

EDUCATION

- ◆ University of California, Davis
MS in Civil Engineers, 2005
- ◆ United States Air Force Academy, Colorado Springs, CO
BS in Civil Engineering, 1995



PROFESSIONAL LICENSES AND SOCIETIES

- ◆ Registered Civil Engineer in California, 69623
- ◆ Registered Civil Engineer in Nevada, 19536
- ◆ Member, American Society of Civil Engineers

EXPERIENCE

11/05- Present **MBK Engineers, Sacramento, CA**
Civil Engineer

Projects:

Franks Tract Project – Developed model to analyze how CVP/SWP operations would respond to changes in Delta salinity conditions that result from operation of a gate on Threemile Slough. Water operations model simulated changes in upstream reservoir operations, Delta exports, and south-of-Delta deliveries to support the evaluation of various project alternatives, selection of a preferred alternative, and development of environmental documentation. Project included review of project operations and benefits when operated under the Biological Opinions for Delta smelt (2008) and Chinook salmon (2009).

San Luis Low Point Improvement Project – Assisted in development of alternatives and performed water operations modeling to support Plan Formulation Report, Feasibility Study, and Environmental Documentation. Efforts included extensive data collection and analysis on historical CVP operations and deliveries to understand factors and conditions that may lead to low point issues. Modeled project alternatives in CalSim II and identified and conducted sensitivity analysis to key baseline assumptions. Developed CalSim post-processing tools to layer on the analysis of institutional measures such as groundwater banking, water exchanges, and transfers to maintain storage levels in San Luis Reservoir and support more aggressive earlier allocations.

Truckee Meadows Evapotranspiration – Implement detailed methods to calculate evapotranspiration of applied water from alfalfa in the Truckee Meadows, NV. Analysis used in support of water right change applications to implement the Truckee River Operating Agreement, and included report and testimony before Nevada State Engineer.

Semitropic Stored Water Recovery Unit – Developed modeling tools to define operations and quantify benefits of Reclamation’s participation in Semitropic Stored Water Recover Unit. Quantified CVP wide yield to support economic analysis and evaluated ability to provide additional refuge water supply.

Merced Irrigation District Operations Models – Develop daily and monthly time-step models to simulate and forecast water and hydropower operations on the Merced River. Analyze water supply risks associated with water transfers and operations. Develop water operations model and modify and use existing reservoir and river temperature model for FERC re-licensing.

CALSIM III Hydrology - Develop and quantify current and future agricultural, urban, and environmental water demands throughout Sacramento Valley for implementation in CALSIM III. Develop models of rice and waterfowl refuge operations to calculate demand, deep percolation, and surface water return flows. Verify calculated demands by comparison with recent historical surface water diversion records. Utilize GIS land use and water source data and IWFM Demand Calculator to calculate agricultural water demands.

Upper San Joaquin River Basin Storage Investigation - Assist in development and use of water operations models to evaluate surface and groundwater storage alternatives for the upper San Joaquin River. Develop analytical tools and perform hydrologic analysis for reservoir operations and conjunctive management of Friant water supply. Evaluate effects of new storage on local, regional, and statewide water system using CalSim II.

Friant-Metropolitan Partnership – Partnership investigates exchanges between the Friant Division of CVP and Metropolitan’s SWP supplies to improve water quality in Metropolitan and water supply reliability in Friant. Perform studies and analyze results from spreadsheet and WRIMS models of Partnership operations.

CALSIM II Plan Formulation Common Model Package - Assist in development of agricultural and environmental demands and operational logic to improve Colusa Basin representation for use in CALFED Surface Storage Investigations.

Sacramento Valley Conjunctive Management Study – Develop surface water model to evaluate performance of conjunctive management sites throughout Sacramento Valley. Objective is to evaluate ability of conjunctive management projects to contribute to water supply and environmental goals. Project requires integration/close coordination between surface and groundwater models, and integration with CalSim II.

Friant Water Users Authority – Analyze regional and statewide water supply effects of recent San Joaquin Restoration Settlement.

Browns Valley Irrigation District – Develop local water supply model of Merle Collins reservoir and Browns Valley Yuba River water supplies and perform water supply analysis.

Klamath Water Users Association – Analyze operations and model results during on-going Klamath River settlement discussions.

Develop and utilize models for the evaluation of water supply, water rights, transfers, hydropower, and environmental requirements for irrigation and water districts in California, Nevada, and Oregon.

- 06/03-10/05** **Science Applications International Corporation, Sacramento, CA**
Civil Engineer
 Performed reservoir modeling in support of a water right application and accompanying environmental documentation filed on the Santa Ana River. Analyzed flow records of diversion structures to develop rating curves and provide recommendations to improve data collection and calibration. Assisted in the economic analysis of the purchase of a half interest in an existing power plant. Provide engineering support for water exchange agreements, water rights litigation, water resources planning, and hydrologic analyses on various rivers in California, Nevada, and Arizona.
- 10/02 – 12/03** **U.S. Army Corps of Engineers, Hydrologic Engineering Center, Davis, CA**
Civil Engineer/Graduate Student Intern
 Verified the accuracy of the calculations and processes of the Corps' reservoir simulation software, HEC-ResSim. Developed a ResSim model for Lake Winnebago, WI and integrated an existing hydrologic model of the watershed into the Corps' Water Management System for use in real-time flood forecasting.
- 05/02 – 09/02** **U.S. Geological Survey, Sacramento, CA**
Civil Engineer
- 08/95 – 12/00** **U.S. Air Force, McClellan & Beale AFB, CA**
Civil Engineer

PUBLICATIONS

- ◆ **Bergfeld, L.G. 2005. Investigative Study of Conjunctive Use Opportunities in the Stony Creek Fan Aquifer. M.S. Thesis, University of California, Davis.**
- ◆ **Bergfeld, L.G. and Schoelhammer D.H. 2003. "Comparison of Salinity and Temperature at Continuous Monitoring Stations and Nearby Monthly Measurement Sites in San Francisco Bay." *Interagency Ecological Program for the San Francisco Bay Newsletter*, Vol. 16, Number 5.**