

Wilson Grove Formation Highlands Groundwater Basin

- Groundwater Basin Number: 1-59
- County: Sonoma/Marin
- Surface Area: 86,400 acres (135 square miles)

Basin Boundaries and Hydrology

Wilson Grove Formation Highlands Groundwater Basin is an irregularly shaped basin in northern Marin and southern Sonoma Counties. The basin is bounded by Chileno Valley on the south, Bodega Bay on the west, and the Tolay Fault on the east. The contact between the Franciscan and Wilson Grove Formation defines the Basin boundary on the north. The Bloomfield Fault bisects the Basin from north to south (Jennings 1963). This groundwater basin was formerly known as the Sebastopol Merced Formation Highlands, basin number 2-25 (DWR 1975 and 1980). Several streams drain the basin and join to form Estero Americano Creek which runs from east to west through the basin. Most of the smaller tributaries flow south and west to join the creek before it enters Bodega Bay. The cities of Sebastopol and Forestville are located in the north of the basin and the city of Petaluma is located in the south. Average precipitation within the basin is estimated to be greater than 44 inches in the northwest to less than 28 inches in the southeast.

Hydrogeologic Information

Information was not available for the following subsections:

Groundwater Storage ***Groundwater Budget (Type C)***

Water-Bearing Formations

Due to the lack of published data, the description of the Wilson Grove Formation Highlands Groundwater Basin hydrogeology is limited. The primary water-bearing formations are Wilson Grove, Pliocene marine deposits, and recent valley sediments. There are limited data regarding the occurrence and movement of groundwater in the basin (DWR 1975).

Recent Alluvium. Alluvium is dispersed throughout the Wilson Grove Formation Highlands Groundwater Basin. The deposits consist of poorly sorted coarse sand and gravel, and moderately sorted fine sand, silt and clay (DWR 1975).

Pleistocene Marine Terrace Deposits. Marine terrace deposits can be found throughout the basin. The deposits consist of fossiliferous marine sandstone, siltstone and silty clay with interbedded gravels and basal tuff beds. The terrace deposits were formed as alluvial fan or stream channel deposits and have been left isolated as the grade level in streams dropped (DWR 1975).

Pliocene Wilson Grove Formation. The Wilson Grove Formation is the major water-bearing unit in the basin. The formation is of late Pliocene age and was deposited in a subsiding embayment that was open to the ocean.

The sediments were deposited on a surface of high relief carved into the underlying Franciscan sediments. The Wilson Grove Formation consists of unconsolidated, fine-grained, massive sand and minor amounts of gravel and tuff deposited under beach and shallow-marine conditions (Fox 1983).

Groundwater Quality

Characterization. Water quality information for the Wilson Grove Formation Highlands Groundwater Basin is limited. Historical data from 30 samples in the basin indicate total dissolved solids range from 120 to 680 mg/l, averaging 253 mg/l.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 3 – 850	Average: 79 (based on 127 well completion reports [WCRs])
	Total depths (ft)	
Domestic	Range: 17 – 799	Average: 224 (based on 3,277 WCRs)
Municipal/Irrigation	Range: 25 – 1,300	Average: 323 (based on 172 WCRs)

Active Monitoring Data

Agency	Parameter	Number of wells / measurement frequency
DWR	Groundwater levels	11 wells/semiannually
Sonoma County (including cooperators)	Groundwater levels	14 wells/semiannually
DWR	Miscellaneous water quality	2 wells/biennially
Department of Health Services and cooperators	Title 22 water quality	30 wells/annually

Basin Management

Groundwater management:	No known water management agency
Water agencies	
Public	North Marin Water District, City of Sebastopol Water and Sewer Utility, Sonoma County Water Agency
Private	unknown

References Cited

- California Department of Water Resources (DWR). 1980. Bulletin No. 118-80, Ground Water Basins in California.
- California Department of Water Resources (DWR). 1975. Evaluation of Ground Water

Resources in Sonoma County Volume 1: Santa Rosa Plain. DWR Bulletin 118-4.

Fox KF Jr. 1983. Tectonic setting of late Miocene, Pliocene, and Pleistocene, rocks in part of the Coast Ranges, North of San Francisco, California: USGS Professional Paper, 1239.

Errata

Changes made to the basin description will be noted here.