BUREAU OF RECLAMATION

Management Agency Agreement

Fiscal Year 2027 Annual Work Plan

October 1, 2026–September 30, 2027

California-Great Basin Region



Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Contents

Page

Purpose 1
Reclamation Staff Resources 5
Fiscal Year (FY) 2027 Goals and Objectives 7
Detailed Description of FY 2027 Goals for the RTMP 9
Goal 1. Provide funding for maintaining and improving forecasting tools 9
Goal 2. Maintain forecasting tools and methods 10
Goal 3: Provide flow and salinity forecasts 11
Goal 4: Coordinate with stakeholders 11
Goal 5: Provide technical support 13
Goal 6: Maintain monitoring stations 13
Goal 7: Participate in CV-SALTS 13
Funding and Status of the Monitoring Program 14
References 19

Tables

Table 1. Reclamation Staff Involved in the RTMP 5
Table 2. Reclamation Goals 7
Table 3. FY 2027 Proposed Reclamation Funding 14
Table 4. Status of Monitoring Stations 15
Table 5. Reclamation Funded Projects that Potentially Reduce Salt 16
Table 6. Project Award Annual Allocation 18

Figures

Figure 1. TMDL Subareas for Salt Load Management in the LSJR Basin 3

This page intentionally left blank

Abbreviations and Acronyms

Action Plan	Actions to Address the Salinity and Boron TMDL Issues for the Lower San Joaquin River, July 9, 2008 (updated November 2010)
AI/ML	Artificial Intellegence / Machine Learning
Basin Plan	1994 Water Quality Control Plan for the Sacramento and San Joaquin River Basins, 4th Edition (updated April 2016)
CALFED	California Bay-Delta Authority
CDEC	California Data Exchange Center
CV Water Board	Central Valley Regional Water Quality Control Board
CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability Stakeholder Group
DWR	California Department of Water Resources
GWD	Grassland Water District
LSJR	Lower San Joaquin River
MAA	Management Agency Agreement
NWIS	National Water Information System
PTMS	Program to Meet Standards
QA	Quality Assurance
Reclamation	United States Bureau of Reclamation
RTMP	Real-Time Management Program
SJR	San Joaquin River
SJVDA	San Joaquin Valley Drainage Authority
TMDL	Total Maximum Daily Load
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey

µS/cm	Micro Siemens Per Centimeter
WARMF	Watershed Analysis Risk Management Framework
WQOs	Water Quality Objectives

Purpose

Reclamation, in response to the passage of the "Water Supply, Reliability, and Environmental Improvement Act" (Public Law 108-361), which includes the California Bay-Delta Authority (CALFED), has initiated implementation of the Program to Meet Standards (PTMS). This program intends to provide greater flexibility in meeting existing water quality standards for the Central Valley Project. Reclamation currently utilizes the CALFED funding authorization for the PTMS, which includes the Real-Time Management Program (RTMP).

The Central Valley Regional Water Quality Control Board's (CV Water Board) Salt and Boron Total Maximum Daily Load (TMDL) for the Lower San Joaquin River (LSJR) was approved and placed into effect on July 28, 2006. In response to the Salt and Boron TMDL, Reclamation drafted a memorandum entitled "Actions to Address the Salinity and Boron TMDL Issues for the Lower San Joaquin River" on July 9, 2008, and updated it in November 2010 (Action Plan). Reclamation subsequently entered into a Management Agency Agreement (MAA) (Management Agency Agreement 2008 and 2014) with the CV Water Board on December 22, 2008. The Action Plan was created to accompany the MAA and provide details of Reclamation-planned activities to comply with the TMDL-based water quality control plan objectives. Figure 1 shows the seven TMDL subareas for salt load management designated by the CV Water Board in the LSJR Basin.

A Reclamation Compliance Plan (Compliance Plan 2010) and a Compliance Report (Compliance Report 2010) were prepared in May 2010 to provide the methodology used for the activities described in the Reclamation Action Plan (Reclamation Action Plan 2008). These documents contain information regarding the technical analysis, computation, and methodology utilized for each Reclamation activity. The 2008 MAA was updated in December 2014. It is aligned with Reclamation's focus on developing the basic infrastructure that supports the RTMP for the LSJR. The annual work plan continues the work that was initiated in the Reclamation Action Plan and summarizes annual planned activities to be conducted by Reclamation following each plan element outlined in the MAA. The original Work Plan was conceived in four phases each of which contained activities to make the concept of real-time salinity management in the San Joaquin Basin operational. This 2027 Work Plan describes ongoing work for the final maintenance phase of the program during fiscal year 2027. This maintenance phase acknowledges that all the components are in place for sustaining the RTMP while also recognizing that work will continue to improve access and transmission frequency of data and adoption of real-time data quality assurance techniques. These actions take time and depend on resource availability. This 2027 Work Plan includes updates from some of the RTMP participants that typically report progress towards these goals at quarterly MAA meetings with CV Water Board staff.

