SUBJECT: DEVELOPMENT OF A BASIN PLAN AMENDMENT TO ESTABLISH NEW SALINITY AND BORON WATER QUALITY OBJECTIVES IN THE LOWER SAN JOAQUIN RIVER AND TMDLS TO IMPLEMENT SALINITY AND BORON WATER QUALITY OBJECTIVES

Affected Water Quality Control Plan(s):	Sacramento and San Joaquin River Basins
Agency/organization:	Central Valley Water Board
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Committee:	Technical Advisory Committee
Meeting Date	13 May 2009
Item:	Discussion of Potential Watershed and Operations Modeling Tools
Deadline for action:	17 June 2009

Project Summary:

Staff recently held a CEQA scoping meeting for this project. Staff is now in the process of considering scoping comments, and determining how to proceed with this project. A first step in the project will be to select potential salinity objectives that protect the most sensitive beneficial uses, agricultural supply and municipal/domestic supply. To determine potential agricultural objectives, staff is coordinating with State Board Water Rights staff on their efforts regarding steady-state and transient crop tolerance modeling. Information is not yet available in this regard (expected later in 2009). Staff will continue to coordinate with State Water Board staff and once information is available, staff will update CV-Salts on options for crop tolerance modeling for this project.

The process of developing site-specific salinity and boron water quality objectives in the lower San Joaquin River will require modeling tools to determine if the potential water quality objectives can be reasonably achieved in the system.

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Issues that must be considered when selecting flow and watershed models include availability, computing requirements, technical expertise required, accuracy, applicability to the basin planning process, and pre/post processing features. It is likely that no single model can be utilized to successfully evaluate the achievability of proposed water quality objectives. Instead, a combination of models may be required to accurately represent the system.

Attached is a list of several models being considered by Central Valley Water Board staff. This list was created for discussion purposes only, and is not intended to be a comprehensive review of all available models or a review of all of the pros/cons associated with the models listed. It is our goal today to receive feedback from the committee regarding these models and to also accept suggestions of other models that need to be considered for this portion of the project.

Questions for the committee's consideration:

- Do any other models include the combination of land use and water quality features included in WARMF for the SJR watershed?
- Do any models besides CalSim II represent California's water system accurately enough to be considered for use in this project?
- Are 1-D flow models sufficient to represent the San Joaquin River system for the purposes of this project?

Additional Information:

San Joaquin River Upstream of Vernalis Salt and Boron TMDL and Basin Plan Amendment:
http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/upstream_salt_boron/index.shtml

San Joaquin River Salt and Boron lyris email list:
http://www.waterboards.ca.gov/resources/email_subscriptions/reg5_subscribe.shtml

	Creator	Dim.	Timestep	Pros	Cons
Watershed Models					
WARMF	Systech/ EPRI	1D	Hourly/ Daily	• GIS Interface • Adapted to SJR • Incorporates land use/ watershed processes • Peer Reviewed • Stakeholder-friendly • Extensive data library • Previously applied for TMDL development • Explicit GW module	• Requires adaptation to utilize system operation (ie CalSim II) data • Proprietary • Data only from 1984-2007
DSMII – SJR	DWR	1D	Daily	• Already designed to utilize data from Calsim II • Simulated Stan, Tuol, Merced tributaries	• "Add-water" correction • Only calibrated from 1990-99 • Does not simulate smaller tribs • Does not include land use information
BASINS	USEPA	1D	Hourly/ Daily	• GIS Interface • Incorporates land use/ watershed processes • Peer Reviewed • User-defined geography	• Not adapted to SJR • Empirical GW module • Requires ArcView
Operations (Water Supply Planning) Models					
CalSimII	DWR/ USBR	1D	Monthly	• Already adapted to complex California water system • Can simulate with and without various assumed future facilities • Peer reviewed	• Coarse representation of GW • Small streams/local water sources not explicitly modeled
Cal-Lite	DWR/ USBR	1D	Monthly	• Greatly reduced runtime allows for multiple scenarios • Can be run internally	• Screening tool only • SJR module still under development/review
CalSimIII	**Not yet available for SJR**				
Crop Tolerance Models (Future Agenda Item)					
TBD	TBD	TBD	TBD	TBD	TBD