

CALIFORNIA DEPARTMENT OF WATER RESOURCES

Monitoring Special Study

MSS Stakeholder Meeting #2 Meeting Summary

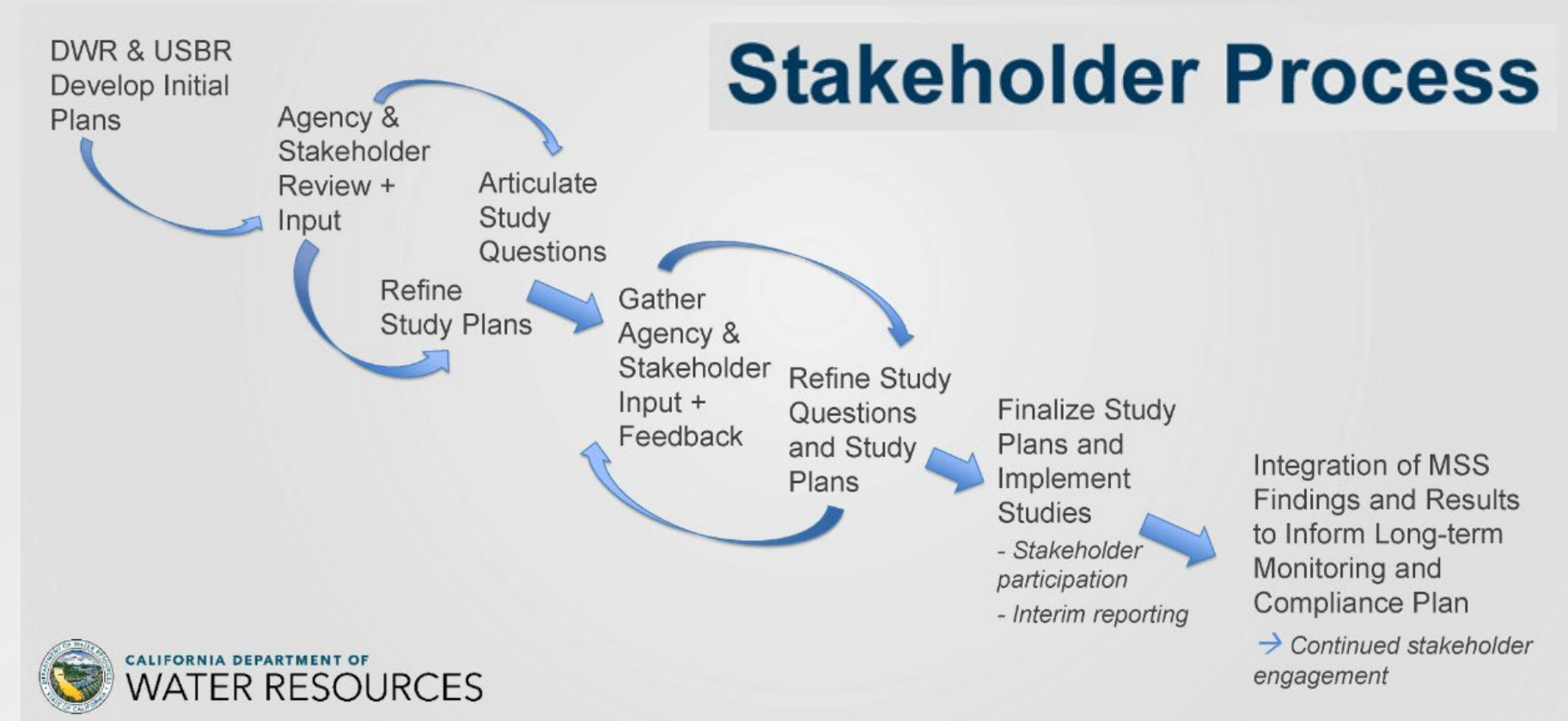


October 12, 2021

Meeting Objectives

Continue Stakeholder outreach on the MSS and build long-term collaboration:

- 1) Provide updates on development of the MSS and how DWR/USBR are integrating stakeholder input and current drought conditions into study designs.
- 2) Gather input from stakeholders on:
 - Locations of key issues or problem areas to ensure the MSS study questions and study designs are aligned with these issues and areas
 - Study questions the MSS will be designed to address



Meeting Agenda

1. Welcome, Logistics, Agenda & Introductions
2. MSS Planning Update and Context Setting
3. Key Issues and problem areas (Mapping exercise)
4. Study Questions
5. Closing & Next Steps

Note: The mural board is available for viewing here:

<https://app.mural.co/t/icfee4168/m/icfee4168/1634076086610/6144003b826371ef6ff3b5344a8eb1ac2700702e?sender=a5175944-639b-4c55-b05f-c5c146cd7be0>



Participants

Project Team

- Ibraheem Alsufi, DWR
- Eli Ateljevich, DWR
- Jared Frantzich, DWR
- Bill McLaughlin, DWR
- Jacob McQuirk, DWR
- Karen Tolentino, DWR
- Zhenlin Zhang, DWR
- Erika Britney, ICF
- Nick Lange, ICF
- Jenna O'Neill, ICF

Attendees

- Erin Andrews, DWR
- Ching-Fu Chang, Contra Costa Water District
- Chandra Chilmakuri, State Water Contractors
- David Colvin, DWR
- Janis Cooke, CVRWQCB
- Dan Deeds, USBR
- Erin Foresman, UC Cooperative Extension
- Bryant Giorgi, DWR
- Jose Gutierrez, Westlands Water District
- Kevin He, DWR
- John Herrick, SDWA
- Dave Huston, DWR
- Lindsay Kammeier, SWRCB - Office of the Delta Watermaster
- Michelle Leinfelder-Miles, State Water Board
- Amanda Maguire, DWR
- Nicky Sandhu, DWR
- Patrick Scott, DWR
- David Steffenson, DWR
- Grace Windler, USBR
- Shawn Mayr, DWR
- Stephen Louie, SWRCB



MSS Updates - Questions and Answers

During the first meeting segment participants asked several questions regarding the status of certain components of the MSS. These questions and answers are provided below.

