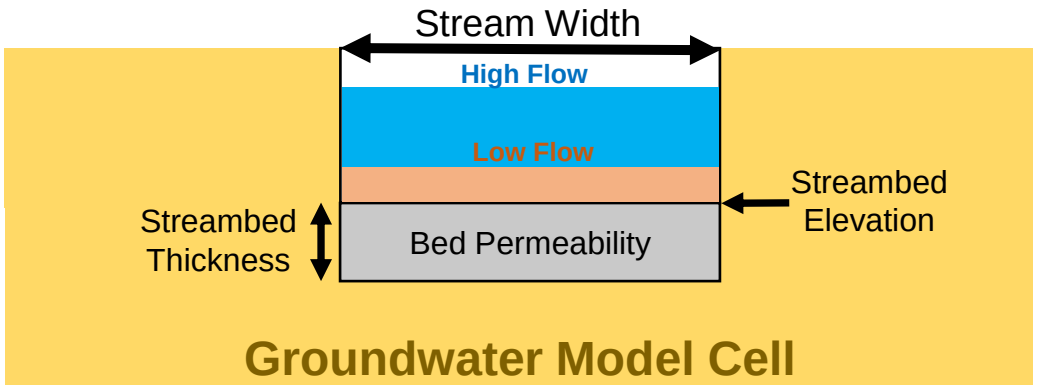
Rationale

- Channel geometry affects stream discharge, stage, width and interaction between groundwater and surface water
- Channel geometry is not fixed in time

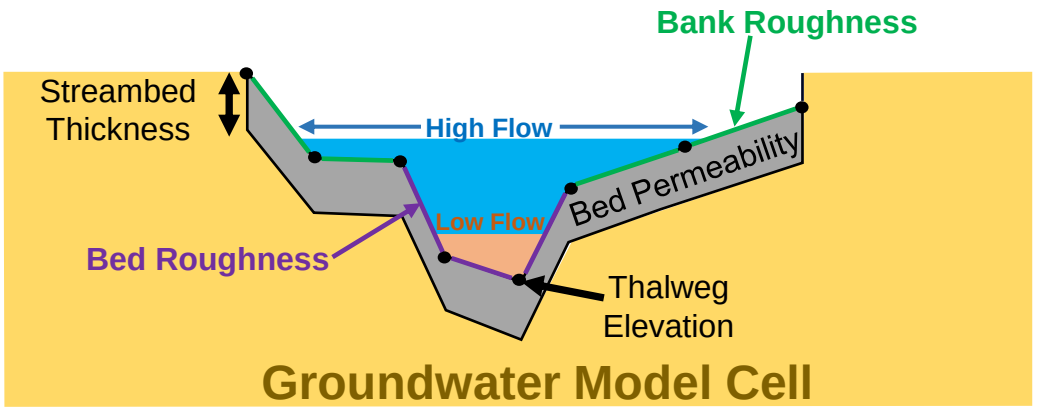
Updates

- Update channel methodology to better represent geometry
  - Lidar (2003, 2018)
  - Channel cross sections from pre- and post-restoration
- Utilize datasets to vary channel geometry over time
- Include time-variant land use in BCM

Rectangular Channel



Modified Channel Geometry

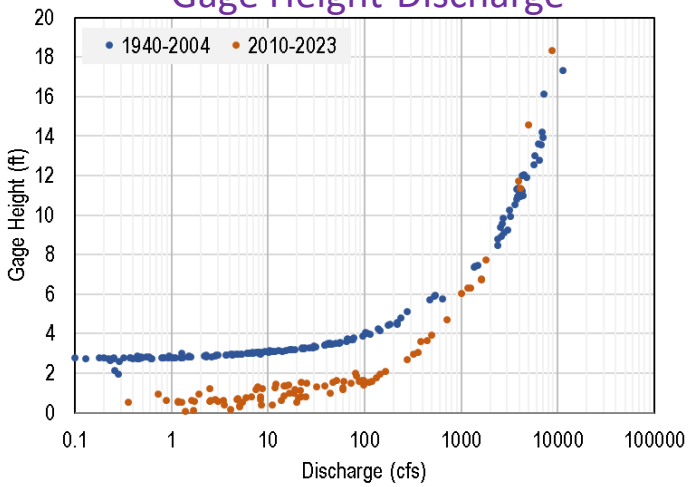


Surface Water (Verification & Utility)

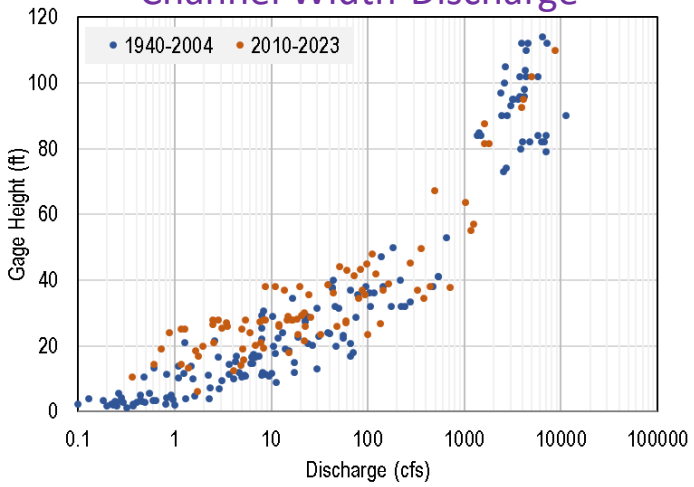
Napa River at St Helena (1145600)

Stream Mechanics

Gage Height-Discharge



Channel Width-Discharge



Verification

- Comparison of modeled relationships to USGS field measurements at different flows

Calibration

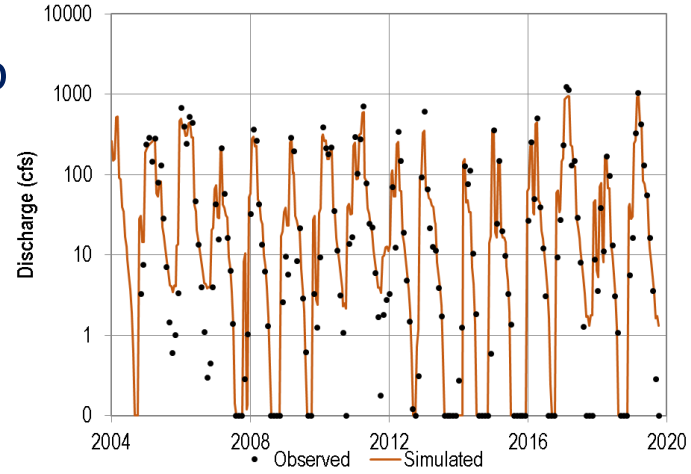
- Compare simulated to measured flow at USGS and RCD gages
- Leverage Stream Watch (flow vs. no flow)

Re-evaluate

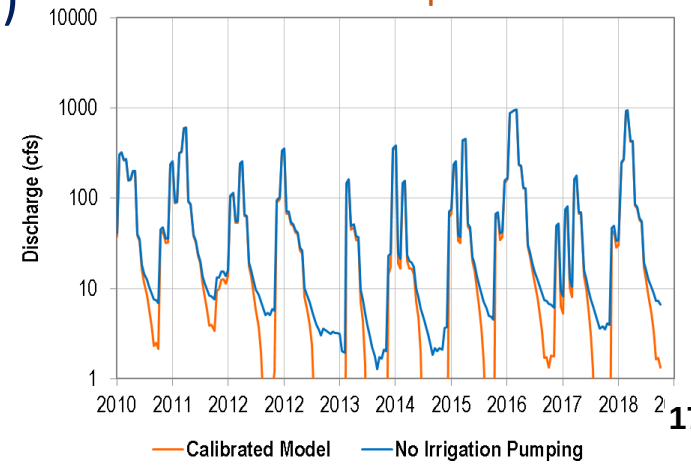
- Stream conditions (flow duration, groundwater-surface water interaction)
- Stream depletion

Model Performance

Streamflow



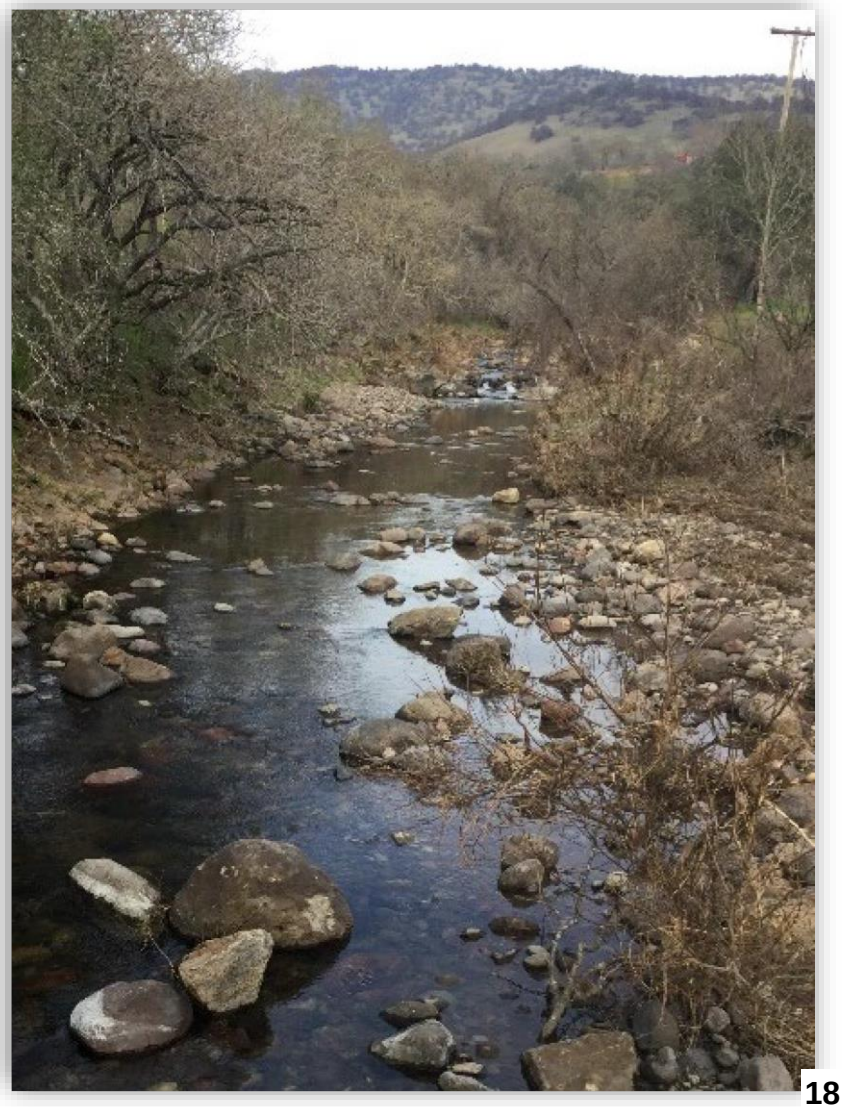
Stream Depletion



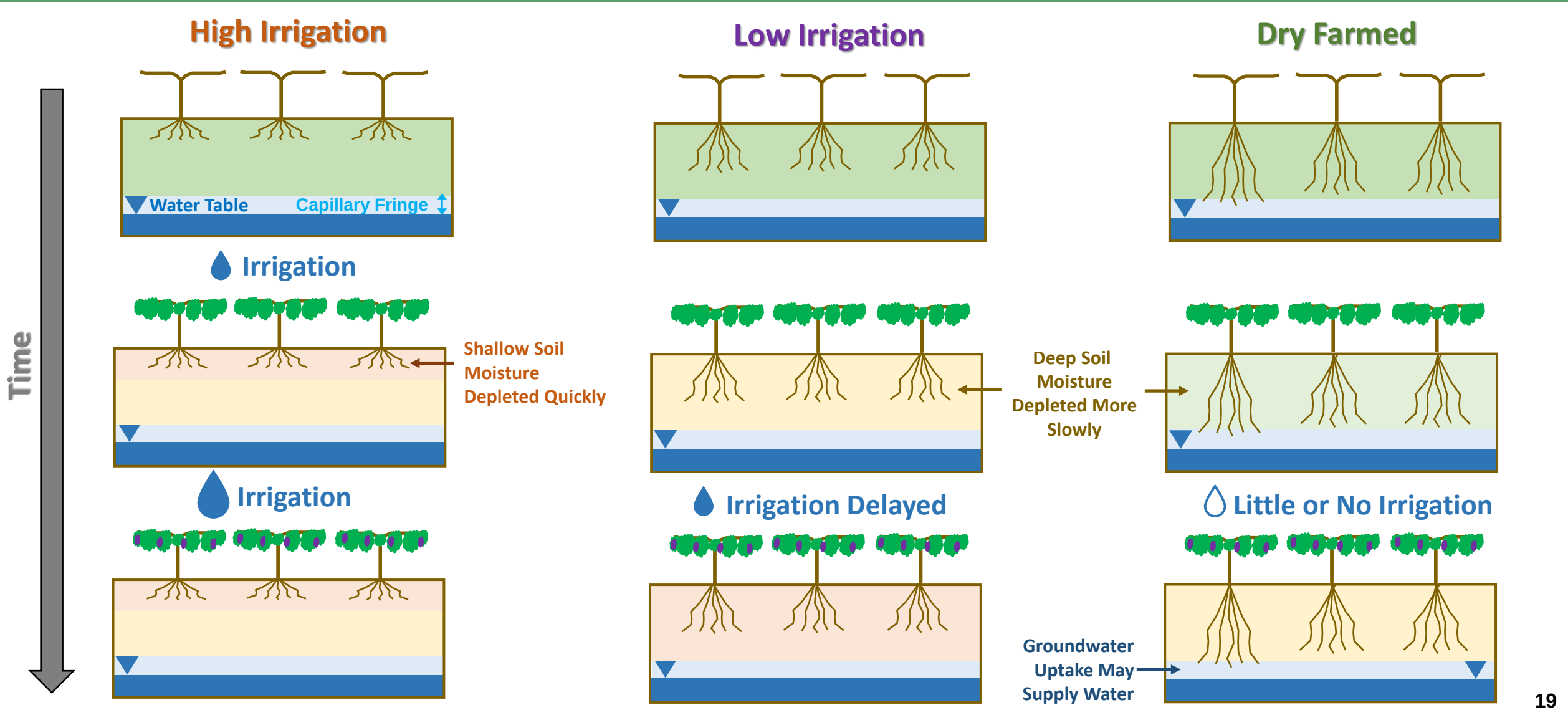
Discussion Topics

What other watershed characteristics could be important to refine or update?

Are there any other data that could be leveraged to better represent surface water processes?

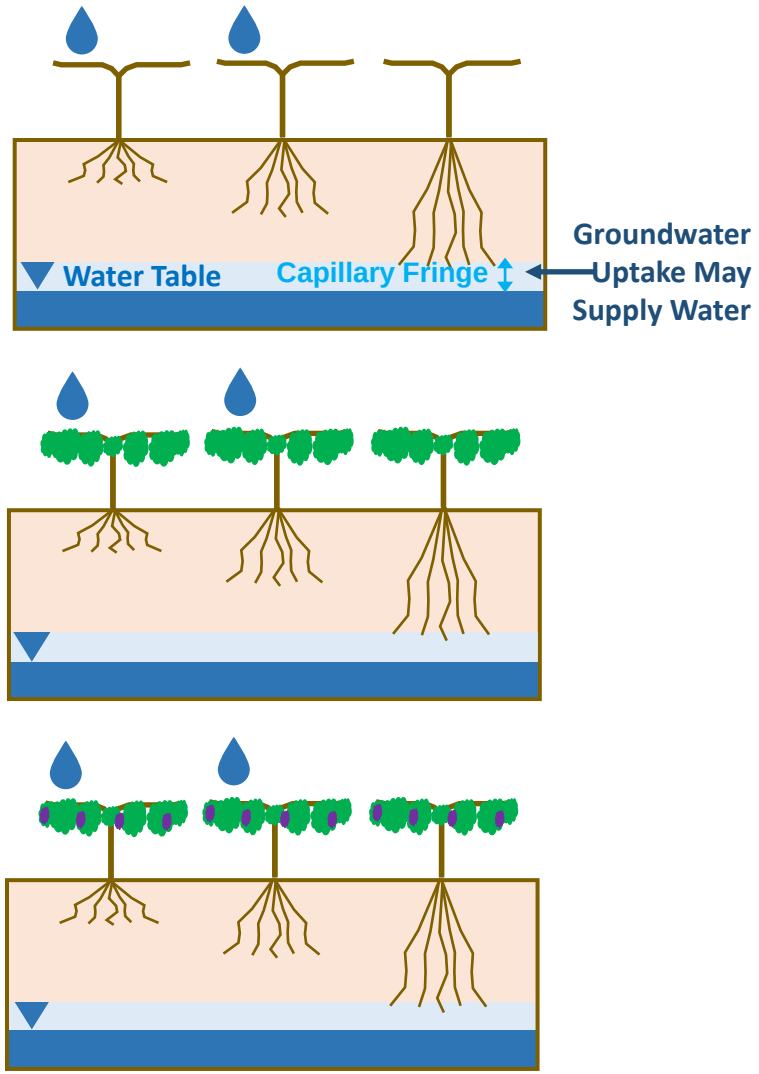


Water Use (Soil Moisture Storage Background)



Water Use (Soil Moisture Storage Updates)

Current Model Framework



Existing Framework

- Soil moisture storage is reduced on the scale of days to weeks
- Irrigation is required when precipitation or groundwater uptake cannot satisfy crop water demand
- Irrigation begins earlier in season
- Native vegetation can be easily water stressed

Update

- Coordination with USGS platform developers
  - Updates to model platform to incorporate longer-term soil moisture storage
  - Directly incorporate on-farm water storage in model platform and examine storage of runoff

