Regional Water Table (1996) and Water-Level Changes in the Mojave River, the Morongo, and the Fort Irwin Ground-Water Basins, San Bernardino County, California

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Abstract

The Mojave River, the Morongo, and the Fort Irwin ground-water basins lie in the southwestern part of the Mojave Desert Region of southern California. These basins supply ground water to local water districts, military bases, and private wells. The rapid growth in population in these basins, which is due, in part, to their proximity to Los Angeles, has increased the demand for water and, therefore, the need to understand the Mojave ground-water systems.

Ground-water conditions for the Mojave River, the Morongo, and the Fort Irwin ground-water basins for 1996 and areas with significant changes in water levels are identified in this report. Water-level data were compiled for 632 wells in the study area during January–September 1996 to define the water-table surface and direction of ground-water movement. These data were used to construct the water-table map included in this report. Also shown on the map are 31 hydrographs that show long-term water-level changes in the study area. Short-term water-level changes were determined and a water-level change map was made by comparing 1996 ground-water conditions to 1990–94 conditions in the Mojave ground-water basin and to 1994 conditions in the Morongo and the Fort Irwin ground-water basins.

In general, ground-water levels and the direction of ground-water movement in the regional aquifer have not changed significantly since previously published maps (1995). However, the short-term water level did change at specific locations in all three ground-water basins. Water levels in the Mojave River ground-water basin had a maximum rise during the period 1992–96 of 52 feet and a maximum decline of 28. Water levels in the Morongo ground-water basin had a maximum rise of 66 feet and a maximum decline of 57 feet. The Fort Irwin ground-water basins, however, had relatively little change in water level with a maximum rise of 6 feet and a maximum decline of 8 feet. Hydrographs in the regional aquifer system indicate a decline or, in some areas, no change in the water table during the period of record. Water levels in the shallow alluvial aquifer, generally within 1 mile of the Mojave River, fluctuate in response to streamflow. Ground-water levels rise during wet periods, when floodflows in the Mojave River recharge the shallow alluvial aquifer.

INTRODUCTION

The Mojave River, the Morongo, and the Fort Irwin ground-water basins lie in the southwestern part of the Mojave Desert region of southern California (fig. 1). Surface water, including the Mojave River, is intermittent in most of the region; there is no reliable supply of surface water. Local water districts, municipalities, military bases, and private well owners rely almost entirely on local ground water for supply.