Paradise Cut Flushing Study

Q In the last tech work group we identified a few issues regarding the hypotheses. Have those been addressed?

A Yes, we continue to refine the hypothesis based on feedback. This session will be used to refine study questions.

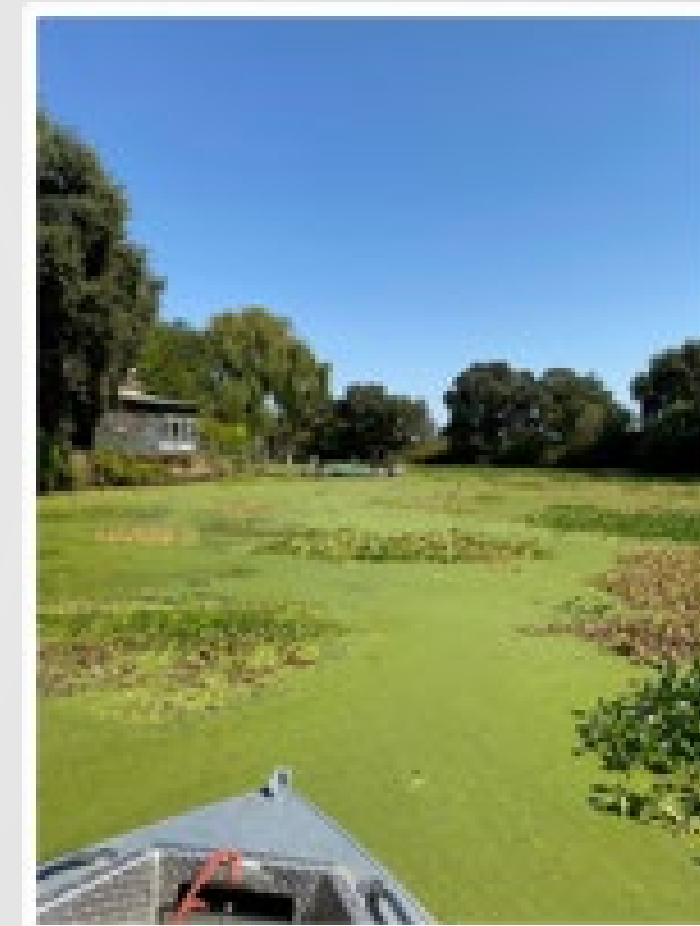
Salinity Point Source Sampling and Increased Ion Sampling

Q Are you in the process of developing a final work plan for the salinity and isotope studies? (Tom Burke + one other)

A Yes, we are still updating and refining the work plan for Point Source and Ion Sampling studies.

Q Is this picture Old River near the CVP intake or where?

A This is a photo taken by DWR in September driving on Old River near the Tracy Wildlife Area (station TWA) upstream to the Old River at Tracy Blvd (station OLD)



Continue to send us questions and comments!

Slides from this portion of the meeting are included in the Appendix. The Mural Board is available for viewing at:

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Meeting Context - Discussion

The discussion of the context for the meeting, prompted foundational questions about the scope of the MSS. The following is a summary of the discussion and next steps identified by the project team. Note: participants were invited to provide their names if they wanted comments attributed to them.

MSS Scope/Focus

Q Are we examining salts that come from upstream? I was assured that this would be part of the outline. (John Herrick)

A Yes, we will look at water quality at Vernalis to look at water quality from upstream sources. Study will not look at how those salts get there/where they are from.

Q Isn't this about what are the effects of the export operations? (Tom Burke)

Q Don't these studies all need to look at the project in its entirety, from sources across the entire Delta?

A ~~Yes to both questions~~ **Corrected Answer (3/29/22):** The focus of the MSS is on the interior southern Delta. Modeling and monitoring of salinity, flow, and stage will be focused on the following segments: San Joaquin River from Vernalis to Brandt Bridge, Middle River from the Confluence with Old River to Victoria Canal, and Old River/Grant Line Canal from the Head of Old River to West Canal.

ACTION Prepare a description of the MSS spatial and technical scope (text and visual/graphic). Provide to stakeholders for review and finalize / establish **as an output from the Stakeholder process.**

Slides from this portion of the meeting are included in the Appendix. The Mural Board is available for viewing at:

<https://app.mural.co/t/icfeei4168/m/icfeei4168/1633459776737/d2631606ad26e4ce2531c7e2cecb9e3d3d08e511?sender=u54530aef18114bb62a618055>

Components of MSS and How They Will Fit Together

C We need a larger plan that shows how all of the plans fit together in the big picture (Tom Burke)

C Need an overview that shows how all of these studies integrate.