Water Use (Evapotranspiration Updates)

Evapotranspiration

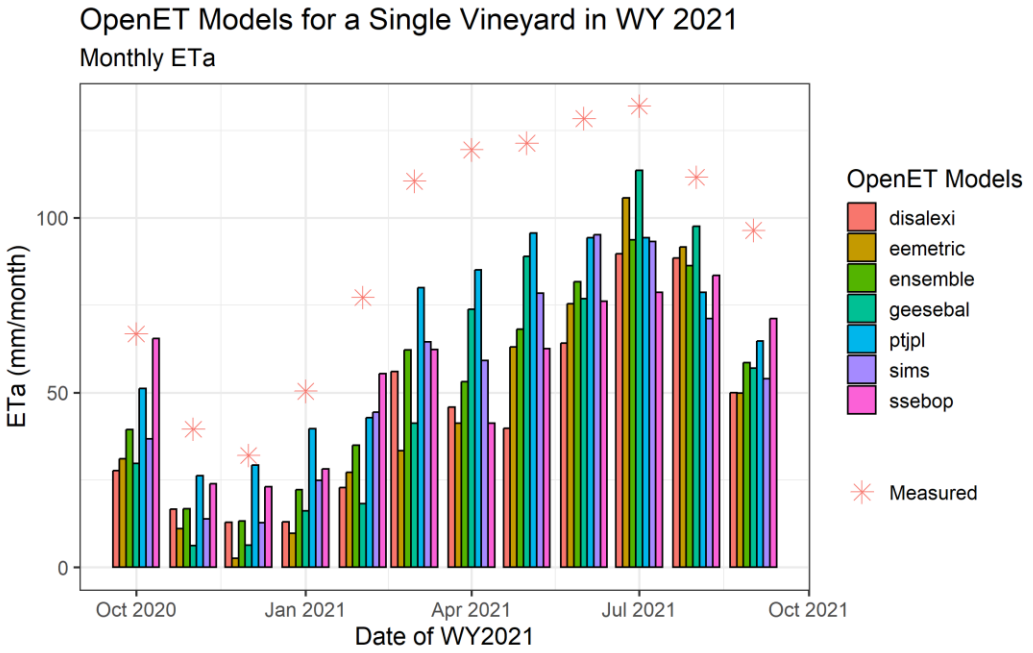
- Discrepancies between measured (Tule) and remotely sensed ET (OpenET)
- Issues with local CIMIS station

Crop Coefficients

- Assigned by crop type (e.g. white vs black grapes)
- May not account for spatial variability in ET
- May not account for temporal variability in ET

Updates

- Determine Factors that influence Kc and ET
  - Physical Processes
  - Cultural Practices
- Developing approach to appropriately adjust framework to capture variability



Water Use (Other Considerations)

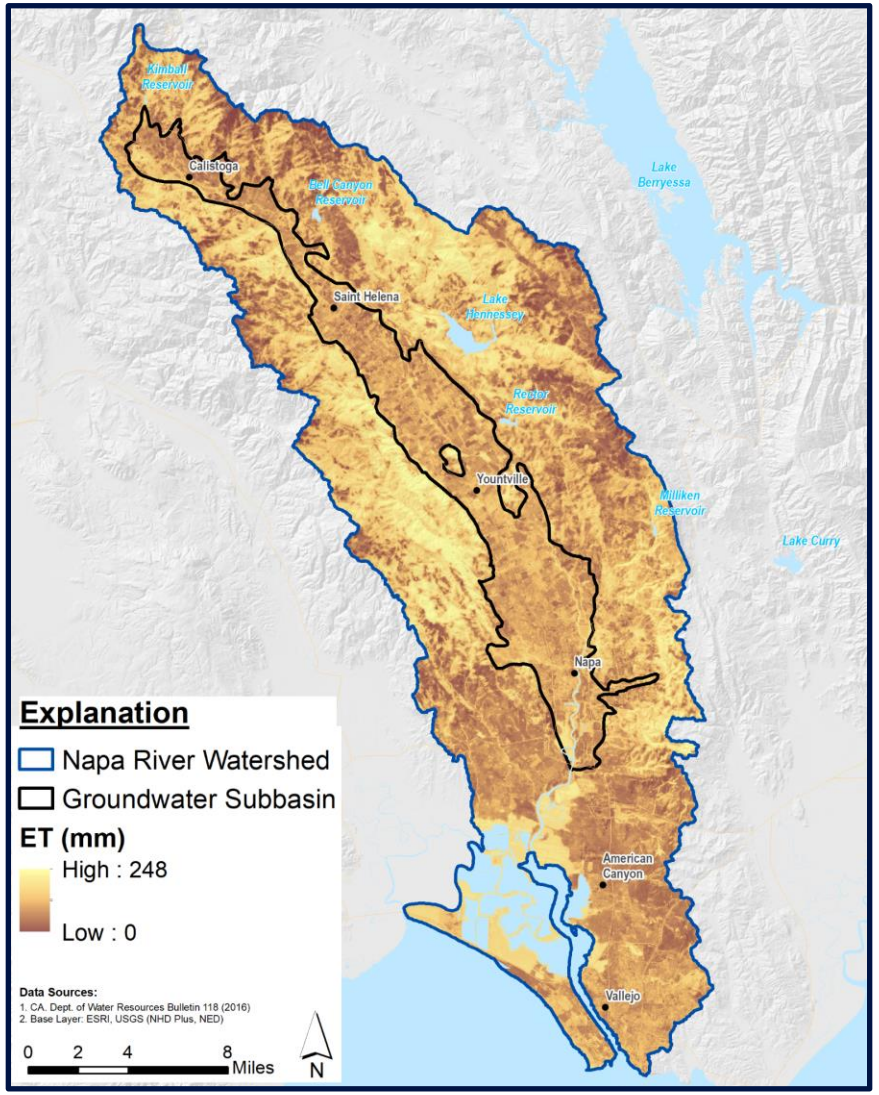
Data Gap (Measurements)

- Irrigation scheduling and amount
- Measured evapotranspiration
- Measured soil moisture

Data Gap (Information)

- Rooting depth
- Root stock
- Variety
- Row spacing
- Cover crop

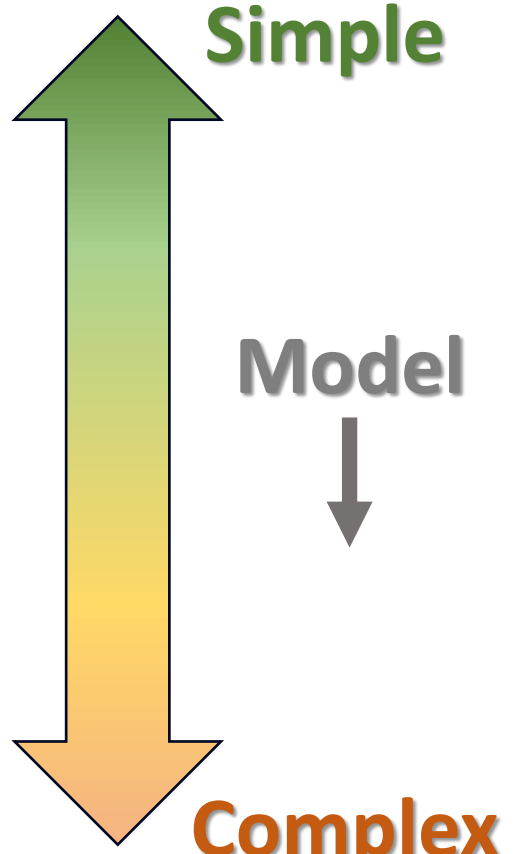
OpenET Evapotranspiration (July 2021)



Discussion Topics

How can we best leverage available data to develop inputs that are representative of land and water use in the Napa Valley?

What are the questions we should be asking growers and other stakeholders to collect the information we need?



Additional Elements

Climate Change

- Existing climate change models (CMIP5) are outdated and do not reflect local conditions well
- CMIP6 and coordination with DWR regarding best practices (in development)

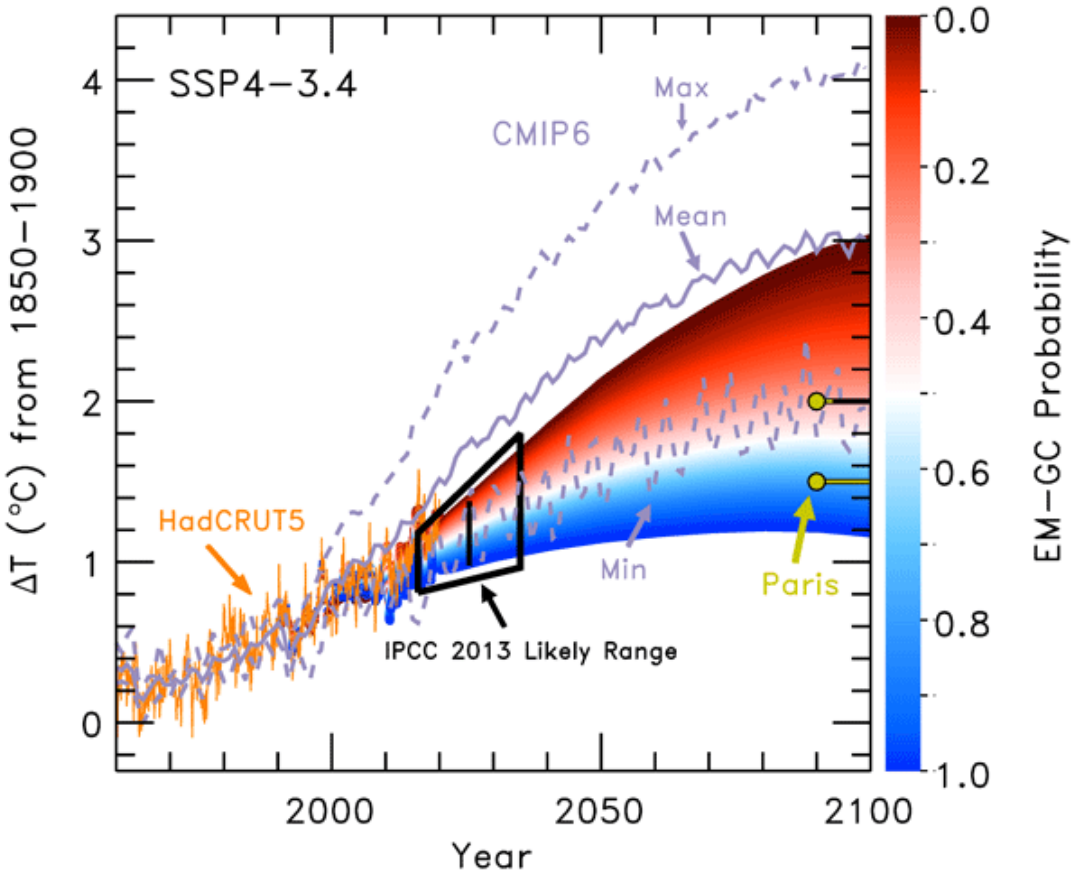
Geologic Refinements

- Continual refinements based on interpretation of new data and information
  - Alluvial thickness and aquifer configuration
  - Well distribution and completion by aquifer based on updated inventory and mapping

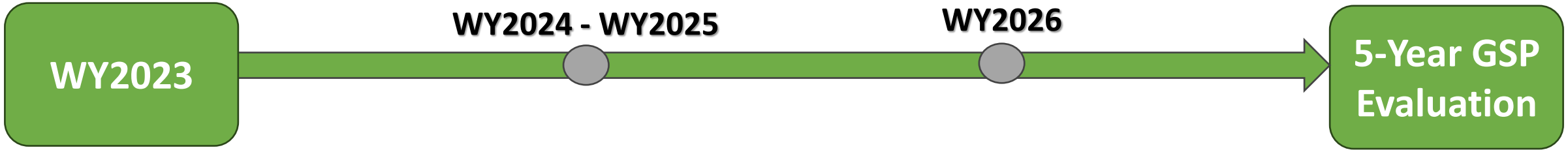
Observations

- Compare simulated and measured ET
- Qualitative data (Stream Watch)
- Vertical gradients from ISW monitoring sites
- Applied water (groundwater pumping)

Coupled Model Intercomparison Project (CMIP) Phase 6



Timeline



- Channel Geometry Update
- BCM Updates
- Aquifer Geometry Update
- Well Distribution Update
- Examine ET & Cultural Practices
- As-needed scenarios

- Aquifer Geometry Update
- Update ET in Model
- Platform Updates
  - Soil Moisture
  - On-Farm Storage
- Evaluate Modeled Water Use
- Update Observations
- Update Calibration
- As-needed scenarios

- Update Model Projections
- Update Climate Change Models
- Update Projected Water Budgets
- Update Scenarios
- Update Model Report

Thank You

Nick Newcomb
Luhdorff & Scalmanini, C. E.
nnewcomb@lsce.com
(530) 661-0109

Luhdorff & Scalmanini
Consulting Engineers

Napa County Groundwater Sustainability Agency

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Ryan Alsop, ***County Executive Officer***
Napa County Groundwater Sustainability Agency
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Brian Bordona, ***Director***
Planning, Building, and Environmental Services Department
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Technical Advisory Group | **Agenda Date:** 9/14/2023 | **File ID #:** 23-1581

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: Debrief from and continuation of the discussion held at the Joint meeting of the NCGSA and TAG on August 22, 2023

RECOMMENDATION

TAG will receive a debrief from the Joint meeting of the Technical Advisory Group (TAG) and Napa County Groundwater Sustainability Agency (NCGSA) on August 22, 2023, including direction received from the NCGSA summarized within this report. TAG will then continue the discussion and consider additional management questions it would like to define and work on during the next six-months to one-year period.

EXECUTIVE SUMMARY

The NCGSA formed the TAG to advise the NCGSA and aid in the implementation of the Napa Valley Subbasin Groundwater Sustainability Plan (GSP), including responding to changing groundwater conditions. The five-member TAG was first convened on August 11, 2022. During the TAG's monthly meetings, staff posed Framing Questions to the TAG which they considered and responded to, bringing their individual expertise to bear on topics related to groundwater conditions, GSP implementation, and development of four workplans. A summary of Framing Questions considered by the TAG during October through December 2022 was provided to the NCGSA at the NCGSA's March 28, 2023 meeting.

From January through July 2023, the TAG continued to consider and provide feedback related to Framing Questions presented in monthly TAG meetings. A compilation of the Framing Questions and a summary of the TAG's 2023 input and recommendations were presented at the Joint NCGSA/TAG meeting on August 22, 2023. All five TAG members attended the meeting.

The purpose of the Joint NCGSA/TAG meeting was to provide an opportunity for the NCGSA to receive, discuss, and question the TAG about their findings and provide direction on topics and questions they would like the TAG to consider during the next 6-months to 1-year period related to ongoing GSP implementation and achieving groundwater sustainability. Key topics discussed with the TAG included:

A. Interconnected Surface Water and Groundwater Dependent Ecosystems Workplan;

B. Napa County Water Conservation and Groundwater Pumping Reduction Workplans; and

C. Adaptive Management Response Actions, Climate Adaptation and Building Resiliency;

The purpose of today's agenda item is for the TAG to continue the discussion and consider additional management questions it would like to define and work on during the next six-months to one-year period.

Procedure

Staff introduces item.

Questions and answers with the TAG.

Public comments.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

The purpose of today's agenda item is for the TAG to continue the discussion from the Joint NCGSA/TAG meeting and consider additional management questions it would like to define and work on during the next six-months to one-year period.

Key discussion topics and considerations during the Joint NCGSA/TAG meeting on August 22, 2023 included:

- **Management actions implemented to achieve groundwater sustainability prior to 2024.** The GSP provides sustainable management criteria and an adaptive management approach to manage groundwater resources to avoid undesirable results.
    - Two workplans currently under development (Water Conservation Workplan and Groundwater Pumping Reduction Workplan) are expected to provide the framework for responding to conditions to avoid or correct undesirable results.
    - Protecting interconnected surface water from effects of groundwater pumping, and the additional stresses and lack of recharge that have occurred during hotter drier water years, is a key objective. The NCGSA desires to identify the data and efforts needed to avoid undesirable results and invest in climate resilience and groundwater sustainability.
    - The NCGSA and TAG understand the adoption of water conservation practices in the Subbasin range from early adopters of conservation practices to others who may not have implemented water conservation practices until more recently. Suggestions are sought from the agricultural community and others for ways to highlight and acknowledge early adopters of water conservation practices, including those who are currently implementing and sharing innovative water conservation strategies.
    - The NCGSA and TAG recognize that some individuals and organizations are implementing practices with benefits that extend beyond parcel-specific benefits; however, there is a need to incentivize more people and businesses to communicate the

benefits and value of data sharing, modernization of conservation practices, and evolving sustainability strategies.