The primary purpose of the CV Water Board–approved RTMP is to implement salinity management activities to meet seasonal quantitative salinity objectives at Vernalis, Crows

Landing, and Maze Road Bridge.[1] The 2017 amendment to the Sacramento/San Joaquin River Basin Water Quality Control Plan (Basin Plan 1994) establishing the Crows Landing compliance monitoring station, was undertaken to protect beneficial uses, including irrigation supply in the LSJR from the mouth of the Merced River to Airport Way Bridge near Vernalis. The U.S. Environmental Protection Agency (USEPA) approved the Basin Plan amendment on December 17, 2018. The amendment went into effect in January 2020. The RTMP is also designed to encourage the export of agricultural and wetland drainage salt loads in accordance with the provisions in the Basin Plan, especially during times of high river assimilative capacity for salt. This coordination of west-side drainage salt loads and east-side return flows of improved quality reduces the reliance on the New Melones Reservoir for providing dilution flows to the LSJR. Additionally, it has helped to establish an organizational approach for the continuing development, implementation, and coordination of the RTMP.

[1] An amendment to the Water Quality Control Plan for the Sacramento and San Joaquin River Basins was adopted by the CV Water Board on 6/9/17 and approved by the State Water Resources Control Board on 1/9/18, by the Office of Administrative Law on 4/19/18, and by the USEPA on 12/17/18. The amendment established new WQOs for the San Joaquin River, Reach 83 (from the mouth of the Merced River to Airport Way Bridge) of 1,550 microsiemens per centimeter (µS/cm) during most years, and 2,470 µS/cm during extended dry periods. During extended dry periods a maximum annual average of 2,200 µS/cm will apply. The amendment also includes a performance goal of 1,350 µS/cm. The existing WQOs of 700 µS/cm (April to August) and 1,000 µS/cm (September to March) will remain in effect. Crows Landing and Maze Road Bridge are the two compliance points for the new WQOs. For the purposes of the RTMP, forecast efforts will focus on meeting the new WQOs at Crows Landing and Maze Road together with the WQOs at Airport Way Bridge near Vernalis.

