MODELING THE CALFED ENVIRONMENTAL WATER ACCOUNT WITH CALSIM

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Abstract: The CALFED Environmental Water Account (EWA) aids fisheries protection and restoration in the San Francisco Bay-Delta system through a combination of actions and asset acquisition. EWA actions reduce Delta pumping to South-of-Delta demands during winter and spring months when these operational changes would benefit fisheries. These actions have the potential to reduce Central Valley Project (CVP) and State Water Project (SWP) deliveries, but the EWA is managed to assure no harm to deliveries by acquiring assets in the form of variable operational opportunities and annual water purchases.

For a given set of EWA actions, the system may have a range of strategies for asset acquisition and associated operations. Recent NEPA analysis of the Long Term Environmental Water Account has attempted to consider this range of possibilities for effects analysis. The studies involved specifying:

- the assumed size of the EWA – prescribing a set of protective/restorative actions,
- options of where purchased assets might originate in time, location, and amount,
- accounting procedures for tracking system impacts and debt and asset management.

The combined Central Valley Project and State Water Project system is modeled with CALSIM, a general-purpose river-system modeling framework developed by the California Department of Water Resources (DWR). Reclamation and DWR have used CALSIM since 2002 to meet all of their planning modeling needs. The size and complexity of the CVP/SWP system has led to the use of annually stepped solutions of dependent operational baselines and layered solutions within time steps. A benchmark study of the system has been adapted to represent aspects of the proposed alternatives for the long-term operation of the EWA. Examples include:

- new Boolean operators to depict combined backup/release of asset from project storage,
- additional cycles within baseline studies to capture opportunities to spill debt,
- representation of priority export for transfers,
- complexities of EWA asset acquisition – purchases, exchanges, transfers, source-shifts, storage accounts, water banks, and prioritized conveyance.

This poster will display the geographic extent of the EWA program, representation in CALSIM, mechanisms for EWA asset acquisition, and accounting structures for tracking assets and debt.