

West Salton Sea Groundwater Basin

- Groundwater Basin Number: 7-22
- County: Imperial
- Surface Area: 106,000 acres (166 square miles)

Basin Boundaries and Hydrology

The West Salton Sea Groundwater Basin underlies a valley along the western shores of the Salton Sea in central Imperial County. Elevation within the valley range from about 230 feet below sea level at the shoreline of the Salton Sea to about 400 feet above sea level along the western margins of the valley. The boundaries of the basin are formed by nonwater-bearing rocks of the southern Santa Rosa Mountains on the northwest and west, by low-lying alluvial drainage divides on the north and south, and by the Salton Sea on the east. Elevation in the bordering Santa Rosa Mountains range from about 2,200 to 2,700 feet (Rogers 1965; Jennings 1967).

Annual average precipitation ranges from about 1 to 8 inches. Surface drainage is eastward to the Salton Sea. Among the major intermittent drainages are Arroyo Salada, Palm Wash, and Tule Wash (Rogers 1965; Jennings 1967).

Hydrogeologic Information

Water Bearing Formations

In this basin, groundwater is found in 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 estimated at about 545 feet (DWR 1954).

Restrictive Structures

Fine-grained lacustral deposits of the former Lake Cahuilla may impede the downward and lateral movement of groundwater in the east and southeast portion of the basin (DWR 1954).

Recharge and Discharge Areas

Recharge to the basin is derived primarily from the infiltration of runoff through coarse-grained alluvial deposits at the base of the Santa Rosa Mountains. Groundwater moves easterly and discharges to the Salton Sea (DWR 1954; Moyle 1974).

Groundwater Level Trends

Groundwater levels from one well in the northeast part of the basin close to Salton Sea show groundwater levels declined by about 64 feet in 1979 through 2000.

Groundwater Storage

Groundwater Storage Capacity. Unknown (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (C)

Groundwater budget information is not available.

Groundwater Quality

Characterization. The character of the groundwater is predominantly sodium chloride.

Impairments. The quality of the groundwater is marginal to poor for domestic and irrigation purposes because of elevated concentrations of fluoride, boron, and TDS. Fluoride content ranges from 1.2 to 6.2 mg/L and averages about 3.3 mg/L. Boron, which impairs the use of groundwater for irrigation, ranges in concentration from 1.0 to 22.3 mg/L, with an average concentration of about 6.2 mg/L. TDS content ranges from 2,000 to 16,600 mg/L and averages about 5,800 mg/L.

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: 400 – 540	Average: 400 (DWR 1975)
Total depths (ft)		
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

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

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.
- _____. 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.

Moyle, W. R. 1974. *Geohydrologic Map of Southern California*. U. S. Geologic Survey, Water-Resources Investigations 48-73 Open File.

Rogers, T. H. 1965. *Geologic Map of California: Santa Ana 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.