# Eagle Lake Area Groundwater Basin

- Groundwater Basin Number: 6-96
- County: Lassen
- Surface Area:

## Basin Boundaries and Hydrology

The Eagle Lake Area Groundwater Basin consists of a narrow strip of Quaternary lake deposits that encircle much of Eagle Lake and that overlie Holocene basalt. Groundwater development in the basin is primarily along the west and northwest shore of the lake where sufficient flat shoreline area occurs. The basin is bounded to the north and east by Pliocene volcanic rocks of Bald Hills and Fredonyer Peak. The basin is bounded to the west by Recent volcanic basalt of Upper Brockman Flat and bounded to the south and southeast by Pleistocene basalt and Recent basalt of Little Merrill Flat and Black Mountain (Grose 1992). Pine Creek, which flows into the basin from the west, is the largest tributary to the enclosed basin.

Annual precipitation in the basin ranges from 21- to 25-inches.

## Hydrogeologic Information

### *Water-Bearing Formations*

The principal water-bearing units are the Quaternary lake deposits and the underlying basalt flows. Most of the groundwater is produced from the volcanic rocks.

**Quaternary Lake Deposits**. These deposits consist of thin-bedded clay, silt, and sand material deposited by sedimentation in Eagle Lake (Grose 1992). On the west shore of the lake, where most of the groundwater development has occurred, these deposits range in thickness from 20- to 35-feet (Ruefer 1989). Few wells are constructed to produce water from these fine deposits.

**Holocene Basalt**. The basalt unit consists of a series of highly jointed, vesicular basalt flows that came up along fissures in the older basalt flows in the area. Individual flows range from 40- to 500-feet in thickness, generally thinning towards the edges. The surface expression of these rocks has been described as clinkery, which distinguishes them from older basalt units in the area. The tops and bottoms of individual flows are characterized as having 4 to 5 foot zones of closely spaced colonnades of columnar joints. Lava tubes have been noted in well completion reports

### *Recharge Areas*

Recharge to the developed groundwater area is percolation of runoff in the uplands to the west into the highly permeable young volcanics. The groundwater gradient is in general east to northeast towards Eagle Lake.

### *Groundwater Level Trends*

Hydrogeologic information for groundwater level trends is not available.

### *Groundwater Budget (Type B)*

The estimate of groundwater extraction for the Eagle Lake Area Basin is based on a 1997 survey conducted by the California Department of Water Resources. The survey included land use and sources of water. Groundwater extraction for agricultural use is estimated to be 830 acre-feet. Groundwater extraction for municipal and industrial uses is estimated to be 7 acre-feet. Deep percolation of applied water is estimated to be 65 acre-feet.

### *Groundwater Quality*

Groundwater in the basin is bicarbonate in character and low in dissolved solids (DWR 1992). DWR (1990) notes that numerous wells have exhibited water quality degradation possibly due to poor construction and proximity to septic system leachfields or shallow groundwater.

## 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 | 4 | 0 |
| Radiological | 0 | 0 |
| Nitrates | 4 | 0 |
| Pesticides | 2 | 0 |
| VOCs and SVOCs | 2 | 0 |
| Inorganics – Secondary | 4 | 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 Characteristics

| | Well yields (gal/min) | |
|---|---|---|
| Municipal/Irrigation | NKD | |
| | **Total depths (ft)** | |
| Domestic | Range: 18 – 450 | Average: 76 (470 Well Completion Reports) |
| Municipal/Irrigation | | |

NKD: No known data.

## Active Monitoring Data

| Agency | Parameter | Number of wells /measurement frequency |
|---|---|---|
| | Groundwater levels | 0 |
| DWR | Miscellaneous water quality | 4 wells bi-yearly |
| Department of Health Services | Miscellaneous water quality | 4 |

## Basin Management

| | |
|---|---|
| Groundwater management: | No known groundwater management plans, groundwater ordinances, or basin adjudications. |
| Water agencies | |
| Public | None |
| Private | None |

## Selected References

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## Errata

Changes made to the basin description will be noted here.