

**STATE BOARD MONITORING SPECIAL STUDY**  
**Technical Workgroup Meeting #6 – High-Speed Salinity Mapping**  
**September 15, 2022**  
**10:00 am – 11:30 am**

**MEETING NOTES**

**Attendees**

- Ibraheem Alsufi/DWR
- Eli Ateljevich/DWR
- David Colvin/DWR
- Daniel Deeds/USBR
- Jared Frantzich/DWR
- Bryant Giorgi/DWR
- Elizabeth Kiteck/USBR
- Bill McLaughlin/DWR
- Jacob McQuirk/DWR
- Prabhjot (Nicky) Sandhu/DWR
- Patrick Scott/DWR
- Jane Tannous/DWR
- Karen Tolentino/DWR
- Zhenlin Zhang/DWR
- Erika Britney/ICF
- Jenna O’Neill/ICF
- Tom Boardman/Westlands Water District
- Thomas Burke/Hydrologic Systems for SDWA
- Ching-Fu Chang/Contra Costa Water District
- Janis Cooke/CVRWQCB
- Lisa Crowley/SWRCB
- Jelena Hartman/SWRCB
- Lindsay Kammeier/SWRCB

**Action Items**

- Check on the 5-Points Confluence low tide section that appears to be missing. (Patrick)
- Check on tide directions and whether they shifted during any transect runs. (Patrick)
- Talk offline about using transect data to verify previous information sources and spatial modeling outputs. (Eli, Ching-Fu, anyone else who is interested)
- Talk to GIS team about developing a transect animation to show more robust data. (Patrick)

**Welcome and Updates**

The draft MSS Plan has been updated with feedback from participating organizations. We also added two appendices: Appendix A is “Responses to Comments on the Draft Monitoring Special

Study” and Appendix B is “Outreach to Participating Organizations Informing Development of the Draft Monitoring Special Study”. We will be submitting the draft MSS Plan to the State Water Resources Control Board soon. The files provided to the State Water Resources Control Board Water Board are ADA compliant. Once the State Water Board posts it on their website, there will likely be an opportunity to provide additional comments.

### **Agenda & Ground Rules**

The objectives of this meeting were to review the high-speed mapping efforts and how this study has evolved with input from participating organizations and prior transects run; and to provide an example of data collected to date, and how it will be presented for participant review and information.

### **Presentation**

The presentation included:

- Introduction
- Methods
- Routes: Data collected in the last year
- Dye study data
- Constraints and lessons learned to date
- Changes made based on comments from participating organizations
- File management

See attached presentation for details.

### **Discussion**

#### *Lower Old River Route Slides*

Patrick clarified that the shading in the monitoring routes shown on Slide 10 reflect 1-second monitoring results from transect runs (not from monitoring stations).

#### *Fabian Tract Route Slides*

Tom Burke, South Delta Water Agency:

- Were the results shown collected during an outgoing or incoming tide?
  - *Response* (Patrick Scott): It was outgoing.
- You broke Fabian Tract into sections – was each section taken during the same tide stage?
  - *Response* (Patrick Scott): We haven’t been able to do back-to-back days yet, but this is something we hope to do.
  - Tom Burke: This would be beneficial to make sure that the tide stages for each section are the same.

#### *5- Points Confluence Route Slides*

Lindsay Kammeier (State Water Resources Control Board):

- There appears to be a section that wasn’t mapped on the low tide – is there a reason for that?
  - *Response* (Patrick Scott): I will need to check on this. It could have been a timing issue.

- The coloring scale is different between slides...do they represent the same data ranges?
  - *Response* (Patrick Scott): The ranges are specific to the data taken on that day. Ranges can be different between different maps. We are open to changing the visuals to make more sense.

Tom Burke (South Delta Water Agency):

- Did the tide ever change directions during your transect runs?
  - *Response* (Patrick Scott): I will need to look back at this for more analysis.
  - Tom Burke: I have concerns about the data if the tide changes during the run. I suggest starting at the lowest tide to ensure that you capture the whole cycle to figure out where the salinity might be coming from.
  - Patrick Scott: We try to keep it in one direction or close to a slack tide to minimize flow direction changes.

Nicky Sandhu (DWR) via chat:

- What other parameters are collected besides EC?
  - *Response* (Patrick Scott and David Colvin): The GPS data logger also estimates boat speed in MPH and Course Over Ground (COG) (direction of boat).
  - Jacob McQuirk: It would be valuable to look at time-stage data as well. There may be other ways to visualize this data, including putting the stage in the visuals.
  - Patrick Scott: We are considering how to do this already.

### **San Joaquin River Route Slides**

Eli Ateljevich (DWR):

- The goal is to show physical results that pan out over multiple models to validate the data and show that we are not just “making the model happy”.

Jelena Hartman (State Water Resources Control Board):

- Thank you for showing this data. I understand it’s still coming along and that you’re learning. Please ensure as you’re working to collect additional transects and to err on the side of showing more information. It will be valuable information.
- Do you have a sense of what CDEC stations have agreement with the transect runs?
  - *Response* (Patrick Scott): There is about 20 micro siemens between the CDEC stations and the transect data (below 5%).

Tom Burke (South Delta Water Agency): How is this data going to be used? What is this actually saying? There are a lot of moving parts (i.e., moving boat, tidal cycle, water flow, etc). A salinity value at any point will change 20 minutes before or after that point. If it’s going to change every 20 minutes, what does it actually show you?

- *Response* (Patrick Scott): An adaptive monitoring framework helped us put in an additional four monitoring stations (in OLD and within the Confluence).
- Tom Burke: Good. This process is showing me that additional monitoring stations are valuable.

- Zhenlin Zhang: The time delay in collecting transect data is not a problem for data validation.

Tom Burke (South Delta Water Agency):

- It's important to verify model data with boots-on-the-ground to look at drainage pipes, etc. to confirm that the model is correct.
  - *Response* (Eli Ateljevich): Yes, the hope is that the high-speed data collected will provide this information. We love doing the data analysis and field work...we just need to make a better connection with the models.

Ching-Fu Chang (Contra Costa Water District):

- Eli, you've been talking about using transect data as corroboration, can this data be used as a prior information source for model inputs and/or use it to verify previous information sources?
  - *Response* (Eli Ateljevich): Yes, it can be a prior source, but we don't have much more prior information than that.
  - Ching Fu Chang: Maybe the transect data can be run through as an assumption and taken out if it does not make sense. Use it to define your assumptions in the source locations.
  - Eli Ateljevich: Let's talk offline about this.
- Another way to visualize the transect data that could significantly reduce the confusion about being in one tidal cycle, etc. could be an animation that shows velocity, EC, tide, and boat movement all at once. This would give a clear picture of each transect measurement at a point in time. It's easier said than done, but it is doable.
  - *Response*: Patrick likes this idea and will talk to GIS staff about this idea.