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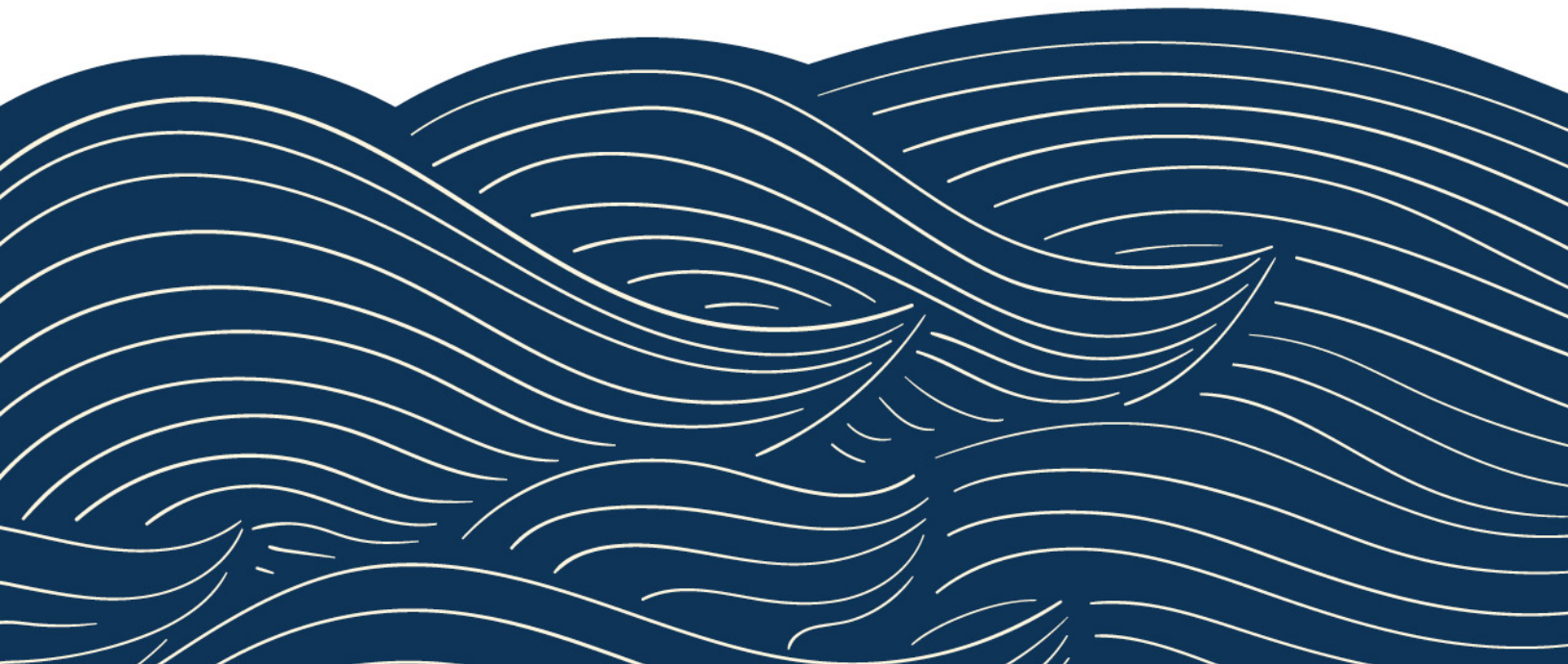
Appendix E – Bulletin 118 Description



San Simeon Valley Groundwater Basin

- Groundwater Basin Number: 3-35
- County: San Luis Obispo
- Surface Area: 620 acres (1.0 square miles)

Basin Boundaries and Hydrology

The San Simeon Valley Groundwater Basin underlies San Simeon Valley and is bounded by the Pacific Ocean on the west, the Santa Lucia Range on the east, and elsewhere by impermeable Franciscan Group rocks. The valley is drained by San Simeon Creek. Precipitation varies across the watershed from 20 inches at the coast to about 26 inches at the eastern end of the valley floor to more than 40 inches at the headwaters of San Simeon Creek (Yates and Van Konyenburg 1998).

Hydrogeologic Information

Water Bearing Formations

Groundwater is found in Holocene age alluvial deposits, which have an estimated specific yield of 18 percent (DWR 1958).

Holocene Deposits. Unconsolidated alluvial deposits underlie San Simeon Creek and consist of unconsolidated gravel, sand, clay, and silt. The alluvium has a maximum thickness of about 100 feet beneath the center of the valley and more than 120 feet at the coast (Yates and Van Konyenburg 1998).

