



State Water Resources Control Board

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John Leahigh
Assistant Division Manager
Water Management
Division of Operations and Maintenance
Department of Water Resources
John.Leahigh@water.ca.gov

Adam Nickels
Regional Resources Manager
California-Great Basin Region
U.S. Bureau of Reclamation
ANickels@usbr.gov

Dear Mr. Leahigh and Mr. Nickels:

CONDITIONAL APPROVAL OF UPDATED MONITORING SPECIAL STUDY PLAN PURSUANT TO 2018 BAY-DELTA PLAN AMENDMENT

Thank you for submitting the updated Monitoring and Special Studies (MSS) Plan on September 19, 2022, jointly prepared by the California Department of Water Resources (DWR) and United States Bureau of Reclamation (Reclamation). DWR and Reclamation worked cooperatively with State Water Resources Control Board (State Water Board) staff and solicited stakeholder input to develop the updated MSS Plan. The updated MSS Plan is approved with the conditions identified in this letter.

Background

The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta Plan) establishes water quality objectives for the protection of beneficial uses in the Bay-Delta watershed. In December 2018, the State Water Board approved modifications to the southern Delta salinity objective and program of implementation in the Bay-Delta Plan for the reasonable protection of agricultural beneficial uses.

The program of implementation requires Reclamation and DWR to develop and implement several planning actions, including a MSS to characterize the spatial and temporal distribution and associated dynamics of water level, flow, and salinity conditions in the southern Delta waterways. The MSS must include studies needed to identify the extent of low or null flow conditions and any associated concentration of local salt discharges (section B(1)(iv)(a)). The MSS must also inform the development of long-term monitoring protocols to measure compliance with the performance goals of the Comprehensive Operations Plan (COP), and to assess attainment of the salinity objective (section B(1)(iv)(b)). The 2018 Bay-Delta Plan requires DWR and

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

Reclamation to work with State Water Board staff and solicit stakeholder input to develop and implement the MSS Plan.

September 2022 Updated MSS Plan

The 2022 updated MSS Plan is a stand-alone document developed with input from participating agencies. The updated MSS Plan consists of four technical studies spanning field monitoring (High-Speed Salinity Transect Mapping Study, and Salinity Point Source and Ion Sampling Study), and modeling (SCHISM 3D Hydrodynamic and Water Quality Modeling Study, and Water Quality Data Assimilation Modeling Study).

The initial draft MSS Plan was developed as a part of the 2019 draft COP. State Water Board staff and Contra Costa Water District (CCWD) provided comments on the 2019 draft COP. In 2021, DWR and Reclamation solicited input from participating agencies and State Water Board staff to further develop MSS technical studies. A stand-alone revised draft MSS Plan was shared for administrative review and comments with the State Water Board, CCWD, and South Delta Water Agency (SDWA) in April 2022. Staff from the State Water Board's Division of Water Rights and the Office of the Delta Watermaster, CCWD, and SDWA provided comments on the revised draft MSS Plan.

DWR and Reclamation hosted quarterly MSS Technical Workgroup Meetings to discuss updates and questions related to the MSS technical studies with participating agencies. Additionally, DWR and Reclamation met multiple times with State Water Board staff to discuss technical issues and refine the monitoring design.

Conditional Approval of the 2022 Updated MSS Plan

Field monitoring in the 2022 MSS Plan was designed for the purpose of validating and improving modeling simulations in the South Delta, and to identify and characterize local salinity sources; these additional field samples can also support additional analyses and new insights. Transparent and accessible modeling will be important for testing management concepts and development of monitoring protocols for compliance in the southern Delta. However, inferences based on traditional data analyses of observed field data remain a centerpiece of our knowledge base and should continue in parallel with any proposed modeling efforts.

The updated MSS Plan is approved subject to satisfaction of the following conditions:

1. Making available to interested stakeholders the custom versions of Bay-Delta models relied upon in the MSS Plan in a usable form. The Bay-Delta SCHISM and the GTM module of DSM-2 are heavily relied upon in the MSS Plan, and should be accessible and transparent. If not published online, these products should be otherwise made readily available, or access should be provided to interested parties. Documentation on calibration, improvements, manuals and other details should be made public consistent with other DSM-2 modules.
2. Inclusion of analyses of historical flow and salinity data from continuous monitoring stations published on Water Data Library or California Data Exchange Center to characterize the spatial and temporal distribution of flow and salinity and associated dynamics in the southern Delta (to be included as a technical study chapter in the MSS Final Report). The purpose of this analysis of historical data is

to identify periods when salinity is not attained, assess conditions that lead to non-compliance (a range of relevant parameters regardless of whether within operational control), evaluate past instances of return to compliance, and identify potential actions that may support returning to and maintaining compliance. At a minimum, hourly data shall be used to understand fate and transport with full tidal variation of ebb and flood tides, and to account for parameters that change on a sub-daily time step (such as Clifton Court Forebay gate operations).

3. Inclusion of evaluations of whether the existing continuous salinity monitoring stations are sufficient to determine the appropriate locations and methods to assess attainment of the salinity objective in the river segment (section B(1)(ii)). Specifically, approval is conditioned on DWR and Reclamation working with State Water Board staff to determine if collecting ion samples or scheduling seasonal transects in Middle River is needed to support an evaluation of existing compliance stations for the purposes of identifying compliance approaches that are representative of salinity conditions in the interior southern Delta and to validate model results.
4. Addition of flow monitoring at or near Old River above Paradise Cut Confluence (B9538600) in below normal, dry, and critical water year type conditions prior to completion of the MSS study. DWR and Reclamation have already augmented the flow monitoring with temporary stations in multiple southern Delta locations. However, the amplitude and direction of instantaneous flow remains a critical gap for understanding the fate and transport of salt from Paradise Cut into Doughty Cut and into lower Old River, especially during years with below average runoff.
5. Inclusion of at least one additional line of evidence in the technical modeling studies (such as published continuous measurements, transects, point sampling) to validate or support any inferred salinity sources in data assimilation and as used in SCHISM.

With the inclusion of conditions 1 through 5, the updated MSS Plan is approved. The completed MSS is expected to inform implementation of the southern Delta salinity objectives. The State Water Board looks forward to working with DWR and Reclamation on additional actions related to implementation of the southern Delta salinity objectives in the future, including long-term monitoring protocols to measure compliance with the performance goals of the COP and attainment of the salinity objective in the interior southern Delta.

If you have questions regarding this matter, please contact Jelena Hartman at jelena.hartman@waterboards.ca.gov.

Sincerely,



Eileen Sobeck
Executive Director
State Water Resources Control Board

ecc: Jay Ziegler
Office of the Delta Watermaster
State Water Resources Control Board

John Herrick
General Manager
South Delta Water Agency

Maureen Martin
Special Projects Manager
Contra Costa Water District