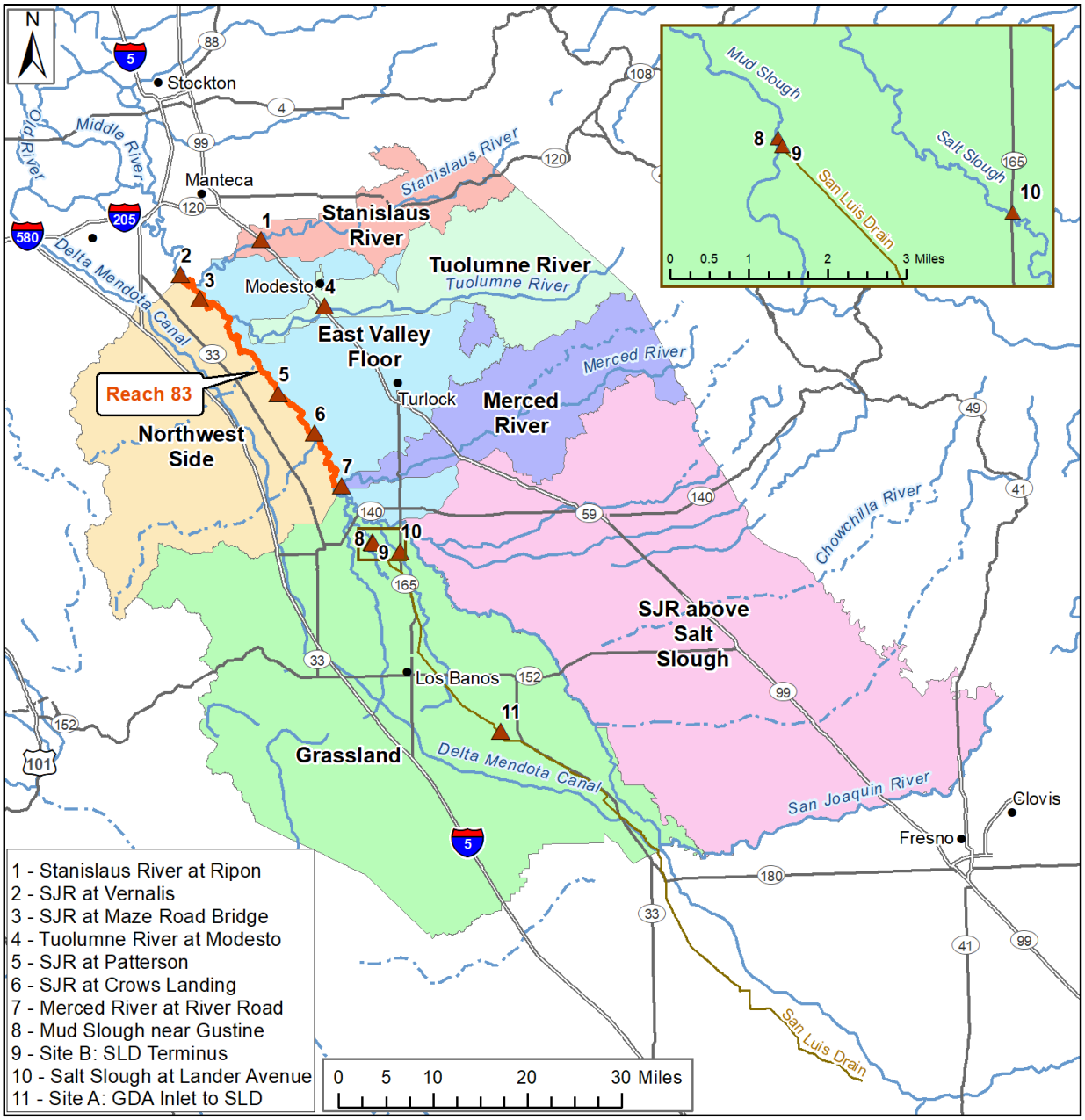


Figure 1. TMDL Subareas for Salt Load Management in the LSJR Basin

Reclamation has no responsibility or authority to prescribe stakeholder drainage release schedules and salinity management practices within the Basin. Rather, Reclamation's primary role is developing decision support tools to provide daily forecasts of salinity in the San Joaquin River at Maze Road Bridge, Crows Landing, and Vernalis compliance monitoring locations. Salinity forecasts extend two weeks into the future, which was suggested as a good compromise between model predictive uncertainty and stakeholders' ability to undertake timely actions during periods of potential 30-day running average salinity exceedance.

In addition to its commitment to the RTMP, Reclamation is and was involved in other ongoing salinity management activities within the San Joaquin River Basin, such as the Grassland Bypass Project; the WaterSMART Grant Program; the New Melones Plan of Operations; and the Westside Regional Drainage Plan.

Reclamation Staff Resources

Table 1 lists Reclamation staff resources utilized in the Salt and Boron Control Program on the LSJR.

Table 1. Reclamation Staff Involved in the RTMP

Name	**Role**
Jobaid Kabir	Program Management
Grace Windler	Regional Water Quality Coordinator
Jun Wang	Watershed Analysis Risk Management Framework (WARMF) and AI/ML Modeler
James Lu	Regression and AI/ML Modeler
Junaid As-Salek	Contracting Support

This page intentionally left blank

Fiscal Year (FY) 2027 Goals and Objectives

All the activities and technical support planned for FY 2027 are intended to provide resources, information, and support to LSJR stakeholders who wish to participate in the RTMP.

Table 2. Reclamation Goals

FY 2027 Goals
Goal 1. Maintaining and improving data processing procedures, providing funding for monitoring stations Specific improvements planned for 2026/2027 include the following: • Develop a capability of real-time observed data quality assurance (QA) and quality control (QC) within a data pre-processor. This feature will be accessible through the existing WARMF model user interface. • Conduct routine updates of the model database using daily data collected from San Joaquin Valley Drainage Authority (SJVDA) westside stations, westside diversion stations, and eastside drainage and operational spill monitoring stations. Continue to seek technical advisory services and stakeholder liaison activities from. Nigel Quinn • Continue funding to the United States Geological Survey (USGS) to operate and maintain five flow and electrical conductivity (EC) monitoring stations along the mainstem of the San Joaquin River.
Goal 2. Maintain and improve forecasting tools and methods • Continue evaluating the forecasting accuracy of both the WARMF and Regression models for predicting San Joaquin River flow and salinity at the three compliance monitoring stations. • Develop, test, and implement a script to convert the current Excel-based Regression model into python programming language with AI/ML models to enhance the efficiency and reliability of daily salinity forecasting. • Enhance the performance of the WARMF model by integrating current real-time data from the San Joaquin River watershed and its tributaries into daily forecasting routines. • Collaborate with stakeholders to improve access to district-level flow and salinity data, thereby increasing the reliability of WARMF model forecasts. • Work with Modesto, Turlock, Patterson, and West Stanislaus Irrigation Districts for improving real time data access to improve the accuracy of daily flow and EC forecasts.
Goal 3. Provide flow and salinity forecasts • Utilize the WARMF, Regression, and AI/ML models to deliver daily 14-day forecasts of flow and salinity at the Vernalis, Maze Road Bridge, and Crows Landing compliance monitoring locations. • Evaluate model results daily to ensure the most reliable forecasts are provided to stakeholders.

