

WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR



GROUND-WATER RESOURCES OF HONEY LAKE VALLEY, NEVADA AND CALIFORNIA

BACKGROUND

Honey Lake Valley is a 2,400-square-mile drainage basin that straddles the Washoe County, Nev.-Lassen County, Calif., State line north of Reno. Streams fed by precipitation flow toward the center of the basin. Some of the streamflow infiltrates the land surface to become ground water and, in all but the driest years, some accumulates on the valley floor to form Honey Lake. Most water in the basin evaporates or is used by plants before it reaches the ground-water aquifers or the lake. (Aquifers are water-bearing rocks or sediments that can yield usable quantities of water to wells or springs.)

Principal aquifers that underlie Honey Lake Valley are layered sedimentary deposits (sand, gravel, silt, and clay) and fractured volcanic rocks. Most of the water withdrawn by wells is used to irrigate crops in the basin. Some water is withdrawn for municipal and industrial use, primarily in the Susanville, Calif., area. Some water is withdrawn for domestic use elsewhere in the basin and for military purposes at the Sierra Army Depot at Herlong, Calif.

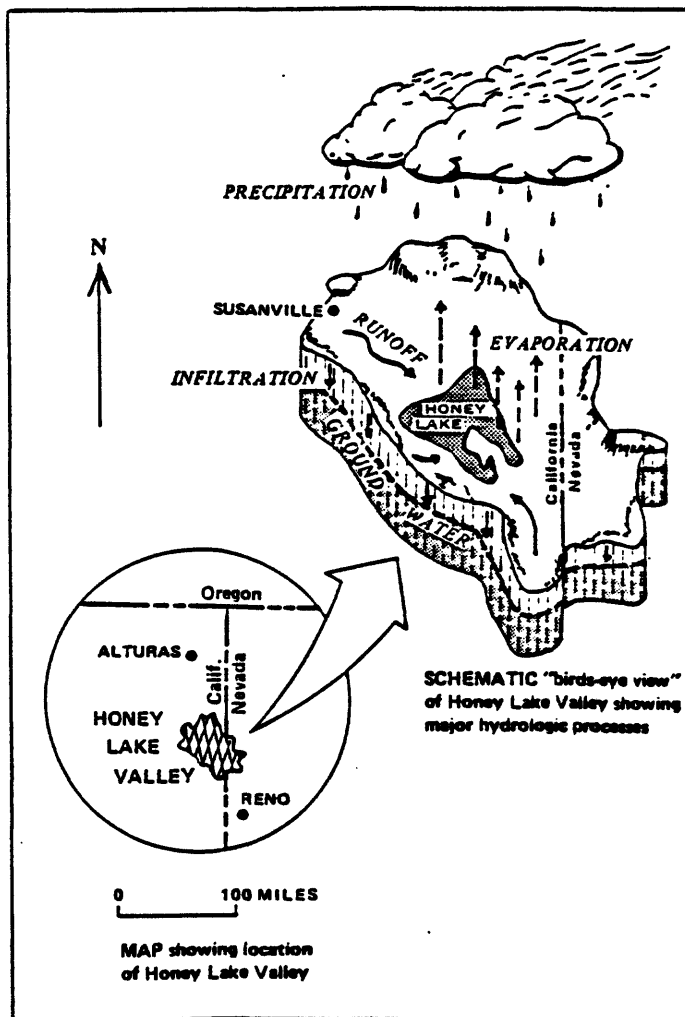
THE PROBLEM

The Reno-Sparks area in western Nevada is one of the fastest-growing population centers in the United States. Nearly all economically available surface and ground water in the vicinity already has been allocated, and more distant basins are being sought to supply the water needed for continued growth. The Nevada part of the Honey Lake aquifer is being considered as a possible source of water for Reno and Sparks, and for the unincorporated areas of southern Washoe County. Therefore, a careful assessment of the availability of long-term water supply from the entire Honey Lake basin and a better understanding of the resource is needed.

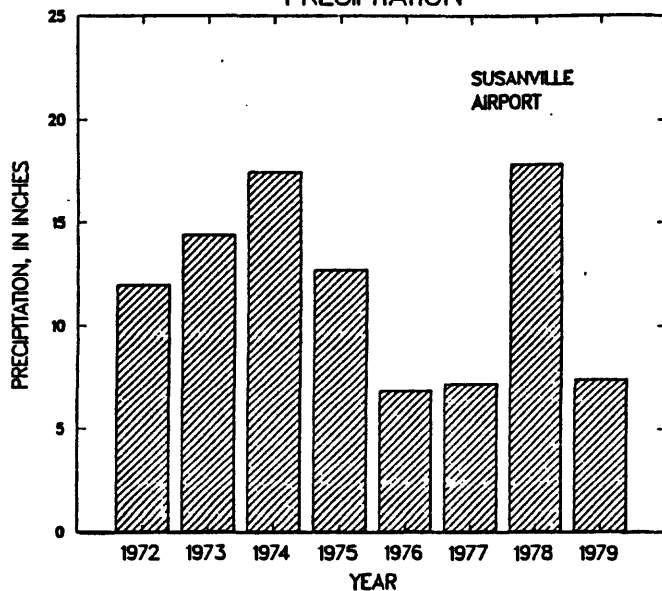
Several major questions to be considered include: How much ground water is available in the aquifers that underlie Honey Lake Valley? How is it consumed? How is it replenished? What are the physical limitations of ground-water availability? What are the potential effects of the transfer of ground water from one basin to another? What are the potential effects of new development on the aquifers? These questions cannot be answered without an accurate, detailed evaluation of the water budget and flow system of the basin.