- o *NCGSA would like the TAG to consider the issue of drying reaches of the Napa River and its tributaries, determine potential causes and identify solutions and actions reduce impacts.*

- **Partnerships to strengthen outreach, community engagement, and education.**
  - o SGMA is a complex new mandate that involves new processes, some of which are still being developed. Climate change creates new challenges, which necessitate integration of programs (e.g., GSP, Integrated Water Resources Management, Climate Action Plan, Napa Valley Drought Contingency Program, Drought Resilience Implementation Plan), increased data synthesis, and utilization of modern technologies during development of regional strategies to mitigate climate effects.
  - o The NCGSA seeks meaningful partnerships that promote working together as a community to achieve sustainability.
  - o GSP implementation includes utilization of the adaptive management process described in the GSP, including measures needed to track and assess progress.
  - o The Subbasin's most sensitive sustainability indicator is interconnected surface water. The NCGSA and TAG support development of additional educational materials pertaining to surface water and groundwater interactions and to continue educating the public about the close interconnectivity between these resources, effectively being "one water."
  - o The NCGSA and TAG promote outreach and education pertaining to "water conservation as a way of life" and measures to increase water savings and thereby reduce groundwater pumping.
  - o *NCGSA would like TAG to investigate what can we learn from other GSAs and jurisdictions.*
  - o *NCGSA would like the TAG to investigate: 1) how to recognize and potentially reward the entities who have already invested significant resources in conservation and 2) what would users, industry in particular, consider a meaningful incentive(s) to conserve.*
  - o *NCGSA would like the TAG to consider the question, "What can the County offer?" in recognition of a desire to have a true partnership with groundwater users. Examples provided included inspection and maintenance of wells, tracking usage for well owners, and providing year over year reports.*
- **Advancing data collection and exchange.**
  - o Diverse types of monitoring networks exist in the Subbasin, including nine GSP monitoring networks along with monitoring programs developed for other purposes including the Napa County Resource Conservation District's Stream Watch and fish monitoring programs. The NCGSA and TAG understand the integral relationship between measuring and managing natural resources. Stakeholders collect and utilize data

to manage their operations and, where applicable, also for regulatory compliance. The NCGSA's and TAG's mutual objective is achieving and maintaining groundwater sustainability in the Subbasin. An ongoing question is: "What other data or information do we need to help us achieve sustainability?" The NCGSA/TAG would like to know from stakeholders what incentives might motivate data collection, and data sharing where data of interest are already being collected, to engage the Napa County community more broadly in efforts to achieve sustainability objectives.

- The NCGSA and TAG advocate measures to assess the effectiveness of voluntary water conservation practices, including whether and to what extent such practices are achieving the intended water savings and groundwater pumping reduction effect(s).
- *With respect to the voluntary 10% pumping reduction, NCGSA would like to understand "How do you know if the voluntary program is being effective?"*

- **Planning ahead and leveraging climate resilience and groundwater replenishment opportunities.**
  - The NCGSA and TAG support increased opportunities to provide for and use recycled water as a source of supply.
  - Extreme weather events are unpredictable. The NCGSA and TAG commented that additional infrastructure could have been beneficial during the water year 2023 rain events to capture excess stormwater and surplus surface water flows for enhancing groundwater recharge. The Subbasin's characteristics, as a natural alluvial river valley aquifer system, offers significant natural infrastructure and potential opportunities to infiltrate surplus precipitation and surface water infiltration to replenish groundwater. Optimizing the use of surplus stormwater can be challenging because of the timing of storm events and the ability of the landscape to retain surplus water to allow infiltration. Consideration also needs to be given to the interconnectivity between groundwater and the Napa River system; brief time intervals between recharge and discharge may occur depending on hydrogeologic characteristics and recharge locations. However, historical stormwater management and drainage infrastructure (e.g., on-farm ponds, canals, and tile drains) could be examined, potentially leveraged, and reimagined to better utilize stormwater and surplus surface water flows when available.
  - The NCGSA supports partnerships with businesses, urban interests, the agricultural community, and other stakeholders to brainstorm ways to achieve and invest in strategies to replenish groundwater and improve interconnected surface water and ecosystem habitats. In light of recent amendments to SEC. 23, Section 71154 of the Public Resources Code, strategies are encouraged to consider historical (human-constructed) and natural infrastructure coupled with resource sustainability practices such as regenerative agriculture and healthy soils to "slow the flow" on the landscape and increase recharge. Per the new amendments, "natural infrastructure" means using natural ecological systems or processes to reduce vulnerability to climate change related hazards, or other related climate change effects, while increasing the long-term adaptive capacity of coastal and inland areas by perpetuating or restoring ecosystem services. This includes, but is not limited to, the conservation, preservation, or sustainable management

of any form of aquatic or terrestrial vegetated open space (which include aquifers).

- o *NCGSA would like the TAG to investigate the opportunities for recharge.*

Issues and Information - Six-Months to One-Year Look Ahead

The NCGSA desires input from the TAG and stakeholders on how the NCGSA can support the GSP implementation process and facilitate community engagement, public education, broad stakeholder participation in reducing vulnerability to climate change, and measures to preserve ecosystem function and achieve groundwater sustainability. Accordingly, in addition to the key issues recapped above, the TAG will consider and discuss preliminary topics and questions it wishes to receive information on and address during the next six-month to one-year period. This is expected to be a dynamically evolving conversation as new data are compiled and synthesized, the Napa Valley Integrated Hydrologic Model is updated, and the workplans in progress are completed and implemented.

SUPPORTING DOCUMENTS

A. Napa County Technical Advisory Group Framing Question Summary, October through December 2022

B. Napa County Technical Advisory Group Framing Question Summary, January through July 2023

C. Staff Report presented to the Joint meeting of the NCGSA/TAG on August 22, 2023.

NAPA COUNTY TECHNICAL ADVISORY GROUP

Framing Questions Compiled for October through December 2022 and January through July 2023 Meetings

Discussion Questions in Technical Advisory Group (TAG) Meeting Staff Reports: The framing questions from TAG meetings during October through December 2022 and January through July 2023 have been compiled along with draft summaries of discussions during this period. Many of the questions (and the associated discussion by the TAG) occurred during one or more meetings due to the overlapping nature of the meeting topics. Accordingly, the questions and draft summaries of discussions are grouped by topic.

The Napa County Groundwater Sustainability Agency (NCGSA) received this Framing Questions/Discussion document on March 28, 2023 with summaries for October through December 2022.

GSP IMPLEMENTATION AND KEY INPUT FROM TAG: OCTOBER THROUGH DECEMBER 2022

A. Water Conservation Measures and Other Considerations

1. **What water conservation measure(s) has the greatest potential for additional water savings (especially at the Subbasin scale)? What tools/technology/data are recommended to improve the quantification of current and future water demands for all water use sectors? What tools/technology/data should vineyard and winery managers/operators use to demonstrate and quantify the water conservation occurring currently and also the additional water conservation (volume of water saved) that could potentially be achieved? Remotely sensed data require field verification. How should data privacy of field data be addressed as opposed to complete data transparency for calibration/verification purposes? What are the advantages and/or limitations to widespread adoption/acceptance of remotely sensed ET measurements for GSP implementation and annual reporting?**

   Many tools and technologies are in use and/or available for use to monitor water consumption and achieve water conservation associated with urban, rural residential, agricultural, and other land uses. Among the measures discussed was the potential for additional water conservation through improvements to irrigation system efficiency as identified in the distribution uniformity (DU) testing conducted by the Napa County Resource Conservation District and Napa Green. Napa Green is now requiring a DU test as part of their vineyard certification program. Remote sensing technologies such as OpenET at the Napa Valley Subbasin or watershed scale or land-based sensors at a field scale are among the tools available to assess water demands. OpenET can facilitate computation of native and non-native plant water demands for the watershed, while land-based sensors are frequently being used to aid growers in real-time water management and irrigation scheduling. These remote sensing datasets can be used together (along with other types of data where available) to improve the understanding of total water use for native and non-native vegetation (e.g., vineyards and other land uses) and to refine the temporal and spatial representation of evapotranspiration coefficients in the Napa Valley Integrated Hydrologic Model (NVIHM). The field data can offer great value for refining the local application of OpenET data to better understand total water use and to improve the simulation results developed with the NVIHM. Land-based sensors, or other technologies to inform estimates of total water consumption, are not available on all parcels. The field data can be

documented at a regional scale and need not release private owner/address data to meet the overarching objectives for using the best available data to better understand total water demands and water use by native and non-native plants.

2. **Should water conservation measures be incentivized? If so, what might those incentives include?**

   Grapegrowers have invoked water conservation technologies for many years. However, opportunities exist to accomplish additional water conservation locally and also collectively on a Subbasin scale for all land uses, including urban, rural, agricultural, and other land uses. Incentives would be useful to encourage additional water conservation by all users. One type of incentive could include benefits associated with vineyard and/or winery water management certification programs. Benefits derived from certification may be qualitative such as visible promotion of growers that are implementing improved water monitoring and management tools and technologies that support water resources sustainability. Outreach should help raise awareness of the: 1) irrigation efficiency service provided by the Napa County Resource Conservation District and Napa Green, 2) local and state certification programs that include water management criteria, and 3) the importance of monitoring and managing water resources to achieve groundwater sustainability.

   The Napa County GSA could incentivize educational opportunities, including water conservation workshops, training videos, specialized speakers' fees, or other educational materials and venues. Workshops could be subsidized to lessen costs for participants to ensure training materials and resources are accessible to all persons who can contribute to achieving water conservation objectives.

   The Napa County GSA could potentially provide (subsidize) land-based sensors and/or flow meters to vineyard and winery operators or managers who express an interest in tracking water demand and use and increasing the volume of water saved annually. Devices provided through the GSA could include required training on the use, calibration, and maintenance of the device(s). The incentive could occur through a time-limited offering for the Napa County GSA to provide one or both tracking tools, including the cost of shipping, installation, verification of operation, and initial calibration. The time-limited offering could also include calibration of existing flow meters. The Natural Resources Conservation Service (NRCS) could assist vineyard managers/operators in applying (when eligible) to applicable grant opportunities, including the Environmental Quality Incentives Program (EQIP) and installation of monitoring devices and more efficient irrigation technology and infrastructure. The California Department of Food and Agriculture (CDFA) State Water Efficiency and Enhancement Program (SWEEP) could also be considered for eligible applicants. Additional details on the benefits associated with incentives to track water use and conserve more water will be described in the *Napa County Vineyard and Winery Water Conservation Workplan* (in progress). The incentives program could also be integrated with programs that certify vineyards and/or wineries. Incentives are envisioned to help: 1) ensure the future of grape growing in Napa Valley, 2) demonstrate commitment to stewardship, 3) illustrate the utility of tracking current and future water use, and 4) assess vineyard uniformity.

3. **What approaches are recommended to encourage support of and commitment to countywide water conservation efforts that meaningfully achieve efficient water use and future**

sustainability?

Some preliminary approaches to encourage countywide water conservation include implementation of field-scale studies involving analysis of multiple-types of data already being collected at some grower locations. These data include land-based remote sensing data, groundwater extraction volumes, soil moisture, and other data. As described in No. A1, these field-scale analyses can be used to improve the understanding of total water use at the Subbasin or watershed scale. Additionally, outreach efforts by various groups, including vineyard and winery organizations, the Napa County GSA, the Napa County Resource Conservation District, UC Cooperative Extension, and others, could collaborate to increase outreach pertaining to water conservation, the utility of tracking water use, and water resources sustainability objectives. Additional approaches will be included in the *Napa County Vineyard and Winery Water Conservation Workplan* (in progress).

4. **Should vineyard and/or winery water conservation measures be increased regardless of hydrologic year type? Or should increased effort be made during especially dry years? If the latter, how would this be managed and tracked?**

   The Napa River and its tributaries are an integral part of the Napa Valley Subbasin, where groundwater conditions and interconnected surface water respond to wetter and drier hydrologic water years and are susceptible to drought effects. Prudent water resources management and water use efficiency are necessary regardless of water year type. Increased monitoring of interconnected surface water (ISW) and groundwater conditions and other considerations pertaining to wetter or drier water year types could be prioritized for Subbasin locations where ISW and groundwater dependent ecosystems are more susceptible to drier years, less recharge, and/or increased groundwater use.

B. Flood-MAR Specific Framing Questions

1. **How applicable/feasible are Flood-MAR activities in Napa Valley for improving groundwater management?**

   As a preliminary step, the physical characteristics conducive to potential groundwater recharge need to be examined on a macro level to delineate sites/potential areas that warrant a next level of recharge site feasibility assessment. During recharge site feasibility evaluations, it will be important to understand the factors that would encourage (e.g., Subbasin sustainability, ISW, temporal GDE benefits, etc.) or discourage (e.g., vine pests or disease, low yield, flooding impacts, infrastructure constraints, etc.) participation in recharge pilot studies. As part of the recharge site feasibility evaluation, it will be necessary to assess whether proposed recharge projects can achieve the intended benefits and justify the cost of infrastructure, landscape/land use modification, monitoring, and potential impacts, as well as assess the potential water source for recharge and associated costs, challenges, and constraints. The feasibility evaluation should quantify the incremental temporal and spatial benefits to ISW at a prioritized location(s), for example, relative to no project.

2. **What mechanisms for incentivizing recharge and water conservation should the GSA explore?**

   Incentives to encourage onsite recharge will be like those described in No. A2. The Napa Valley Subbasin physical structure, including near-term responses to groundwater inflows and outflows, is not conducive to a groundwater banking construct. Essentially, individuals or entities contributing recharge to the groundwater basin would not be able to extract the

"recharged volume"; they would be subject to the same water management approaches as others who do not participate in groundwater recharge efforts. It is anticipated, however, that some type of incentive would be developed to encourage recharge where recharge is feasible and beneficial to both the individual or entity and sustainable groundwater conditions in the Subbasin.

C. Demand Management Framing Questions

1. **A reduction in groundwater use was approved by the Groundwater Sustainability Plan Advisory Committee (GSPAC) during GSP development. Many demand management options can be invoked, which thereby would reduce groundwater pumping. What demand management measures does the TAG consider to be viable for reducing groundwater pumping in the Napa Valley Subbasin?**

   Demand management measures could occur through various approaches, and it is likely that different combinations of measures will be used by vineyard and winery managers and operators and others, depending on many factors related to the current water use, conservation measures already being employed, and plans for future water management. The preparation of a *Groundwater Pumping Reduction Workplan*, which on October 14, 2021 was unanimously approved by the GSPAC during GSP development for the purpose of reducing groundwater pumping in the Subbasin, achieving a 10 percent reduction in average annual historical (2005-2014) pumping, and initiating a reduction in pumping following adoption of the GSP by the Napa County GSA on January 11, 2022. The reduction in groundwater use approved by the GSPAC applies to the whole Subbasin and not to individual properties. Some of the approaches for demand management could include: 1) greater attention to irrigation infrastructure, uniformity and scheduling; 2) consideration of planting density, row orientation, trellis design, cultivar and rootstock selection, canopy management, etc.; type and utility of cover crops; 3) increased water use efficiency at wineries, including landscape irrigation, selection of drought-adapted plants for landscapes, capture and reuse of winery wastewater; 4) potential rebate for irrigation efficiency; and 5) other water conservation methods. The *Napa County Vineyard and Winery Water Conservation Workplan* (in progress) will serve as a resource for various approaches that can be used to achieve additional water conservation.

2. **Exceedances of minimum thresholds pertaining to the interconnected surface water sustainability indicator have occurred. The GSP describes the need for accelerated actions to reduce groundwater pumping when this occurs. What sequence of steps does the TAG recommend to expedite actions to reduce groundwater pumping? What are reasonable timelines to implement the steps?**

   In June 2022, Napa County took initial steps to revise the countywide well permitting standards, which in turn results in a significant reduction in groundwater use on a per acre basis for new groundwater development (i.e., this is a reduction from about 1 acre-foot per acre per year to 0.3 acre-foot per acre per year). The draft outline for the *Groundwater Pumping Reduction Workplan* is currently being reviewed, and this Workplan, which is a companion document to the *Napa County Vineyard and Winery Water Conservation Workplan*, is anticipated to be completed in Summer 2023. Additional near-term and ongoing community outreach and education are critical to ensure the public is aware of and supports the need to increase water conservation and reduce water demands (see also D2), and is aware of the GSP implementation process, including process for public comments and schedule for workplan approval and implementation.

D. Potential Response Actions

1. **While the Workplans underway are intended to inform actions necessary to maintain sustainable groundwater conditions in the Subbasin, a central question for the TAG is what response actions should be considered in the very near term?**

   Since adoption of the Napa Valley Subbasin GSP, GSP implementation activities have included steps to prepare four workplans, including the *Napa County Vineyard and Winery Water Conservation Workplan, Groundwater Pumping Reduction Workplan, Stormwater Resource Plan,* and *Interconnected Surface Water (ISW) and Groundwater Dependent Ecosystems (GDEs) Workplan***.** Completion of these plans is a priority. It is anticipated that the first three of these workplans will be completed by June 2023, while the ISW and GDEs Workplan is anticipated to take a little longer.

   Other key activities underway or planned while the workplans are being prepared include:

   - Outreach and education (including Spanish language outreach materials), especially related to water conservation measures, tracking water use, and irrigation system evaluations. Implement a broad, whole community approach for water conservation outreach efforts (including landscaping for residential and commercial buildings) (see also No. A2 and A3);
   - Prepare outreach materials that are easy to widely post and/or distribute such as a one-page flyer or brief brochure;
   - Evaluate the current GSP monitoring networks and address data gaps identified in the GSP;
   - Evaluate the feasibility of recharge projects at selected sites/areas (see also No. B1);
   - Evaluate innovative approaches to mitigate drought effects on streamflow (e.g., reservoir releases where feasible);
   - Examine opportunities to increase the use of reclaimed and recycled water;
   - Napa County GSA pursue umbrella water right permit for surplus stormwater diversion for recharge when available; and
   - Prepare and implement a Memorandum of Understanding to demonstrate collaboration among multiple parties (including Napa County GSA, Napa County RCD, UC Cooperative Extension, Napa County Farm Bureau, Napa Valley Grapegrowers, Winegrowers of Napa County, Napa Valley Vintners, Napa Green and others) that will prepare a Water Conservation Outreach and Engagement Plan (WCOE Plan) focused on promoting increased water conservation, especially among vineyard and winery interests and private citizens who rely on well water.

