

RECLAMATION

Managing Water in the West

DRAFT Annual Work Plan, FY2015

October 1, 2014 – September 30, 2015

**In compliance with the “Management Agency Agreement
between the Central Valley Regional Water Quality Control
Board and the United States Bureau of Reclamation” executed
on December 22, 2008**



Salt Slough near Los Banos, CA



**U.S. Department of the Interior
Bureau of Reclamation**

October 31, 2014

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Abbreviations and Acronyms

Action Plan	Actions to Address the Salinity and Boron TMDL Issues for the Lower San Joaquin River November 2008
Authority	San Luis & Delta-Mendota Water Authority
Basin Plan	Water Quality Control Plan for the Sacramento and San Joaquin River Basins, 4 th Edition
BMP	Best Management Practices
BO	Biological Opinion
CALFED	California Bay-Delta Authority
CCID	Central California Irrigation District
CDEC	California Data Exchange Center
CDFW	California Department of Fish and Wildlife
Corps	U.S. Army Corps of Engineers
CVO	Central Valley Operations
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CV Water Board	Central Valley Regional Water Quality Control Board
CV-SALTS	Central Valley Salinity Alternatives for Long Term Sustainability Stakeholder Group
D-1641	State Water Resources Control Board Decision 1641
DMC	Delta-Mendota Canal
DSS	Decision Support System
DWR	California Department of Water Resources
EC	electrical conductivity
GBP	Grassland Bypass Project
GDA	Grassland Drainage Area
GOES	Geostationary Operational Environmental Satellites
GRCD	Grassland Resource Conservation District
GWD	Grassland Water District
LBNL	Lawrence Berkeley National Laboratory
LSJR	Lower San Joaquin River
MAA	Management Agency Agreement
μS/cm	micro Siemens per centimeter
mg/L	milligram(s) per liter (parts per million)

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PTMS	Program to Meet Standards
Reclamation	United States Bureau of Reclamation
RTMP	Real Time Management Program
Service	U.S. Fish and Wildlife Service
SJR	San Joaquin River
SJRIP	San Juan Recovery Implementation Program
SJTSP	San Joaquin Tributary Settlement Process
State Water Board	State Water Resources Control Board
TAF	thousand acre-feet
TDS	total dissolved solids
TMDL	total maximum daily load
VAMP	Vernalis Adaptive Management Plan
WARMF	Watershed Analysis Risk Management Framework
WARMF – SJR	Watershed Analysis Risk Management Framework San Joaquin River
WDR	Waste Discharge Requirement
WQO	water quality objective
WRDP	Westside Regional Drainage Plan
WSI	Water Supply Index

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Reclamation San Joaquin River Salinity TMDL MAA Fiscal Year 2015 Annual Work Plan

Purpose

The Central Valley Regional Water Quality Control Board's (CV Water Board) Salt and Boron Total Maximum Daily Load (TMDL) for the San Joaquin River was approved and placed into effect on July 28, 2006. In response to the Salt and Boron TMDL, the United States Bureau of Reclamation (Reclamation) drafted an Action plan (dated July 9, 2008) and entered into a Management Agency Agreement (MAA) with the CV Water Board on December 22, 2008. The Action Plan was created to accompany the MAA and provide details about Reclamation's planned activities to comply with the TMDL. Many of the activities were scientific in nature and intended to characterize the basin and identify future projects to meet the needs of the TMDL. A good example study that has been completed is the Delta Mendota Canal (DMC) Recirculation Project. This project evaluated the feasibility of recirculating water from the DMC to the San Joaquin River and back into the DMC when necessary to reduce the salinity concentration in the river. The project was not deemed feasible but serves as an example of the scientific study and discovery that was accomplished to find effective salinity management practices for the San Joaquin River.

The initial requirements for creating a real-time management program for the San Joaquin River were also explored and a real-time pilot has been implemented in the San Joaquin watershed to be used as an example for stakeholders within the watershed. A Reclamation Compliance Plan (dated May 2010) and Compliance Report (dated May 2010) were also written to provide the methodology used for the activities described in the Reclamation Action Plan. These documents contain information regarding the technical analysis, computation, and methodology utilized in each Reclamation activity. The updated MAA states that Reclamation actions will be described in an Annual Work Plan. The Annual Work Plan serves as a continuation of the work that was initiated in the Reclamation Action Plan.

The Annual Work Plan summarizes annual planned activities to be conducted by Reclamation in conjunction with each element outlined in the MAA.¹ The original Action Plan described Reclamation's past practices and procedures to mitigate and manage adverse impacts of salt and boron imported into the San Joaquin Basin via the Delta Mendota Canal (DMC) in order to help achieve compliance with the objectives contained in the CV Water Board's *Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins – 4th Edition* (Basin Plan). Those actions have now been updated, added to the MAA and are reported in the Annual Work Plan.