THE HONEY LAKE VALLEY STUDY

The U.S. Geological Survey (USGS), in cooperation with the Nevada Division of Water Resources and the California Department of Water Resources, has begun an investigation of the water resources of Honey Lake Valley. The 3-year study, which began in April 1987, is divided into three overlapping phases: (1) background evaluation and data collection, (2) field studies and data analysis, and (3) interpretation and report preparation.



PRECIPITATION



Scientists of the USGS are making periodic measurements of precipitation, streamflow, and water levels in wells to learn about how water is stored in and moves through the aquifers in Honey Lake Valley. Measurements of precipitation indicate how much water comes into the area. Some water evaporates and some is used by plants. The rest accumulates on and flows over the land as surface water (lakes and streams) or infiltrates the land surface to become ground water. In Honey Lake Valley, much of the streamflow infiltrates before it reaches the valley floor. Measurements of streamflow indicate how much water is available for replenishing the aquifers in different seasons, years, and locations and how fast it seeps into the ground. Measurements of water levels in wells provide a record of changes in the amount of water stored underground and an indication of the effects of withdrawals.

Test-well drilling and geophysical surveys (gravity, electromagnetic, and seismic) provide information about types of aquifer materials and their extent. Geologic features are analyzed because they control rates and directions of ground-water flow. Soils maps are used to help determine rates of infiltration at land surface. Vegetation is mapped in the field and by interpretation of remote-sensing (satellite) data to provide estimates of the quantities of water consumed by crops and native plants.

A computer model will be used to determine and quantify components of the ground-water flow system for Honey Lake Valley. The model is a mathematical representation of the natural flow system. Results obtained from the model will be compared with field observations, measurements, and estimates to test and improve our understanding of the hydrologic system, to guide further data collection, and to make preliminary estimates of the possible effects of future development and water-management alternatives.

Information from the study will be useful to state and county water managers and planners, water users, public officials, and the general public for planning future development. The study will describe the components of ground-water flow and the characteristics of aquifers in Honey Lake Valley and the direction and magnitude of ground-water flow at the Nevada-California border.

For information about water planning and management, contact:

Nevada Division of Water Resources
Capitol Complex, 201 S. Fall Street
Carson City, NV 89710

California Department of Water Resources
Northern District
P.O. Box 607
2440 Main Street
Red Bluff, CA 96080

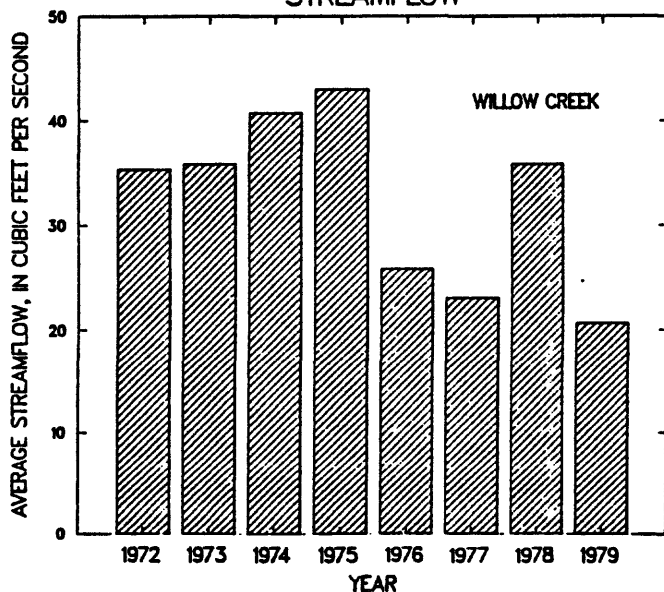
For more information about the Honey Lake Valley study, contact:

District Chief
U.S. Geological Survey
705 N. Plaza Street, Rm. 224
Carson City, NV 89701

E. H. Handman
Carson City, Nevada
1988

Open-File Report 88-306

STREAMFLOW



DEPTH TO GROUND WATER

