

## STAFF REPORT

### REAL-TIME MANAGEMENT PROGRAM ADDRESSING SALINITY IN THE LOWER SAN JOAQUIN RIVER

#### **Purpose**

The purpose of Resolution No. R5-2014-YYYY (Attachment A) is to approve the Real-Time Salinity Management Program (RTMP) proposed by dischargers of nonpoint source flows to the Lower San Joaquin River (LSJR). The RTMP, described in the document titled *Salinity Real-Time Management Program Framework* (Attachment B), addresses salinity requirements established in the *Control Program for Salt and Boron Discharges into the Lower San Joaquin River* (Control Program). The Central Valley Water Board adopted the Control Program into the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) on 10 September 2004, in order to ensure compliance with salt and boron water quality objectives at Vernalis, the boundary of the Delta. The Office of Administrative Law approved the amendment to the Basin Plan on 28 July 2006.

#### **Background**

One of the goals of the Basin Plan's Control Program is to achieve compliance with salt and boron water quality objectives at Vernalis without restricting the opportunity for dischargers to export salt out of the LSJR watershed. The Vernalis objectives are 700 micro Siemens per centimeter ( $\mu\text{S}/\text{cm}$ ) electrical conductivity from April 1<sup>st</sup> through August 31<sup>st</sup>, and 1,000  $\mu\text{S}/\text{cm}$  from September 1<sup>st</sup> through March 31<sup>st</sup>, using a 30-day running average, and were developed to protect the agriculture beneficial use in the southern portion of the Sacramento-San Joaquin Delta. The Control Program requires the Central Valley Water Board to use waste discharge requirements (WDRs) or waivers of WDRs to apportion salt load allocations to each of the seven geographic subareas (see Figure 1) that comprise the LSJR watershed and to salt loads imported by the Delta Mendota Canal (DMC), which is owned by the U.S. Bureau of Reclamation (USBR). The Control Program provides four means for non-point source dischargers to achieve compliance:

1. Cease discharge to surface water,
2. Discharge does not exceed 315  $\mu\text{S}/\text{cm}$  electrical conductivity (30-day running average),
3. Operate under WDRs that include effluent limits for salt, or
4. Operate under a waiver of WDRs for salt and boron discharges to the LSJR.

The Control Program also provided the USBR and dischargers the opportunity to participate in a Central Valley Water Board approved RTMP. Participation in an approved RTMP and attainment of salinity and boron water quality objectives constitutes compliance with the Control Program.

The Control Program includes a timeline for implementation with initial control actions on the most significant sources of salt and boron discharges to the LSJR. Priority for implementation of load allocations was given to subareas with the greatest unit area salt loading (tons per acre

per year) to the LSJR. Table 1 presents the priority compliance schedule in the Control Program for each of seven subareas and the DMC.

Also at this time, the Central Valley Water Board staff are bringing Resolution No. R5-2014-XXXX for Board consideration to approve a revised Management Agency Agreement (MAA) with the USBR. In the MAA, USBR has agreed to provide resources and support for the RTMP. The proposed RTMP framework recognizes the need for strong USBR commitment and support so includes placeholders for the revised MAA and for the annual USBR salinity work plan referenced within the MAA.

### **Real Time Salinity Management**

On 4 June 2014 the Central Valley Water Board announced on Lyris lists the posting of a draft RTMP framework to its website for public comment. An update was posted indicating that the draft document would be considered for approval at its meeting on 9/10 October 2014 and extending the closing date for public comment to 18 August 2014. On 23 September 2014 the Central Valley Water Board announced on Lyris list that the draft RTMP Framework document would be considered for approval at its meeting on 4/5 December 2014.

An important concept for development of a RTMP is “assimilative capacity.” Assimilative capacity of the LSJR can be defined as the mass load of salt that can be safely discharged to the river without exceeding the water quality objectives at Vernalis. The draft RTMP framework document describes a set of water monitoring and management actions coordinated in conjunction with real-time forecasts of river water quality to discharge salt during times that the river has assimilative capacity. Proper phasing of the effort is critical to ensure that salinity management can be adapted based on changes in water quality, water supplies, flow regimes, and other ongoing regulations and potential projects. The framework document describes a phased approach to logically transition into a fully-functioning RTMP.

Implementation of the RTMP described in the framework document includes four phases scheduled over the next 60 months. As the fully functional RTMP is being developed, USBR will continue to ensure that salinity objectives are met at Vernalis through a combination of mitigation and dilution flows and salt reduction strategies.