Reclamation performs a variety of salinity management activities within the San Joaquin watershed. Examples of these activities include the Grassland Bypass Project, WaterSMART Grant Program, New Melones Plan of Operations, real time salinity management program development, support to the Westside Regional Drainage Plan and salinity management support

¹ The activities in the Work Plan are subject to the availability of a financial allocation.

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to National Wildlife Refuges. Reclamation has also committed significant resources to the development of a real time management pilot project in Grassland Water District. Reclamation is committed to continuing the development of real time salinity management within the San Joaquin River watershed to reduce reliance on New Melones dilution flows. Reclamation's planned activities for FY2015 regarding the real time salinity management program are described in this work plan.

Reclamation Staff Resources

Table 3 lists Reclamation staff resources that are utilized at least in part for activities relating to salt and boron in the San Joaquin River.

Table 1: List of Reclamation Staff

Agency	Staff Resource Name	Role
USBR	Michael Mosley	Regional Water Quality Coordinator
Lawrence Berkeley National Lab/USBR	Nigel Quinn	Technical Expert contracted to Reclamation
USBR	Reginald Dones	PTMS project manager
USBR	Michael Eacock	Natural Resource Specialist
USBR	Jun Wang	WARMF modeler
USBR	Kirk Nelson	Contract manager; modeler

Goals and Objectives for FY 2015

All the activities and technical support planned for the 2015 fiscal year are intended to provide resources, information and support to San Joaquin stakeholders that wish to participate in the real-time management program. Reclamation intends to spend substantial time conducting outreach activities and providing technical support to those who wish to gather knowledge and/or participate in real-time management. Reclamation will continue to fund and support the real-time management program within the Grassland Water District150.

Goals for the 2015 fiscal year:

- Refine the WARMF San Joaquin River forecast model with improvements for ease of use
- Continue to provide technical support for the real-time monitoring network
- Continue the effort to incorporate real-time east side San Joaquin River data into the WARMF forecast model
- Hold informational meetings with stakeholders regarding the real-time management program

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The Bureau of Reclamation, in response to the passage by Congress of the Water Supply, Reliability, and Environmental Improvement Act ([Public Law 108-361](#)), which includes the CALFED Bay-Delta Authorization, has initiated implementation of the Program to Meet Standards. This program intends to provide greater flexibility in meeting existing water quality standards for the CVP; a major objective of the program is to reduce reliance on releases from New Melones Reservoir for water quality purposes. Reclamation currently utilizes the CALFED funding authorization for the Program to Meet Standards.

The goals for the 2015 fiscal year are to refine the WARMF San Joaquin River forecast model with improvements for ease of use, continue to provide technical support for the real-time monitoring network, incorporate east side San Joaquin River data into the WARMF forecast model and to hold information meetings with stakeholders regarding the real-time management program.

The following are specific FY15 program goals and objectives:

- A. Manage contracts with Systec Inc. for improvements to the WARMF model (approx. \$115K; \$100K in-kind)
 1. Improve the suitability of the forecasting model tool for widespread use and interpretation among San Joaquin River stakeholders.
 2. Improve data acquisition and formatting for WARMF inputs. The model currently crashes when data is not formatted or input in a specific manner. The work to be accomplished during this fiscal year will improve the usability of the model by simplifying or automating data formatting needs.
 3. Run the forecast model, evaluate accuracy, disseminate model results.
- B. Provide technical support to the RTMP network (approx. \$100K)
 1. Vital stations on the west side of the San Joaquin basin:²
 - i. Salt Slough at Hwy 165 (near Stevinson)
 - ii. Mud Slough near Gustine (GBP Site D)
 - iii. Mud Slough above San Luis Drain Confluence (GBP Site C)
 - iv. San Luis Drain at Outlet (GBP Site B)
 - v. Los Banos Creek at Highway 140
 - vi. Newman Wasteway
 - vii. Marshall-Spanish-Moran Drains
 - viii. Ramona Lake
 - ix. Orestimba Creek near Crows Landing
 - x. Westley Wasteway
 - xi. Del Puerto Creek
 - xii. Hospital Creek
 - xiii. Ingram Creek
 2. Each of these stations is currently reporting data that can be used for real-time forecasting. Reclamation will monitor these stations monthly over the course of

² Stations are referenced from the 2014 San Joaquin River RTMP Framework Document

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the year to be sure that they continue to report data and remain in working order. Reclamation staff will also provide technical support and/or resources to keep these stations operational for the benefit of the real-time management program.