C It may be beneficial to look at this year's supply. *[Drought conditions but water quality good]* (John Herrick)

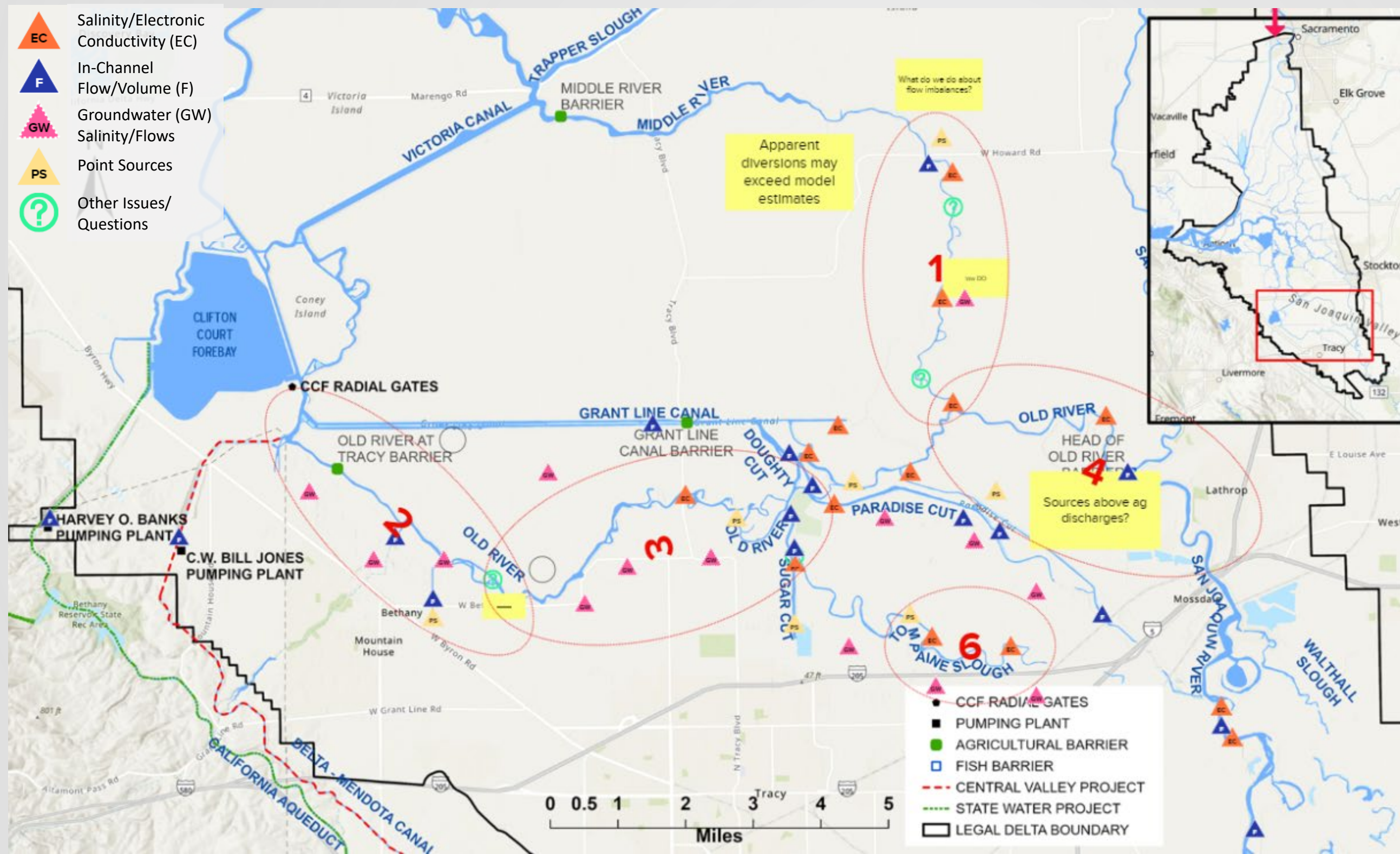
C I want to see specifics [about this year and MSS] that have not been shared (John Herrick)

ACTIONS

1. Develop a visual that shows how these studies fit together and cover all of the topics (above)
2. Set-up a special technical discussion to develop a plan for analyzing the observations from this summer.

Activity 1: Spatial Context

Participants were asked to identify location-specific issues or problem areas the MSS needs to study to inform future implementation and compliance with the salinity objectives by moving icons to areas of the as applicable. The objective of this exercise was to identify areas of focus for data collection and modeling.



Discussion

- This exercise captured general spatial information
- There was discussion about the need for a more scientific [data-driven] approach to looking at issues spatially.

Potential next steps/follow-up discussion:

- Ching-Fu Chang: use break-out groups from within the technical workgroup to look at the issues; have those groups work together to prepare recommendations with justification. Similar process used for Delta Smelt and was successful.
- John Herrick offered to meet one-on-one with Eli/Team to go over this and then present to the group.

Participants are once again invited to provide input in their preferred format.

Input will be used to help the MSS study team design data collection and analyses.

Activity 2: Draft Study Questions

Activity Description

- The MSS Studies will be designed to collect data and perform modeling and analyses to answer these questions.
- An initial list of MSS study questions were presented for review and discussion
- This list of questions was distributed before the meeting.

Objective of this Exercise

Gather stakeholder input on the importance of these questions for achieving the purpose of the MSS and on how the questions might be refined or modified to better inform study designs.