The first RTMP phase will be completed by 31 March 2015. The second, third, and fourth phases are scheduled for completion in 12, 36, and 60 months, respectively, after 31 March 2015. The following summarizes activities identified for each phase in the RTMP framework document.

#### Phase 1: Initiation Phase.

- Completed prior to 31 March 2015,
- Developed a River Forecast Model approach for the RTMP,
- Identified the monitoring stations necessary for the River Forecast Model,
- Determined the appropriate forecasting interval,

- Developed operation and maintenance requirements for the monitoring stations (for the forecasting model) along with costs and funding for the monitoring stations,
- Completed pilot studies on tracking discharge salinity that includes existing activities and monitoring in the Mud Slough drainage area, including the drainage of the Grasslands Resource Conservation District (GRCD) and the Grassland Bypass Project (GBP); and salt control techniques at GBP,
- Developed a Memorandum of Understanding (MOU) to organize participants and provide a mechanism for additional participants,
- Developed Management Agency Agreement between USBR and the Central Valley Water Board that identifies USBR activities supporting a RTMP.

#### Phase 2: Development Phase.

- Begin on 31 March 2015 and complete in 12 months,
- Stakeholders participating in the RTMP will demonstrate and refine salinity management methods. Stakeholders can evaluate the GRCD demonstration project networked monitoring and control system and the GBP salinity control techniques for useful program development information,
- Participants throughout the program will as necessary improve the existing monitoring stations, install additional stations, and cooperate to further develop a model to be used to forecast SJR assimilative capacity,
- Initial participants in the RTMP will cooperate under the MOU including developing approaches for funding the necessary activities,
- Develop the data platform to support the River Forecast Model,
- Outreach will continue for additional stakeholders.

#### Phase 3: Early Implementation Phase.

- Complete 36 months from start date of Phase 2,
- One or more cooperating agencies or other entities will conduct programmatic weekly forecasting of assimilative capacity in the SJR. Data sharing is of utmost importance to the successful implementation of the RTMP; key stakeholders will be asked to share flow and water quality information throughout the basin,
- The RTMP participants will analyze the need for additional infrastructure and identify necessary funding requirements through the MOU,
- Develop and recommend specific additional management practices needed to better coordinate the real time operation of discharges to the San Joaquin River,
- Continue outreach for additional stakeholders.

#### Phase 4: Implementation Phase.

- Completed 60 months from the first compliance date of 28 July 2014,
- RTMP Participants will be implementing monitoring, data networking, management practices and utilizing the forecast model to coordinate the timing of discharges,

- RTMP participants will be addressing long-term funding and management needs,
- Additional parties would join by their Basin Plan compliance date. The future level of participation by additional regulated parties in the real time management program is difficult to predict. It is anticipated, however, since the alternative will be fixed load allocations, the coordinated and collaborative approach envisaged under a RTMP would be more cost-effective in the long term,
- It is further anticipated that during Phase 4 continuous implementation will bring about improvements to data processing, quality assurance and the river assimilative capacity forecast modeling.

Parallel Activities. Although stakeholders are committed to developing a fully functional RTMP, several activities are being conducted in parallel with the effort:

- USBR is continuing to release mitigation flows to meet its water rights permit requirements including compliance with the Vernalis salinity objectives,
- Provisions of the Control Program have been incorporated by reference into both the Western San Joaquin and Eastern San Joaquin WDRs General Orders under the Irrigated Lands Regulatory Program,
- The Central Valley Water Board staff is working with LSJR stakeholders on the identification of appropriate salinity and boron water quality objectives for the river between its confluence with the Merced River and Vernalis. The RTMP is being evaluated as one of the implementation alternatives to meet salinity objectives within that reach of the river.

### **Memorandum of Understanding**

The Westside San Joaquin River Watershed Coalition on behalf of participating agencies and individuals within its boundaries, and the Grassland Basin Drainers on behalf of all of its participants have signed the MOU. The executed MOU has been incorporated as Attachment A into the RTMP Framework document.

### **Annual USBR Salinity Management Work Plan**

The USBR work plan is referenced in the MAA ( Attachment B). Work plans for public review and comment are due 90-days prior to the beginning of each Federal Fiscal Year (1 July). Should a USBR work plan not be approved, the resolution provides participants in the RTMP six months to develop a replacement work plan.

