

## Arroyo Seco Valley Groundwater Basin

- Groundwater Basin Number: 7-37
- County: Imperial, Riverside
- Surface Area: 258,000 acres (403 square miles)

### Basin Boundaries and Hydrology

The Arroyo Seco Valley Groundwater Basin underlies a southeast-trending valley in northeast Imperial County and southeast Riverside County. Elevation of the valley floor ranges from about 2,400 feet above sea level in the northwest to about 220 feet in the southeast at the Colorado River. The basin is bounded by nonwater-bearing rocks of the Chocolate Mountains on the south and southeast, of the Chuckwalla and Little Chuckwalla Mountains on the north and northwest, of the Little Mule Mountains, Black Hills and Palo Verde Mountains on the northeast, and of the Peter Kane Mountains on the southeast. Elevations in the surrounding mountains reach about 3,200 feet in the Chuckwalla Mountains and about 3,000 feet in the Chocolate Mountains. Much of the west and southwest portions of the valley lie within the Chocolate Mountains Gunnery Range (USGS 1965, 1987; Jennings 1967).

Annual average precipitation ranges from about 3 to 5 inches. Surface runoff from the surrounding mountains drains towards the central axis of the basin, after which it flows in a easterly direction by way of Arroyo Seco Wash in the northwest part of the valley and by way of Milpitas Wash in the southeast part of the valley (Jennings 1967).

### Hydrogeologic Information

#### ***Water Bearing Formations***

Alluvium is the water-bearing material that forms the basin and includes unconsolidated, Holocene age deposits and underlying unconsolidated to semi-consolidated, Pliocene to Pleistocene age deposits (DWR 1954).

#### ***Restrictive Structures***

Consolidated rocks of the Little Mule Mountains trend south toward Blue Mountain to constrict eastward movement of groundwater in the central part of the basin (DWR 1954; Jennings 1967).

#### ***Recharge Areas***

Recharge to the basin is derived chiefly from the infiltration of runoff through alluvial deposits at the base of the surrounding mountains. Additional recharge may be obtained from subsurface inflow from Chocolate Valley Groundwater Basin (DWR 1954). Natural recharge to the basin is estimated to be about 1,500 acre-feet per year (DWR 1975).

#### ***Groundwater Level Trends***

Records of historical groundwater levels are sporadic and primarily represent the southern and eastern portions of the basin. Groundwater levels in the

eastcentral part of the basin were stable during 1979 through 2002 with the depth to water at one well fluctuating between 30 to 43 feet below the surface, and at another well fluctuating between 194 and 198 feet below the surface. In the southeastern part of the basin, water levels near Midway Well rose by 1.7 feet from 1957 through 1962, varying from about 51 to 53 feet beneath the surface.

**Groundwater Storage**

**Groundwater Storage Capacity.** Total storage capacity is estimated to be about 7,000,000 af (DWR 1975).

**Groundwater in Storage.** Unknown.

**Groundwater Budget (C)**

Groundwater budget information is not available.

**Groundwater Quality**

**Characterization.** The character of the groundwater varies widely with location. The predominant cations are generally sodium or calcium, and the predominant anions are bicarbonate or chloride.

**Impairments.** TDS concentrations generally range from about 300 to 900 mg/L, although, at some locations concentrations range from 2,300 to 2,450 mg/L. Elevated fluoride and boron concentrations often occur in conjunction with elevated TDS concentrations. Fluoride concentrations range from 0.10 to 5.20 mg/L, and boron concentrations range from 0.10 to 5.00 mg/L.

**Well Characteristics**

Well yields (gal/min)		
Municipal/Irrigation	Range:	Average:
Total depths (ft)		
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

**Active Monitoring Data**

Agency	Parameter	Number of wells /measurement frequency
USGS	Groundwater levels	2
Department of Health Services and cooperators	Miscellaneous water quality Title 22 water quality	

## Basin Management

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Groundwater management:

Water agencies

Public

Private

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## References Cited

- California Department of Public Works. 1954. *Ground Water Occurrence and Quality, Colorado River Basin Region*. Water Quality Investigations Report No. 4. 59 p.
- \_\_\_\_\_. 1975. *California's Groundwater*. Bulletin No. 118. 135 p.
- Jennings, C. W. 1967. *Geologic Map of California: Salton Sea Sheet*. Olaf P. Jenkins Edition. California Department of Conservation, Division of Mines and Geology. Scale 1: 250,000.
- U.S. Geological Survey. 1965. *Cibola, Arizona-California*. 7.5' Quadrangle. Provisional Edition. Scale 1: 24,000.
- U.S. Geological Survey. 1987. *Augustine Pass, California*. 7.5' Quadrangle. Provisional Edition. Scale 1: 24,000.

## Errata

Changes made to the basin description will be noted here.