

Project Simulation Model (PROSIM) Version 5.61

Purpose: PROSIM was developed by the U.S. Bureau of Reclamation to simulate the CVP and SWP water systems in the northern central valley and south of the Delta. The model is designed to simulate the riverflow and reservoir storage response to reservoir operations, regulatory standards, hydrologic conditions, and water demands. PROSIM incorporates these criteria and conditions and operates CVP reservoirs as an integrated unit. The model user can modify input to assess the effects of such changes on rivers and reservoirs in the model area.

CALFED Potential: This model is compatible with and can be used in CALFED alternatives analysis.

Approach: PROSIM is an arithmetic accounting of specific conditions within the model boundaries. The model boundaries include the Trinity, Sacramento, Feather, American, and San Joaquin Rivers. These primary rivers are subdivided for model calculations and analyzed in detail. The Yuba, Bear, Mokelumne, Cosumnes, and Calaveras Rivers, and numerous small tributaries, are included in the model at a lesser level of detail.

Input Data: Input includes data on hydrologic characteristics, water demands, regulatory criteria, and operational considerations. Hydrologic data include reservoir inflows, rainfall, evaporation, and river accretions and depletions. Regulatory criteria include instream flow and Delta standards. Operational considerations include reservoir management criteria, flood control requirements, and canal or pump capacity.

Methods: The model performs mass balance calculations at each model node to track flow, storage, and other model conditions. The model nodes are approximations for physical conditions and locations. For example, the model starts with the flow into a node, subtracts diversions and losses, and adds water gains to estimate the flow leaving the node.

Results: PROSIM produces extensive output at each model node in a binary file. Examples of output include data on flow, storage, diversions, deliveries, and regulatory criteria. A postprocessor is needed to extract the output from the binary file.

Applications: PROSIM is useful in determining the change in some condition that could result from changes in input data. PROSIM is site-specific to the CVP and SWP systems and does not analyze local water projects in detail. It can also generate data to use in the CVP power model to estimate power generation.

Documentation: Although the model is in wide use with many applications, there is no official documentation for the current version of PROSIM.

Source: PROSIM is available from the U.S. Bureau of Reclamation, Mid-Pacific Regional office in Sacramento, California, or from the Reclamation Home Page on the Internet.