### **Comments**

Comments letters were received from the San Joaquin River Tributary Authority and Stockton East Water District and are presented in Attachment C. Staff from the Central Valley Water Board, USBR and San Joaquin Valley Drainage Authority have drafted responses to the comments which are also presented in Attachment C.

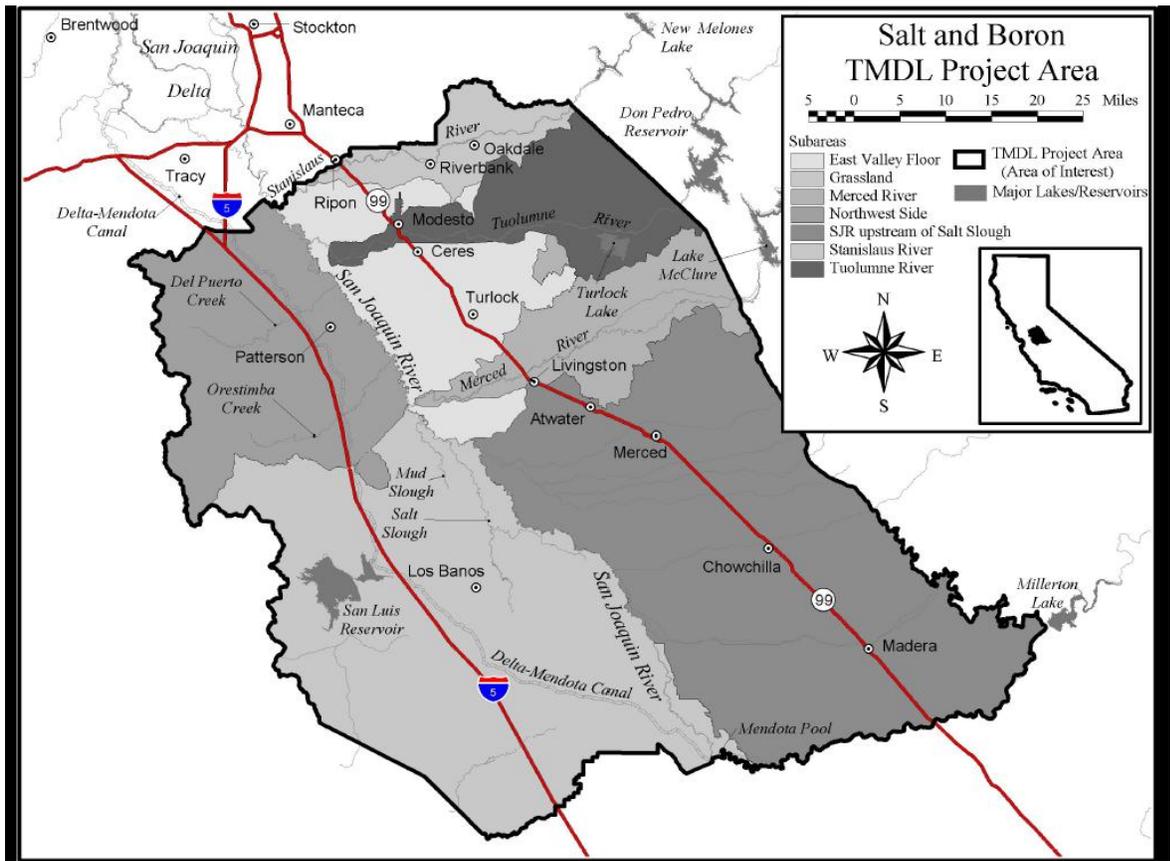


Figure 1. Control Program Subareas

Subarea	Map No.	Wet through Dry Water Year Type Deadline	Critical Water Year Type Deadline
Northwest Side	4	July 28, 2014	July 28, 2018
Grassland	2	July 28, 2014	July 28, 2018
Delta Mendota Canal (DMC) <sup>a</sup>	labeled	July 28, 2014	July 28, 2018
Tuolumne River	6	July 28, 2018	July 28, 2022
East Valley Floor	3	July 28, 2022	July 28, 2026
SJR Upstream of Salt Slough	1, 1a	July 28, 2022	July 28, 2026
Merced River	5	July 28, 2022	July 28, 2026
Stanislaus River	7	July 28, 2022	July 28, 2026

<sup>a</sup> DMC is not a Subarea

Table 1. Lower San Joaquin Subarea Salt and Boron Control Program Compliance Schedule