2. **What drought response measures (either voluntary or mandatory) should be implemented in 2023 to mitigate potential drought effects on groundwater conditions, especially interconnected surface water?**

   Drought response (and drought mitigation) measures should emphasize implementing additional water conservation measures where such efforts have not already occurred to the

maximum extent practicable and tracking water use to better identify water savings achieved. The *Groundwater Pumping Reduction Workplan* will describe voluntary measures to conserve water, including reducing groundwater pumping, and also requirements for reduced groundwater use that stem from Napa County's new well permitting standards (as of January 6, 2023). The *Groundwater Pumping Reduction Workplan* will be action-oriented, including monitoring, tracking, and refining the understanding of groundwater use and the effect of that use on groundwater conditions and sustainability. This Workplan will also include adaptive management and a process to invoke mandatory measures if voluntary measures are insufficient to achieve groundwater sustainability.

GSP IMPLEMENTATION AND KEY INPUT FROM NAPA COUNTY TECHNICAL ADVISORY GROUP (TAG): FRAMING QUESTIONS FOR JANUARY THROUGH JULY 2023

The Napa County Groundwater Sustainability Agency (NCGSA) formed a Technical Advisory Group (TAG) to advise the NCGSA and aid in the implementation of the Napa Valley Subbasin Groundwater Sustainability Plan (GSP), including responding to changing groundwater conditions. The five-member TAG was first convened on August 11, 2022.

During the TAG's monthly meetings, the TAG has considered and discussed framing questions related to groundwater conditions and the development of workplans pertaining to GSP implementation. The TAG has had ongoing discussions, and Framing Questions, TAG input, and recommendations are compiled herein for TAG meetings from January through July 2023. [NOTE: Black text is Background Information and Framing Questions, and Blue text summarizes TAG discussion and input.]

Key topics in this document include:

A. Interconnected Surface Water and Groundwater Dependent Ecosystems Workplan;

B. Napa County Water Conservation and Groundwater Pumping Reduction Workplans; and

C. Adaptive Management Response Actions, Climate Adaptation and Building Resiliency

At the August 22, 2023 of the NCGSA Board of Directors, the NCGSA received a summary of the TAG's January through July 2023 Framing Questions and key discussion topics. This meeting provided an opportunity for the NCGSA to receive, discuss and question the TAG about their findings and provide the TAG direction on topics and questions they would like them to consider during the course of the next 6-month to 1-year period related to ongoing GSP implementation and achieving groundwater sustainability.

A. Interconnected Surface Water (ISW) and Groundwater Dependent Ecosystems (GDEs) Workplan

The Napa County Resource Conservation District's (RCD's) Stream Watch program provides a very useful complement to other existing or proposed monitoring to further assess interconnected surface waters and groundwater conditions important to groundwater dependent ecosystems. The Stream Watch network provides more extensive coverage than established agency stream gaging stations and utilizes staff along with volunteers participating in "citizen science" monitoring efforts to record qualitative observations of stream conditions. The Stream Watch monitoring results have been compared to groundwater levels measured in dedicated monitoring wells and, where available, with quantitative stream stage and/or flow measurements. The technical team is currently considering the Stream Watch network and observations from the program during prioritization of potential locations for installing additional dedicated groundwater monitoring wells. Additional monitoring wells are planned to be installed in Fall 2023.

A.1. Are there additional specific content areas related to the ISW and GDEs Workplan that the TAG would like to hear about during Workplan development? What does outreach and education look like for ISW and GDE development? What activities should be initiated in parallel with Workplan development?

The TAG recommends that the additional groundwater level observation "wells" could also include multiple simple shallow casings, which would allow levels to be read manually by Stream-Watch volunteers. Monthly readings are generally fine, but during rapid changes in streamflow, such wells could be read more frequently to better track responses. (These observation wells would be in addition to the 18 dedicated monitoring wells equipped with transducers, along with the 8 additional monitoring wells under construction in fall 2023 that would also have transducers).

The TAG recommends invest in more simple shallow observation wells to cover a broader range of site conditions and provide better 3-D spatial information for each site monitored rather than concentrating the investment in fewer wells with continuous groundwater level measurements at higher cost.

The RCD staff and technical consultants are considering options for effective visualizations of the Stream Watch information and other monitoring data. The visualizations of stream condition information would be useful to incorporate as part of public education and outreach efforts. The remainder of 2023 provides a unique opportunity to use Stream Watch to capture flow conditions across the basin during a wet water year in the mainstem and tributaries.

Perhaps the TAG could help strategize these visualizations through working meetings with TAG subgroups (consisting of 2 members, i.e., less than a quorum) to provide input on ways to picture these relationships. As most members of the public don't have an understanding of these surface-GW interactions, finding ways to effectively communicate these to decision makers and the public would be a priority.

The TAG recommended the following for outreach:

- Combine outreach on ISW/GDE with water conservation and groundwater pumping reduction;
- Develop visualization tools to make ISW more visible/palpable to the public and water users; and
- Organize visits and/or school trips at selected sites to show riparian species, monitoring wells, and other features relevant to ISW and GDE.

A.2. The following framing questions focused on information pertaining to the development of Ecohydrologic Conceptual Models (EHCMs) for selected stream reaches in the Napa Valley Subbasin: are there other stream reaches that should be considered based on their ecological importance, data availability, changes due to restoration activities, or other considerations? Are there other factors that should be considered for EHCM characterization?

The EHCM characterization should identify which criteria may be more important depending on the nature of the GDE (i.e., aquatic vs. terrestrial GDEs). During initial discussion of the plan for developing EHCMs, the TAG recommended that the technical team prepare a map that relates the magnitude of pumping relative to stream reaches for EHCM characterization, including temporal considerations pending available data. The TAG noted a range of EHCM representative sites should be included so the relative effects on site conditions from pumping versus hydrology (e.g., precipitation) can be evaluated under different site settings. Invasive species could be evaluated, including the potential

evapotranspiration effects associated with their removal.

Tracking responses of streamflow and shallow groundwater levels to precipitation and different pumping intensities could yield valuable insights. It was suggested that perhaps a TAG subgroup (consisting of two members, i.e., less than a quorum) could review the existing sites, initially from maps, perhaps later some selected site visits, to understand factors such as proximity of wells and intensity of their pumping, etc. on EHCM response.

The TAG recommended the following criteria be used for characterization (and prioritization – see next framing question):

- stream geomorphology
- importance of GW for baseflow
- potential impact from GW pumping
- discharge to river and/or surface water diversion
- potential for Ag-MAR sites
- presence of invasive species and impact on ET loss
- restoration
- site access
- needed timeline to develop site specific relationships and acceptable ranges based on additional data collection

The TAG also recommended a matrix be developed to summarize the sites and their characteristics for each criteria.

A.3. The Workplan will provide preliminarily prioritization of 18 EHCMs for further evaluation during the Workplan implementation. What aspects are most important when developing the prioritization schema for implementation? How can the Napa Valley Integrated Hydrologic Model (NVIHM) be used (e.g., streamflow depletion and/or scenarios) to inform Ecohydrologic understanding and future establishment of Sustainable Management Criteria?

Since 18 EHCMs are planned to be preliminarily described in the Workplan, the TAG recommended that the prioritization of the sites for further evaluation focus first on those that are understood to have a greater dependence on groundwater conditions. Some sites may be influenced more in response to surface water flows, diversions, or processes that are occurring outside the Subbasin. As part of the prioritization, it would also be useful to focus on locations where baseflow is a significant factor during critical life stages of aquatic GDEs. Additionally, the prioritization should also consider the availability of existing data at sites, the stream geomorphology, the presence of invasive species, and the amount of effort needed to sufficiently characterize sites. To the extent possible with available information, the TAG recommended assessing the degree to which selected sites are representative of conditions across the Napa Valley Subbasin, including identifying the typologies that may be underrepresented and might merit study in future phases of work. Potential constraints on site access should also be considered. To aid review of the prioritization criteria for EHCM sites, the different criteria and corresponding EHCM metrics could be color coded and presented in a matrix format.

Examples of NVIHM scenarios were presented to the TAG at the July 2023 meeting to illustrate the degree of influence from pumping in different parts of the Subbasin on the total streamflow depletion (reduction in streamflow) observed at various stream sites. Future NVIHM scenarios should be explored, including reducing pumping by 10 percent in an individual region or for Subbasin as a whole. More information on the NVIHM, including updates to the model, is planned to be presented at the September 2023 meeting.

B. Napa County Water Conservation and Groundwater Pumping Reduction Workplans

The GSA is working to reduce groundwater pumping because two Undesirable Results have occurred in the Subbasin. Groundwater pumping reduction was specified in the GSP as one of the Management Actions to respond to Undesirable Results. The GSP included a plan to reduce groundwater pumping in the Subbasin by approximately 10 percent (of the historical average). The GSP was approved by DWR on January 26, 2023. The Groundwater Pumping Reduction (GPR) Workplan is being developed as a roadmap for reducing pumping in the Subbasin. The GPR Workplan will focus on voluntary actions, leverage existing water conservation programs and funding opportunities, identify cost-effective approaches to reduce groundwater pumping and summarize water savings benefits for water conservation practices.

The voluntary actions are anticipated to include on-farm (for vineyard) and other (for wineries and other water users) practices that achieve quantifiable reductions in groundwater pumping. For voluntary actions to be successful, they must result in a net (measurable) reduction in groundwater pumping, and there must be sufficient adoption of these practices across different water use sectors. Voluntary water conservation actions by all sectors should provide a benefit to the Subbasin and to individuals that adopt them. To achieve sustainability, the water conservation practices implemented by businesses and the entire community must result collectively in quantifiable groundwater savings. For vineyard and winery operations, certification programs are one way to realize value from voluntary actions. Certification programs allow growers to label a product for partaking in specific practices, typically ones that result in public benefits. Existing certifications for winegrapes are being reviewed to identify the potential for certifying specific water management practices and what value these types of labels may generate. The project team is conducting outreach to support analysis of existing and potential water conservation practices. This includes outreach to certification programs as well as other organizations and entities. For other water users in the basin, incentives and other practices are being reviewed to evaluate the potential for water savings.

B.1. Are there other important considerations for the GPR Workplan that should be considered with the technical work? Are there other components of the GPR Workplan Outline that are not listed in the draft Outline that should be considered/included in the GPR Workplan? Are there other certification programs that should be reviewed, and what other factors encourage adoption of these labeling programs? Are there other entities, individuals, or certification programs that the project team should meet with as part of GPR Workplan development?

Many existing certification programs are available for engaging with vineyard and winery water users. Not all growers believe there are benefits to certification programs. However, it is believed that most growers invoke water conservation practices at some level. It would be useful to better understand the extent of the various conservation practices currently being applied on vineyards and wineries, along with other information about the utility, benefits, and costs of such practices.

About three years ago, growers with vineyards greater than 5 acres in the Napa River Watershed were required to have certifications that met the requirements of the San Francisco Bay Area Water Quality Control Board (Region 2) program. This certification is offered through several existing programs, including Fish Friendly Farming, California Sustainable Wine Growing Alliance, and LandSmart. The Fish Friendly Farming program emphasizes practices pertaining to water quality protection. Although the Fish Friendly Farming program is narrowly designed for a specific purpose, this existing program may provide a foundation for adding best management practices (BMPs) related to water use efficiency and water conservation. LandSmart, a regional collaborative program developed by RCDs to promote productive lands and thriving streams, is another existing program that growers in the Subbasin are enrolled in to meet the Regional Board requirements and/or for access to educational and resource materials on BMPs. The extent to which growers are adopting sustainable water management practices beyond these certifications is not well documented.

Some vineyard managers may not see a benefit to additional and/or expanded certification programs beyond compliance with Regional Board requirements because they sell their grapes to wineries. The wineries may have a business and/or philosophical interest in certification programs promoting sustainability. It would be helpful to define and communicate the value (economic, environmental, business, etc.) of certification programs (existing or expanded) that have components relevant to groundwater sustainability to incentivize participation and explore other incentives such as discount rates.

B.2. Does the list of water conservation practices appear complete, or are there other practices that should be included for analysis? Are there other opportunities to expand adoption of water conservation practices in the Subbasin? What are some of the constraints to achieving wide adoption?

Water Conservation, Best Management Practices, and Education

The TAG strongly supports more education and outreach involving all community members and pertaining to water conservation practices and overall actions relevant to achieving sustainability.

Educational workshops provide a good venue for teaching and learning. Many different workshop approaches can be successful, especially small groups, individualized training, “hands-on” training (such as for developing irrigation management plans), and field training (such as for irrigation system evaluation and distribution uniformity testing).

Multi-lingual offerings, especially in Spanish (e.g., RCD partnership with the Farmworker Foundation), are encouraged. Farmworkers are a key training target since they are in the fields and operating irrigation systems. Training topics are recommended for a wide variety of interests, including vineyard operators, wineries, and the general public.

Following training sessions or workshops, it is important to provide access to advisors and other educational resources, i.e., RCD, independent vineyard consultants, or other trained advisors, to aid in successful application of BMPs and training materials to review or share with others who did not attend the workshop. For example, training related to distribution uniformity testing could facilitate on-vineyard property irrigation system evaluation to determine whether all parts of the system are functioning properly.

To increase the opportunities for training, peer networking can be an effective way for workshop attendees to share educational materials and their knowledge with their peers.

Training the "trainer" can also be very useful for increasing the extent and frequency of irrigation system evaluations and distribution uniformity testing conducted. More funding to support and expand the educational workshops and training programs would be beneficial.

When considering the value of certification programs, creating an approach that does not add too much additional paperwork is important. As a result, it would be useful to leverage existing programs and requirements and minimize additional reporting requirements to the extent possible.

Other Water Conservation Opportunities

Practices related to soil health and management should be encouraged, including mulching, cover crops, or tilling, where warranted. Opportunities for recycled winery process water (not including sanitary wastewater) to be used for landscaping and also for vineyard irrigation should be explored and promoted as appropriate. The recycled water is filtered to remove particulate matter that can clog irrigation systems.

Pilot sites at five or six locations would be beneficial to characterize various vineyard management styles, tools, and techniques, including groundwater and surface water use, drainage, soil types, row orientation, land-based sensors, soil moisture monitoring, plant measurements, etc. These suggestions were also made in Fall 2022 and were incorporated into the Draft Water Conservation Workplan Outline (January 6, 2023). In addition to land-based sensor data volunteered by others, similar data from these pilot sites (where sensors are being used) could help inform the selection of appropriate algorithms for estimating ET through the OpenET remote sensing data platform for developing crop coefficients to representing the spatial and temporal variability across the Subbasin. Information gathered for the pilot sites should seek to describe historical, current, and planned vineyard management practices, including drivers for changes in practices, the benefits realized, and the objectives for future changes (such as building climate resiliency).

The GPR Workplan will include a summary of each water conservation practice, including costs and benefits for existing and potential practices, vineyard-specific benefits, and potential water savings that benefit the Subbasin. A matrix concept was developed whereby practices are ranked by criteria, including costs, private benefits, water savings benefits, implementation timeline, overall feasibility, and other studies as needed to better understand additional aspects of some practices.

B.3. Does the matrix concept provide a useful simplification of the GPR Workplan water conservation practices? What other criteria should be considered?

The matrix concept is helpful in facilitating review and comparison of various water conservation practices. A potential addition/refinement included differentiating practice criteria when applicable or favored for new vs. established vineyard plantings. Some practices may receive a different priority pending timing for replanting (e.g., row orientation modification, different rootstock, etc.).

It would be helpful for the matrix to also differentiate different levels of technology and provide information on the benefits and drawbacks. The TAG suggested soil moisture monitoring also be included in the matrix. There are numerous types of soil moisture monitoring equipment and approaches, and some may be more sophisticated and costly than others.

The TAG discussed the need to include practices for other users in the matrix (not only practices associated with water consumption by vineyards and wineries).

The TAG commented that ranking for flow measurements (e.g., meters to measure groundwater pumping) should be high as it is not possible to manage a resource without measurements.

The TAG recommended that funding opportunities for the different practices be included in the criteria.

Examples of existing certification programs for vineyard and winery water users presented to the TAG include the California Sustainable Winegrowing Alliance, Napa Green, Sustainability in Practice (SIP) Certified, Fish Friendly Farming, and Napa RCD LandSmart. The purpose of individual programs varies, ranging from regulatory compliance to intrinsic value or recognition for practices that are already utilized. Many program participants increase adoption of newer technologies because of interest in certifications and/or because they represent best management practices. Opportunities exist to expand certification of specific practices (and/or emphasize adoption of current, certified practices) that support groundwater sustainability in the Subbasin.

B.4. What aspects of these certification programs hold the most valuable lessons for Napa County? Which can be leveraged and transferred to Napa?

Technologies and Education

The TAG feels there is great importance in education, including training, on the use of technologies being implemented in vineyards. Farmworkers other than just vineyard managers need information and training on specialized equipment and also need to understand general water management principles and the impacts of using different sources of water. The RCD has noted instances where it has purchased technology for growers to test, use, and keep. If the technology is found to be beneficial, the RCD showcases those applications as examples. There are many tools and technologies – so many that it can be overwhelming to some growers. Providing more guidance on the value and benefits of the various tools and technologies could be helpful. The matrix under development could be helpful in providing such guidance, although it will not include specific details of different brands or specific differences between similar tools.

Certification Aspects of Interest

Some local winemakers like the philosophy behind some of the existing certifications (such as Napa Green and SIP) and the influence of the certification label on consumer choices. Some certifications may be viewed by winemakers as important to increasing the return on their investment.

Many vineyards use the Fish Friendly Farming logo on their fields so the public can see their participation in this program. Some wineries have put the logo on their bottles.