Recharge Areas

Groundwater is unconfined and flows generally westward.
Recharge to the basin is largely by percolation of stream flow and, to a lesser extent, from deep infiltration of precipitation and excess irrigation flow (DWR 1958).

Groundwater Level Trends

In 1988, the rate of water-level decline slowed or even reversed slightly at most wells during November and early December following declines of 1 to 7 feet/month from February through August (Yates and Van Konyenburg 1998). This variation likely indicates seasonal fluctuation in groundwater level.

Groundwater Storage

Groundwater Storage Capacity. The groundwater storage capacity is estimated at 4,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type A)

A groundwater budget for the San Simeon Groundwater Basin was simulated using a groundwater flow model for April 1988 through March 1989 (Yates and Van Konyenburg 1998). Recharge to the basin from rainfall totaled 50 af/yr. Recharge of creek flow was estimated at 540 af/yr. Subsurface inflow was 150 af/yr and subsurface outflow to the ocean was 320 af/yr. Recharge

to the basin from irrigation-return flow was 170 af/yr. Agricultural pumpage was estimated at 450 af/yr. Municipal pumpage was estimated at 550 af/yr. Rural domestic pumpage was estimated at less than 10 af/yr. Phreatophyte transpiration was estimated at 30 af/yr. About 440 af/yr of wastewater is also recharged (Yates and Van Konyenburg 1998).

Groundwater Quality

Characterization. Groundwater analyses from 31 wells in this basin taken from 1955 through 1994 show TDS content ranging from 46 to 2,210 mg/L. Analyses of data from 3 public supply wells show an average TDS content of 413 mg/L in the basin and range from 400 to 420 mg/L.

Impairments. There is no evidence of seawater intrusion (DWR 1975). Manganese concentrations increased downstream in the San Simeon Groundwater Basin, exceeding the MCL, ranging from 0.002 to 1.60 mg/L, with a median of 0.190 mg/L (Yates and Van Konyenburg 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	3	0
Radiological	3	0
Nitrates	3	0
Pesticides	3	0
VOCs and SOCs	3	0
Inorganics – Secondary	3	0

[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 170	Average: 100 (DWR 1958)
	Total depths (ft)	
Domestic		
Municipal/Irrigation	Range: to 80 ft	Average: 50 (DWR 1958)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
	Groundwater levels	NKD
	Miscellaneous water quality	NKD
Department of Health Services and cooperators	Title 22 water quality	4

NKD: No Known Data

Basin Management

Groundwater management:

Water agencies

Public	Cambria CSD, San Luis Obispo County Department of Public Works
Private	

References Cited

California Department of Water Resources (DWR). 1958. *San Luis Obispo County Investigation*. Bulletin 18. 288 p.

_____. 1975. *Sea-Water Intrusion in California: Inventory of Coastal Ground Water Basins.* Bulletin 63-5.

Yates, E. B., and K. M. Van Konyenburg. 1998. *Hydrogeology, Water Quality, Water Budgets, and Simulated Responses to Hydrologic Changes in Santa Rosa and San Simeon Creek Ground-Water Basins, San Luis Obispo County, California.* U.S. Geological Survey Water-Resources Investigations Report 98-4061.

Errata

Changes made to the basin description will be noted here.

Santa Rosa Valley Groundwater Basin

- Groundwater Basin Number: 3-36
- County: San Luis Obispo
- Surface Area: 4,480 acres (7.0 square miles)

Basin Boundaries and Hydrology

The Santa Rosa Valley Groundwater Basin underlies Santa Rosa Valley and is bounded on the west by the Pacific Ocean and on all other sides by impermeable rocks of the Jurassic to Cretaceous age Franciscan Group. The valley is drained by Green Valley, Perry, and Santa Rosa Creeks. Average annual rainfall increases from about 20 inches at the coast to about 26 inches at the eastern end of the valley floor to more than 40 inches at the creek headwaters (Yates and Van Konyenburg 1998).

Hydrogeologic Information

Water Bearing Formations

Groundwater is found in alluvial deposits with an average specific yield of 17 percent (DWR 1975). Groundwater is unconfined and generally flows westward.

Holocene Deposits. Alluvial deposits consist of unconsolidated sand, clay, silt, and gravel of primarily fluvial origin. Commonly, the deposits are about 100 feet thick beneath the center of the valley and more than 120 feet thick at the coast (Yates and Van Konyenburg 1998).