- C. Provide funding and technical support to the Grassland Resource Conservation District (approx. \$100-200K).
 - 1. To support the district's real-time salinity management staff, equipment, etc.
- D. Provide technical support for RTMP in the San Joaquin watershed; data acquisition from Irrigation Districts on the east side of the San Joaquin Basin (approx. \$200K).
 - 1. Real-time management technical support throughout the basin.
 - 2. Provide funding for a technical expert in real-time management.
- E. Incorporate east side San Joaquin river data into the forecast model whenever possible (approx. \$50K in-kind services).
 - 1. Have meetings with Patterson, Modesto, Turlock Irrigation Districts, etc. to provide technical support, discuss real-time management and solicit data for the San Joaquin River forecast model.
- F. Hold informational meetings with Stakeholders regarding the real-time management program in the San Joaquin River. (approx. \$50K in-kind services)
 - 1. Hold meetings with Turlock, Modesto and Patterson Irrigation Districts when possible.
 - 2. Develop stakeholder outreach information and hold informational meeting regarding real-time management for all stakeholders in the basin
- G. Run the San Joaquin River salinity forecast model and make the information available to San Joaquin River Stakeholders (approx. \$50K in-kind services)

FY2015 Tasks

The Goals and Objectives for the fiscal year can be simplified into a number of major tasks that will occur over the course of the year. These tasks are listed below and also represented as a Gantt chart in Figure 4.

Reclamation Major tasks for FY2015

- 1. WARMF Forecast model improvements
- 2. Stakeholder Outreach
- 3. Maintenance to the Monitoring Network
- 4. Support to the Grassland Resource Conservation District and Wildlife Refuges
- 5. Participation in CV-SALTS

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6. Operation of New Melones to meet the Vernalis salinity standard

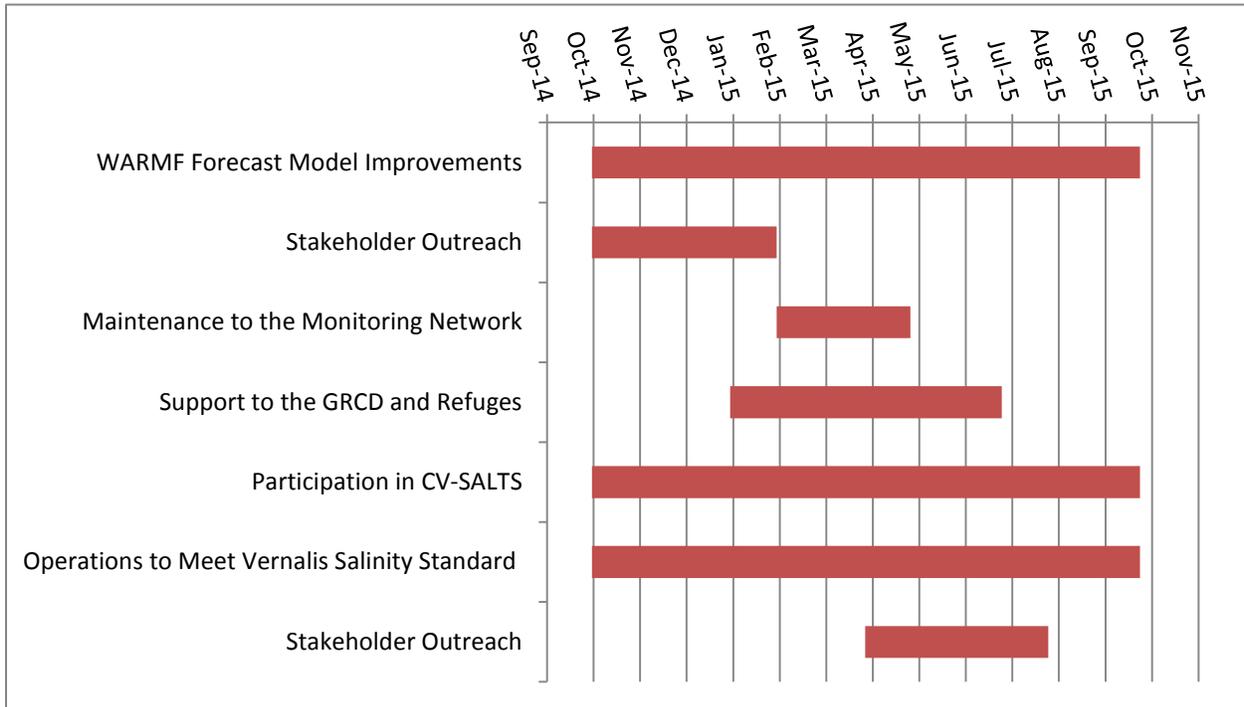


Figure 1: Gantt Chart of FY2015 Tasks

Status of the Program

Table 2. FY2015 Proposed Funding

No.	Funding Program	Year	Allocation	In Kind
I.	Program to Meet Standards (PTMS) -Technical Expert -Visualization Tool -Forecast Model -Grassland WD Agreement	2015	\$700K estimated	
II.	Staff resources	2015		\$200K estimated
III.	Grassland Bypass Project ¹	2015	\$880K estimated	

