

Montecito Groundwater Basin

- Groundwater Basin Number: 3-49
- County: Santa Barbara
- Surface Area: 6,270 acres (9.8 square miles)

Basin Boundaries and Hydrology

The Montecito Groundwater Basin is bounded on the north by the Santa Ynez Mountains and the Arroyo Parida fault, on the east by consolidated rocks, on the southeast by the Fernald fault, and on the northeast by a surface drainage divide that separates the Montecito and Carpinteria Groundwater Basins (DWR 1999). The offshore Rincon Creek fault and the Pacific Ocean bound the basin on the south. An administrative boundary on the west separates the Montecito Groundwater Basin from the Santa Barbara Groundwater Basin. The area overlying the basin is drained by several small creeks that flow from the Santa Ynez Mountains south to the Pacific Ocean. Precipitation ranges from 17 to 21 inches per year.

Hydrogeologic Information

Water Bearing Formations

The primary water-bearing deposits in the Montecito Groundwater Basin are the unconsolidated alluvial deposits, and the Casitas and Santa Barbara Formations (Montecito Water 1998). The specific yield for unconfined materials in the basin is estimated at 11 percent (DWR 1999).

Alluvial Deposits. Holocene age alluvium consists of lenses of gravel, sand, silt, and clay. These deposits occur along stream channels and range to 80 feet thick (DWR 1999). Pleistocene age alluvium is composed of boulders and reddish clay, which, where saturated, yields only modest amounts of water to wells (DWR 1999). Groundwater is generally unconfined within alluvial deposits.

Casitas Formation. The Pleistocene age Casitas Formation consists of clay, silt, sand, and gravel. Groundwater is extracted mainly from the upper Casitas Formation, as it is the chief water-bearing deposit; the lower Casitas Formation is very fine-grained and displays poor water transmitting characteristics (Montecito Water 1998). Groundwater in this formation is partially confined along the north side of the Arroyo Parida fault in the northern part of the basin and also inland from the southern part of the basin (DWR 1999).

Santa Barbara Formation. The Pliocene to Pleistocene age Santa Barbara Formation consists of marine sand, silt, and clay and has a maximum thickness of 1,200 feet in the southern part of the basin (Hoover 1980). Groundwater within the Santa Barbara Formation is generally confined (Freckleton 1989). This formation occurs only in a restricted area in the southwest portion of the basin and, thus, is of negligible use as a groundwater source (DWR 1999).

Restrictive Structures

The offshore Rincon Creek fault is an effective barrier to seawater intrusion into the deeper water-bearing zones (Montecito Water 1998). The east-trending Arroyo Parida and Montecito faults are barriers to groundwater movement within the Montecito Groundwater Basin.

Recharge Areas

Natural recharge in the basin is derived from infiltration of precipitation over the basin, seepage from streams, and subsurface inflow from consolidated rocks (DWR 1999).

Groundwater Level Trends

Hydrographs show that water levels generally increased or remained steady from 1992 through 1998 (DWR 1999).

Groundwater Storage

Groundwater Storage Capacity. The storage capacity above sea level is estimated at 14,490 af (Montecito Water 1998). The total storage capacity of the basin has been estimated at 281,000 af (Muir 1968; DWR 1975).

Groundwater in Storage. The amount of groundwater in storage is estimated at 14,400 af (SBCWA 2001).

Groundwater Budget (Type A)

Montecito Water District pumps about 700 af/yr of groundwater (Montecito Water 2001). However, the amount pumped by private well owners is unknown. Annual natural recharge is approximately 1,614 af/yr (Montecito Water 1998). The average annual stream seepage rate is estimated at 764 af/yr, and the average annual infiltration of rainfall is estimated at 500 af/yr (Montecito Water 1998). The long-term average subsurface inflow is approximately 250 af/yr. The long-term average deep percolation of irrigation water is estimated at 100 af/yr (Montecito Water 1998).

Groundwater Quality

Characterization. The groundwater in the Montecito Basin is of two chemical types. South of the Arroyo Parida fault, groundwater has calcium bicarbonate character, however, north of the fault it has sodium sulfate character. TDS concentration ranges from 600 to 1,100 mg/L (Montecito Water 1998). Analyses of data from four public supply wells show an average TDS of 698 mg/L in the basin with a range from 526 to 778 mg/L.

Impairments. Iron and manganese concentrations in wells exceed Federal standards (Montecito Water 1998). During 1990, some wells yielded groundwater samples containing high chloride concentrations that exceed State limits. However, no wells are confirmed to be affected by seawater intrusion (Montecito Water 1998).

Water Quality in Public Supply Wells

Constituent Group ¹	Number of wells sampled ²	Number of wells with a concentration above an MCL ³
Inorganics – Primary	14	0
Radiological	15	0
Nitrates	16	2
Pesticides	5	0
VOCs and SOCs	5	0
Inorganics – Secondary	14	8

¹ A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).

² Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

³ Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Production characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: to 1,000 gal/min	Average: 750 gal/min (DWR 1975)
	Total depths (ft)	
Domestic	Range: 146 – 450 ft.	Average: 297 ft (8 well completion reports)
Municipal/Irrigation	Range: 420 – 634 ft.	Average: 504 ft (4 well completion reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Montecito Water District	Groundwater levels	88/biannually
US Geological Survey	Groundwater levels	2
Department of Health Services and cooperators	Title 22 water quality	4

Basin Management

Groundwater management: The Montecito Water District has adopted an AB3030 management plan (SBCWA 2001).

Water agencies

Public Montecito Water District, Santa Barbara County Water Agency

Private

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Additional References

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Errata

Changes made to the basin description will be noted here.