Results

1. Comparative ratings of each question with synthesis
2. Question-specific discussion

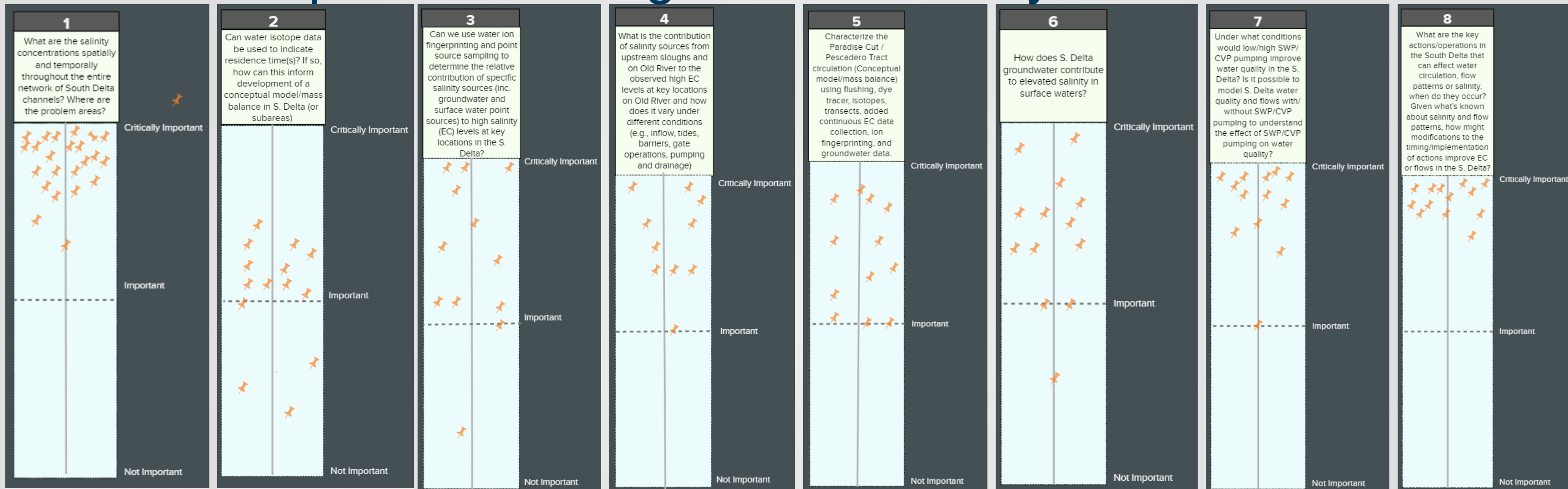
Draft Study Questions

1. What are the salinity concentrations spatially and temporally throughout the entire network of South Delta channels? Where are the problem areas?
2. Can water isotope data be used to indicate residence time(s)? If so, how can this inform development of a conceptual model/mass balance in S. Delta (or subareas)
3. Can we use water ion fingerprinting and point source sampling to determine the relative contribution of specific salinity sources (inc. groundwater and surface water point sources) to high salinity (EC) levels at key locations in the S. Delta?
4. What is the contribution of salinity sources from upstream sloughs and on Old River to the observed high EC levels at key locations on Old River and how does it vary under different conditions (e.g., inflow, tides, barriers, gate operations, pumping and drainage)?
5. Characterize the Paradise Cut /Pescadero Tract circulation (Conceptual model/mass balance) using flushing, dye tracer, isotopes, transects, added continuous EC data collection, ion fingerprinting, and groundwater data.
6. How does S. Delta groundwater contribute to elevated salinity in surface waters?
7. Under what conditions would low/high SWP/CVP pumping improve water quality in the S. Delta? Is it possible to model S. Delta water quality and flows with/without SWP/CVP pumping to understand the effect of SWP/CVP pumping on water quality?
8. What are the key actions/operations in the South Delta that can affect water circulation, flow patterns or salinity, when do they occur? Given what's known about salinity and flow patterns, how might modifications to the timing/implementation of actions improve EC or flows in the S. Delta?



Activity 2: Results

Comparative Ratings of Draft Study Questions



Synthesis

- Participants identified Question 1, 7 and 8 as the most critically important based on the cluster of pins at the upper end of the scale
- All questions were considered at least “important” by most participants
- Question 2, 3, and 6 were considered less important to address than others by a couple participants based on the pins placed below the mid-point “important” line.

Activity 2: Results

Input on Each Question

1. What are the salinity concentrations spatially and temporally throughout the entire network of South Delta channels? Where are the problem areas?

- How do they vary by flow regime and operations?
- Need to define scope and boundaries for this. Need to define what's within spatial/temporal distribution
- Suggestion:
 - 1) define the scope/control volume of interest, and
 - 2) remove the "what is the problem area" part.This way we can separate boundary conditions from sources/sinks, without pointing fingers to specific area(s).
- remove the "Where are the problem areas" piece
- Define criteria for a "problem area"
- Want to understand how New Melones flows and San Joaquin River flows impacted South Delta water quality in 2021
- It is hard to say if these questions are important. It depends on what question that you are trying to answer with the data.

2. Can water isotope data be used to indicate residence time(s)? If so, how can this inform development of a conceptual model/mass balance in S. Delta (or subareas)

- May help resolve questions about connectivity of upper Paradise Cut (above ag sources)
- Need an isotope discussion:
 - Water isotopes would give information on origin and some local processes (e.g. evaporation). If you want residence times, how are you getting that from water isotopes?
 - Water residence time is important; whether isotopes are the right tools should be determined separately before the study starts
- All of these questions point to South Delta farmers, seems as if none of the questions relate to the projects [John Herrick and Tom Burke]
- It's hard to answer whether these questions are important, when we don't know the overall question that we are asking with the COPMSS and how do each of these questions relate to that. [Tom Burke + 1 participant]
- Start at "Big Picture" and work down [Tom Burke]
- The Bay-Delta Plan contains answers to all of this, refer back to that. Also consider linking key parts of the bay-delta plan to the MSS [Erin]

3. Can we use water ion fingerprinting and point source sampling to determine the relative contribution of specific salinity sources (inc. groundwater and surface water point sources) to high salinity (EC) levels at key locations in the S. Delta?

- Suggest linking question to parts of the order
- Again, whether you can use particular tools should be answered before the MSS begins. If certain tools (isotopes) are appropriate, then turn the question into a hypothesis to be tested using isotope data.