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No.	Funding Program	Year	Allocation	In Kind
IV.	WaterSMART Program ¹	2015	\$3M estimated	
V.	Westside Regional Drainage Plan ¹	2015	3.8M	

¹ The funding allocation is not specifically a PTMS allocation but yields salinity benefits in the San Joaquin River.

² The funding estimates for the Grassland Bypass Project, WaterSMART Program and Westside Regional Drainage Plan are based on past allocations.

Funding amounts listed in Table 2 are subject to allocation and are to be considered estimates until allocations have been completed. **The PTMS allocation is utilized to fund Reclamation activities directly related to salinity in the San Joaquin River each fiscal year.** The Grassland Bypass Project and WaterSMART Program also provide salinity management benefits to the San Joaquin River, and are listed accordingly in Table 2. Table 3 lists major activities planned in accordance with the funding allocation listed in Table 2. The activities list is not all-inclusive or binding; Reclamation may choose to perform other tasks as necessary to support the real time management program.

Table 3: Planned Reclamation Activities to meet San Joaquin River salinity regulations for 2015 Fiscal Year

Activity Number	Table 4 Funding Authority	Activity Name	Activity Description	Estimated Completion Date
1	I	Online forecast tool feasibility	Collaborate with CV-SALTS and east side stakeholders who have created the San Joaquin River portal to evaluate the feasibility of an online forecast tool. The web presence will improve the RTMP group's ability to disseminate forecast information and RTMP decision processes.	December, 2015
2	I	Improve WARMF forecasting capability	Improve the forecast model. This includes ease of use improvements, data management, automate data parsing activities, improve and simplify the data interface (manager's module) and create training and informational materials. Disseminate this information to the California Department of Water Resources.	December, 2015
3	II	RTMP Group	Participate in meetings, activities and forecasting discussions for the RTMP	Ongoing

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Activity Number	Table 4 Funding Authority	Activity Name	Activity Description	Estimated Completion Date
			group.	
4	II	CV-SALTS Participation	Participate in the CV-SALTS Executive Committee, Technical Committee and Lower San Joaquin River Committee.	Ongoing
5	I	Contract/Project Management	Manage the interagency agreements and Reclamation contracts that provide the resources for all Reclamation activities related to the San Joaquin River salinity TMDL.	Ongoing
6	I	Station Upgrades and telemetry improvements	Work with west side stakeholders to solve power issue at a station. Perform equipment repairs, replacements and reprogramming when necessary to keep stations reporting data. Resolve transmission and receipt difficulties between some GOES stations and CDEC.	May, 2015
7	I	Support to Grassland Water District	Continue financial and technical support to Grassland Water District. Provide technical support for the use of the Visualization tool; laud the benefits of the tool to the district and the west side.	July, 2015
8	II	Regularly obtain reservoir/stream forecast data from east side San Joaquin irrigation districts	Engage stakeholders not yet regulated by the TMDL to help improve the assimilative capacity forecast and encourage collaboration that will be necessary for the RTMP to remain feasible. Attempt to gain bi-monthly access to east side forecast data and weekly access to west side forecast data	July, 2015
9	CVP Operations	New Melones Operations Plan	Reclamation will continue to operate New Melones reservoir to ensure that the D-1641 salinity standard at Vernalis is not exceeded.	Ongoing

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Reclamation will continue to fund and implement, in addition to the PTMS and in-kind services, the Grassland Bypass Project and water conservation grant programs, e.g. the CALFED Bay-Delta Program, the WaterSMART Water and Energy Efficiency Program and the Reclamation/Natural Resources Conservation Service Agricultural Water Conservation and Efficiency Grants program. Each of these programs provides many benefits, including salt load reduction within the San Joaquin River as a result of efficiency improvements to the delivery systems and maintenance or management of irrigation systems. San Joaquin stakeholders wishing to participate in real-time management may choose to apply to the water conservation grant programs for financial support.

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- 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, 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.