STATE BOARD MONITORING SPECIAL STUDY
Public Coordination Meeting #7
March 15, 2024
9:30 am – 11:30 am

NOTES

Action Items

- **DWR:** Post Jared's data links to the MSS website.
- **All Attendees:** Contact Bill or Karen if you would like a copy of the *2024 Methodology for Flow and Salinity Estimates in the Sacramento-San Joaquin Delta and Suisun Marsh* modeling annual report.
- **DWR:** Send Jelena Hartman a link to the modeling animation.
- **All Attendees:** Contact Bill or Karen if you would like a link to the modeling animation shown.
- **Tom Burke:** Review the modeling charts included in the presentation and follow-up with Eli as needed to discuss them further post-meeting.
- **Ching-Fu Chang:** send Eli the flow chart he referenced.

Attendees

- Eli Ateljevich/DWR
- Amy Aufdemberge/USBR
- Bryan Barnhart/DWR
- Tom Boardman/Westlands Water District
- Erika Britney/ICF
- Thomas Burke/Hydrologic Systems for SDWA
- Ching-Fu Chang/Contra Costa Water District
- Chandra Chilmakuri/SWC
- David Colvin/DWR
- Janis Cooke/State Water Resources Control Board
- Jared Frantzich/DWR
- Bryant Giorgi/DWR
- Jelena Hartman/State Water Resources Control Board
- Tracy Hinojosa/DWR
- Dave Huston/DWR
- Hans Kim/DWR
- Elizabeth Kiteck/USBR
- Paul Larson/DWR
- Shawn Mayr/DWR
- Bill McLaughlin/DWR
- Jacob McQuirk/DWR
- Parviz Nader-Tehrani/DWR
- Jenna O'Neill/ICF
- Nicky Sandhu/DWR
- Nader Shareghi/Mountain House EID
- Jane Tannous/DWR
- Karen Tolentino/DWR
- Ian Uecker/DWR
- Grace Windler/USBR
- Zhenlin Zhang/DWR
- Diane/Captioner
- Tina/Captioner

Welcome

Bill McLaughlin, Project Manager and Supervising Engineer with O&M, opened the meeting and welcomed everyone. The intent of this meeting is to provide updates on the MSS Report preparation.

Agenda & Logistics

Erika Britney, MSS facilitator, reviewed the agenda, ground rules, logistics, and explained that the meeting was being transcribed by a captioner.

General MSS Updates/Timeline and Q&A

This effort has been underway for over 2 years. During that time, study leads gathered data and performed analysis, and they are now writing their reports. This is a long process, but we are getting towards the end of this long effort. We anticipate the full draft of the MSS report being available for Technical Work Group review in late September/early October. We will do one round of reviews, apply comments as appropriate, and then formally submit the report to the State Board in December 2024. That's the schedule that was provided in the MSS plan that was approved by the Board, so we are trying to make it a point to meet that deadline.

Technical Study Updates

High-Speed Salinity Transect Mapping/Salinity Point Source and Ion Sampling and Q&A (Jared Frantzich)

- MSS work plan goals and reporting objectives:
    - Point Source & Ion Sampling – Fill data gaps, improve spatial and temporal coverage, improve modeling results, recommendations for new monitoring stations and assessment of existing compliance stations.
    - High-Speed Transects – Expand monitoring between fixed stations, targeted conditions, model validation, compare channel reach salinity conditions w/ compliance stations
- Since March, the team has been finishing up data review, organizing, doing QC, and making sure that all data is published to the DWR Water Data Library, and (in some cases) also publishing spatial data for mapping work in the DWR Atlas.
    - Data Published to the DWR Water Data Library for Public Access: https://wdl.water.ca.gov/
    - Salinity Point Source and Ion Sampling Reviewed and publicly available data:
        - DWR GIS Atlas Website: https://gis.water.ca.gov/arcgisimg/rest/services/Aerial_Photography
        - DWR GIS Atlas Website: https://gis.water.ca.gov/arcgisimg/rest/services/Aerial_Photography
    - High-Speed Salinity Transect Mapping reviewed and publicly available data:
        - AGOL Link: https://www.arcgis.com/home/item.html?id=c2b6fe1bd21d4a86b3052fac01b212f1
        - AGOL Link: https://www.arcgis.com/home/item.html?id=c2b6fe1bd21d4a86b3052fac01b212f1
    - We are working on posting links to the MSS website.
- Report Writing, Figure Development, and Analysis is underway

Ching Fu Chang/Contra Costa Water District:

- Can you share an example of the flux analysis? Or describe what kind of analysis you did?
    - *Response* (Jared Frantzich): For example, one area of interest is some of the side channel inputs, like Sugar Cut or Paradise Cut, where we are trying to understand potential flux or movement of salts out of these higher salinity channels. We used Dave Huston's flow station data, as well as our EC data, using daily mean concentrations to see if salt is moving or not moving out of the slough, or whether it's more negative over time.

Isotopes and Q&A (Grace Windler)

Grace has been working on the framework of how to answer the supplemental isotope question. We need a broader concept of what water isotopes mean in the Central Valley as a whole to understand how to interpret them in the Delta. Grace searched databases and data from USGS, USEPA, and other

academic sources, including surface water, precipitation, and groundwater data (well depths from 20-1780 ft). Grace came up with over 2000 data points since the year 2000 that cover every year and every month of the year. This data is spatially and temporally a good characterization dataset for the Central Valley for looking at water isotope values of these different waters that are all feeding into the Delta. This will be a useful independent validation tool for different patterns that we are seeing seasonally in different parts of the southern Delta in the MSS studies. This has been a brief primer for this type of data and how to think about it.