Certifications pertaining to water conservation, efficient water use, and water management could be very important and beneficial. Irrigation system evaluations should be a core component of a certification program. Irrigation system evaluations are of high importance as a BMP and include a thorough investigation of the entire vineyard irrigation system with a report including recommendations and suggestions for a follow up in five years (although three years is preferable). The report of recommendations outlines actions to improve water use efficiency. Correspondingly, routine maintenance is recommended, including checking irrigation systems for leaks and filter effectiveness. Training of employees on irrigation system maintenance and management is also important. Some existing certification programs include these irrigation system evaluations, and other programs could

be expanded to include them. The RCD and Napa Green provide these irrigation system evaluations at no cost. Over the past four years, the RCD has completed more than 100 vineyard irrigation system evaluations. The vineyards evaluated are typically more than five years old unless a specific request warrants an evaluation.

The existing certification programs used to comply with Regional Board requirements (such as the Fish Friendly Farming program) and irrigation system evaluation services such as those offered by the RCD and Napa Green could potentially be integrated into the Fish Friendly Farming program as an addendum to these required plans along with tracking water use. The reporting aspects could be limited to avoid disincentivizing participation.

"Benchmarking" is an approach to encourage voluntary changes in practices by showing how an individual compares to an anonymous group of peers or similar water users. Benchmarking programs have proven to be successful in utilities, both for energy and residential water use. Benchmarking provides a framework to track and evaluate performance, identify room for improvement, and encourages users to take voluntary actions to save both resource use and related costs.

B.5. What aspects of the example benchmarking program (U.S. EPA Energy Star program) are most relevant for Napa vineyards and wineries? How could benchmarking drive value for growers and wineries in Napa so that they would want to participate? What other comments and feedback on the GPR Workplan or the summary matrix concept should be addressed?

Benchmarking of water use related to vineyards may be difficult due to limited data. Comparisons between vineyards could be challenging because of the many factors that may differ across vineyards, including (but not limited to) rootstock types, vine spacing, row orientation, vine age differences among vineyard blocks, slope, soils, field conditions, and plant water demand. Benchmarking could be used for growers (and others) to self-assess their own water use year-to-year and in relation to others in the industry. Benchmarking data can be anonymized and aggregated. The TAG recommends developing a well-designed benchmarking program. Benchmarking could also be expanded to include wineries, allowing them to cross compare water use, but this would require enough baseline information to make such a comparison meaningful.

Benchmarking could also be developed to provide guidance to highlight different levels of adoption of BMPs and other voluntary water conservation practices. Many growers and others water users are already implementing one or more BMPs, but it is likely that there are opportunities for more BMPs to be implemented. For instance, a base level may include implementing foundational BMPs, or practices that everyone should be using. Other levels may involve BMPs that use more technology and cost to increase opportunities for additional water conservation. Some BMPs may involve vineyard management strategies that take more time to implement, such as changes to row orientation, spacing, or rootstocks. Many different vineyard and winery management strategies and approaches exist; voluntary actions considered beneficial, particularly at higher BMP levels, will differ among entities. The decision-making process related to water use efficiency can involve many different objectives, including those important to both the vineyard and winery teams. Water use efficiency should emphasize matching plant water needs with irrigation scheduling and management. This requires time, technology, field monitoring, and experience. It would be useful to quantify and consider the cost of alternative BMPs and BMP levels, which could be integrated using the water practices matrix.

It was suggested that a survey be conducted across the county to gather some information

on BMPs being used. The Napa Valley Grapegrowers organization has conducted two such surveys that would lend insights into BMPs that have been or are planned to be used.

There should be incentives to recognize those who have already implemented BMPs. This could be achieved with some sort of "reward" (or different rewards for different levels) to recognize water conservation efforts and stewardship already completed. It would be most beneficial to be able to promote BMPs through communication and outreach to different sectors (vineyards, wineries, others) as an estimated percentage of BMP implementation within each sector. This information could be visualized to promote efforts to do more.

The GPR Workplan will include an implementation plan, which will cover voluntary practices, education/outreach, incentives for participation, funding, benchmarking, assessing the effectiveness of the voluntary program, and an adaptive management process with potential mandatory measures if the voluntary program is ineffective. The implementation plan will also define when and how different actions could be triggered as the Subbasin is adaptively managed over time.

B.6. What approaches should be considered for the GPR implementation plan? How should options identified in the GPR Workplan (e.g., water conservation, certification, benchmarking) be selected for implementation? Should other factors, in addition to groundwater metrics, trigger certain implementation actions?

The TAG reiterated the importance of including irrigation system evaluations and water use efficiency, including factoring in plant water needs. Thus far, the focus has been largely on performing evaluations; there has not yet been a formal process to review the recommendations made and assess whether they have been implemented. It would be useful to add to the matrix (or in a separate list) the BMPs that are suitable for funding opportunities.

The implementation plan needs to describe how several plan components will be operationalized in sequence or in tandem, including community education and engagement, education about and implementation of voluntary BMPs, benchmarking, assessment of program effectiveness, and the adaptive management process with potential mandatory measures should the need occur. The implementation plan also needs to describe roles and responsibilities, including identifying actions to be led by the GSA and actions that will require partnering with other entities.

Incentives for participation could include certification, cost-share program, lowered GSA fees for those that participate in a certification program and have adopted certain BMPs, or other mechanisms. Funding to support the implementation of the GPR Workplan could come from various state, federal, and local funding opportunities, including from the GSA.

Voluntary BMPs should be promoted and used on an ongoing basis regardless of water year type. It is preferable to continuously message the benefits to business operations, sustainability and hospitality organizations, and the broader community, including residents.

It will also be useful to assess the success of BMPs actually implemented and to engage participants in sharing their efforts, experience, successes, and benefits. Peer networking will accelerate engagement in the program and voluntary BMP implementation.

At the TAG's request, cost-share opportunities were reviewed. Primary opportunities include Napa RCD Irrigation Evaluation, the State Water Efficiency and Enhancement Program (SWEEP) - California Department of Food and Agriculture (CDFA), Healthy Soils Program (HSP - CDFA), and the Environmental Quality Incentives Program Conservation Incentives Contracts (EQIP) - Natural Resources Conservation

Service. Other NRCS funding, as well as U.S. Bureau of Reclamation funding and funds available per the Inflation Reduction Act and Farm Bill, represent funding opportunities for agricultural water conservation.

B.7. What other cost-share programs should we review and include?

Other cost-share opportunities could include rebates or subsidized services to incentivize use of foundational BMPs.

Education and training on irrigation system evaluation and water use efficiency could extend to all water uses/users, including landscaping such as at wineries or rural domestic water use on larger parcels.

Because there are many different potential water conservation practices, it would be helpful to put into context the cost and potential water savings that could be achieved with nearer-term BMPs compared to other measures that may require more time to implement.

A phased approach for the GPR implementation plan was proposed to the TAG; each phase includes a portfolio of potential programs.

B.8. What feedback do you have for each proposed phase? Which potential programs and aspects of each would have the most traction? What other feedback do you have on the phased approach? What other considerations should we address for the implementation plan?

Ongoing extensive education and outreach will be critical. It is especially important for the general public to develop trust in the program and the data being generated as part of the implementation plan. Benchmarking data can be aggregated so that businesses and individuals can make their own comparisons, and confidentiality is preserved so that no one business or individual is identifiable. Development and/or use of a self-reporting tool could facilitate self-tracking by businesses and individuals. It was suggested that the GSA or a third party (e.g., Fish Friendly Farming) could organize and manage the data. Resources, including administrative and financial, will need to be identified to implement the plan.

The TAG recommends using or expanding existing certification programs (i.e., integrate this with the concept of different BMP levels). Since many certification programs exist, the plan should identify key BMPs to use or add to one or more existing programs. It may be useful to offer participants a choice of suitable programs with foundational BMPs to maintain more flexibility in the implementation plan. It may be useful to incentivize BMPs with the greatest potential to achieve water savings/water use efficiency (e.g., sap flow technologies to measure plant water needs). Incentives may encourage program participation.

Metering of groundwater pumping or otherwise tracking water use would improve the ability to develop baseline water use data and measure how BMPs that are implemented ultimately reduce water use. This would also facilitate benchmarking. The GSA could consider offering reduced fees, rebates, or an incentive payment, for those providing water meter data because this would save GSA costs.

Completion of some elements of the proposed phases (phases one through three) will take time. However, the goal should be to complete the first three phases and avoid the need to initiate Phase 4 (mandatory measures). The proposed phases need not occur strictly sequentially as some participants may be much further along than others in their use of BMPs and advanced technologies.

C. Adaptive Management Response Actions, Climate Adaptation and Building

Resiliency

Adaptive Management Response Actions

The very dry years and abnormal precipitation patterns during 2020 through 2022 led to depleted groundwater conditions and Undesirable Results in the Napa Valley Subbasin. The GSA is responsible for invoking management actions to address Undesirable Results. The Napa Valley Subbasin GSP includes Management Action #2 to reduce groundwater pumping in the Subbasin by 10 percent (of the historical average); various ways to achieve this on a Subbasin scale are being considered. Concurrently, the GSP requirements and public trust considerations, together with the County Drought Proclamation, the State Drought Emergency, and the Governor's Executive Order N-7-22, led to the request to the County Board of Supervisors at its June 7, 2022 meeting that the County revise its well permitting procedures, including new water use criteria in the Subbasin, i.e., a change from 1 acre-foot per acre to 0.3 acre-feet per acre for new well permit applications (where existing groundwater use exceeds the 0.3 acre-feet per acre, a no net increase in groundwater use is required).

The new water use criteria may be adjusted (either up or down) as the County considers revisions and updates to the Groundwater Ordinance and the 2015 Water Availability Analysis (WAA), completes development of the four workplans underway (including the GPR Workplan), and assesses groundwater and interconnected surface water conditions based on ongoing monitoring and analysis of the Sustainable Management Criteria for all six sustainability indicators. The TAG's input and guidance were sought on whether, how, and under what conditions water use criteria may be adjusted in the future and whether other measures should occur to ensure groundwater sustainability.

C.1. Under what conditions should the Napa County GSA consider future changes to water use criteria?

Ongoing water conservation by the entire community living and working in Napa County is important to achieve and maintain groundwater sustainability. The impacts of climate change are important to consider, and there is a need to rethink how water resources are used to maintain livelihoods and protect the environment. Public education is critical to shift from short-term (day-to-day) views of conditions (drought or no drought) to creating conservation-oriented habits, changing lifestyles, applying modern approaches regardless of current conditions, and establishing capacity to prepare for extreme events and, most importantly, to build resilience and achieve long-term sustainability. This means embracing water conservation as a way of life – rain or shine. This also means continually promoting groundwater replenishment and increasing groundwater reserves to lessen the effects of much less recharge during very dry years. While the initial title for the Napa County Vineyard and Winery Water Conservation Workplan was focused on the winegrape sectors, the title should be broadened to address all water users in the County: "Napa County Water Conservation Workplan, A Guide for Vineyards, Wineries, and Other Sectors."

On behalf of the GSA, the TAG is focused on using currently available data and information and identifying data needs to develop solution-oriented recommendations for the GSA's consideration. Groundwater use has increased during recent years in response to hotter and drier conditions. However, except for limited locations where meters are required for discretionary permits, metering is not required, and groundwater use is estimated. The OpenET remote sensing platform (in conjunction with local data) is being examined as a tool for developing refined estimates of regional groundwater use and relative changes in future groundwater use to support the evaluation of effectiveness of voluntary conservation efforts. The accuracy of OpenET data is dependent on CIMIS station data. Napa County

needs more CIMIS stations to make OpenET a viable proxy for water usage. Staff is coordinating with the Department of Water Resources and examining potential locations for a new CIMIS station in the Subbasin. The OpenET platform is imperfect, but the data used in concert with local data likely represents the best available technology at this time for estimating ET at a regional scale. The ET estimates relate to overall water demand met by many water sources, including precipitation and applied water sources. The NVIHM integrates surface water supplies and direct groundwater uptake to estimate groundwater pumping. Future model revisions would incorporate spatially and temporally refined crop coefficient information and more sophisticated ways of accounting for water demands met by soil moisture. Volunteered data such as land-based sensor data, water use data (e.g., groundwater, surface water, recycled water), soil moisture data, sap flow measurements, and other local data would help improve the utility of the OpenET platform, refine water budget estimates, and inform water management strategies.

Some community members have expressed concerns about the revised well permitting procedures. Specifically, concerns that the new 0.3 acre-feet per acre limit on groundwater use could be challenging to achieve until vineyards are replanted (including more vigorous rootstocks) and/or other vineyard design and water management considerations occur. An interim approach could be considered to allow for some flexibility during a transitional period. An interim approach could consider:

- Demonstration of water use efficiency and implementation of BMPs. This could include irrigation system evaluation (if this has not already occurred), recommendations by the evaluator for improved water use efficiency as needed and follow through with the recommended actions.
- Participation in a certification program (this is conceptual until the GPR Workplan is completed. Options could be available to meet this requirement, i.e., certification programs that include foundational BMPs would be eligible to achieve this purpose).
- Willingness to meter and track water use. Water use data could be reported to the County or a third party, such as an entity with an existing certification program that includes foundational BMPs.
- The County could consider a phased approach (for eligible applicants), including a slightly greater water use criterion on an interim basis while changes occur (replants, vineyard design, etc.) and basin conditions are assessed relative to Sustainable Management Criteria. Further consideration could be given to who and/or what circumstances would be eligible for a phased approach and what would be an appropriate interim or transitional period for this additional flexibility in achieving reduced groundwater use to avoid Undesirable Results and achieve sustainability.
- The County should continually align its requirements with what the GSA requires to achieve groundwater sustainability in the Napa Valley Subbasin in accordance with GSP regulations.

As currently implemented, the new water use criterion of 0.3 acre-feet per acre will have a very small effect on reducing groundwater use because it only applies to new permits within the Subbasin (which are limited [~10-20 per year] based on the past five years). This underscores the need for voluntary actions by all groundwater users to reduce groundwater

use. To accelerate water conservation efforts, incentives could be developed to improve water use efficiency, implement additional BMPs and new technologies, and encourage other groundwater use reduction strategies.

C.2. Should other measures occur to ensure groundwater sustainability?

Actions are underway to coordinate with DWR on establishing a new CIMIS station in the Napa Valley Subbasin as part of an overall strategy to reduce water use and increase water use efficiency by improving the quality and availability of data to inform irrigation management.

Efforts should occur to better understand use of recycled water inside and outside the Napa Valley Subbasin, including the source water origin (e.g., winery process water or reclaimed wastewater), the places for current reuse, the volume of recycled water used, recycled water management strategies (augmenting existing water supplies or replacing existing surface water or groundwater supplies), the opportunities available for expanding recycled water use, and potential constraints associated with recycled water use. Additional educational materials could be developed for public education and outreach and more widely distributed to promote recycled water use.

Efforts would also be beneficial to better delineate the occurrence, construction, and use of onsite ponds and associated infrastructure. These ponds are typically used for temporary onsite water storage as part of irrigation management approaches. The ponds may receive stormwater that is captured, temporarily stored, and used for irrigation. The ponds are also often associated with lands that have surface water rights and permits for specified diversion amounts, where diverted surface water is temporarily stored and used for irrigation. It is unknown to what extent these ponds are lined or unlined; anecdotal information indicates that older ponds may more often be unlined, while newer ponds are typically lined. Additional information about these ponds would help inform how they could benefit intentional onsite replenishment of groundwater with captured stormwater, for example, in unlined ponds. Temporarily stored water may be beneficial for early-season use in lieu of groundwater. Anecdotally, these strategies are occurring to some extent already. However, quantifying these efforts would inform strategies to reduce groundwater use and also recharge groundwater.

Understanding the occurrence and utilization of subsurface drainage features (e.g., tile drains or similar) could also highlight opportunities to retain more stormwater on the landscape. Historically, tile drains were used to move water out of the root zone to drainage channels. Instead of moving drainage water off properties via conveyances that eventually discharge to creeks, retaining the drainage water onsite could facilitate groundwater recharge.

Napa County

Board Agenda Letter

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Board of Supervisors | **Agenda Date:** 8/22/2023 | **File ID #:** 23-1285

TO: Napa County Groundwater Sustainability Agency (NCGSA)

FROM: Brian Bordona - Director of Planning, Building, and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: Joint meeting of the Technical Advisory Group and Groundwater Sustainability Agency

RECOMMENDATION

SET MATTER 9:30 AM - Groundwater Sustainability Agency and Technical Advisory Group Update

Staff requests the Napa County Groundwater Sustainability Agency (NCGSA) Board of Directors:

1. Receive a summary of key discussion topics (aka "Framing Questions") considered by the Technical Advisory Group (TAG) during their January through July 2023 meetings presented within the Background section of this staff report; and
2. Discuss the Framing Questions directly with TAG members and pose questions to the TAG about their findings; and
3. Provide the TAG direction on discussion topics and questions the NCGSA would like the TAG to consider during the course of the next 6-month to 1-year period related to ongoing Groundwater Sustainability Plan (GSP) implementation and achieving groundwater sustainability in the Napa Valley Subbasin.

EXECUTIVE SUMMARY

The NCGSA formed a Technical Advisory Group (TAG) to advise the NCGSA and aid in the implementation of the Napa Valley Subbasin GSP, including responding to changing groundwater conditions. The five-member TAG was first convened on August 11, 2022. During the TAG's monthly meetings, staff posed Framing Questions to the TAG which they considered and responded to, bringing their individual expertise to bear on topics related to groundwater conditions, GSP implementation and development of four workplans. A summary of the Framing Questions considered by the TAG during their meetings in 2023 is presented herein.

The purpose of the today's meeting is to provide an opportunity for the NCGSA to receive, discuss and question the TAG about their findings and provide direction on topics and questions they would like the TAG to consider during the course of the next 6-month to 1-year period related to ongoing GSP implementation and

achieving groundwater sustainability.

