

Coyote Lake Valley Groundwater Basin

- Groundwater Basin Number: 6-37
- County: San Bernardino
- Surface Area: 88,200 acres (138 square miles)

Basin Boundaries and Hydrology

The Coyote Lake Valley Groundwater Basin underlies a northerly trending valley in north central San Bernardino County. Elevation of the valley floor ranges from 1,731 feet at Coyote (dry) Lake to about 2,200 feet along the margins. The basin is bounded by nonwater-bearing rocks of the Paradise Mountains on the north, the Alvord Mountains on the east, the Calico Mountains on the south, and by the Lane Mountains on the west. Drainage divides of alluvium form portions of the basin boundaries on the north, east, and south. The Calico Mountains reach elevations of about 4,000 feet and the Alvord Mountains rise to about 3,500 feet. Coyote Lake covers about nine square miles of the central portion of the valley (DWR 1964; Bookman-Edmonston 1994).

Annual average precipitation ranges from about 4 to 6 inches. Surface runoff derived from the surrounding mountains drains to Coyote Lake (Jennings and others 1962).

Hydrogeologic Information

Water Bearing Formations

Quaternary alluvium forms the major water-bearing material in the basin including unconsolidated younger alluvial deposits and underlying unconsolidated to semi-consolidated older alluvial deposits. Maximum thickness of the alluvium is at least 584 feet (DWR 1964). Confined conditions are found along the north and west sides of Coyote Lake (DWR 1964; MWA 1999).

Recharge and Discharge Areas

Recharge to the basin is chiefly derived from percolation of runoff through alluvial deposits at the base of the surrounding mountains (DWR 1967). Recharge may also be derived from inflow from the adjoining Superior Valley and Langford Valley Groundwater Basins. Discharge occurs primarily through extractions by wells.

Groundwater Level Trends

During 1930 through 2002, groundwater levels in the basin generally declined. In the pressure zone west of Coyote Lake, artesian flow at one well was observed as recently as 1998 and water levels at another well to the northwest declined by about 2.7 feet from 1956 to 1998. Depth to water at this location ranged from about 12.2 to 14.9 feet below the surface. South of Coyote Lake, water levels at one well declined by 14.5 feet from 1954 to 2002 and the depth to water fluctuated between about 41 and 97 feet. Along the eastern side of Coyote Lake, water levels declined by 22.3 feet from 1953 to 2002, with the depth to water varying between about 56 and 97 feet below

the surface. In the southeast portion of the basin, water levels declined by 45.8 feet at one location from 1953 to 2002 with depth to water varying from about 26 to 72 feet. Groundwater in the younger and underlying older alluvium moves towards Coyote Lake in the central part of the basin.

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity is estimated at about 7,530,000 af (DWR 1967, 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (A)

Recharge from runoff is estimated to be about 450 af/yr and subsurface inflow from the Mojave River is estimated to contribute 1,000 af/yr (DWR 1967).

Groundwater Quality

Characterization. In most parts of the basin, the character of the groundwater is either sodium sulfate or sodium sulfate-chloride. In the southeastern part of the basin, near the boundary with Lower Mojave River Groundwater Basin, the character of the groundwater is influenced by Mojave River water and is sodium bicarbonate in character.

Impairments. The quality of the groundwater is rated inferior to marginal for both domestic and irrigation purposes because of elevated levels of fluoride, boron, and sodium. Fluoride concentrations average 7.9 mg/L and range from 1.2 to 45.0 mg/L. Boron concentrations average 3.3 mg/L and range from 0.5 to 45 mg/L. In many wells, high sodium content precludes the use of groundwater for irrigation. TDS concentrations generally range between about 300 to 600 mg/L (DWR 1967), although they reach 5,074 mg/L east of Coyote Lake.

Well Production Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: to 1,740	Average: 660 (DWR 1975)
Total depths (ft)		
Domestic		
Municipal/Irrigation		

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
U.S. Geological Survey	Groundwater levels	5
	Miscellaneous water quality	
Department of Health Services and cooperators	Title 22 water quality	

Basin Management

Groundwater management: This basin is managed as part of a regional Water Management Plan adopted in 1994 (Bookman-Edmonston 1994). The basin is also a portion of the Mojave Basin Area Adjudication with Mojave Water Agency as watermaster

Water agencies

Public

Mojave Water Agency

Private

References Cited

Bookman-Edmonston Engineering Inc. 1994. Regional Water Management Plan; Mojave Water Agency, Apple Valley, California. 135 p.

California Department of Water Resources (DWR). 1964. Ground Water Occurrence and Quality Lahontan Region. Bulletin No.106-1. 439 p.

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Mojave Water Agency (MWA). 1999. Forth Annual Engineers Report on Water Supply, for Water Year 1997-1998. 77 p.

Jennings C. W. , J. L. Burnett, B. W. Troxel. 1962. Geologic Map of California: Trona Sheet. Olaf P. Jenkins Edition. California Department of Conservation, Division of Mines and Geology. Scale 1: 250,000.

Errata

Substantive changes made to the basin description will be noted here.