6. How does S. Delta groundwater contribute to elevated salinity in surface waters?

- Does Groundwater Influence Salinity in the South Delta Channels?
- Groundwater needs to be defined. No clear path to success on fluxes, although we can measure head gradients at wells and identify locations with apparent sources that exceed known ag discharges.

7. Under what conditions would low/high SWP/CVP pumping improve water quality in the S. Delta? Is it possible to model S. Delta water quality and flows with/without SWP/CVP pumping to understand the effect of SWP/CVP pumping on water quality?

- Isn't this one of the questions that this whole study is supposed to answer?
- The COP is supposed to address impacts beyond pumping alone, e.g., "impacts of their operations on interior southern Delta salinity levels".
- This is the two-part question. The first part is important but the second one is up to further interpretation. Investigating the effect of the Project is important, and modeling of with/without Project is but one way of approaching it.

8. What are the key actions/operations in the South Delta that can affect water circulation, flow patterns or salinity, when do they occur? Given what's known about salinity and flow patterns, how might modifications to the timing/implementation of actions improve EC or flows in the S. Delta?

- This question is quite consistent with the BDWQCP requirements, so I think this is important and can be broken down into two separate questions (the two sentences, each as a question).
- You mean other than water projects (7 above)?

Activity 3: Other Study Questions

Participants were asked to identify other questions that were not included on the draft list of study questions. Responses have been sorted and consolidated. Participant names are included where applicable.

Project Operations

1. How does the operation of CVP and SWP impact the assimilative capacity of salt? It appears that EC at Old River at Tracy is not very positively associated with loads u/s of Vernalis because loads are primarily driven by flow. What appears more important is the assimilative capacity flowing past Vernalis.
2. Does the COP effect salinity levels in the South Delta? If so, what studies would be necessary to answer that question. Then what models are required for that study. Finally, what data is required for those models to accurately run. [Tom Burke]
3. "Investigate how SWP/CVP actions may affect assimilative capacity for local sources of salinity [Ching-Fu Chang]
4. How do CVP and SWP operations affect salinity inflow, inflow circulation and channels flows in the South Delta. How are these effects affected by known siltation blockages?
5. Does the COP effect water levels in the South Delta? If so, what studies would be necessary to answer that question. Then what models are required for that study. Finally, what data is required for those models to accurately run. [Tom Burke]
6. Does the COP effect aquatic habitat in the South Delta? If so, what studies would be necessary to answer that question. Then what models are required for that study. Finally, what data is required for those models to accurately run. [Tom Burke]
7. What is the tradeoff between SJR volume and EC, exports and the effects of S. Delta interaction with ag sources?

Modeling 2021 Conditions

1. 2021 conditions resulted in good water quality at the problem site. SJ River EC, New Melones flows, consumptive use vs. inflow, and exports need to be examined
2. Model and understand water conditions this year. Why was water quality good. Does the model predict observed conditions?
3. How did operations outside of the Delta (e.g., New Melones) this year affect project area conditions?

Activity 3: Other Study Questions

Continued from previous page...

Bathymetry, Flows, Circulation

1. What is the best way to monitor bathymetric changes in the area?
2. How does bathymetry affect flow circulation in the area?
3. How does changing aquatic vegetation affect circulation in the area?
4. Are the uncertainties in local diversions important (i.e., not just the discharge)

Paradise Cut

1. If Paradise Cut is a salt source" why was salinity not a problem pre-project?"
2. Can the water in the upstream part of Paradise be shown to be old"

Salinity Sources (Identification/Tracing/Quantifying)

1. Does South Delta agriculture add any significant salt to the channels as opposed to supply water salts used by the ag diverters?
2. Can any groundwater salts be traced to a source? Upslope application of CVP water may have increased or mobilized the groundwater.

Performance Goals

1. "Identification of specific performance goals (as defined in BDWQCP) [Ching-Fu Chang]
2. Is reach wide compliance even feasible?

Other

1. Do we need new structures like permanent operable gates to replace the TBP to produce water quality benefits in the South Delta?
2. Is there any dispute regarding the findings in the 1980 Report?
3. How does this work fit into the bigger picture of salinity management in the San Joaquin Valley?*

** Note: Salinity Management in the San Joaquin Valley is outside the scope of the MSS

Final Reflections



Something
you loved
about today's
session?

- The technical group should begin with a review of the 1980 Bureau/SDWA Report on the Effects of the CVP on the southern Delta. The conclusions therein should be considered, and updates made if there are disputes.
- Mural was fun
- I liked how everyone could work on their own, yet together!
- The mural process has allowed for more interaction between participants.
- Based on my other experiences with mural and big-group discussion I would suggest using mural to review things but not coming up with conclusions on the fly. Could be used to share suggestions on prepared materials.
- I also agree with some of the comments made today that we should link back to the BDWQCP and the corresponding requirements. Geeking out on science is fun but may not be within the scope.



Something
you learned?

- We have lots of passionate people in the meeting which is a good thing and shows the importance.
- There is a lot going on in the South Delta



Something
that you
wonder?

- Can CVP and SWP provide reach wide compliance?
- Not sure if the fun parts of this Mural board were as important as the Mural process itself
- How is the SWRCB considering this in the context of other San Joaquin River actions?
- Why isn't there a clearer link between Bay Delta Plan compliance and this process?
- What other collaborative tools besides Mural can we use? What about Ching Fu's idea?

Here's What's Next...

