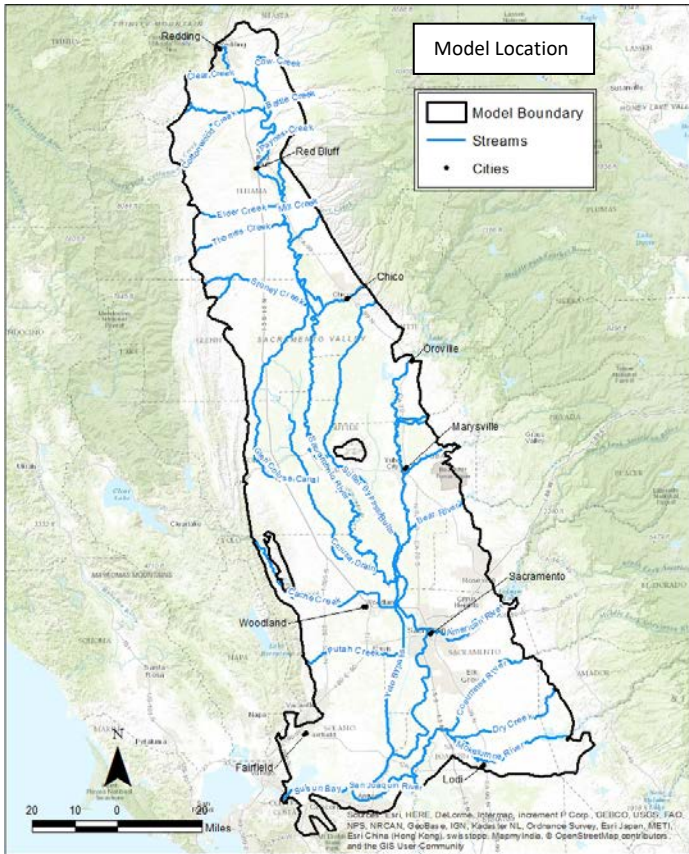




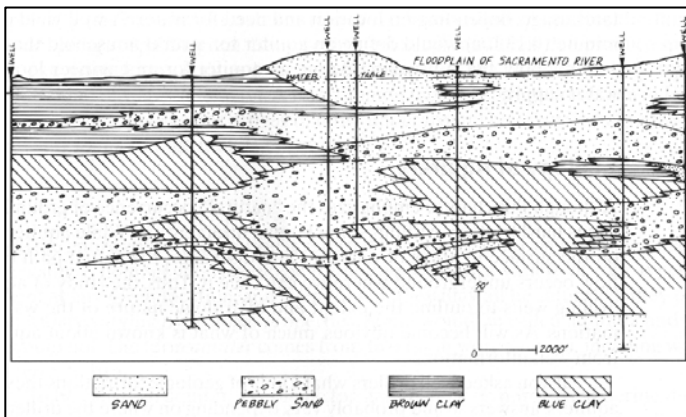
California Department of Water Resources

Sacramento Valley Groundwater-Surface Water Simulation Model (SVSim)



Updated Hydrogeology Based on Primary Characteristics of Sacramento Valley's Groundwater System

- Distribution of coarse and fine sediments based on a texture analysis of 4,700 well and boring logs
- Hydraulic properties of sediments based on analysis of 1,500 specific capacity tests and published values
- Depositional structure of the alluvial basin based on flow-pattern test cases



Cross-sectional view of alluvial sediments west of Sacramento, California (Source: Manning 1997)

