

Yuma Valley Groundwater Basin

- Groundwater Basin Number: 7-36
- County: Imperial
- Surface Area: 3,780 acres (5.9 square miles)

Basin Boundaries and Hydrology

Yuma Valley Groundwater Basin underlies a southeast trending valley in southeast Imperial County. Elevation of the valley floor ranges from about 100 feet above sea level at the Colorado River near Winterhaven to about 600 feet along the northwest and southwest margins. The basin is bounded by nonwater-bearing rocks of the Cargo Muchacho Mountains on the west and by the Chocolate and Picacho Mountains on the north and northeast. Low-lying alluvial drainage divides form boundaries on the northwest and southwest, and the Colorado River bounds the basin on the south and east. Elevation in the mountains range from about 1,300 feet in the Cargo Muchacho Mountains and about 2,000 feet in the Picacho Mountains (Strand 1962, DWR 1984).

Annual average precipitation ranges from about 1 to 3 inches. Surface drainage is southeast towards the Colorado River (DWR 1954).

Hydrogeologic Information

Water Bearing Formations

The water-bearing material within the basin is alluvium, which includes are the unconsolidated younger Quaternary alluvial deposits and the underlying unconsolidated to semi-consolidated older Tertiary to Quaternary alluvial deposits. Maximum depth of the valley fill is at least 200 feet (DWR 1954, 1975).

Restrictive Structures

There are no known barriers to the movement of groundwater except localized clay layers, which may obstruct the downward percolation of surface water (DWR 1954).

Recharge and Discharge Areas

Natural recharge to the basin is derived mainly from subsurface inflow from the Ogilby Groundwater Basin on the west and infiltration of surface runoff through alluvial deposits at the base of the bordering mountains. Additional recharge comes from seepage loss from the All American Canal and other unlined canals and from the percolation of irrigation return flows. In the eastern portion of the basin along the Colorado River, high groundwater levels and fluctuations in the elevation of the water table are in direct response to various stages of the river. In general, groundwater moves southeast and is discharged to the Colorado River (DWR 1954, 1984).

Groundwater Level Trends

Records of historical groundwater levels in the basin intermittently spans the period from about 1962 through 2002. In general, the records of 49 wells

show that water levels have remained largely unchanged in those areas within the Colorado River floodplain south and east of the All American Canal. Depth to water remains shallow and ranges from about 5 to 20 feet below the surface. In the few wells that exist north or west of the canal, records show water levels have also remained mostly unchanged or have increased slightly over the period of record. Depth to water in these areas varies greatly, but generally range from about 40 to 240 feet below the surface.

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity is estimated to be about 4,600,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type C)

Natural recharge is estimated to be about 400 af/yr (DWR 1975)

Groundwater Quality

Characterization. Groundwater character varies within the basin, but in general, the predominant cation is sodium, and the predominant anion is either chloride or sulfate.

Impairments. In general, the groundwater is marginal for domestic and irrigation uses because of elevated levels of TDS, chloride, sulfate, and percent sodium. TDS levels range from about 600 to as much as 14,700 mg/L (DWR 1954, 1975).

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: 40 – 100	Average: 40 (DWR 1975)
Total depths (ft)		
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
U.S. Geological Survey	Groundwater levels	59
Department of Health Services and cooperators	Miscellaneous water quality Title 22 water quality	15

Basin Management

Groundwater management:

Water agencies

Public

Private

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.

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Strand, R. G. 1962. *Geologic Map of California: San Diego-El Centro Sheet*. Olaf P. Jenkins Edition. California Department of Conservation, Division of Mines and Geology. Scale 1: 250,000.

Errata

Changes made to the basin description will be noted here.