Eli Ateljevich/DWR, via chat:

- I'm sure Vernalis is part of "surface water", but how does that compare to the others?
    - *Response* (Grace Windler): I will be looking at monthly data from Vernalis to see how it varies. It will be closer to the negative side of things because I'm seeing a difference in surface water from the Sacramento verses the San Joaquin Watershed. It doesn't have a strong evaporative signal most of the year because it is all pretty fresh water. It will be considered with everything.

Modeling and Q&A (45 min)

- Major Modeling Activities:
    - CCF Gates Characterization and Analysis
        - This analysis will be included in the MSS Modeling report
    - Source Inference for SCHISM
        - Draft of methodology available to stakeholders in 1-2 weeks
        - Final draft of results: On schedule
    - SCHISM and DSM2 Model Evaluations
        - Writeup in progress, will be an appendix to the SCHISM Report
        - See also *2024 Methodology for Flow and Salinity Estimates in the Sacramento-San Joaquin Delta and Suisun Marsh* modeling annual report for information on model validation work completed in 2023. This will be posted on the CRNA website soon, or you can contact Bill and Karen for a copy.
    - Flow Exports and Delta Processes Study runs proceeding
        - End-of-July delivery of internal draft
    - Visualization aids: Transport in Five Points, particles in CCF area
        - Send link to Jelena Hartman. Contact Bill or Karen if you would like the link.
- DWR's 2024 annual report has been released. It can shed some light on our flow and salinity modeling process downstream, and the model evaluation document for MSS will essentially be an upstream extension of this information. Contact Bill and Karen if you would like a copy.
- Sophie Munger did most of the Clifton Court analysis but couldn't be here today.
- Clifton Court is operated according to a three-tier, priority system based on water flow levels and tidal projections, and fish can impact Clifton operations a lot.
- Fish are a key operational consideration: they can cause closures of Clifton Court and they are invoked when we talk about "sipping" versus "gulping". Sipping is where the gates are opened a little, for longer periods. Gulping opening the gates fully and closing early.
- The scenarios run to characterize Clifton Court we run to understand how they affect flow and salinity dynamics, the characterization has not been provided to fish biologists for review/discussion.

- Findings from the Clifton Court analysis indicate:
    - It is more about the tidal prism and less about the specifics of the tidal operation. We are not seeing nuanced variation of gate schedules making a difference.
    - We understand now what some of the operators were saying about how difficult it is to manipulate this schedule. We think the current schedule is a good one.
- DSM2 has been able to explain 80% of variance at continuous stations.
- Model can explain more than 90% of variance of the data, which is a drastic improvement compared to the 50% without inference.
- The model meets original goals and is stable enough to begin exploring options for issues in the system.

Tom Burke/South Delta Water Agency:

- I have a question about the column chart. It shows lowest 1% on a monthly basis.
    - *Response* (Eli Ateljevich): The idea to focus on daily lows during the larger spring tides. We looked at the average of the daily low and a bunch of other metrics and was all pretty much the same outcome.
    - *Response* (Tom Burke): We noticed when looking at variations of export volumes, that high flows had the most impact on the low tide.
    - *Response* (Eli Ateljevich): I agree, and I think this will come out in the end. To be clear: Pumping levels **do** produce draw-down.
    - Tom will review the charts a little longer and get back to Eli offline.

Ching-Fu Chang/Contra Costa Water District:

- Will the model and the source codes & the code for analysis be available?
    - *Response* (Eli Ateljevich): The model will be available soon. The full transfer may take longer. There are two levels that we can provide: One is the DSM2 package that has these already inferred. The second would be a set of wrapper scripts around DSM2.

Tom Burke/South Delta Water Agency:

- We have grave concerns about you "making your data fit" the observed data better. In terms of my modeling background, this doesn't feel like the correct thing to do. Transferring data inference from one model to another does not validate it, it just transfers it from one model to another. In a fixed system like this, you may want to validate some of the inference locations.
    - *Response* (Eli Ateljevich): It is a standard scientific process. There is a spatial vagueness to what data assimilation produces: locations [of sources/sinks] are not perfect. We feel confident that we have our sources in [generally] the right spot because there is no other explanation that would produce the same complex movements in this tidal flow field. The sources validate well against spatial transects that were withheld and performs well in a model that was not involved the inference process. We would love to validate inference locations with actual data and would love to use less inference and more data. If you can prevail on the agencies that you represent to increase the level of monitoring on discharges and make data available, we can reduce our dependence on inference.

Ching-Fu Chang/Contra Costa Water District:

- Early on, you shared a flow chart of the modeling process. Would it help to show an updated version of this chart?
    - *Response* (Eli Ateljevich): Please send this flow chart and what you would like updated. If we haven't already included it, we will.

Ching-Fu Chang/Contra Costa Water District:

- Is it possible to get the code and the model out together, before the review?
    - *Response* (Eli Ateljevich): Our first priority is to get the initial methodology out in a couple of weeks. I'm guarded in making new commitments that we may not be able to meet.

Closing & Next Steps (5 min)

- Notes and presentation will be posted to the MSS website.
- Jared's data links will be provided (see notes above).
- Methodology report will be distributed
- The next MSS meeting will be around September.