Purpose

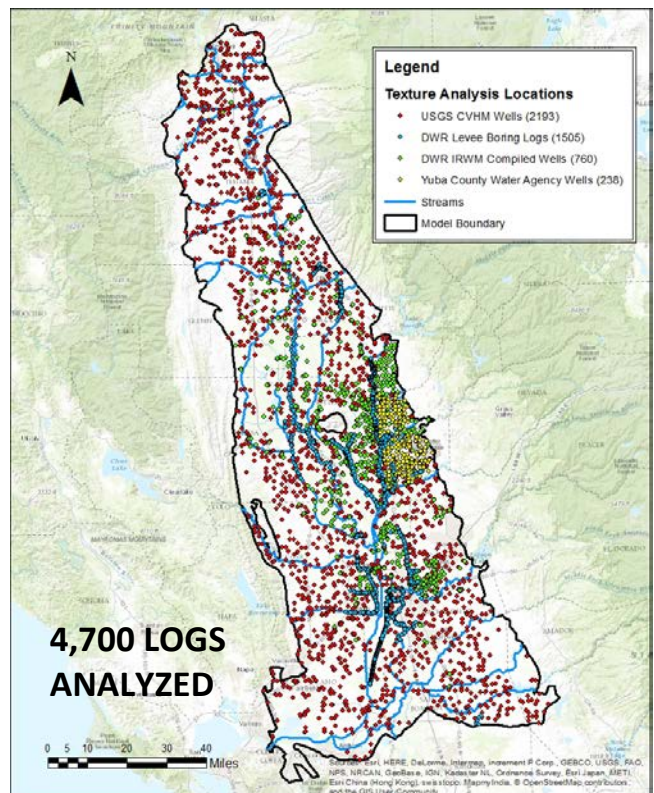
- Developed to improve DWR's capability to calculate project-specific stream depletion caused by groundwater substitution transfer pumping
- Supports SGMA implementation, including evaluation of surface-water depletion, changes in groundwater levels and storage, water budgets, and water management scenarios

Background

- Based on DWR C2VSim (2013)
- Developed using DWR Integrated Water Flow Model (IWFM) Version 2015

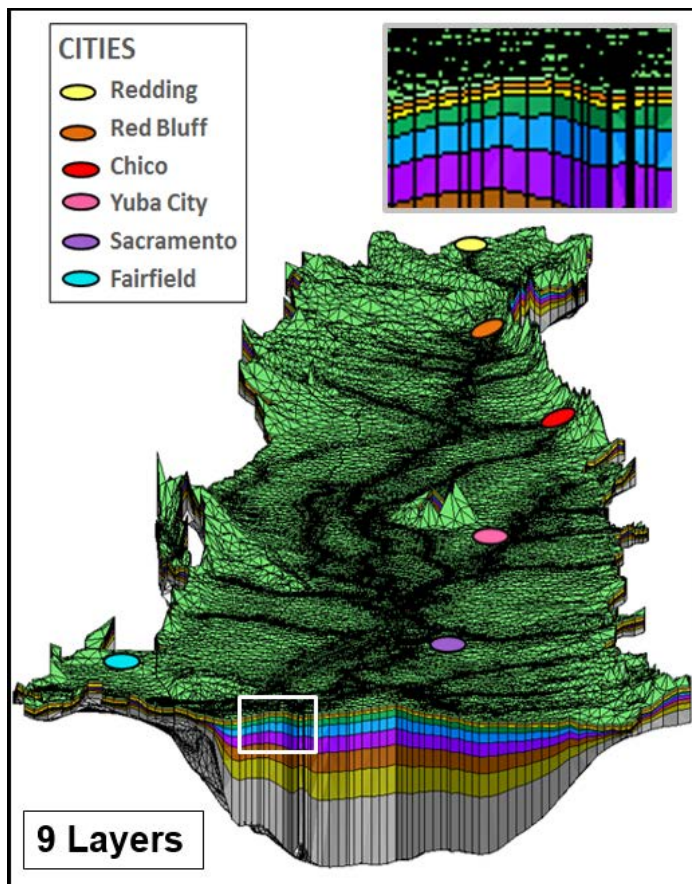
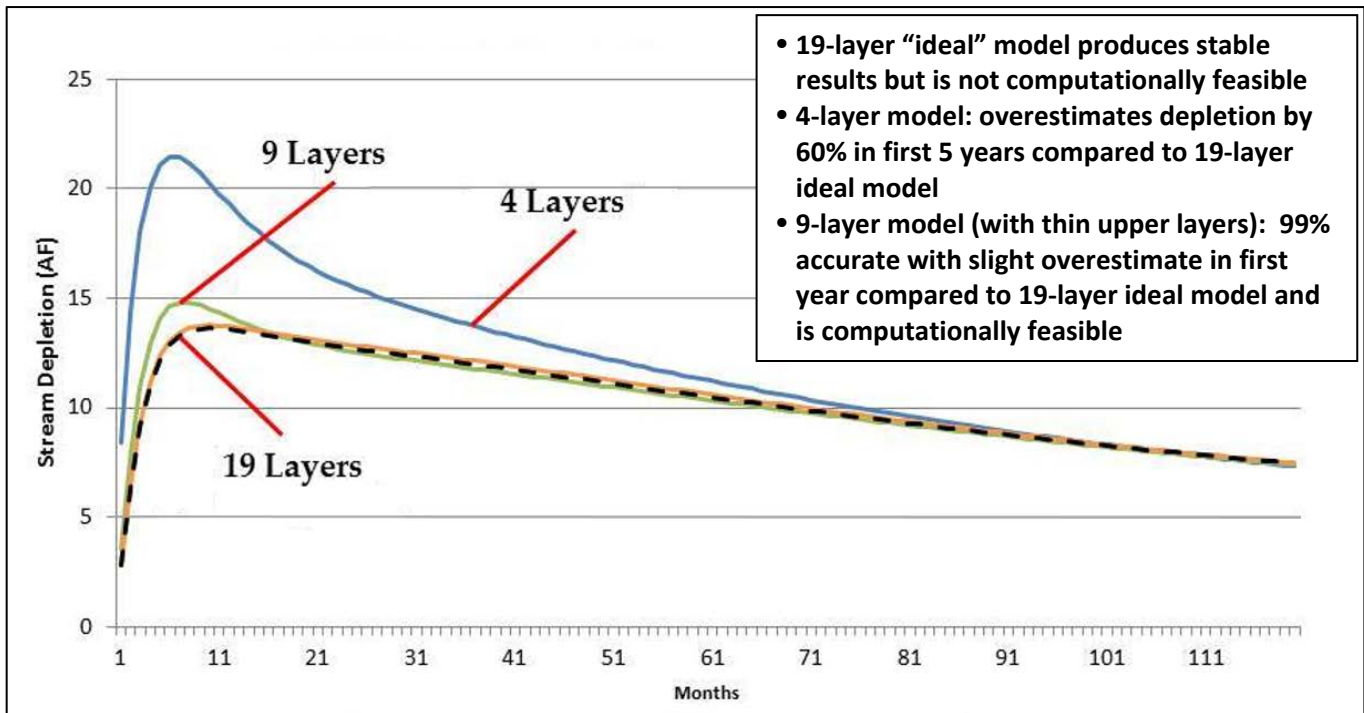
SVSim Model Development