Key topics discussed by the TAG include:

A. Interconnected Surface Water and Groundwater Dependent Ecosystems Workplan;

B. Napa County Water Conservation and Groundwater Pumping Reduction Workplans; and

C. Adaptive Management Response Actions, Climate Adaptation and Building Resiliency;

The goal of the GSP is to achieve sustainability by ensuring that there are no Undesirable Results in the Napa Valley Subbasin by 2042. As described in the GSP, once Minimum Thresholds and/or Undesirable Results have been exceeded, the NCGSA should assess the causal factors resulting in the exceedance(s), including the extent to which climate change has contributed to these conditions. This analysis is critical to ensure careful consideration of potentially changed groundwater conditions and inform steps to implement Projects and Management Actions (PMAs).

Following the NCGSA's adoption of the GSP in January 2022, GSA staff and technical consultants immediately initiated many PMAs, including the development of four workplans:

1. Stormwater resource plan (completed);
2. Interconnected surface waters and groundwater dependent ecosystems (in progress);
3. Napa County water conservation - a guide for vineyards, wineries, and other sectors (in progress); and
4. Groundwater pumping reduction (in progress).

Altogether, these plans will include implementing advanced technologies for water conservation; pumping reduction; stormwater management and potential utilization for managed aquifer recharge; measures for tracking and reporting groundwater use in the Subbasin; and assessments of groundwater dependent ecosystems (GDEs) within the Subbasin. These workplans are being developed with input from the public and other stakeholders. Input from the public is also requested during monthly TAG meetings and through other GSA announcements and communications. These workplans are integral to ongoing GSP implementation, informing adaptive management strategies, addressing data gaps, and achieving groundwater sustainability. The three workplans in progress are planned to be completed by the end of 2023.

FISCAL & STRATEGIC PLAN IMPACT

Is there a Fiscal Impact?	No
Is it Mandatory or Discretionary?	Discretionary
Discretionary Justification:	This item is related to GSP implementation
Is the general fund affected?	No
Future fiscal impact:	Analysis of future impact is pending
County Strategic Plan pillar addressed:	Vibrant and Sustainable Environment

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQ Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

GROUNDWATER SUSTAINABILITY PLAN (GSP)

The NCGSA formed a Technical Advisory Group (TAG) to advise the NCGSA, respond to changing groundwater conditions, and aid in the implementation of the Napa Valley Subbasin GSP, which was approved by the Department of Water Resources on January 26, 2023. The five-member TAG was first convened on August 11, 2022.

The goal of the GSP is to achieve sustainability by ensuring that there are no Undesirable Results in the Napa Valley Subbasin by 2042. The Subbasin was significantly affected by persistent drought conditions during Water Years (WYs) 2020, 2021, and 2022; groundwater levels exceeded Minimum Thresholds, and Undesirable Results occurred for two Sustainability Indicators. The large amount of precipitation in the first five months of WY 2023 is likely to result in significantly more groundwater replenishment in WY 2023 compared to WY 2022. As described in the GSP, once Minimum Thresholds and/or Undesirable Results have been exceeded, the NCGSA should assess the causal factors resulting in the exceedance(s), including the extent to which climate change has contributed to these conditions. Ongoing analysis is critical to ensure careful consideration of potentially changed groundwater conditions and inform steps to implement Projects and Management Actions (PMAs). The GSP describes PMAs along with supporting actions for sustainable groundwater management, including four workplans; one workplan has been completed and three others are anticipated to be completed in 2023 (see Annual Report Table ES-7).

NCGSA TECHNICAL ADVISORY GROUP: SUMMARY OF KEY 2023 TOPICS

During the TAG's monthly meetings, the TAG has considered and discussed framing questions related to groundwater conditions and the development of the aforementioned workplans. The framing questions from TAG meetings during October through December 2022 were compiled and presented to the NCGSA at their March 28, 2023, meeting. The TAG has had ongoing discussions, and a compiled summary of those Framing Questions is provided herein for TAG meetings from January through July 2023 for the NCGSA's review and consideration. **The August 22 meeting provides an opportunity for the NCGSA to receive, discuss and question the TAG about their findings and provide the TAG direction on topics and questions they would like them to consider during the course of the next 6-month to 1-year period related to ongoing GSP implementation and achieving groundwater sustainability**.

Key topics in the Summary include:

A. Interconnected Surface Water and Groundwater Dependent Ecosystems Workplan;

B. Napa County Water Conservation and Groundwater Pumping Reduction Workplans; and

C. Adaptive Management Response Actions, Climate Adaptation and Building Resiliency

Interconnected Surface Water and Groundwater Dependent Ecosystems Workplan

In the Napa Valley Subbasin, groundwater dependent ecosystems (GDEs) include species and ecosystems that use groundwater or interconnected surface water to meet at least part of their water requirements. Overarching objectives of the Interconnected Surface Water (ISW) and GDEs Workplan include:

- Review and establish hydrologic and ecologic criteria for maintaining or improving ISW and groundwater conditions that support the health of aquatic ecosystems and GDEs in the Subbasin;

- Characterizing the biological parameters, thresholds, and physical conditions needed to maintain the health and viability of aquatic ecosystems and GDEs;
- Identifying data gaps to be addressed to characterize the aquatic and GDE-related parameters and baseline conditions needed to assess the effects of groundwater pumping on the status of key indicator species; and
- Identifying parameters, thresholds, monitoring facilities, and/or modeling needed to track the status of ISW and GDEs and inform Sustainable Management Criteria for ISW to achieve sustainability.

The Napa County Resource Conservation District's (RCD's) Stream Watch program provides an especially useful complement to other existing or proposed monitoring to further assess ISWs and groundwater conditions important to GDEs. GSA staff and the GSP technical team are currently considering the Stream Watch network and observations from the program during prioritization of potential locations for installing additional dedicated groundwater monitoring wells. Per GSP efforts to address data gaps, eight new monitoring wells were installed in Spring 2023. Approximately, eight additional monitoring wells are planned to be installed in Fall 2023.

Based on ISW and GDE Workplan objectives and TAG meeting discussions, the TAG recommended the following outreach:

- Combine outreach on ISW and GDEs with water conservation and groundwater pumping reduction interests;
- Develop visualization tools to make ISW more visible/palpable to the public and water users; and
- Organize visits and/or school trips at selected sites to show riparian species, monitoring wells, and other features relevant to ISW and GDEs.

The ISW and GDEs Workplan includes development of approximately 18 ecohydrologic conceptual models (EHCMs) in the Napa Valley Subbasin to identify data gaps and inform recommended next steps to address Workplan objectives.

- As part of EHCM development, the TAG recommended that the technical team prepare a map that relates the magnitude of pumping relative to stream reaches for EHCM characterization, including temporal considerations.

The TAG noted a range of representative EHCM sites should be included so the relative effects on site conditions from stream geomorphology, groundwater contributions to stream baseflow, potential impacts of pumping and/or surface water diversions on streamflow, and variable hydrology (e.g., precipitation magnitude, frequency, duration) could be characterized. Invasive species could be evaluated, including the potential evapotranspiration effects associated with their removal.

- The TAG recommended development of a matrix to summarize site characteristics pertaining to each of the EHCMs (including the above considerations), opportunities for maintaining or improving ISW and groundwater conditions, and the timeline to develop site-specific relationships and additional sustainable management criteria based on additional data collection.

Hydrologic conditions pertaining to Workplan development are being assessed using a combination of data from surface water monitoring, groundwater monitoring, Stream Watch data, and the Napa Valley Integrated Hydrologic Model (NVIHM). Examples of NVIHM scenarios were presented to the TAG to illustrate the

degree of influence from pumping in various parts of the Subbasin on the total streamflow depletion (reduction in streamflow) observed at various stream sites.

- The TAG recommended that future NVIHM modeling scenarios should be explored, including reducing pumping by 10 percent (per the GSP PMA on pumping reduction) in an individual region(s) or for Subbasin as a whole.

Napa County Water Conservation and Groundwater Pumping Reduction Workplans

The NCGSA is implementing adaptive management strategies and PMAs to reduce groundwater pumping in response to two Undesirable Results in the Subbasin. The DWR-approved GSP specifies a 10 percent reduction in groundwater pumping (10 percent of the historical average), and the Groundwater Pumping Reduction (GPR) Workplan is being developed as a roadmap to achieve this goal. The GPR Workplan is being developed in coordination with the Water Conservation Workplan, which identifies additional water conservation strategies. The GPR Workplan is based on a guiding framework that prioritizes voluntary actions, identifies cost -effective approaches, leverages existing water conservation programs, and includes an adaptive management process.

Voluntary water conservation practices include practices for vineyards, wineries, and domestic water users that lead to measurable reductions in groundwater pumping. These actions are being organized in the GPR Workplan in a matrix format to summarize costs of adoption, groundwater savings potential, implementation timeline, and grant-funding opportunities to further incentivize adoption and reduce costs. Example practices include distribution uniformity testing, soil health practices, using recycled water and winery wastewater for landscape and vineyard irrigation, benchmarking, and more. Benchmarking data could facilitate comparisons, and metering groundwater pumping or water use would improve tracking and benchmarking efforts.

Certification programs, such as Napa Green and California Sustainable Winegrowing Alliance, encourage adoption of water conservation practices by vineyards and wineries while generating business value for participation through the certification label. Labels for certification programs signal sustainability commitments and standards to conscientious consumers.

The GPR Workplan will also include a phased implementation plan, which will cover voluntary practices, education, and benchmarking, assessing the effectiveness of the voluntary program, and an adaptive management process with potential mandatory measures if the voluntary program is ineffective. While the implementation plan is still in development, the TAG has discussed incentives for adopting voluntary water conservation practices, which would reduce groundwater pumping and potentially lower GSA/GSP costs. Examples of incentives include cost-share programs, rebates, or reduced groundwater fees, if fees are adopted by the NCGSA in future. Adaptive management would be incorporated throughout the phased GPR implementation program to refine baseline data, monitor sustainability indicators, and improve programs for achieving sustainability in the Subbasin.

Overall, the GPR Workplan seeks to achieve groundwater sustainability through education, voluntary actions, and incentives to encourage engagement in community efforts to reduce groundwater use. An adaptive management approach (following the approach described in GSP Section 11) will ensure the GPR Workplan implementation aligns with GSP requirements, such as the triggers, thresholds, and the timeline for other GSP processes and will help avoid the need for mandatory measures.

Findings from the TAG include:

- The TAG strongly supports more education, outreach, and training involving all community members and pertaining to water conservation practices and overall actions relevant to achieving sustainability. Multilingual educational workshops to reach the farmworkers, peer networking, "hands-on training," and access to advisors are suggested to promote water conservation practices.
- It would be useful to better understand the extent of the various conservation practices currently being applied on vineyards and wineries, along with other information about the utility, benefits, and costs of such practices.
- Irrigation system evaluations, water use efficiency, and factoring in plant water needs are key best management practices (BMPs); increased use of BMPs with the greatest potential to achieve water savings/water use efficiency (e.g., technologies to measure plant water needs) could be incentivized. Collaboration with the RCD, also with winegrape organizations, to support irrigation system evaluations and/or broader education and outreach to adopt and implement BMPs is desired.
- The TAG identified certification as a pathway to boost voluntary adoption of BMPs and recommends using or expanding existing certification programs. Incentives for participation could include certification benefits, cost-share program, and lowered GSA fees for those that participate in a certification program.
- The TAG recommends developing a well-designed benchmarking program. Comparisons between vineyards could be challenging because of limited data and many factors that may differ across vineyards. However, information could be tracked through a self-reporting tool for growers (and others anonymously) to self-assess their own water use year-to-year and in relation to others in the industry.
- Metering of groundwater pumping or otherwise tracking water use would improve the ability to develop baseline water use data, measure how BMPs reduce water use, and facilitate benchmarking. The NCGSA could consider incentives such as offering reduced fees, rebates, or an incentive payment for those providing water meter data. Incentives could also "reward" early adopters - i.e., ways to value and recognize existing water conservation efforts and commitments to water resource stewardship.
- Pilot sites at approximately six locations would be beneficial to characterize various vineyard management styles, tools, and techniques, including groundwater and surface water use, drainage, soil types, row orientation, land-based sensors, soil moisture monitoring, plant measurements, etc. Information gathered for the pilot sites would seek to describe historical, current, and planned vineyard management practices, including drivers for changes in practices, the benefits realized, and the objectives for future changes. The benefits of adopting new or additional BMPs and practices to achieve climate resiliency should be promoted and encouraged.
- The GPR implementation plan needs to describe roles and responsibilities, including identifying actions to be led by the NCGSA and actions that will require partnering with other entities.
- The GPR Workplan matrix concept is helpful in facilitating review and comparison of various water conservation practices for all sectors. It would be helpful to contextualize the cost and potential water savings that could be achieved with nearer-term BMPs compared to other measures that may require more time to implement. Funding opportunities for the different practices should be included in the criteria. The TAG commented that flow measurements should be ranked "high" in the matrix, as it is not

possible to manage a resource without measurements.

Adaptive Management Response Actions, Climate Adaptation and Building Resiliency

The NCGSA has implemented PMAs to address the Undesirable Results that occurred in WY 2022, including the workplans discussed above to reduce groundwater pumping in the Subbasin by 10 percent (of the historical average). Concurrently, the GSP requirements and public trust considerations, together with the County Drought Proclamation, the State Drought Emergency, and the Governor's Executive Order N-7-22, led to the request to the Napa County Board of Supervisors at its June 7, 2022, meeting that the County revise its well permitting procedures, including new water use criteria in the Subbasin, i.e., a change from 1 acre-foot per acre to 0.3 acre-feet per acre for new well permit applications (where existing groundwater use exceeds the 0.3 acre-feet per acre, a no net increase in groundwater use is required). This new water use criteria may be adjusted (either up or down) as the County considers revisions and updates to the Groundwater Ordinance and the 2015 Water Availability Analysis (WAA), completes development of the remaining three workplans underway, and assesses groundwater and ISW conditions based on ongoing monitoring and analysis of the Sustainable Management Criteria for all six sustainability indicators. The TAG's input and guidance were sought on whether, how, and under what conditions water use criteria may be adjusted in the future and whether other measures should occur to ensure groundwater sustainability.

Findings from the TAG include:

- Ongoing water conservation by the entire community living and working in Napa County is important to achieve and maintain groundwater sustainability.
- Public education is critical to shift from short-term (day-to-day) views of conditions (drought or no drought) to creating conservation-oriented habits, changing lifestyles, applying modern approaches regardless of current conditions, and establishing capacity to prepare for extreme weather events and, most importantly, to build resilience and achieve long-term sustainability. This means embracing water conservation as a way of life - rain or shine.
- Groundwater use has increased during recent years in response to hotter and drier conditions. Metering, with limited exceptions, is not required, and groundwater use is mostly estimated.
    - The OpenET remote sensing platform (in conjunction with local data) is being examined as a tool for developing refined estimates of regional groundwater use. The OpenET data used in concert with local data likely represent the best available technology at this time for estimating ET at a regional scale.
    - Volunteered data such as land-based sensor data, water use data (e.g., groundwater, surface water, recycled water), soil moisture data, sap flow measurements, and other local data would help improve the utility of the OpenET platform, refine water budget estimates, and inform water management strategies.

Early Adaptive Management Action: New Napa County Permit Standards

Some community members have expressed concerns about the revised well permitting procedures. An interim approach could be considered to allow for flexibility during a transitional period; a possible approach could consider:

- Demonstration of water use efficiency and implementation of BMPs.
- Participation in a certification program.
- Willingness to meter and track water use; reporting could occur in an aggregated/anonymized manner through a third-party certification program.
- The County could consider a phased approach (for eligible applicants), including a slightly greater water use criterion on an interim basis while changes occur (replants, vineyard design, etc.) and basin conditions are assessed relative to Sustainable Management Criteria.
- The County should continually align its requirements with what the NCGSA requires to achieve groundwater sustainability in the Napa Valley Subbasin in accordance with GSP regulations.

As currently implemented, the new water use criterion of 0.3 acre-feet per acre will have a small near-term effect on reducing groundwater use because it only applies to new permits within the Subbasin (which are limited based on permits in the past five years). This underscores the need for voluntary actions by all groundwater users to reduce groundwater use. The TAG finds that additional information on water demands, use, and disposition would enhance water management strategies by all sectors, including:

- Incentives could be developed to improve water use efficiency, implement additional BMPs and innovative technologies, and encourage other groundwater use reduction strategies.
- Efforts should occur to better understand use of recycled water inside and outside the Napa Valley Subbasin, including recycled water management strategies, opportunities available for expanding recycled water use, and potential constraints associated with recycled water use.
- Efforts would be beneficial to better delineate the occurrence, construction, and use of onsite farm ponds and associated infrastructure. Temporarily stored water may be beneficial for early season use in lieu of groundwater.
- Efforts to understand the occurrence and utilization of subsurface drainage features (e.g., tile drains or similar) could highlight opportunities to retain more stormwater on the landscape to facilitate groundwater recharge.

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Technical Advisory Group | **Agenda Date:** 9/14/2023 | **File ID #:** 23-1580

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: Groundwater Pumping Reduction Workplan - Update

RECOMMENDATION

Provide an update to the Technical Advisory Group (TAG) on progress for the Groundwater Pumping Reduction Workplan (GPR Workplan) and Water Conservation Workplan (WC Workplan). This will focus on discussions of a benchmarking conceptualization, incentivizing participation in certification programs, and next steps. Framing questions are included to receive feedback and direction from the TAG.

EXECUTIVE SUMMARY

Staff and the technical team are continuing work on the GPR Workplan and WC Workplan. An initial presentation was given at the February TAG and updates were provided at the March, April, May, and July TAG meetings. TAG feedback at each prior meeting has been incorporated into the draft analysis being completed for the Workplans. It is anticipated that work will result in draft Workplans that will be presented to the TAG in Fall 2023. This is the sixth of several updates to the TAG. Information based on feedback and preliminary analysis completed by the technical team is being presented at this meeting, and this will be updated as the technical team completes its work and continues to receive feedback from the TAG.

