Ventura River Valley Groundwater Basin, Upper Ventura River Subbasin

- Groundwater Basin Number: 4-3.01
- County: Ventura
- Surface Area: 7,410 acres (11.6 square miles)

Basin Boundaries and Hydrology

The Upper Ventura River Subbasin is bounded on the south by the Lower Ventura River Subbasin, on the east by the Ojai Valley Groundwater Basin, and elsewhere by impermeable rocks of the Santa Ynez Mountains (DPW 1933). The surface is drained by the Coyote, Matilija, and San Antonio Creeks and the Ventura River. Average annual precipitation ranges from 14 to 24 inches.

Hydrogeologic Information

Water Bearing Formations

In the basin, groundwater is chiefly found in Holocene and Pleistocene age alluvium (DPW 1933; Panaro 2002) and is unconfined. Thickness of the alluvium ranges from 60 to 100 feet; however, it apparently is only 5 to 30 feet in the San Antonio and Coyote Creek areas, (DWR 1959). The average specific yield of the basin is estimated at 8 percent (CSWRB 1953).

Restrictive Structures

The east-trending Santa Ana fault crosses the basin, but it is not known whether or not the fault is a barrier to groundwater movement. In 1906, the City of Ventura constructed a partial subsurface barrier in the alluvium of the Ventura River near Foster Park to create rising water, which was to be diverted for domestic and irrigation uses (CSWRB 1953).

Recharge Areas

Recharge to the basin is primarily by percolation of flow in the Ventura River and, to a lesser extent, by percolation of rainfall to the valley floor and excess irrigation water. A slight amount of recharge is derived from subsurface inflow through fractures in the underlying impermeable rocks (CSWRB 1953).

Groundwater Level Trends

Groundwater moves southward through the alluvium following the surface drainage, ultimately entering Lower Ventura River Subbasin below Foster Park. Hydrographs indicate that groundwater levels have been mostly stable in this subbasin. Water levels fluctuate seasonally by 5 to 20 feet, but usually recover each year to about the previous high level. These hydrographs also show gradual decline and rise of water levels associated with dry and wet weather cycles; however, these long term cycles typically are of lower amplitude than the seasonal cycles.

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity for this subbasin has been estimated to be 10,000 af (CSWRB 1953), 35,000 af (DWR 1975), and 35,118 af (Panaro 2000).

Groundwater in Storage. The subbasin is estimated to have been 90 percent full (Panaro 2000;VCWA 2002), or have about 31,600 af of groundwater in storage in 1999.

Groundwater Budget (Type C)

Recharge by underflow is estimated to be at least 3,500 af/yr.

Groundwater Quality

Characterization. Groundwater in the subbasin is calcium bicarbonate-sulfate in character. Analyses of water from 23 wells sampled in the 1950s show TDS content that ranges of 732 to 1,420 mg/L (DWR 1959). The average TDS content in the basin has been reported at 680 mg/L (VCWA 1996). Water from 18 public supply wells show TDS content ranging from 500 to 1,240 mg/L with an average of approximately 706 mg/L.
Impairments. TDS content is high in some parts of the subbasin.

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	17	4
Radiological	17	0
Nitrates	18	2
Pesticides	16	0
VOCs and SVOCs	16	0
Inorganics – Secondary	17	4

[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 Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: - 10 to 200 gal/min (CSWRB 1953)	Average: 600 gal/min (Panaro 2000)
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Ventura County	Groundwater levels	17
Department of Health Services and cooperators	Title 22 water quality	18

Basin Management

Groundwater management:

Water agencies

Public	Ventura County Public Works Agency
Private	Southern California Water Company

References Cited

California Department of Water Resources (DWR). 1959. *Water Quality and Water Quality Problems, Ventura County.* Bulletin 75. Two Volumes. 195 p.

California State Water Resources Board (CSWRB). 1953. *Ventura County Investigation.* Bulletin 12. Two Volumes.

Panaro, D. 2000. Fox Canyon Groundwater Management Agency: Written Communication to R.R. Davis (DWR), March 21, 2000.

Ventura County Public Works Agency (VCPWA). 1996. *Ventura County Groundwater Quality Assessment Report.* 57 p.

_____. 2002. "Ventura County Groundwater Basins." http://www.ventura.org/vcpwa/wre/wrd/pages/BASINS.htm (March 2002).

Additional References

California Department of Public Works, Division of Water Resources (CDPW). 1933. *Ventura County Investigation.* Bulletin 46.

_____. 1965. *Ventura County and Upper Santa Clara River Drainage Area Land and Water Use Survey, 1961***.** Bulletin 122. 59 p.

_____. 1975. *California's ground water*. Bulletin 118. 135 p.

_____, Southern District. 1981. *Ventura County and Upper Santa Clara River Drainage Area Land Use Study, 1980: District Report.* 25 p.

Leason F. P. & Associates. 1959. *Upper Ventura River Valley and Ojai Valley Sewerage Study*. Pasadena, Calif.: The Associates.

Richardson, H. E., and others. 1968. *Ventura River Project Extensions, Feasibility Study, Ground-Water Geology and Resources Appendix*. United States Bureau of Reclamation (USBR): unnumbered Report.

Turner, J. M. 1971. *Ventura County Water Resources management Study, Geohydrology of the Ventura River System.* Ventura County Department of Public Works, Flood Control District: Unnumbered Report.

Errata

Changes made to the basin description will be noted here.