Recharge Areas

Recharge to the basin is largely by percolation of stream flow and, to a lesser extent, from infiltration of precipitation and excess irrigation flow (DWR 1958).

Groundwater Level Trends

In 1988, the rate of water-level decline slowed or even reversed slightly at most wells during November and early December following declines of 1 to 7 feet/month from February through August (Yates and Van Konyenburg 1998). This variation likely indicates seasonal fluctuation in groundwater level.

Groundwater Storage

Groundwater Storage Capacity. The total groundwater storage capacity has been estimated at 24,700 af (DWR 1975) and 170,000 af (Camrosa Water District 2001).

Groundwater in Storage. Unknown.

Groundwater Budget (Type A)

A groundwater budget for the Santa Rosa Groundwater Basin was simulated using a groundwater flow model for April 1988 through March 1989 (Yates and Van Konyenburg 1998). Recharge to the basin from rainfall totaled 140 af/yr. Recharge from creek flow was estimated at 470 af/yr. Subsurface inflow was 370 af/yr and subsurface outflow to the ocean was 60 af/yr.

Recharge to the basin from irrigation-return flow was 330 af/yr. Agricultural pumpage was estimated at 890 af/yr. Municipal and rural pumpage totaled 260 af/yr. Phreatophyte transpiration was estimated at 160 af/yr. Groundwater pumping during 1998 to 1999 totaled 5,900 af (Cambria Water District 2001).

Groundwater Quality

Characterization. Analysis of water from 1 public supply well has a TDS content of 680 mg/L.

Impairments. There is evidence that points to the possibility of seawater intrusion (DWR 1975). Chloride content increased more than ten times, from 80 mg/L in 1955 to 933 mg/L in 1975 (DWR 1975). Background chloride concentrations typically ranged from 30 to 270 mg/L (Yates and Van Konyenburg 1998). One well had a chloride concentration of 1,925 mg/L in November 1961 (Yates and Van Konyenburg 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	1	0
Radiological	1	0
Nitrates	1	0
Pesticides	1	0
VOCs and SOCs	1	0
Inorganics – Secondary	1	1

[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 708	Average: 400 (DWR 1958)
	Total depths (ft)	
Domestic		
Municipal/Irrigation	Range: to 130	Average: 80 ft (DWR 1958)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
	Groundwater levels	NKD
	Miscellaneous water quality	NKD
Department of Health Services and cooperators	Title 22 water quality	2

NKD: No Known Data

Basin Management

Groundwater management:

Water agencies

Public	Cambria CSD, Camrosa WD
Private	Santa Rosa MWC

References Cited

California Department of Water Resources (DWR). 1958. *San Luis Obispo County Investigation*. Bulletin 18. 288 p.

_____. 1975. *Sea-Water Intrusion in California: Inventory of Coastal Ground Water Basins.* Bulletin 63-5.

Camrosa Water District. 2000. *Draft: 2000 Urban Water Management Plan.* http://www.camrosa.com/Public%20Information/UWMP2000Draft.pdf (October 2001).

Yates, E. B., and K. M. Van Konyenburg. 1998. *Hydrogeology, Water Quality, Water Budgets, and Simulated Responses to Hydrologic Changes in Santa Rosa and San Simeon Creek ground-water basins, San Luis Obispo County, California.* U.S. Geological Survey Water-Resources Investigations Report 98-4061.

Additional References

California Department of Water Resources (DWR). 1958. *San Luis Obispo County Investigation*. Bulletin 18, 288 p.

_____, Central District. 1987. *Santa Rosa Plain Ground Water Model.* 318 p.

Cardwell, G. T. 1958. *Geology and Ground Water in the Santa Rosa and Petaluma Valley areas, Sonoma County, California.* U. S. Geological Survey Water-Supply Paper 1427.

Leonard, A.R., and G. T. Cardwell. 1955. *Statement on Ground-Water Conditions in Santa Rosa, Petaluma, and Sonoma Valleys, Sonoma County, California.* U. S. Geological Survey.

U.S. Bureau of Reclamation. 1990. *Long-Term Wastewater System Draft Environmental Impact Report, Statement : Santa Rosa Subregional Water Reclamation System.*

_____. 1992. *Santa Rosa Subregional Water Reclamation System: Long-Term Wastewater System Final Environmental Impact Statement.*

Errata

Changes made to the basin description will be noted here.