Procedure
Staff introduces.
Questions and answers with the TAG.
Public comments.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

Napa County GSA Staff and the technical team are continuing to work on the GPR Workplan and WC Workplan. This is the sixth update to the TAG. Information and updates since the last TAG meeting are being

presented (see Supporting Document A), and this will be updated as the technical team completes its work and receives feedback from the TAG.

The **Groundwater Pumping Reduction Workplan (GPR Workplan)** is being prepared to provide a roadmap for implementing measures to reduce groundwater pumping in the Napa Valley Subbasin. This Workplan is a companion document to the related document, **the Napa County Water Conservation Workplan, A Guide for Vineyards, Wineries and Other Sectors (WC Workplan)**, a stakeholder-facing tool to learn about, consider, and implement voluntary water conservation practices.

The GPR Workplan will describe voluntary measures to conserve water, including reducing groundwater pumping. The GPR Workplan will include processes for improving the understanding of groundwater use in the Subbasin and evaluating the effectiveness of measures implemented to reduce groundwater pumping in relation to observed benefits to groundwater conditions and sustainability. The GPR Workplan will also include adaptive management and a process to invoke mandatory measures if voluntary measures are insufficient to achieve groundwater sustainability (i.e., an implementation plan). The Workplan also includes a summary of cost sharing opportunities and summary of data gaps that will need to be addressed to support program implementation.

The GPR Workplan will focus on voluntary actions that achieve groundwater benefits for the Subbasin, assess the costs and benefits of alternative actions and focus on those that are most cost-effective, leverage existing programs and opportunities to generate value to participants, and include an adaptive management process to adjust the program as data and sustainable management criteria evolve.

Voluntary water conservation actions should provide a benefit to the Subbasin and to individuals that adopt them. The TAG has reviewed certification programs (Feb 2023), benchmarking programs (Apr 2023), and broader best management practices for incentivizing adoption of water savings technologies and practices, including behavioral nudges and educational workshops and programming (Feb, Mar, Apr 2023). The project team continues to conduct outreach to support analysis of existing and potential water conservation practices, including outreach to certification programs as well as other industry organizations and experts.

- Certification programs are one way to realize value from voluntary actions. Existing certifications for winegrapes have been reviewed to identify the potential for certifying specific water management practices, and what value these types of labels may generate. A preliminary update was presented at the March 2023 TAG meeting. Certification programs that have been reviewed include the California Sustainable Winegrowing Alliance, Napa Green, SIP Certified, Fish Friendly Farming, and Napa Resource Conservation District (RCD) LandSmart. The motivation for utilizing different certification programs ranges from regulatory compliance to intrinsic value for practices that producers are already utilizing. Many program participants increase adoption of newer technologies for certifications and as part of best management practices. It appears there are opportunities to expand certification of specific practices (and/or emphasize adoption of current, certified practices) that would support groundwater sustainability in the Subbasin.
- “Benchmarking” is an approach to encourage changes in practices by showing how an individual compares to an (anonymous) group of their peers. Benchmarking programs have proven to be successful in utilities, both for energy and residential water use. Benchmarking provides a framework to encourage voluntary changes in water use, for water users to confidentially evaluate their own performance relative to the Subbasin at large, identify room for

improvement, and save both resource use and related costs. At the April 2023 TAG meeting, the U.S. Environmental Protection Agency's Energy Star program was presented as a case study for a benchmarking program. The case study provided an opportunity to explore how a benchmarking program for water use in vineyards and wineries (and potentially other sectors) may similarly be developed in Napa to help reduce groundwater pumping and maintain sustainability under the GSP. A key issue identified by the TAG is the variability in water use across different growers, crops, and microclimates. A benchmarking program in which a grower could track across their own portfolio over space and time may overcome some of these challenges, as well as identifying appropriate "peer groups" on factors affecting the variability.

The GPR Workplan will include a summary of each water conservation practice. This summary will include costs and benefits for existing and potential practices, including vineyard-specific adoption costs and potential water savings that benefit the Subbasin. To organize and summarize findings in a concise format, a matrix concept was developed whereby practices are ranked by criteria including estimated costs, private benefits, water savings benefits, implementation timeline, overall feasibility, and other required studies. The concept was presented to the TAG in March for feedback and discussion, and the draft findings were presented at the May meeting. This included a proposal to focus on the practices that show the potential for the highest impact. These will be ranked in the Workplan for overall cost-effectiveness and feasibility, highlighting those that could be top-priority practices for adoption. Feedback included minor revisions and analyzing the potential for cost-share programs to further lower costs of adoption for applicable practices and technologies.

The GPR Workplan will also include an implementation plan, which will cover voluntary practices, education, and benchmarking, assessing the effectiveness of the voluntary program, and an adaptive management process with potential mandatory measures if the voluntary program is ineffective. The implementation plan will also define when and how different actions could be triggered as the Subbasin is adaptively managed over time. An overview of some of the components of implementation were covered at the May meeting: namely, incentives for participation, funding, education/outreach, defining metrics for success, and developing the adaptive management process if voluntary efforts are unsuccessful. The July meeting presented a phased implementation plan for the TAG discussion and feedback, as well as other Workplan progress, including to the water practices matrix and a summary of existing cost-share programs. Options for implementation were covered, including a portfolio of options for a phased approach that relies on voluntary and incentivized conservation actions. Adaptive management would be incorporated throughout the phases in order to refine baseline data, monitor indicators, and improve programs for better impact in the Subbasin. The implementation plan would need to align with GSP requirements, such as the triggers, thresholds, and timeline for other GSP processes.

At the September meeting, the focus will be on a discussion of benchmarking and incentives for participation in certification programs. Next steps and the timeline for preparing the Workplans for public review will also be highlighted.

FRAMING QUESTIONS FOR TAG DELIBERATIONS

The following framing questions have been prepared for the TAG in consideration of groundwater pumping reductions to achieve overarching GSP objectives for the Napa Valley Subbasin:

The GPR Workplan includes an example pilot benchmarking program. The pilot program could leverage open-source data for agricultural water uses, OpenET, and so would necessarily focus on agricultural users. While ET is an imperfect proxy for applied water and cannot distinguish between sources of water, it represents a starting point for evaluating water use performance in the absence of

other data. To capture some of the variability of vineyard ET, a number of potential controls were evaluated for their ability to be a promising "peer group", or subset for an individual to be compared against. Observable vineyard characteristics that were analyzed include soil drainage, slope, elevation, precipitation, temperature, grape variety (red or white), and GSP model Water Balance Areas. An example concept is shown for elevation and variety to represent peer groups for ET, though analysis is ongoing to determine the appropriate number and size of peer groups. While there are still important differences that exist across vineyards, an initial pilot program can be an important starting point for evaluating irrigation performance. Benchmarking has the potential to create behavioral changes among participants, including encouraging improving water use efficiency, being an on-ramp to identify, diagnose, and address high water use, and for the GSA to monitor system-wide improvements over time.

Question: What other pros, cons, and constraints do you think are important for the development of a pilot benchmarking program?

The GPR Workplan is intended to include incentives for participating in voluntary water conservation practices. Certification programs have proven to be effective in scaling adoption of water conservation practices while generating value to the certified party. The GPR could consider incentives to participate in certification programs by offering a cost-share reimbursement for participating in certifications that address water quantity goals. The cost-share program could be certification agnostic, but it would set minimum water management criteria that the certification program must meet for their members to be eligible for the incentive payment. The selection of the water management criteria would be based on the results of the Water Practices Matrix analysis. For example, an eligible vineyard certification program would include metering and reporting water use, distribution uniformity testing every 3-5 years, and adoption of some form of irrigation scheduling tools (plant water or soil moisture monitoring).

Question: How could we design this incentive program for high impact?

SUPPORTING DOCUMENTS

A. ERA Economics Powerpoint Presentation: Napa Valley Subbasin, Groundwater Pumping Reduction Workplan, September 2023

Napa Valley Subbasin

Napa County Water Conservation Workplan
Groundwater Pumping Reduction Workplan

Napa County GSA TAG Meeting

Overview

1. Napa County Water Conservation Workplan
2. Groundwater Pumping Reduction Workplan
3. Workplan Updates
    1. Benchmarking Conceptualization
    2. Certification Programs
4. Next Steps

NAPA COUNTY WATER CONSERVATION WORKPLAN

Water Conservation Workplan

Designed as a resource for stakeholders to learn about, consider, and enact voluntary water conservation measures, including:

- Background information
- Water conservation practices
- Cost-share opportunities
- Training, education, and engagement opportunities

Water Conservation Workplan

All Users

Measurement

Recycled water

Benchmarking

Vineyards & Agriculture

Irrigation system efficiency

Distribution uniformity

Plant water and soil moisture monitoring

Soil management

Canopy management

Row orientation

Rootstock selection

Wineries

Barrell sanitation

Processing winery wastewater and reuse

Turf removal

Drought-tolerant and native landscaping

Municipal & Residential

Efficient appliances

Checking for leaks

Turf removal

Drought-tolerant and native landscaping

GROUNDWATER PUMPING REDUCTION WORKPLAN

Groundwater Pumping Reduction

Guiding Framework:

- Focus on voluntary actions that achieve groundwater benefits for the Subbasin
- Assess the costs and benefits of alternative actions and focus on those that are most cost-effective
- Leverage existing programs and opportunities to generate value from a suite of voluntary actions
- Include adaptive management to adjust the program as data and sustainability indicators evolve

Groundwater Pumping Reduction Workplan

Voluntary Approaches to Reduce Pumping

Field-level measurement

Best management practices

Education

Benchmarking

On-farm practices

Other practices

Adaptive management

Subbasin Use Benchmarking and Tracking

Remote sensing, metering

Well permitting

Groundwater trends

Communications and Engagement

Outreach and engagement

Technical Advisory Group

Education and resources

Steps for Implementation

Assess effectiveness

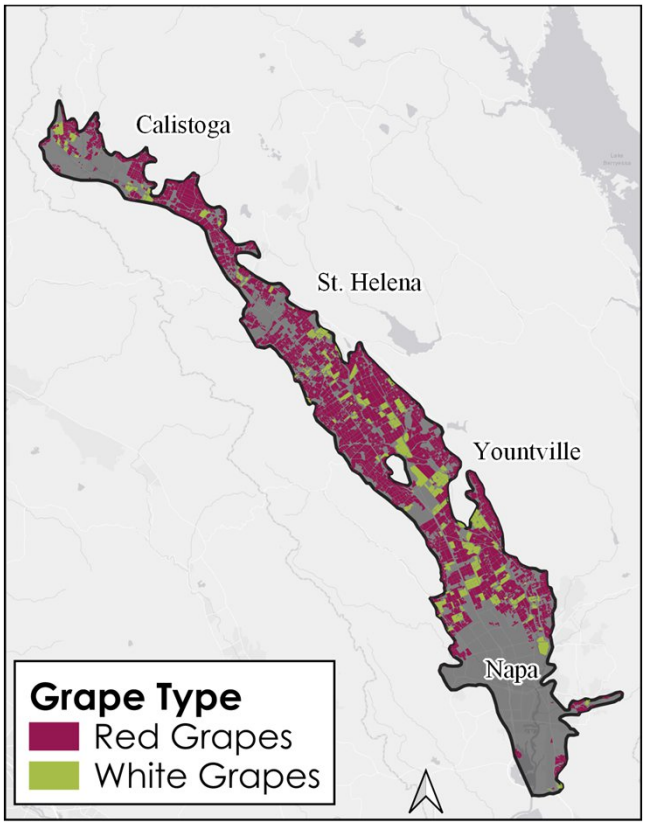
Implement adaptive measurement and potential mandatory measures, pending effectiveness of voluntary efforts

WORKPLAN UPDATES: BENCHMARKING AND CERTIFICATION

Benchmarking Example Concept

Example for vineyards

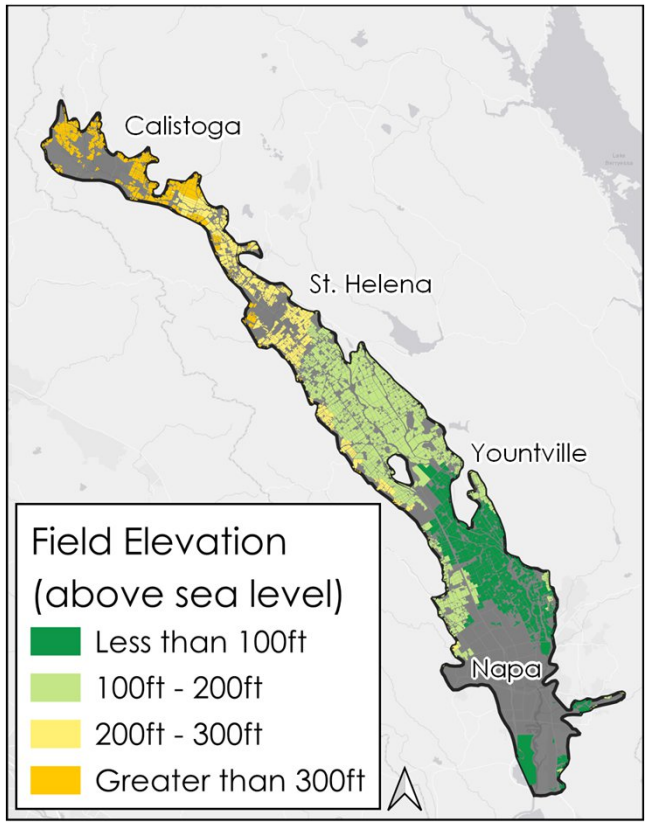
- Uses OpenET data, open-source data of evapotranspiration (ET)
- ET is water used by the crop and incidental evaporation
  - It does not distinguish between precipitation, and applied water source (e.g., ground, surface, recycled) or deep root uptake
  - OpenET data are an example and would be refined as data gaps are addressed



Benchmarking Example Concept

Analyzed differences in ET across observable field characteristics (potential "peer groups"):

- Soil drainage
- Slope
- Elevation
- Precipitation
- Temperature
- Variety (white, red)
- Water Balance Areas

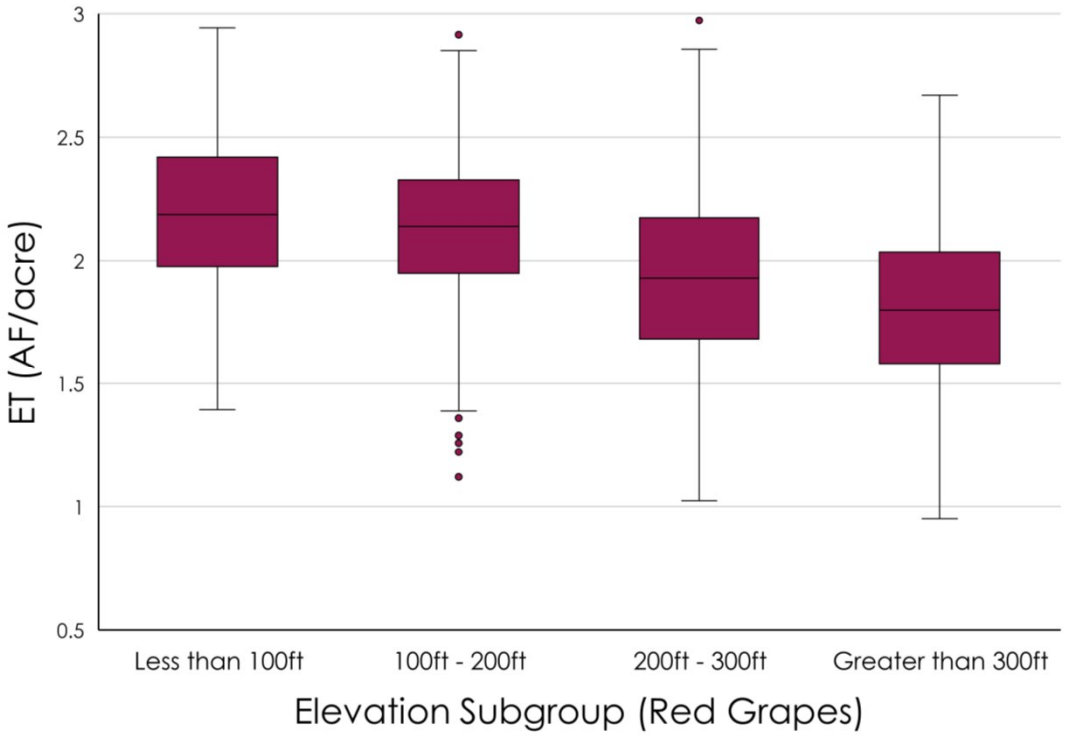


Benchmarking Example Concept

Elevation and variety as example "peer groups" to benchmark ET

Ongoing analysis to identify representative peer groups and factors

There are other important differences across vineyards, this represents an example.