- Updated hydrogeology (adopted for new versions of C2VSim)
- Same surface water and land use update as updated C2VSim-FG
- Model grid and layers tested and redesigned to improve calculation of stream depletion
- Historical simulation period: 1973-2015

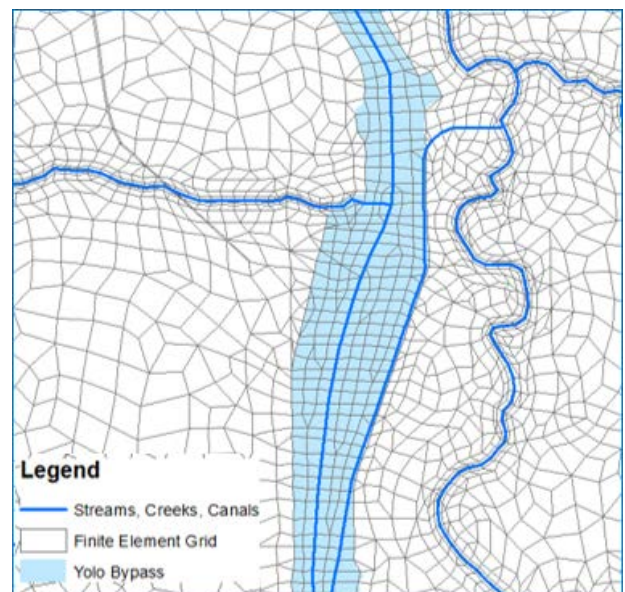


Design Testing for SVSim Model Grid and Layers

Test results indicated that the simulation of stream depletion caused by groundwater pumping is particularly sensitive to model layering. To improve the simulation of stream-aquifer interactions, SVSim has 9 layers, as well as a finer grid adjacent to rivers and multiple nodes across the width of bypasses.



- Multiple thin layers beneath streams improves accuracy of stream depletion calculations
- Finer grid adjacent to rivers improves simulation effect of near-stream wells
- Multiple nodes used to simulate width of bypasses and interaction with groundwater



SVSim Development, Documentation, and Data

Calibrated Historical Model
 Technical Memos (TMs) documenting SVSim development
 Sacramento Valley Texture and Initial Aquifer Parameters

Timeline – Release Dates

Summer 2018
 Spring to Summer 2018
 Spring 2018