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A 3-D Model of Surface Water and Groundwater Interaction in the Central Passaic River Basin, New Jersey.

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Abstract

Hydrogeologists have believed, over the years, that the development of a groundwater basin results in increase in the basin's groundwater recharge and decrease in discharge. This basin's response to development is intricately tied with the natural recharge-discharge behavior of regional groundwater flow systems. A 3-D regional groundwater flow model is developed for the Central Passaic River Basin, New Jersey to evaluate its surface water-groundwater interactions. The models show that groundwater pumping increases recharge and decreases discharge in the basin. Groundwater-fed wetlands are reduced in size by groundwater pumping. These findings will enhance groundwater management in the basin.