

**Salinity Control Programs**  
**Regional Water Quality Control Board, Central Valley Region**  
**8/1/2000**

**I. Basin Plan Amendments and TMDL's**

Upon direction of the SWRCB, Regional Board staff is currently in the process of developing a Basin Plan Amendment (BPA) for the control of salt and boron in the lower San Joaquin River (SJR), from Mendota Dam to Vernalis. New water quality objectives and an implementation plan to meet these objectives will be proposed in this BPA. Regional Board staff has already held two of several planned public workshops and has released draft chapters that discuss a range of proposed water quality objectives and implementation plan strategies. Staff expects to complete the BPA and submit it for Board consideration the fall of 2000. Objectives established in the BPA will be used as the numeric target in the TMDL for salt and boron that is concurrently being developed. These targets will be used to establish load allocations for salt and boron in the TMDL to be completed by June 2001. TMDLs are concurrently being developed for selenium, dissolved oxygen, and organophosphorous pesticides. The implementation plan being developed by Regional Board staff for the control of salt and boron is consistent with the implementation strategies that will be needed for the control of selenium, dissolved oxygen, and organophosphorous pesticides.

Beneficial uses identified in the Regional Board Basin Plan are the same for the entire reach of the SJR from Mendota Dam to Vernalis. The only salinity water quality objectives currently in place for this reach of river are the SWRCB objective near Vernalis and Regional Board numeric and narrative objectives for the entire reach. The narrative objective states: "Waters shall not contain chemical constituents in concentrations that affect beneficial uses." The numeric objective does not allow concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in Title 22 of the California Environmental Health Code of Regulations. A range of alternative water quality objectives is currently being proposed using this framework of existing water quality objectives:

- No action-- The current SWRCB objective for Vernalis (700  $\mu\text{s/cm}$  April through August and 1,000  $\mu\text{s/cm}$  September through March) and drinking water MCL for Mendota Dam to Vernalis (900  $\mu\text{s/cm}$  recommended with an upper limit of 1,600  $\mu\text{s/cm}$ ) would apply.
- Full protection-- The 700  $\mu\text{s/cm}$  Vernalis objective for April through August would be applied to the entire reach of SJR from Mendota Dam to Vernalis and the drinking water MCL of 900  $\mu\text{s/cm}$  would be applied for September through March.
- Delta Export Level -- The 1,000  $\mu\text{s/cm}$  objective set by the SWRCB for the intake to the Delta-Mendota Canal would be applied to the San Joaquin River from Mendota Dam to Vernalis. The objectives under the No action alternative would also apply.
- Hybrid -- A combination of the above alternatives may also be considered.

It will be extremely difficult to meet these objectives in the SJR upstream of the dilution effects of the Stanislaus, Tuolumne, and Merced Rivers.

A draft implementation plan to meet these objectives has also been proposed. The framework for this plan follows the guidance of the Nonpoint Source Management Plan (adopted by the SWRCB) since most salt loading in the lower SJR is attributable to agricultural and wetland nonpoint sources. The draft implementation plan therefore considers a three-tiered approach for

salinity control: voluntary, regulatory based encouragement, and regulatory control. Non-point source dischargers in the basin have been operating under the voluntary approach tier for many years with limited success. The draft implementation plan therefore emphasizes regulatory-based encouragement and regulatory control.

#### *Regulatory Based Encouragement*

Under the regulatory-based encouragement approach, the Regional Board will spell out specific steps that must be taken to avoid regulatory control. This will be achieved through adoption of a conditional waiver of WDRs for a class of dischargers, such as dischargers of agricultural return flows. There is no single set of actions that a discharger can take that will ensure compliance with water quality objectives in the SJR. Regional Board staff has identified a broad range of approaches that may be taken to achieve reduction in saline water discharge. These approaches are consistent with approaches identified by the San Joaquin Valley Drainage Program, CALFED, and the SWRCB. These approaches fall into one or more of three categories: basin level, district level, and field or farm level. The approaches include:

- Reduced Water Use (Water Conservation)
- Drainage Recirculation (Tailwater Recovery)
- Sequential Reuse and Volume Reduction
- Evaporation Ponds
- Water Treatment (Salt Removal)
- Land Retirement
- Active Land Management
- Groundwater Management

This program of regulatory based encouragement will require involvement of individual dischargers as well as local, state, and federal agencies. Implementation of these measures will also require financial resources of multiple agencies including DWR, SWRCB, USBR, and CALFED.

#### *Regulatory Control*

Under the regulatory control approach, individual or general WDRs will be issued to individuals or agencies. Limits in WDRs would be established as part of the TMDL being developed for salt and boron. Limits will be set to achieve compliance with water quality objectives in all flow regimes and year types.

Incentive for non-point dischargers to participate in regulatory-based encouragement will be provided through issuance of conditional waivers of WDRs. The conditions needed to waive WDRs will include development of comprehensive management plans and/or participation in basin-wide real time management program. Dischargers in the basin will be given the following options to participate under the draft proposed implementation plan:

- Cease Discharge of Irrigation Return Flows (discharger must ensure there is no continuing threat to groundwater quality)
- Operate Under Waster Discharge Requirements (load limits as determined by TMDL)
- Develop Salt and Boron Control Plan (discharge will conduct feasibility analysis of the best mix of approaches that could be used to minimize discharges of salt and boron)

- Participate in a Basin-wide Real Time Management Program (requires identification or formation of an entity that will be responsible for forecasting SJR assimilative capacity and allocation of loads among participating parties)

There is currently no funding in place for staff oversight or enforcement of a salinity control implementation program. Funding for staff oversight of salt and boron TMDL implementation is undetermined at this time.

## **II Real Time Monitoring and Management (Load Shifting)**

The Regional Water Quality Control Board, Department of Water Resources, and Lawrence Berkeley National Laboratory in cooperation with the USGS and local water districts, have implemented a real time monitoring program for salinity in the San Joaquin River. This program is not directed at the reduction of salt loads. It is directed at the seasonal redistribution of salt loads to times with higher flows. This effort helps in the achievement of water quality objectives, and at the same time allows for the continued discharge of salts from the basin.

## **III Grassland Bypass Project**

The Regional Board adopted a BPA for the control of subsurface agricultural drainage In May 1996. This BPA included a prohibition of discharge of tile drainage to wetland supply channels in the Grassland Watershed. The Grassland Bypass Project (GBP) was implemented to comply with this prohibition of discharge. Discharge from the GBP is now regulated through WDRs issued by the Regional Board that have established monthly and annual selenium load limits. Load limits have been reduced by five percent per year for the last four years. Loads will be reduced significantly more (up to 80 percent) in two years when WDRs are updated using load allocations calculated in the SJR Selenium TMDL, currently being prepared. There will likely be a reduction in salt loads along with the reduction in selenium loads.