Groundwater Management Modeling in Support of the Klamath Basin Restoration Agreement

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Over the past decade, water managers in the upper Klamath Basin have been faced with the difficult task of allocating limited water resources to meet the needs of agriculture and aquatic wildlife. Since 2001, there has been an increased reliance on groundwater to meet irrigation needs. Klamath Basin stakeholders have developed the Klamath Basin Restoration Agreement (KBRA), which aims to restore historic fish habitat and populations in the Klamath Basin and establish reliable water supplies for agriculture. The KBRA sets limits on the permissible impacts of groundwater pumping on selected streams and springs that are recognized as important to endangered species. In addition to meeting the requirements of the KBRA, any groundwater development plan must also limit impacts on existing groundwater users and meet requirements of State water law. A groundwater management model was developed to assess the effect of sustained groundwater pumping on the interconnected groundwater and surface-water system of the upper Klamath Basin. The management model links a regional groundwater flow model with optimization to identify groundwater management strategies that meet the complex set of goals and constraints associated with groundwater use in the basin. This presentation will describe the preliminary results of the groundwater management model, including sensitivity analyses that characterize the tradeoffs associated with the management goals and constraints.