- 1 **Meeting Minutes**
 - Circulated to all participants and everyone on the stakeholder list
 - Posted on COPMSS website

- 2 **Workshop Follow-up:**

Continue to send us your comments and input on:

 - Study plans
 - Study questions, issues to be analyzed, and hypotheses
 - Modeling scenarios
 - Data sources

- 3 **Additional Technical Workgroup sessions**

- 4 **Stakeholder Meeting 3:**
 - Schedule: Early 2022



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APPENDIX: MEETING SLIDES

CALIFORNIA DEPARTMENT OF WATER RESOURCES

Monitoring Special Study Stakeholder Engagement

Planning Updates and Context for Stakeholder Meeting 2



October 12, 2021, 1-3 pm

Jacob McQuirk, P.E., Principal Engineer

MSS Stakeholder Coordination Since May Meeting 1

1. Technical workgroup meetings
 - Paradise Cut - June
 - Water Quality Data Integration (tutorial/primer) - July
 - Salinity Point Source Sampling and Increased Ion Sampling - July
2. Paradise Cut Site Visit (Hosted by SDWA) – August
 - Observed current conditions on Paradise Cut
 - Visited the weir disconnecting the San Joaquin River from Paradise Cut
 - Visited parts of Pescadero Tract and learned more about their irrigation practices and hydrologic conditions

Outcomes:

- Adding development of mass balance and conceptual model
3. Coordination with SDWA
 - Looking at how to incorporate groundwater data into MSS data collection
 - Channel bathymetry



MSS – Cross-Cutting Planning Updates

Drought

- Drought Emergency declared May 10, 2021
- West False River Drought Salinity Barrier installed June 2021 to prevent salinity intrusion in the South Delta
- Planning underway for 2022 (assuming the drought continues)

Integrating data collection during drought into MSS

- Test EC transects
- USGS sampling

MSS team brainstorm session – August

- Study questions
 - Study integration
- } Groundwork for this meeting



Citizen Science – Potential Pathways to Engagement and Ongoing Collaboration



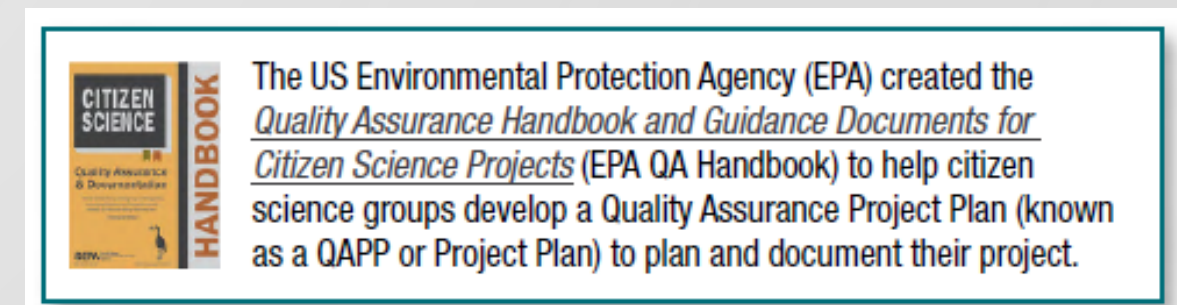
Works well for:

- Atypical or more frequent collection times
- Remote or under-studied locations (areas with access issues)

Potential Applications:

- Increased sample collection and observations beyond what an agency could undertake (e.g., access, staff resources, etc.)
- Opportunity to leverage local knowledge of the area's current or historical uses and gain inside perspective on community concerns
- Citizen monitoring could help pinpoint areas for further study, prioritize resource allocation and justify samples needed for regulatory or legal purposes
- Citizen scientists can provide information that would not otherwise be available due to time, geographic or resource constraints.

Certification: none; but USEPA Handbook and Guidance document



<https://www.epa.gov/citizen-science/quality-assurance-handbook-and-guidance-documents-citizen-science-projects>



