



Numerical simulation of flow in deep open boreholes in a coastal freshwater lens, Pearl Harbor Aquifer, Oahu, Hawaii: USGS Scientific Investigations Report 2012-5009

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By Kolja Rotzoll

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book \*\*\*\*\* Print on Demand \*\*\*\*\*.The Pearl Harbor aquifer in southern O ahu is one of the most important sources of freshwater in Hawai i. A thick freshwater lens overlays brackish and saltwater in this coastal aquifer. Salinity profiles collected from uncased deep monitor wells (DMWs) commonly are used to monitor freshwater-lens thickness. However, vertical flow in DMWs can cause the measured salinity to differ from salinity in the adjacent aquifer or in an aquifer without a DWM. Substantial borehole flow and displacement of salinity in DMWs over several hundred feet have been observed in the Pearl Harbor aquifer. The objective of this study was to evaluate the effects of borehole flow on measured salinity profiles from DMWs. A numerical modeling approach incorporated aquifer hydraulic characteristics and recharge and withdrawal rates representative of the Pearl Harbor aquifer. Borehole flow caused by vertical hydraulic gradients associated with both the natural regional flow system and groundwater withdrawals was simulated.



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