Two years of collecting comprehensive data about the Aquifer and the Spokane River produced not only thorough and comprehensive data about the Spokane River and the Aquifer, but also provided the data for hydrogeologists to construct a computer model of the Aquifer. This model can help us to better understand the complex interactive relationships of natural and human impacts upon the Aquifer. The computer model can be programmed to simulate "what if" situations, such as drought, heavy spring run-off, increased or reduced groundwater pumping, and the results of these simulations can help us understand how these events might impact water availability in the Spokane River and the Aquifer. The model is a tool to help us better understand and manage the region’s water resources.

### Calibrating the Groundwater Model

Model calibration is the adjustment of model parameters (such as groundwater flow and area lake contributions) so that the differences between the model values and the measured values in the real world are minimized. The model is calibrated to measured field values of water levels and river flows so that it accurately mimics the modeled period of study. Once the model is calibrated it can be used to evaluate water levels in the Aquifer and rivers in future “predictive scenarios.”

The graphs below present a comparison between measured and simulated groundwater level values for two Aquifer wells. While most model values are close to the measured groundwater levels, they are not exact.

### Area Lakes Discharge to the Aquifer

When comparing the 2005 estimated values for lake discharge to the Aquifer (page 13) with the 2007 model results, surprising differences can be found. While many values are similar, all the model values are larger, and two lakes, Newman and Coeur d’Alene, are much higher.