



In 2006, LCRA began investigating options for development of a new suite of decision-making tools to assist in their water management mission. ROC's objectives in developing a new suite of operational models included:

- The need to have a more robust decision-making foundation for reservoir and river operations. Much of this need centers on a desire to more accurately reflect water rights and operational policies *a priori* in the decision-making process. As demands for water increase and excess supply disappears, it becomes increasingly important to operate the system more efficiently and to ensure that operational decisions appropriately reflect rules and policies.
- Commonality of modeling tools. Having an “apples-to-apples” comparison of decision-making logic (Daily Release Model) to after-the-fact water accounting (Accounting Model) provided the ROC with insight as to sources of inefficiency in the system. Comparisons of water orders to actual diversions, forecast inflows to actual river gains, and environmental target operations to actual deliveries are now possible within a common modeling environment.

In the fall of 2008, LCRA and AMEC began developing a new suite of river operations models. The core components of the new system are three RiverWare models: a Daily Release Model, a Routing Model and an Accounting Model. Each of these models plays a specific role in the ROC's operational mission:

- The Daily Release Model is a daily timestep model that simulates water rights, water contract deliveries, and reservoir operations. It is used by the ROC to inform the decision process for determining daily release volumes from the Highland Lakes. The model simulates administration of 25 permitted direct flow and storage water rights, plus contract deliveries and operational constraints for environmental flows. It utilizes forecasts of basin inflows and orders from the various water users in the basin.
- The Routing Model simulates hourly releases from the Highland Lakes, and is used both to estimate future river conditions under various hydropower generation schemes, as well as to compute estimated gains and losses in the river system when gage data are available. The Routing Model is also used to ensure compliance with the recently adopted 2010 Water Management Plan, which includes instantaneous instream flow minimums.
- The Accounting Model is used to perform billing and accounting activities “after-the-fact” and can be used in conjunction with the forward-looking Daily Release Model to evaluate system operational efficiency by comparing forecast and actual data.

Together with a robust data collection and data management program, these models provide LCRA and the ROC with tools to help them meet the increasing challenges of water management in Central Texas. The new DROM tools went on-line January 1, 2010.