Table 2. Reclamation Goal - Continued

FY 2027 Goals
Goal 4: Coordinate with stakeholders • Deliver technical briefings on WARMF model forecasting during regular SJVDA RTMP Steering Committee meetings as needed. • Engage in wetland real-time salinity management coordination meetings led by the Grassland Water District (GWD), involving refuge water managers, wetland management consultants, and agency personnel. • Encourage continued participation of East Valley Floor stakeholders in the RTMP. • Host quarterly MAA meetings with the CV Water Board and other interested parties to share updates and ongoing work. • Solicit input on activities directly related to the Annual Workplan from San Joaquin River Basin stakeholders. Encourage east and west-side stakeholders to update the MAA Committee on progress related to activity goals.
Goal 5: Provide technical support • Offer technical support to stakeholders for the design and installation of sensor networks, ensuring compliance with real-time drainage data quality assurance protocols, as needed. • Assist stakeholders in troubleshooting flow and water quality monitoring instruments and telemetry systems. • Help stakeholders in writing grant proposals for funding to enhance the RTMP initiative.
Goal 6: Maintain monitoring stations • Provide technical support and assistance with grant applications for managed wetland real-time water quality implementation activities. • Support complementary real-time monitoring activities in the adjoining State and Federal refuges.
Goal 7: Participate in Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) • Continue participation in the CV-SALTS Optimization & Prioritization Study as part of the Basin's new Salt Control Program. • Share the WARMF model database and provide periodic data updates to CV-SALTS consultants developing the CV-SWAT watershed planning model. • Offer technical support to the CV-SALTS data and modeling focus group regarding model and algorithm selection and data synthesis. • Provide policy and administrative support to the CV-SALTS small policy focus group, focusing on salinity management areas, stakeholder acceptance, and consensus building. • Attend regularly scheduled meetings of the CV-SALTS Executive Committee. • Consider potential opportunities to align Reclamation’s expertise, existing programs, and resources with the regional salinity management goals of CV-SALTS.

Detailed Description of FY 2027 Goals for the RTMP

Goal 1. Maintaining and improving data processing tools, providing funding for monitoring stations

Reclamation will continue to seek guidance for the maintenance and enhancement of the WARMF model to improve its accuracy and reliability. Proposed tasks for FY 2027 include real-time QA/QC of observed flow and EC data and further refining the model's autocalibration feature to enhance forecast accuracy by automatically updating calibration based on varying real-world flow and EC conditions.

Reclamation will seek assistance from Nigel Quinn through a financial assistance agreement with GWD for technical support on real-time monitoring activities and to serve as a stakeholder liaison for the successful implementation of the RTMP. He will oversee monitoring activities conducted by GWD, as well as those by the SJVDA, and will coordinate the weekly diversion data provided by Patterson and West Stanislaus Irrigation Districts, along with quarterly flow and EC data from eastside drainage stations operated by Turlock and Modesto Irrigation Districts. These data will enhance the existing WARMF model observation database, which is essential for effective model autocalibration.

Reclamation will also continue financial support to the USGS for the operation and maintenance of five monitoring stations along the main stem of the San Joaquin River:

1. 11261500 - SAN JOAQUIN R FREMONT FORD CA
2. 11273400- SAN JOAQUIN R ABOVE NEWMAN CA
3. 11274550 - SAN JOAQUIN R NR CROWS LANDING CA
4. 11262900 - MUD SLOUGH NR GUSTINE CA
5. 11261100 - SALT SLOUGH A HWY 165 NR STEVINSON CA

The USGS received funding to upgrade the Salt Slough monitoring station with Acoustic Doppler transducer technology to enhance the accuracy of flow measurements during backwater events. These backwater conditions occasionally occur in the winter and spring when high flows in the San Joaquin River impede gravity drainage from the Sloughs, resulting in artificially elevated stage readings. Such conditions often lead to overestimates of flow and salt load. The installation of the Acoustic Doppler equipment at Salt Slough was completed in April 2025, and the USGS continues to routinely monitor river conditions. Reclamation will be notified of the occurrence and duration of backwater events. The USGS will develop a procedure to direct Reclamation to use flow records generated by the Acoustic Doppler transducer, which will provide more accurate data than those derived from stage readings using the existing flow rating curve. Once the process is automated, the USGS will deliver the most accurate flow data to Reclamation for assessing salt load contributions from Salt Slough to the San Joaquin River. The USGS anticipates that it will take approximately 12 months to reliably calibrate the Acoustic

Doppler instrument, due to its fixed mounting height, which limits its ability to accurately measure flow across the full range of stage levels in Salt Slough.

