

## Chemehuevi Valley Groundwater Basin

- Groundwater Basin Number: 7-43
- County: San Bernardino
- Surface Area: 273,000 acres (427 square miles)

### Basin Boundaries and Hydrology

This basin underlies Chemehuevi Valley in eastern San Bernardino County. The basin is bounded by Havasu Lake on the east and by nonwater-bearing rocks of the Sacramento Mountains on the north, of the Chemehuevi Mountains on the northeast, of the Whipple Mountains on the southeast, of the Turtle Mountains on the west and south (Bishop 1963). The valley is drained by Chemehuevi Wash to Havasu Lake. Annual average precipitation ranges from about 4 to 6 inches.

### Hydrogeologic Information

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

Groundwater in the basin is found in alluvium and the Bouse Formation.

**Alluvium.** Holocene age younger alluvium, which is found in washes and the floodplain of the Colorado River, is composed of sand, silt and gravel (Metzger and Loeltz 1973). Older alluvium consists of unconsolidated, fine- to coarse-grained sand, pebbles, and boulders with variable amounts of silt and clay.

**Bouse Formation.** The Pliocene age Bouse Formation is composed of a basal limestone bed overlain by interbedded clay, silt, and sand. Thickness of the formation reaches 254 feet (Metzger and Loeltz 1973). The formation is underlain by locally derived fanglomerate and overlain by alluviums of the Colorado River and its tributaries.

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

An unnamed fault crosses a portion of the southern side of the basin (Bishop 1963), but it is not known whether or not this fault impedes groundwater flow in the basin.

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

Recharge of the basin is from percolation of runoff from precipitation and irrigation water, and subsurface inflow (Metzger and Loeltz 1973). In the eastern part of the basin, phreatophytes are supported by infiltration from the Colorado River and Havasu Lake.

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

In the eastern part of the basin, groundwater levels fluctuate in response to changes in water level of Havasu Lake. Fluctuations in groundwater levels can be about 5 feet near the lake, but decrease to become negligible at about 1 mile from the lake (Metzger and Loeltz 1973). About 4 miles east of the lake, one well varied one foot during 1978 through 1983; whereas another well, about 2 miles farther east, declined about 6 feet from 1978 to 1996.

Groundwater in the basin flows southward through Chemehuevi Valley and eastward toward the Colorado River (Moyle 1974).

### **Groundwater Storage**

**Groundwater Storage Capacity.** The total storage capacity is estimated at 4,700,000 (DWR 1975).

**Groundwater in Storage.** Unknown.

### **Groundwater Budget (Type A)**

Natural recharge is estimated at about 2,300 af/yr (DWR 1975), and the total pumpage is estimated at 3,000 af/yr (Metzger and Loeltz 1973). Depletion by evapotranspiration is estimated to be about 50,000 af/yr, though this loss is concentrated in a belt of phreatophytes near the Colorado River and balanced by inflow from the river or Havasu Lake (Metzger and Loeltz 1973).

### **Groundwater Quality**

**Characterization.** Groundwater in the eastern portion of the basin has a sodium chloride character and near the Colorado River it has a sodium sulfate character (Metzger and Loeltz 1973). TDS content ranges from 745 to 1,280 mg/L (Metzger and Loeltz 1973).

**Impairments.** Sulfate, chloride, fluoride, and TDS concentrations are high in the basin (DWR 1975).

### **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	1
Department of Health Services and cooperators	Miscellaneous water quality	1
	Title 22 water quality	

## Basin Management

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Groundwater management:

Water agencies

Public

Private

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## References Cited

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Moyle, W. R. Jr. 1974. *Geohydrologic Map of Southern California*. Dept. of the Interior, U.S. Geological Survey Water-Resources Investigations 48-73. 1 sheet.

## Additional References

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Hopkins, R.T. 1984. *Analytical Results and Sample Locality Map of Stream-Sediment, Heavy-Mineral-Concentrate, Rock, and Water Samples from the Chemehuevi Mountains Wilderness Study Area (CDCA-310), San Bernardino County, California*. U.S. Dept. of the Interior, Geological Survey Open-File Report 84-261. 27 p.

Kreidler, T. J. 1983. *Mineral Investigation of the Chemehuevi Mountains Wilderness Study Area, California Desert Conservation Area, San Bernardino County, California*. U.S. Dept. of the Interior, Bureau of Mines. 9 p.

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Metzger, D. G., and Loeltz, O. J. 1971. *Water Resources of Lower Colorado River – Salton Sea Area as of 1971, Summary Report*. U. S. Geological Professional Paper 486-A.

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## Errata

Changes made to the basin description will be noted here.