

San Joaquin River Input-Output Model (SJRIO-2)

Purpose: SJRIO-2 simulates discharge and water quality in the San Joaquin River.

CALFED Potential: SJRIO-2 is a regional scale model that could be used to provide more focused and refined drainage water quality inputs for primary assessment models of the Central Valley.

Approach: Mass balance, accounting network approach.

Input Data: Input includes data on flow and water quality of all flow contributions and diversions, and groundwater characteristics adjacent to the model nodes for the channel.

Methods: SJRIO-2 is a mass balance model that determines flow and water quality at 180 locations with monthly time step. The model determines contribution or loss to groundwater from river stage and is calibrated against data at four control points. The model can be run with historical data, stochastic data, or both. SJRIO-2 can be run stochastically to perform Monte Carlo simulations.

Results: Output includes surface flows, and total dissolved solids, boron, and selenium concentration. Output also includes time series data plots of flow and water quality.

Applications: Model used to assess effects of drainage reduction in major contributing return flows on water quality of San Joaquin River. It is used to develop water quality objectives for selenium and boron.

Source: Public domain. Available from SWRCB and UCD. Contact Nigel Quinn, USBR, (916) 979-2325.