Goal 2. Maintain forecasting tools and methods

Using the WARMF and Regression models, Reclamation will continue producing daily 14-day extended forecasts of flow and salinity at the Vernalis, Maze Road Bridge, and Crows Landing compliance monitoring stations on the San Joaquin River. In situations where water quality conditions in the SJR deviate from the expected inverse relationship between flow and EC, the physically based WARMF model is typically preferred for daily forecasts. Such conditions may arise during flood events, when runoff sources diversify, and during seasonal wetland pond drawdowns, where high drainage flow and salt loads from state, federal, and private seasonal wetlands significantly affect the river's salt load assimilative capacity.

Although the WARMF model has been significantly enhanced through the incorporation of more real-time accessible data, there are still components that are unknown, such as unreported diversions and groundwater interactions with the river. In addition, because the Regression model operates through automated processes in Excel, it periodically encounters data-download issues and application errors, which can lead to forecast delays and create difficulties for external users attempting to troubleshoot problems. To improve efficiency and accessibility, Reclamation secured Internal Applied Science funding to support the development of an AI/ML based model. This effort will employ a hybrid methodology to simulate key system processes. The method will use AI/ML algorithms to represent currently unknown components while maintaining a physically based model structure. Once development and testing are complete, the AI/ML based model will be incorporated into Reclamation’s standard operating procedures for daily salinity forecasting.

Reclamation is also working on automating data retrieval from various sources to minimize update time for the WARMF model and reduce errors associated with manual data processing. Improved data integration is expected to enhance model performance and facilitate technology transfer to stakeholders, who typically respond positively when their own data is incorporated into the model. The San Joaquin Valley Drainage Authority (SJVDA) has indicated a commitment to greater involvement in WARMF model-based forecasting, which will expand access to flow and salinity data and, ultimately, improve the reliability and accuracy of forecasts.

To maintain and enhance WARMF model reliability, Reclamation is focusing on the following tasks:

- Calibrate daily flow and EC values in the WARMF model to match as closely as possible with observed values using an automated calibrator.

- Test the new WARMF Hydrologic Simulation Algorithm – Diffusive Wave to accurately simulate backwater effects.

Goal 3: Provide flow and salinity forecasts

Reclamation will continue to use the WARMF and Regression models to generate daily 14-day forecasts of flow and EC at the Vernalis, Maze Road Bridge, and Crows Landing compliance monitoring stations. The accuracy of both models will be assessed daily by comparing their forecasts with observed flow and salinity data. The more accurate results will be published on Reclamation's website. Additionally, WARMF model flow and salinity outputs for other locations along the SJR are accessible through WARMF model post-processing tools.

Goal 4: Coordinate with stakeholders

Reclamation has been conducting informational meetings in collaboration with the SJVDA and the RTMP Steering Committee to gather feedback on its tool-building activities and to assist in guiding the SJVDA's decision support efforts, including forecast model development. Since FY 2020, Reclamation has periodically attended quarterly SJVDA stakeholder meetings that involve members of the RTMP Steering Committee. Reclamation intends to continue attending these meetings when possible throughout FY 2027 to provide updates on WARMF model development and results. Continued collaboration with both eastside and westside San Joaquin Basin stakeholders in RTMP activities is beneficial for Reclamation, and input from participating water districts and interested stakeholders is encouraged to enhance the dissemination of flow and salinity forecasts in support of RTMP goals.

Stakeholder activities relevant to the 2027 Workplan and that are planned to be accomplished in 2027:

Hossein Aghazeynali, California Department of Water Resources (DWR, Fresno)

The Department of Water Resources (DWR, South Central Region Office – Fresno) has been working on flow and electrical conductivity (EC) issues at the Maze Road Bridge (MRB) monitoring site over the past year. DWR has rehabilitated the monitoring station located on a mid-span platform on the bridge, improving both safety and site access. The sonde and the bubbler line with pressure transducer have also been upgraded to support Reclamation's EC and flow forecasting efforts, as well as ongoing flood-stage forecasting and levee-monitoring obligations.