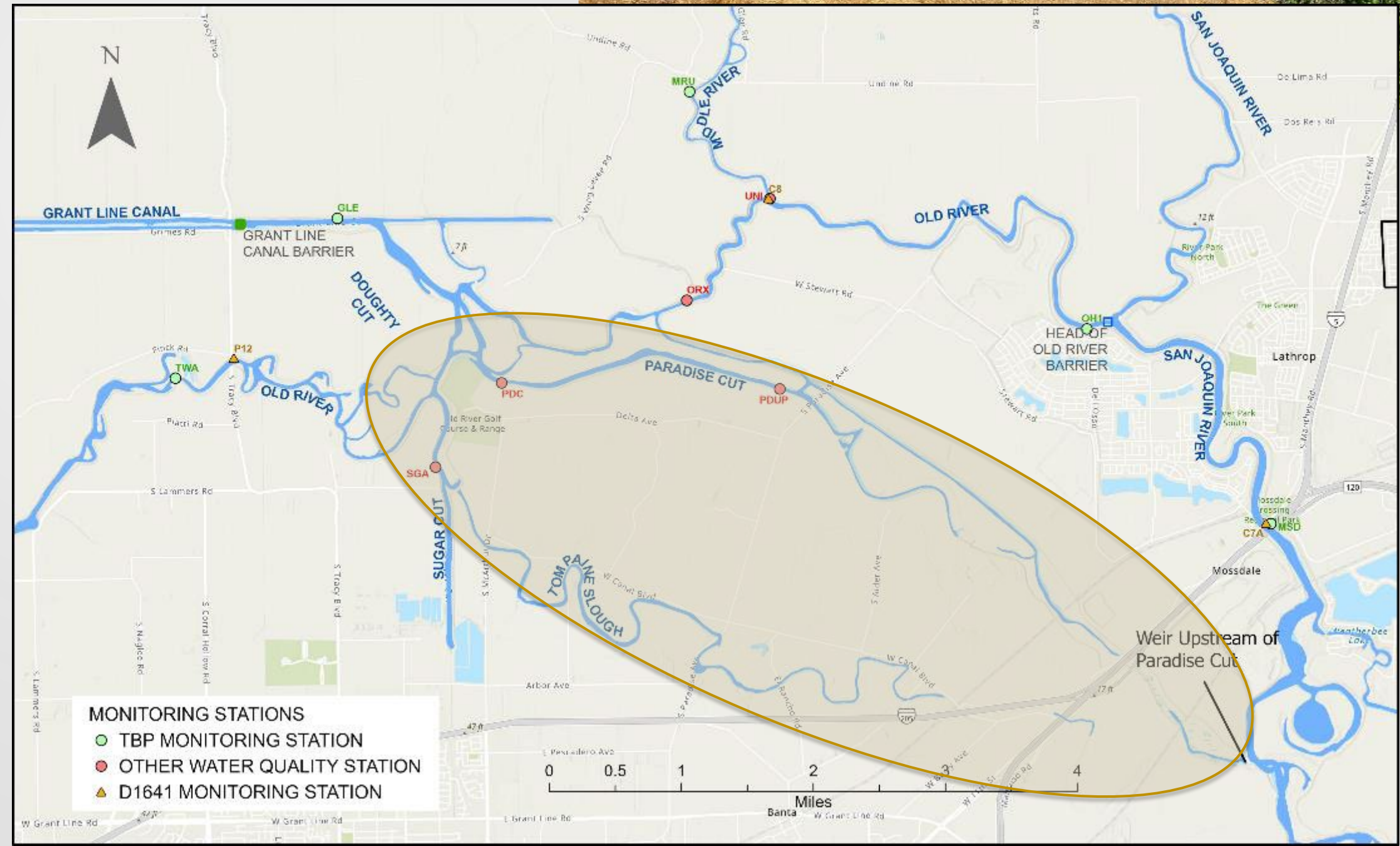
Paradise Cut Flushing Study

Drivers for Change

- Drought – water availability for flushing
- Stakeholder input to improve understanding of salinity sources and circulation and mass balance

Updates

- Flushing is postponed until conditions allow for sufficient water volumes (2023 or 2024)
- Conduct a dye tracer study to understand flow characteristics
- Conduct drone surveys to identify channel obstructions and feasibility of flushing
- *Isotopes to understand residence times (** Pending USGS discussion)*



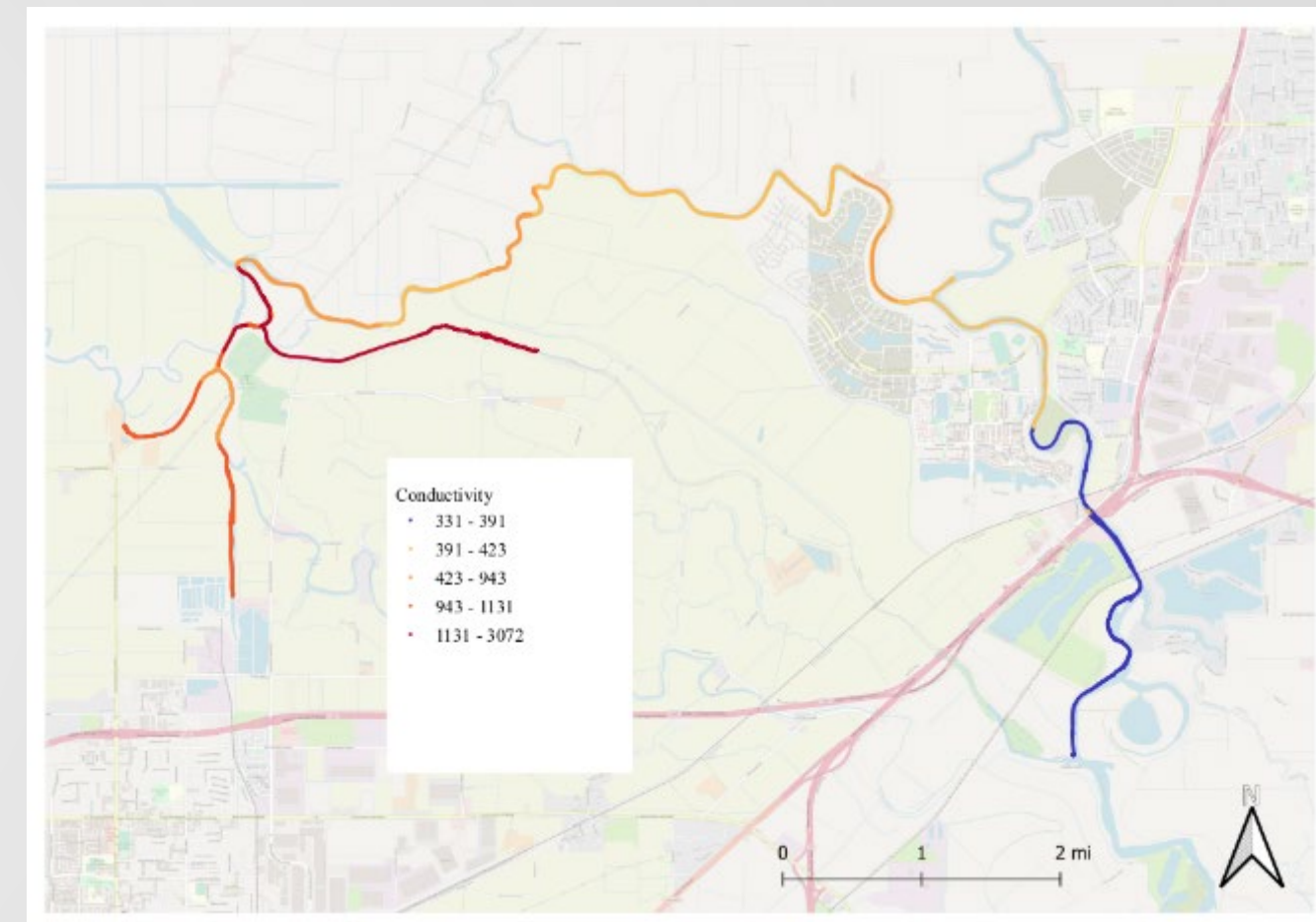
High-Speed Electrical Conductivity (EC) Transects with GPS Mapping

