

## Conejo Valley Groundwater Basin

- Groundwater Basin Number: 4-10
- County: Ventura
- Surface Area: 28,900 acres (45.2 square miles)

### Basin Boundaries and Hydrology

This groundwater basin underlies Conejo Valley in southern Ventura County. The basin is bounded by surface drainage divides (CSWRB 1956; DWR 1959). Ground surface elevation ranges from 300 to 2,300 feet above sea level and surface waters are drained westward by Conejo Creek. Average annual precipitation ranges from 13 to 17 inches.

### Hydrogeologic Information

The primary water-bearing units in the basin are Quaternary alluvium and the Modelo, Topanga, and Conejo Formations. Ground water in the basin is generally unconfined and generally flows westward. The average specific yield is estimated at 22.5 percent. Average well yield is 100 gpm and is mostly used for irrigation (Panaro 2000).

#### **Water Bearing Formations**

**Alluvium.** The Quaternary alluvium in the basin is generally only a few feet thick, except near Newbury Park and Thousand Oaks where it can reach up to 60 feet thick (DWR 1959). This unit can be water bearing, but is not the major producer in the basin.

**Modelo Formation.** The Miocene Modelo Formation consists of marine sandstones and shales. The unit reaches a thickness of 6,500 feet regionally and unconformably overlies the Topanga and Conejo Formations (CSWRB 1956).

**Topanga and Conejo Formations.** The Miocene age Topanga Formation and Conejo Formation are coeval intercalated deposits. The Topanga Formation contains sandstone, conglomerate, and shale in the Conejo area. The Conejo Formation contains volcanic tuff, debris flow, and basaltic flow and breccia deposits that reach 13,000 feet thick (CSWRB 1956). The high porosity in the fractured basalt flows allows production from these units. Wells in the basin were estimated to yield an average of 50 gpm and reach a maximum of 1,000 gpm by CSWRB (1956). An average well yield of 100 gpm was estimated by Panaro (2000).

#### **Recharge Areas**

Recharge to the basin is provided by percolation of rainfall to the valley floor, percolation of surface water from Conejo Creek and its tributaries, and irrigation return (Panaro 2000).

#### **Groundwater Level Trends**

Groundwater generally flows westward through the basin. A hydrograph for a well in the western part of the basin shows a seasonal range in water levels of about 20 feet and a rise in water level of as much as 50 feet during high

precipitation years. This hydrograph shows a general rise of about 20 feet during 1973 through 1980, then a decline of about 20 feet during 1980 through 1991. Water levels during 1992 through 2001 rose again about 20 feet. A hydrograph for a well in the central part of the basin shows a general water level decline of about 5 feet during 1979 through 1991, then a rise of about 5 feet during 1992 through 2001.

### **Groundwater Storage**

**Groundwater Storage Capacity.** The total storage capacity of this basin is estimated at 7,106 af (Panaro 2000).

**Groundwater in Storage.** The basin was estimated to have been about 75 percent full in 1999, which amounts to approximately 5,330 af of groundwater in storage (Panaro 2000).

### **Groundwater Budget (Type A)**

Not enough information is available to construct a complete budget. Recharge is estimated at about 300 af/yr from underflow and less than 100 af/yr from irrigation return (Panaro 2000). Recent pumping was estimated to be less than 100 af/yr (Panaro 2000).

### **Groundwater Quality**

**Characterization.** Groundwater in the basin ranges from magnesium-calcium bicarbonate to calcium-magnesium bicarbonate in character for the volcanic deposits (DWR 1959). Groundwater derived from the Modelo and Topanga Formations ranges from calcium-magnesium bicarbonate to magnesium-calcium sulfate in character (DWR 1959). TDS content in the volcanic units averaged 631 mg/L and ranged from 335 to 1,118 mg/L; whereas, in the Modelo and Topanga Formations, it averaged 1,189 mg/L, and ranged from 404 to 2,064 (DWR 1959).

### **Impairments.**

### **Water Quality in Public Supply Wells**

<b>Constituent Group<sup>1</sup></b>	<b>Number of wells sampled<sup>2</sup></b>	<b>Number of wells with a concentration above an MCL<sup>3</sup></b>
Inorganics – Primary	3	0
Radiological	2	0
Nitrates	3	1
Pesticides	1	0
VOCs and SVOCs	2	0
Inorganics – Secondary	3	0

<sup>1</sup> 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).

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

<sup>3</sup> 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: up to 1,000 gal/min	Average: 50 gal/min (CSWRB 1956), 100 gal/min (Panaro 2000)
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	Title 22 water quality	3

### Basin Management

Groundwater management:

Water agencies

Public	Ventura County Department of Public Works
Private	

### References Cited

- California State Water Resources Board (CSWRB). 1956. *Ventura County Investigation*. Bulletin 12. Two Volumes.
- California Department of Water Resources (DWR). 1959. *Water Quality and Water Quality Problems, Ventura County*. Bulletin 75. 195 p.
- Panaro, D. 2000. Fox Canyon Groundwater Management Agency: Written Communication to R.R. Davis (DWR), March 2000.

### Additional References

- California Department of Public Works (CDPW). 1933. *Ventura County Investigation*. Division of Water Resources. Bulletin 46. 244 p.
- Jennings, C.W., and Strand, R.G. 1969. *Geologic Map of California: Los Angeles Sheet, Olaf P. Jenkins Edition*. Division of Mines and Geology. scale 1:250,000. 1 sheet.

### Errata

Changes made to the basin description will be noted here.