DWR also plans to install a new multiparameter sonde at the upstream Patterson Bridge station (SJP). Similar to the downstream sonde and bubbler system, this new equipment will continuously monitor stage, flow, and water-quality parameters including EC, temperature, chlorophyll, pH, turbidity, and dissolved oxygen.

Jose McEra, Modesto Irrigation District (MID)

The Modesto Irrigation District (MID) has been providing quarterly updates of flow and EC from agricultural drainage return flows and operational spills for the past decade. Reclamation has asked MID to consider increasing the reporting frequency to weekly, which would improve the utility of the data for Reclamation's daily model-based flow and EC forecasts. Reclamation continues to use the WARMF model, among other more experimental methods, to produce forecasts at the three major compliance monitoring locations: Crows Landing Bridge, Maze Road Bridge, and Vernalis. The WARMF model uses daily mean values of flow and EC as inputs. Daily average flow and EC values from MID's drainage monitoring network would significantly improve the accuracy of Reclamation's daily forecasts for the mainstem San Joaquin River.

Courtney Malmberg and Alex Buenrostro, Turlock Irrigation District (TID)

The Turlock Irrigation District (TID) has also been providing quarterly updates of flow and EC monitoring data at all spill sites for the past decade. TID uses a Flowline radar transducer to measure water level over a weir for continuous flow estimation, and Aqua-Troll 100 sondes for continuous EC measurements. TID's choice of EC sondes aligns with those used by the SJVDA and the USGS. Annual off-season maintenance and testing are conducted to ensure proper field QA of radar units and sondes. The District has added, and plans in 2026 to add, additional canal automation and regulating reservoirs to improve surface water-use efficiency, reduce spill to the San Joaquin River and east-side tributaries, and decrease the need for pumping. These actions support basin-scale salinity management in the watershed. TID has agreed to increase the frequency of transmitted flow and EC data to weekly, allowing time for internal QA review. The District also intends to automate these weekly updates.

Chris Linnerman, San Joaquin Valley Drainage Authority (SJVDA)

Many of the sondes and flow-measurement devices deployed on westside watersheds draining into the San Joaquin River, as well as in the canal diversions to Patterson and West Stanislaus Irrigation Districts, are more than a decade old. Some flow-measuring devices (e.g., Design Analysis bubblers) were originally acquired with Regional Board funding in the early 2000s. The 2027 SJVDA workplan will focus on replacing and upgrading this legacy equipment. Multiparameter sondes purchased under Proposition 84 funding a decade ago will be replaced with more robust single-parameter sondes measuring EC, temperature, and pressure (depth), improving reliability and reducing field troubleshooting. Both USGS and TID use the same In-Situ AT200 sondes that will replace the current In-Situ AT500 units, helping standardize EC measurements across jurisdictions within the San Joaquin River Basin.

Shawn Carmo, Grassland Water District (GWD)

The Grassland Water District has operated a network of over 25 monitoring stations measuring flow and EC for more than 20 years. The network has evolved as sensor accuracy has improved and telemetry has transitioned from single-station phone systems to modern sensor-network platforms that offer greater redundancy at lower cost. During 2026 and 2027, the District will continue replacing older equipment with state-of-the-art technology and consolidating platforms to a single vendor that has demonstrated the greatest reliability. GWD has selected SUTRON as its preferred vendor and has had strong field performance with SUTRON EC/temperature sondes and X-Link 500 dataloggers and telemetry systems. Working with SUTRON's HydroMetCloud technical support staff, the District has configured X-Link 500 dataloggers to deliver raw data directly to Reclamation modeling support staff, enabling the incorporation of the latest drainage-network data into daily forecasts of salt-load assimilative capacity in the San Joaquin River.

Goal 5: Provide technical support

Reclamation has been conducting daily salinity forecasts using both the WARMF and Regression models. Stakeholders are also encouraged to run their own simulations with these models. Reclamation will attempt to make the models available online for easier access and will provide modeling support, including training, as needed.

There has been a longstanding demand for real-time data quality assurance processing tools, along with significant interest in developing software tools or routines to parse data that has undergone quality assurance checks for use in decision support models, such as the WARMF model.

Reclamation continues to offer technical support to stakeholders interested in collaborating on various aspects of the RTMP, including real-time data quality assurance for flow, EC, and the development of water quality sensor networks. Additionally, Reclamation encourages collaboration on innovative research and development opportunities and can assist in writing grant proposals. Reclamation manages several federally funded grant programs, some of which are specifically designed for collaborative efforts with stakeholders addressing water and water quality-related issues.