Drivers for Change

- Stakeholder input on channels of interest

Updates

- Continued testing and refining mapping equipment to improve data collection performance and data quality
- Completed two preliminary transect runs on Sept. 2 and 29:
 1. San Joaquin River towards Old River at Tracy (OLD) compliance station
 2. Old River, Paradise Cut and Sugar Cut over two tidal periods
- Using preliminary data and experience from doing the transects to develop methods and set up a monthly schedule to target channels of interest and different tidal periods over the next two water years
- Continued development and refinement of study work plan and also the standard operating procedures for high-speed flow-through equipment



Salinity Point Source Sampling and Increased Ion Sampling

Drivers for Change

- Stakeholder input to improve understanding of circulation dynamics and include groundwater sampling

Updates

- Completed exploratory boat run down lower Old River (Old River near Tracy (OLD) compliance station to Upstream of Mountain House Creek (ORM)
- Collected field data during the run including GPS coordinates, electrical conductivity field data, photos of intakes and pumps, and photos of lower Old River cuts like Mountain House Creek, etc.
- Installed one continuous EC instrument test station in lower Old River to look at preliminary data trend patterns and data quality
- Developed a draft sampling plan to integrate a focused monitoring and water sample collection plan for Pescadero Tract water use practices. Closely following the water use within Tom Paine Slough, Paradise Cut, and Sugar Cut
- Collection/analysis of groundwater samples are being researched and agency expertise being used to help integrated this into the study
- Exploratory run used to continue to develop and refine the study work plan



MSS Driver - 2018 Bay-Delta Plan

To inform development of the Comprehensive Operations Plan and future implementation and compliance with the salinity objective in these river segments, DWR and USBR are developing the Monitoring Special Study to:

- inform development of the long-term Monitoring and Reporting Plan
- characterize the spatial and temporal distribution and associated dynamics of water level, flow, and salinity conditions in the Southern Delta waterways
- identify the extent of low or null flow conditions and any associated concentration of local salt discharges

The State Water Board will request local agricultural water users and municipal dischargers to provide data regarding local diversions and return flows or discharges



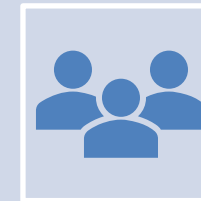
Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

December 12, 2018



MSS Desired Outcomes

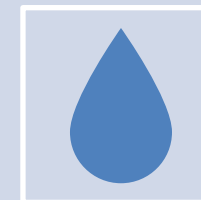
MSS results in better management of the resource for the benefit of all stakeholders/water users



Build stakeholder buy-in on the MSS and build long-term collaboration



Increase likelihood of stakeholder support on findings and recommendations of the MSS because they were involved in developing it and can see that it addressed their priorities



Engage stakeholders in problem solving toward a common goal: to retain the South Delta as a freshwater system



Stakeholder Process

DWR & USBR
Develop Initial
Plans

Agency &
Stakeholder
Review +
Input

Articulate
Study
Questions

Refine
Study Plans

Gather
Agency &
Stakeholder
Input +
Feedback

Refine Study
Questions
and Study
Plans

Finalize Study
Plans and
Implement
Studies

- Stakeholder participation
- Interim reporting

Integration of MSS
Findings and Results
to Inform Long-term
Monitoring and
Compliance Plan

→ Continued stakeholder
engagement



Stakeholder Process Goals

Gather stakeholder input to inform the development of the MSS study plans, including:

1. Identify and discuss the studies that DWR and USBR propose to conduct
2. Build consensus about the specific issues and questions the studies should address
3. Gather input on and discuss study design
4. Identify existing data sources and how that data can be shared
5. Provide study status updates and presentations on completed technical work

Stakeholder #2 Meeting Objectives

Overall: Build stakeholder buy-in on the MSS and build long-term collaboration

- ✓ Provide updates on development of the MSS and how DWR/USBR are integrating stakeholder input and current drought conditions into study designs
- ✓ Gather input from stakeholders on:
 - Locations of key issues or problem areas to ensure the MSS study questions and study designs are aligned with these issues and areas
 - Study questions the MSS will be designed to address



Continued Involvement


Common Goal:

- Develop a better understanding of the South Delta so that it can be better managed for all beneficial uses



We need your input and collaboration to develop and implement these studies

Next Steps:

- Meeting Minutes:
 - Circulated to all participants and everyone on the stakeholder list
 - Posted on COPMSS website
- Workshop Follow-up:
 -  Send us your comments and input on:
 - Study plans
 - Study questions, issues to be analyzed, and hypotheses
 - Modeling scenarios
 - Data sources
- Additional Technical Workgroup sessions
- Stakeholder Meeting #3 (Early 2022)



Questions and Discussion

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Website

<https://water.ca.gov/Programs/State-Water-Project/Water-Quality/Comprehensive-Operations-Plan-and-Monitoring-Special-Study>

