

Panamint Valley Groundwater Basin

- Groundwater Basin Number: 6-58
- County: Inyo
- Surface Area: 259,000 acres (405 square miles)

Basin Boundaries and Hydrology

Panamint Valley Groundwater Basin underlies a north-trending valley located in southern Inyo County. The basin is bounded by nonwater-bearing consolidated rocks of the Panamint Mountains on the north and east, the Argus Range on the west, and the Slate Range on the south. Elevation of the valley floor ranges from 1,400 feet to about 1,800 feet above mean sea level in the north. The Panamint Mountains on the east attain a maximum elevation of 11,049 feet at Telescope Peak, and the Argus Range on the west reaches a maximum elevation of 8,839 feet at Maturango Peak (Jennings 1958; 1962; DWR 1964).

Annual rainfall averages between three and four inches on the valley floor; near the upper peaks of the Panamint Mountains, precipitation may reach 12 inches. Runoff flows towards either Upper Panamint (dry) Lake, located in the northern portion of the valley, or Lower Panamint (dry) Lake, located in the southern half of the valley. Much of the runoff that reaches the valley floor is lost to evaporation (DWR 1964).

Hydrogeologic Information

Water Bearing Formations

Quaternary alluvium forms the principal water-bearing unit within the basin. Included in this unit are the unconsolidated younger alluvial deposits and underlying unconsolidated to poorly consolidated older alluvial deposits. Thickness of the alluvial fill is at least 800 feet (DWR 1964).

Restrictive Structures

Faults roughly parallel to the northerly trend of the valley are cited as potential barriers to the movement of groundwater (DWR 1964).

Recharge and Discharge Areas

The Panamint Valley is a closed basin without external drainage. Replenishment to the groundwater basin is derived chiefly from the percolation of rainfall and runoff from the surrounding mountains. In addition, Brown Mountain Valley, Darwin Valley, and Pilot Knob Valley basins, provide limited surface and subsurface flow into the basin. Percolation through alluvial fan deposits at the base of the Panamint Mountains and the Argus and Slate Ranges, provide the principal recharge to the basin. Groundwater in transit within the younger and underlying older alluvium moves in the direction of Lower Panamint Lake where periodic discharge to the surface occurs and groundwater levels have historically been at or near the land surface (DWR 1964; 1969).

Groundwater Level Trends

Unknown.

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity is estimated to be about 3,400,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (C)

Groundwater budget information is not available.

Groundwater Quality

Characterization. Groundwater character varies considerably with location, but among the more commonly occurring types are calcium sulfate, calcium bicarbonate-sulfate, sodium-calcium sulfate, and sodium sulfate-chloride (DWR 1964; 1969).

Impairments. Analyses of water from the few wells and springs located in the Panamint Valley indicate that high sulfate content is the most pervasive water quality problem. In addition, elevated concentrations of fluoride, chloride, and TDS are common. Water from most wells located on the valley floor is ranked inferior for domestic use and marginal to inferior for irrigation purposes. Water from wells and springs located on the perimeter of the valley is generally of better quality and more often suitable for most beneficial uses (DWR 1964; 1969).

Well Production characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range 30-35	Average: 30 (DWR 1975)
Total depths (ft)		
Domestic	Range: 44-48	Average: 46 (DWR 1975)
Municipal/Irrigation		

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 Water Resources (DWR). 1964. *Ground Water Occurrence and Quality Lahontan Region*. Bulletin No. 106-1. 439 p.
- _____. 1969. *Water Wells and Springs in Panamint, Searles, and Knob Valleys*. Bulletin No. 91-17. 110 p.
- _____. 1975. *California's Ground Water*. Bulletin No. 118. 135 p.
- Jennings, C.W. ed. 1958. *Geologic Map of California: Death Valley Sheet*. Olaf P. Jenkins Edition California Department of Conservation, Division of Mines and Geology. Scale 1: 250,000.
- Jennings, C.W. *et al.* 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

Changes made to the basin description will be noted here.