Goal 6: Maintain monitoring stations

Reclamation has supported the operations and maintenance of monitoring stations installed and maintained by the GWD for over a decade. During FY 2027, Reclamation has committed to continuing this support and will collaborate with GWD to facilitate easy access and efficient use of data for WARMF model-based forecasts. Reclamation also supports the GWD HydroMetCloud web portal, which provides access to flow and EC data from more than 30 stations within the district. GWD has received positive feedback from wetland stakeholders regarding this web portal, along with assurances of significant reliance on the data provided.

Goal 7: Participate in CV-SALTS

In FY 2027, Reclamation will continue its participation in various aspects of the CV-SALTS-led planning initiatives. As a permanent member of the CV-SALTS Executive Committee,

Reclamation has actively engaged in dedicated small focus groups addressing policy and technical issues related to the selection, data requirements, and maintenance of watershed models, including the CV-SWAT model. CV-SWAT was selected as the tool for developing Salt Management Regions and Salt Management Areas as part of the ongoing Prioritization & Optimization Study. The dedicated policy and regulatory small group will guide the implementation of newly adopted water quality objectives (WQOs) for LSJR and other amendments to the Basin Plan. Reclamation will continue to consider opportunities to align expertise, existing programs, and resources with salinity management goals of the CV-SALTS program, within Reclamation's authority.

Funding and Status of the Monitoring Program

Funding amounts presented in Table 3 are contingent upon Congressional allocation and should be regarded as estimates until final allocations are confirmed. The PTMS allocation is specifically used to fund Reclamation activities directly related to salinity management in the LSJR. The WaterSMART Program also contributes to salinity management benefits for the LSJR and is therefore included in Table 3. Table 3 also includes a number of projects in the San Joaquin Valley that has a potential to reduce salt. These projects and annual funding allocation are shown in Tables 5 and 6. The USGS will continue the operation and maintenance of the Mud Slough, Salt Slough, Crows Landing, Newman, and Fremont Ford monitoring stations, which are essential for WARMF forecasting.

Table 3. FY 2027 Proposed Reclamation Funding

No.	Funding Program	Previous FYs Funded	FY 2027 Allocation
I.	Providing WARMF technical support	2019-2026	$750,000
	Providing Financial Assistance to GWD	2017-2025	
	Water Resources Systems maintenance through GWD	Annually	
	Reclamation Staff Resources	Annually	
II.	WaterSMART Program	2026	$244,000
III.	Other funded projects that potentially reduce salt load • Contour Canal Lining Project • Woollomes Avenue Recharge Project	2023-2026	$1,377,565

Monitoring stations are located on the LSJR and on the west side of the SJR Basin, as reported in the 2014 SJR RTMP Framework Document. These stations are directly supported by Reclamation and the SJVDA. Their status and Reclamation's roles are listed in Table 4.

Table 4. Status of Monitoring Stations

Location	Status
San Joaquin River Stations	
SJR at Lander Avenue	Active. Operated by DWR Reporting data to CDEC.
SJR at Fremont Ford	Active. Operated by the USGS funded by Reclamation. Reports data to NWIS/CDEC.
SJR at Newman	Active. Operated by the USGS funded by Reclamation. Reports data to NWIS/CDEC.
SJR near Crows Landing	Active. Operated by the USGS funded by Reclamation. Reports data to NWIS/CDEC.
SJR at Maze Road Bridge	Active although has been subject to EC sonde reliability issues during 2023. Operated by DWR. Data reported to CDEC. Data can be manually downloaded by DWR when data telemetry is impacted.
Westside Drainage Stations	
Salt Slough at Highway 165 (near Stevenson)	Active. Operated by the USGS funded by Reclamation. Reports data to NWIS/CDEC. Upgraded with Acoustic Doppler in April 2024 to improve data accuracy and reliability during occasional SJR high flow-induced backwater conditions.
Mud Slough near Gustine	Active. Operated by the USGS funded by Reclamation. Reports data to NWIS/CDEC. Upgraded with Acoustic Doppler in late fall 2023 to improve data accuracy and reliability during occasional SJR high flow-induced backwater conditions. Sedimentation fouling problems being addressed at site. Effort to coordinate USGS and GWD flow monitoring at this site.
Orestimba Creek near River Road, Crows Landing	Inactive. Site abandoned by the USGS.
San Luis Drain at Outlet	Active. Operated by the SJVDA. Not reported in CDEC, but sent directly to Reclamation.
Los Banos Creek at Highway 140	Active. Operated by the GWD. Reported to GWD HydroMetCloud web portal.
Marshall-Spanish-Moran Drains	Active. Telemetry and sonde upgraded in 2021-2022. Operated by the SJVDA.

