San Dieguito Valley Groundwater Basin

- Groundwater Basin Number: 9-12
- County: San Diego
- Surface Area: 3,560 acres (5.6 square miles)

Basin Boundaries and Hydrology

The San Dieguito Groundwater Basin underlies Osuna Valley and the lower portion of San Dieguito Valley in central coastal San Diego County. The basin is bounded by the Pacific Ocean to the west and elsewhere by nonwater-bearing parts of the La Jolla Group (Strand 1962). The San Dieguito River drains this valley west to the Pacific Ocean. Average annual precipitation ranges from 7 to 11 inches.

Hydrogeologic Information

Water Bearing Formations

The water-bearing materials that form this basin are composed of Quaternary age alluvium, which reaches 180 feet thick near the Pacific Ocean (Izbicki 1983). In addition, groundwater is produced from the La Jolla Group and Santiago Peak Volcanics beneath and adjacent to the basin (Izbicki 1983). Holocene age alluvium, which is composed of unconsolidated gravel, sand, silt, and clay, has a maximum thickness of more than 150 feet near the Pacific Ocean and an average specific yield of about 13 percent (Izbicki 1983). Groundwater in this unit is unconfined and wells yield an average of 700 gpm, but reach 1,800 gpm (Izbicki 1983).

Older alluvium, likely Pleistocene in age, is composed of gravel, sand, silt, and clay that is partially cemented and weathered; wells in this unit yield as much as 75 gpm (Izbicki 1983).

Recharge Areas

Recharge of the alluvial aquifer is chiefly by percolation of flow in the San Dieguito River (DWR 1959). Additional sources of recharge include percolation of precipitation to the valley floor, underflow beneath Hodges Dam, and underflow through the La Jolla Group sediments (Izbicki 1983).

Groundwater Level Trends

Historically, groundwater levels have been near the ground surface with groundwater moving westward toward the ocean (Ellis and Lee 1919; DWR 1959). By 1957, pumping depressions had created an inland flow of seawater (DWR 1959). During 1979 through 1983, water levels at one well in the central part of the basin ranged from about 1 to 5 feet below ground surface.

Groundwater Storage

Groundwater Storage Capacity. The basin is estimated to have a storage capacity of 52,000 af (Izbicki 1983) and 63,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type A)

Underflow beneath Hodges Dam is estimated to be a minimum of 15af/yr, and underflow through the La Jolla Group is about 600 af/yr (Izbicki 1983). Return from irrigation is estimated to be 160 to 210 af/yr (Izbicki 1983).

Groundwater Quality

Characterization. Water pumped from alluvium in this basin is of variable character, but is sodium chloride character near the ocean (Izbicki 1983). TDS content ranges from about 500 mg/L in the northeastern part of the basin to more than 5,000 mg/L near the coast (DWR 1967, 1983)

Impairments. This basin has high sulfate, chloride, and TDS concentrations that cause inferior ratings for domestic and irrigation use for most of the basin (DWR 1967).

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: to 1,800 gal/min	Average: 700 gal/min (Izbicki 1983)
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

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

Basin Management

Groundwater management:

Water agencies

Public

Private

References Cited

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Additional References

California Department of Water Resources (DWR). 1973. *Preliminary Evaluation of Groundwater Basins in San Dieguito Investigation.* Preliminary report. 20 p.

Kennedy, M. P. 1973. Bedrock Lithologies, San Diego Coastal Area, California. In Ross, A. and Dowlen, R.J., eds. *Studies on the Geology and geologic hazards of the Greater San Diego Area, California*. San Diego Association of Geologists and the Association of Engineering Geologists. p. 9-17.

Errata

Substantive changes made to the basin description will be noted here.