

Mad River Groundwater Basin, Dows Prairie Subbasin

- Groundwater Basin Number: 1-8.02
- County: Humbolt
- Surface Area: 14,000 acres (square miles)

Basin Boundaries and Hydrology

The Dows Prairie Subbasin is located on the coast north of the Mad River Lowland Subbasin and is bounded by Little River to the north and Mad River to the south. The subbasin is bounded to the east by the Franciscan Formation (Strand 1962). The region is an elevated terrace drained by Mill Creek, Strawberry Creek, and White Creek. Development of groundwater is primarily in the western portion of the subbasin. The Hookton Formation is the main geologic unit in the area. The Franciscan Formation underlies the Hookton Formation and is essentially nonwater-bearing.

Annual precipitation in the basin ranges from 39- to 53-inches, increasing to the northeast.

Hydrogeologic Information

The following information is taken from DWR (1965) unless noted otherwise.

Water-Bearing Formations

The Quaternary Hookton Formation is the water-bearing formation in the subbasin.

Pleistocene Hookton Formation. The Hookton Formation consists of clay, sand, and thin gravel beds. Near McKinleyville, the formation is at least 150 feet thick and may be over 200 feet thick in other areas. The formation has moderately low permeability and supplies unconfined groundwater to many domestic wells. Sanding is a problem in most wells. Little information is available regarding groundwater in the eastern portion of the subbasin.

Recharge Areas

Recharge occurs by rainfall infiltration.

Groundwater Level Trends

Seasonal fluctuations of groundwater levels in the subbasin range from 9 to 11-feet.

Groundwater Storage

Groundwater Storage Capacity.

The usable storage capacity for the western portion of the basin is estimated to be 10,500 acre-feet. This estimate is based on a saturated depth interval of 10 to 150-feet, a surface area of 6,500 acres, and a specific yield of 11 to 12-percent.

Groundwater Budget (Type B)

Estimates of groundwater extraction are based on a survey conducted by the California Department of Water Resources in 1996. The survey included land use and sources of water. Estimates of groundwater extraction for agricultural and municipal/industrial uses are 2,100 and 80 acre-feet respectively. Deep percolation from applied water is estimated to be 500 acre-feet.

Groundwater Quality

Characterization. The major water types in the basin is calcium-magnesium bicarbonate and magnesium-sodium bicarbonate waters. Total dissolved solids range from 55- to 145-mg/L (DWR unpublished data).

Water Quality in Public Supply Wells

Constituent Group¹	Number of wells sampled²	Number of wells with a concentration above an MCL³
Inorganics – Primary	2	0
Radiological	2	0
Nitrates	3	0
Pesticides	1	0
VOCs and SVOCs	1	0
Inorganics – Secondary	2	2

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)	
Irrigation	NKD	
	Total depths (ft)	
Domestic	Range: 19 - 455	Average: 78 (289 Well Completion Reports)
Municipal/Irrigation	Range: 36 - 300	Average: 104 (6 Well Completion Reports)

NKD – No known data.

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR	Groundwater levels	
DWR	Miscellaneous water quality	3 wells biennially
Department of Health Services and cooperators	Miscellaneous water quality	

Basin Management

Groundwater management:	No known groundwater management plans, groundwater ordinances, or basin adjudications.
Water agencies	
Public	Fieldbrook CSD, McKinleyville CSD, Humboldt Bay MWD, Manila CSD
Private	

Selected References

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Errata

Changes made to the basin description will be noted here.