Table 4. Status of Monitoring Stations – Continued

Location	Status
Moran Drain	Active. Telemetry and sonde upgraded in March 2022. Operated by the SJVDA.
Westley Wasteway	Active. Telemetry and sonde upgraded in March 2022. Operated by the SJVDA. New culvert installed in February 2022.
Del Puerto Creek	Active. Site moved to the USGS site 11274630. Lat. 37.487, Long. 121.208. Reports data to NWIS.
Hospital Creek	Active. Telemetry and sonde upgraded in 2021. Operated by the SJVDA.
Ingram Creek	Active. Telemetry and sonde upgraded in 2021. Operated by the SJVDA.
Diversion Monitoring Stations	
Patterson Irrigation District	Reporting weekly via e-mail bulletin for use in forecasting.
West Stanislaus Irrigation District	Reporting weekly via e-mail bulletin for use in forecasting.

Table 5. Other Reclamation Funded Projects that Potentially Reduce Salt Load

Project Name	Recipient Agency	Comments	AWARD ($)	Date of Award	Expiration Date
Contour Canal Lining Project	Panoche Water District	Conveyance efficiency / west-side drainage area	1,887,823	9/19/23	9/30/27
2nd Lift Canal Project Lining	Firebaugh Canal Water District	Conveyance efficiency / west-side SJR Basin	1,000,000	3/23/21	9/30/23
Main Canal Water Efficiency Improvement Project	Turlock Irrigation District	Automated control / irrigation efficiency	2,000,000	10/1/23	3/31/24
SEWD Aquifer Storage and Recovery Well	Stockton East Water District	ASR / groundwater salinity relevance	600,000	8/30/23	12/31/25
Carter-Bybee Recharge Basin Project	Fresno Irrigation District	Managed aquifer recharge	2,000,000	5/31/23	3/31/26

Table 5. Reclamation Funded Projects that Potentially Reduce Salt Load - Continued

Project Name	Recipient Agency	Comments	AWARD ($)	Date of Award	Expiration Date
Regan Groundwater Recharge Facility Project	Southern San Joaquin MUD	Groundwater recharge / resiliency	2,000,000	5/12/22	12/31/24
Woollomes Avenue Recharge Project	Southern San Joaquin MUD	Groundwater recharge	3,000,000	12/11/25	9/30/27
Total Award			12,487,823		

Table 6. Other Reclamation Funded Projects Award Annual Allocation that potentially Reduce Salt Load

Project Name	AWARD ($)	2021	2022	2023	2024	2025	2026	2027
Contour Canal Lining Project	1,887,823			377,565	377,565	377,565	377,565	377,565
2nd Lift Canal Project Lining	1,000,000	333,333	333,333	333,333				
Main Canal Water Efficiency Improvement Project	2,000,000			1,000,000	1,000,000			
SEWD Aquifer Storage and Recovery Well	600,000			200,000	200,000	200,000		
Carter-Bybee Recharge Basin Project	2,000,000			500,000	500,000	500,000	500,000	
Regan Groundwater Recharge Facility Project	2,000,000		666,667	666,667	666,667			
Woollomes Avenue Recharge Project	3,000,000					1,000,000	1,000,000	1,000,000
Total Award	12,487,823	333,333	1,000,000	3,077,565	2,744,231	2,077,565	1,877,565	1,377,565

References

Basin Plan 1994. Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins, Fourth Edition, California Regional Water Quality Control Board Central Valley Region, updated 2017 in Resolution R5-2017-0062.

Compliance Plan 2010. Compliance Monitoring and Evaluation Plan in Compliance with the "Management Agency Agreement between the Central Valley Regional Water Quality Control Board and the Bureau of Reclamation" executed on December 22, 2008; May 2010.

Compliance Report 2010. Compliance Monitoring and Evaluation Report, FY 2000 to Present in Compliance with the "Management Agency Agreement Between the Central Valley Regional Water Quality Control Board and the Bureau of Reclamation" executed on December 22, 2008; May 2010.

Management Agency Agreement 2008 and 2014. Management Agency Agreement Between the Central Valley Regional Water Quality Control Board and the United States Bureau of Reclamation, Mid-Pacific Region. A Cooperative Means of Implementing Relevant Provisions of the Regional Water Board's Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins – 4th Edition, executed in December 2008 and updated in December 2014.

Reclamation Action Plan 2008. Reclamation's Salinity Management Plan, Actions to Address the Salinity and Boron Total Maximum Daily Load Issues for the Lower San Joaquin River, July 2008 (Updated in November 2010).