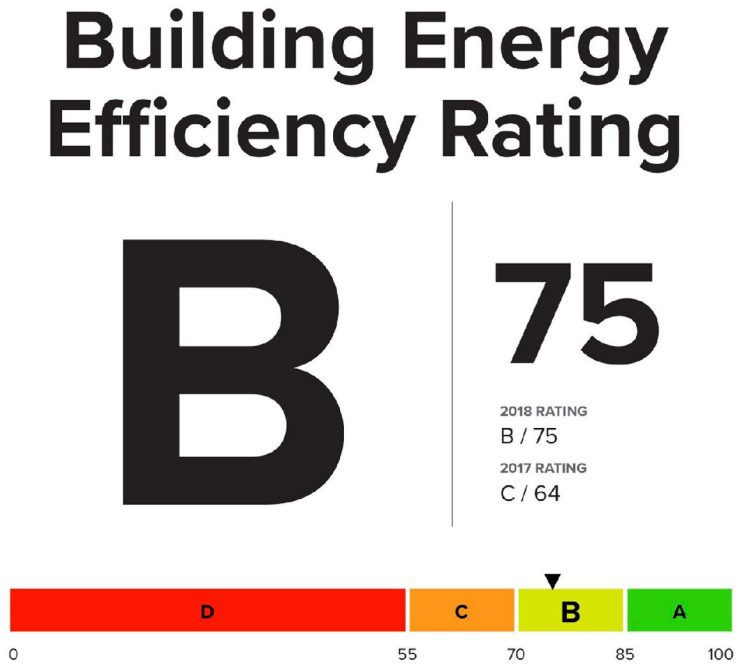


Benchmarking Example Concept

Potential benefits:

- Increase focus on water efficiency by creating competition to be the best
- On-ramp to identify, diagnose, and address high water use—tool to nudge behavior change
- Monitor system-side improvements

Example from Energy Sector



What other pros, cons, and constraints do you think are important for the development of a pilot benchmarking program?

Certification Programs

Examples for developing incentives for Subbasin businesses to participate in certification programs that require water-savings practices

- Provide financial incentive for getting certified?
- Certification program could include
  - Set minimum water management criteria that the program must meet for new members to receive the financial incentive
  - Selection of water management criteria based on Water Practices Matrix results
  - Examples: Metering and reporting, DU testing every 3-5 years, and adoption of some form of irrigation scheduling tools (plant water or soil moisture monitoring)

How could we design this incentive program for high impact?

NEXT STEPS

Next Steps

September 2023

- Preparing GPR Workplan and WC Workplan
  - Incorporating M&I and rural domestic per TAG and public feedback

October 2023

- Draft documents for TAG and public review

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Technical Advisory Group | **Agenda Date:** 9/14/2023 | **File ID #:** 23-1590

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: Report on Communication and Engagement Plan Interviews

RECOMMENDATION

Provide an update to the Technical Advisory Group (TAG) on stakeholder interviews conducted in support of updating the Groundwater Sustainability Agency's Communication and Engagement Plan.

EXECUTIVE SUMMARY

This item provides highlights from the Stakeholder Assessment interviews conducted in conjunction with an update of the Napa County Groundwater Sustainability Agency Communication and Engagement Plan.

Procedure
Staff introduces.
Questions and answers with the TAG.
Public comments.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

A foundational principal of the Sustainable Groundwater Management Act (SGMA) is that sustainable planning and implementation is best built on a foundation of mutual understanding. This requires proactive communication and engagement activities. The Napa County Groundwater Sustainability Agency (GSA) seeks to fulfill this principle by engaging interested parties as it works towards sustainably managing groundwater. One step in the engagement effort is to update the Communication and Engagement Plan (CEP) developed as part of the compilation of the Groundwater Sustainability Plan (GSP).

The original CEP focused on engaging key parties and the public in the GSP development. The current update reflects the needs for information, communications, and engagement appropriate to GSP implementation. The

update also reflects continuing efforts to implement the GSP through the development of four technical workplans.

The update is being prepared by third party facilitators from Stantec, Inc. provided by the California Department of Water Resources through its Facilitation Support Services program.

UPDATE STEPS

During the May 5, 2023, TAG meeting, Lisa Beutler, Senior Facilitator from Stantec, provided an overview of their review of the existing CEP. After highlighting areas of the CEP the facilitators planned to focus on during the update process, she sought input from the TAG on their priorities and suggestions for the update.

During May and June, Stantec worked with the County GSA staff and technical team to identify the key parties and members of the public with an interest (stake) in the GSP and likely interest in the CEP update. Identified parties included representatives of the following sectors:

- Planning Agencies/Districts
- Environmental/Conservation Groups
- Grape and Winegrowers
- Cities, Counties, and Water Agencies
- Community Groups
- Business Interests
- Environmental Justice and Public Health Interests
- Academic Entities
- State/Federal Agencies
- Vineyard and Winery Management Companies

The identified individuals were invited to participate in one of eleven 60-90-minute Stakeholder Assessment interviews focused on updating the CEP. Of the 115 invited, 35 were able to join the sector-based interviews held in July and August.

Stakeholder Assessments are considered a best practice in the development of a CEP. Assessments are designed to identify problems and opportunities, key issues important to the stakeholders, preferred communication approaches, and lessons learned.

The Napa CEP update assessment interview questions focused on:

- Overarching perspectives from stakeholders on general Napa water conditions and their involvement with water issues
- Familiarity with groundwater sustainability requirements and level of engagement with the GSP development and implementation
- Thoughts on past and current communications/engagement
- Insights on the best approached to share information within the Subbasin
- Advice to better inform the CEP update
- Defining success

A copy of the questions (including follow-up questions) as well as an interview primer was provided to interviewees in advance. Participants were also advised that it was common for interviewees to answer more

than one question at a time and the interview would focus on topics of the most interest to them. Some groups utilized the full 90 minutes and other interviews with fewer participants occasionally were completed in 30-45 minutes.

INTERVIEW HIGHLIGHTS

Most of the participating individuals were familiar with SGMA and the Napa County GSA. Among that group, many had been engaged in the development of the GSP as a participant in the Groundwater Sustainability Plan Advisory Committee and others had stayed informed through updates provided through their professional, association, employer, and industry affiliations.

The following provides a brief overview of interview highlights:

Perceptions of Napa water conditions and groundwater sustainability were varied among the sectors. Some considered the existing water management practices paired with climate adaption and other on-going modifications (like irrigation improvements and cropping patterns) to be sustainable over the long term. Others reported a sense of urgency regarding the water situation, pointing to the exceedance of GSP minimum thresholds, observed changes in streams and rivers, and ecosystem impairment.

Perceptions of past and current GSA communications varied, primarily by sector, however, nearly all of the sectors reported a need for increased communication and frustration with the current public input mechanisms. Several also described the complexity of accessing meeting information on the web and the difficulty of navigating the county website.

Some interviewees provided specific examples of situations where they believed their input had been dismissed or completely ignored. That said, several interviewees reported an increase in communications over the last six months and what they viewed as a genuine effort by the County GSA staff to improve engagement.

There was also broad agreement that depending on their interests, stakeholders often required differing levels of communication. Many suggested a need to develop more user-friendly content for non-technical audiences, targeted communications relevant to the audience's interests, physical environment, and geographical location, the frequency and volume of content, and the communication methodologies utilized.

The issue of tourism and managing communications with thousands of individuals that do not live or work in the basin was raised in several interviews. It was noted that while the time spent in the County might be minimal, the cumulative impact of such significant numbers of people should be addressed in the CEP. The potential for these audiences to be advocates for the Subbasin and its water was also considered.

Interestingly, while there was broad agreement there should be more education efforts as a part of communications and engagement, there was a wide range of perspectives on which groups should be the target of those communications, and on which subjects. The most striking examples related to differing perceptions of educational needs of urban/suburban and agricultural audiences.

Participants reported a need for information to be provided through a variety of methods. However, at the individual level there was a general preference for electronic communications, such as emails and texts, over physical mailers. Most of the interviewees also mentioned changes in the effectiveness of

communications through the local newspaper. The use of social media was rarely mentioned.

Many interviewees recommended increased use of communication partnerships and utilization of existing organizations and events to reach more audiences. There were also suggestions related to working with the schools and youth organizations. An additional recommendation was to use more innovative and out-of-the-box types of communication methods along with tools like dashboards.

Those familiar with the GSP stressed the importance of the CEP reflecting the uniqueness of the Napa Valley Subbasin and the need for communicating how that impacts sustainability. Many participants also explained that the conversation about groundwater sustainability needed to consider more than groundwater. They felt the conversation needed to be inclusive of climate change, surface water, ecosystems, housing, water quality and more.

With a few exceptions, many of the interviewees expressed appreciation for the opportunity to provide input on GSA communications and asked to be included in future outreach. A number generously provided follow-up emails with additional information and reference materials.

NEXT STEPS

Information gathered during the assessment will be utilized in updating the CEP. A draft update is planned for public review in October-November 2023.

SUPPORTING DOCUMENTS

A. Presentation

B. Sample Interview Agenda and Interview Questions

C. Interview Instructions

Discussion Agenda
Napa Stakeholder Interview – (Sector)
August 25, 2023
12:00 PM Pacific Time (US and Canada)

Log-in Information: https://sample.com

Phone Option: Dial by your location -
- +1 (123) 123-1234 US

1. Welcome and Greetings, Introductions
2. Background Information
   a. Interview purpose, process, and planned outcome.
   b. Common terms (SGMA, GSA, GSP)
   c. Discussion Questions
      - Tell us a little about you/your organization/entity/personal role in the County.
      - What is your overall picture of water in the County? What brings you to a conversation about groundwater?
      - Tells us about the ways you/your organization/entity have been engaged in Napa County's implementation of SGMA?
        - Has/how has your engagement changed overtime?
3. Communications and Engagement
   Discussion Questions
   - One of the requirements of SGMA is for community outreach and for GSAs to have and implement a communications and engagement plan. To what extent is this something you are familiar with?
   - What are the types of communications, outreach and engagement, related to the Napa GSA's work you have observed?
     - How effective has it been?
     - What types of "lessons learned" can we draw from the efforts that have occurred so far?
   - Thinking about moving forward with implementation of the GSP, in what ways should the approach to communications and engagement evolve?

- Thinking about communications and engagement approaches in general (not just related to this process or groundwater) what are some examples of outreach approaches you have liked, and why?
- For you and the individuals you engage with, what are the preferred ways of communicating? For example, text messages, emails, websites, mailers, etc.
- What types of informal materials (pamphlets, posters, etc.) would be most useful for you to have?
    - What would you suggest for the audiences you engage with?
- Given there are numerous different languages spoken in Napa County – to what extent would it be useful to develop additional materials for outreach and engagement efforts? Which languages should be prioritized?
- What, if anything else, might be needed to support and/or enhance your understanding of the various activities taking place within implementation of the GSP and the communications effort around these activities.

4. Other Process Issues
   Discussion Questions
    - Thinking about communications and engagement, how should we define success?
    - What else should we be thinking and asking about?
    - What advice and suggestions are you able to offer as we reach out to others in the County?

5. Closing Thoughts

Napa County Groundwater Planning
Interview Information

Thank you for your willingness to participate in the Napa County Groundwater Planning interviews. The purpose of the interview is to gain your perspective on communications and engagement about the County's groundwater management program and the planned actions to manage it sustainably. You and your organization were identified as an important perspective to include in the interview process based on your role in the community and your level of expertise in the topic.

Background

The Sustainable Groundwater Management Act (SGMA) aims to protect groundwater resources across California. SGMA changed the requirements for managing groundwater, including requiring the creation of Groundwater Sustainability Agencies (GSAs) and Groundwater Sustainability Plans (GSPs) for identified groundwater basins.

The Napa Valley Subbasin is categorized as a 'high priority' basin for sustainability planning due to "the amount of irrigated lands, the density of wells, projected population growth, and the degree to which people rely on groundwater in the Subbasin".

The Napa County Board of Supervisors acts as the GSA and is responsible for implementing the GSP across the Napa Valley Subbasin. A Community and Engagement Plan (CEP) was developed to guide public participate in the development of the GSP and needs to be updated.

Updates to the CEP will improve the Napa County's communication and engagement with the stakeholder community and help guide the ongoing implementation of the GSP. Interviewing stakeholders - like you! – is the first step in that process.

Interview Information and Process

The purpose of the interview is to learn more about your views on the current communications efforts and your ideas about what would best serve the community as the County's GSP is implemented.

Interviews will be conducted by third-party (independent) facilitators from Stantec, an internationally recognized firm in the water industry, either in-person or online via Zoom. We expect interviews to take anywhere from sixty to ninety minutes. All the remarks will be bundled together and reported without attributing them to any specific individual. If a comment would

be difficult to understand without knowing the name of the source, such input will only be included with the permission of the participant. The results of the interview process will be reported in a public meeting and used to update the Napa Valley Subbasin GSA Communications and Engagement Plan.

All interview notes will be destroyed after the presentation of the public report and, until then, will not be shared outside of the Stantec team.

Interview Questions

There are no right or wrong answers to any of the questions. Learning your views is the goal of the interview. The interview will cover three general areas.

1. Overview
   In this section we will ask a few questions to learn more about you and your degree of involvement with water issues in general. We will also explain more about how information from the interview will be utilized and incorporated into County groundwater sustainability planning.

2. Groundwater Sustainability Planning
   In this section we will ask about your familiarity with groundwater sustainability requirements, and any level of engagement you may have had with the Napa GSA and GSP development and implementation.

3. Communications and Engagement
   In this section we will focus on communications and engagement by the Napa GSA and gather your insights on the best approaches to share information with the Napa Valley Community.

Altogether we will ask about 15 questions with some follow-up questions (if needed). It is common for some questions to not apply and for people to answer more than one question at a time in the course of our conversations.

Contact Information

If you have any questions about this work, please contact Lisa Beutler, Senior Principal at Stantec (lisa.beutler@stantec.com and 916-418-8257), or Aaron Dickinson, Public Affairs Specialist at Stantec (aaron.dickinson@stantec.com).

Napa County Groundwater Sustainability Agency

Technical Advisory Group

Stakeholder Assessment Results

September 14, 2023

Stantec

Outline

The Stakeholder Assessment

The Interview Process

Findings & Discussion

Next Steps

Assessments identify

- **Problems and opportunities**
- **Key issues important to stakeholder**
- **Preferred communication approaches**
- **Learned lessons**

Who: People that need to be engaged/informed, and to what extent

What: Messages related to SGMA, GSAs, GSPs, and integrated water management

Where: Place-based, including virtual locations and focused outreach at audience related venues

When: Timing of communications and engagement opportunities.

Why: Objectives and approach will support successful Communications and Engagement

How: Communication and Engagement Methods

Stakeholder Assessment

- July to August 2023
- On-line Interviews with 36 people.
- Representative Sample of the Subbasin's Key Stakeholder Groups.
- Coordinated with the NCGSA.

The Interview Process

- In coordination with the NCGSA –
  - 115 potential participants were identified and invited to interview
  - Participants were organized into ten interview groups, by stakeholder types
- Discussion agenda with interview questions and background provided information in advance
- Anonymity
- Interviews ranged from 45-60 minutes for individuals and 60-90 minutes for groups
- 16 questions*

- *Not all questions applied in all interviews

Stakeholder Groups

- Planning Agencies/Districts
- Environmental/Conservation Groups
- Grape and Winegrowers
- Cities, Counties, and Water Agencies
- Community Groups
- Business Interests
- Environmental Justice and Public Health Interests
- Academic
- State/Federal Agencies
- Vineyard and Winery Management Companies

Questions

- Background Information
  - Overarching perspectives from stakeholders on general groundwater conditions and their involvement with water issues.
- Groundwater Sustainability Planning
  - Familiarity with groundwater sustainability requirements and level of engagement with the NCGSA and GSP development and implementation, if any.
- Communications & Engagement
  - Thoughts on current communications/engagement by the NCGSA; gathered insights on the best approached to share information within the subbasin.
- Other Process Issues
  - Advice to better inform the interviews and the CEP update; considering success for this project.

Findings

Findings from the stakeholder assessment will inform the:

- Communication & Engagement Plan Update
- Outreach strategies
- Informational materials, both audience-specific and general

Findings Highlights

- Perceptions of Napa water conditions and groundwater sustainability
  - Varied among the sectors
    - Some considered the existing water management practices paired with climate adaption and other on-going modifications (like irrigation improvements and cropping patterns) to be sustainable over the long term
    - Others reported a sense of urgency regarding the water situation, pointing to the exceedance of GSP minimum thresholds, observed changes in streams and rivers, and ecosystem impairment
- Perceptions of past and current GSA communications
  - General agreement on a need for increased communication and frustration with the current public input mechanisms
  - Varied communication issues listed - depending on sector
    - Complexity of accessing meeting information on the web/ difficulty of navigating the county website
    - Lack of proactive outreach
    - Technical presentations
    - Input dismissed or completely ignored
- Several interviewees reported an increase in communications over the last six months and what they viewed as a genuine effort by the County GSA staff to improve engagement

Findings Highlights

- Need for differing levels of communication
  - Develop more user-friendly content for non-technical audiences
  - Target communications relevant to the audience's' interests, physical environment, and geographical location
  - Frequency and volume of content
  - Communication methodologies utilized
- Communication for tourism audiences
  - Need to manage communications with thousands of individuals that do not live or work in the basin
  - Issues of cumulative impact
  - Potential for audiences to be advocates for the basin and its water
- Broad agreement on need for more education efforts as a part of communications and engagement
  - Range of perspectives
    - Groups and subjects
    - Differing perceptions of educational needs of urban/suburban and agricultural audiences

Findings Highlights

- Multiple modalities of outreach recommended
  - At the individual level there was a general preference for electronic communications, such as emails and texts
  - Use of more innovative and out-of-the-box types of communication methods
    - Tools like dashboards
  - Some discussion of physical mailers
  - Changes in the effectiveness of communications through the local newspaper
  - Use of social media was rarely mentioned
- Use of communication partnerships
  - Utilization of existing organizations and events to reach more audiences
  - Schools and youth organizations.
- Need for CEP to reflect the uniqueness of the Napa basin
  - Need for communicating how uniqueness impacts sustainability
  - Desire for broader conversations inclusive of climate change, surface water, ecosystems, housing, water quality and more
- With a few exceptions, appreciation for the opportunity to provide input on GSA communications and requests to be included in future outreach
- Generous participant follow-up emails with additional information and reference materials

Next Steps

- Continue to work on
  - CEP chapters
  - Informational materials
  - Content scheduling