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Regional Water-Resources Studies in Nevada

Water-resources information for the State of Nevada should be readily accessible to community planners and the general public in a user-friendly web environment and should be actively managed and maintained with accurate historic and current hydrologic data. The USGS, in cooperation with State of Nevada and local government agencies, has established a data framework that provides critical hydrologic information to meet the challenges of water resources planning for Nevada.

Gaging station on the Little Walker River.

Cooperative Reconnaissance Activities

In 1960, the Nevada legislature authorized the Nevada Department of Conservation and Natural Resources, Nevada Division of Water Resources (NDWR), to begin a series of cooperative reconnaissance water-resources studies with the U.S. Geological Survey (USGS). These studies produced reconnaissance appraisals of the water-resource potential of almost all the hydrographic areas in Nevada (fig. 1).

Results of these studies were published in a series of 60 individual peer-reviewed USGS reports between 1963 and 1975. In addition, a separate reconnaisance study of the Humboldt Basin was published. These reports provided valuable preliminary estimates of water availability, including recharge estimates. USGS has continued to work cooperatively with NDWR to update these reconnaissance studies throughout the State (fig. 1).

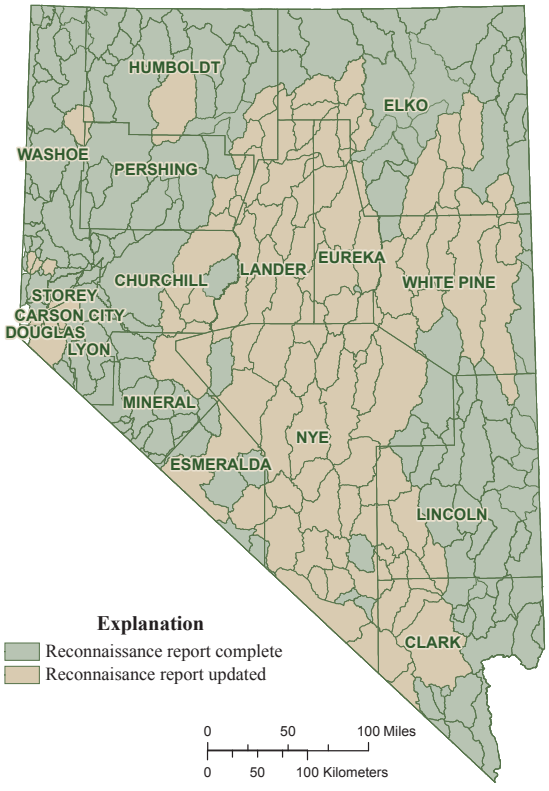

Figure 1. Hydrographic areas in Nevada where reports were completed during the reconnaissance investigations or updated after the reconnaissance investigations.

Data Collection and Dissemination

The need for accurate streamflow, ground-water, water-quality and other water-resources data continues to increase as a result of growth in Nevada's population and economy, and associated changes in water demands and land uses. USGS programs have an established record of providing reliable, unbiased, consistent, and easily accessible information concerning Nevada's water resources. This data is essential to decision makers in both the public and private sectors for a wide variety of planning, design, and management functions. USGS data reliability is built upon extensive quality assurance and control through an internally consistent protocol and training following National standards.

In 1889, the USGS established its first gaging station in Nevada and began providing data to the public about Nevada's water resources. Today, this systematic collection and dissemination of hydrologic data for more than 20,000 sites is available online through a web-based system (NWISweb) available at <http://waterdata.usgs.gov/nwis>. Information includes real-time surface-water data, ground-water and water-quality data along with information about the collection sites. This effort is made possible with the cooperation of State, Federal, Tribal and local government agencies.

Current Studies

The following are some examples of on-going efforts by the USGS to provide regional information and assessment of hydrologic conditions.

Central Nevada Regional Water Authority

The Central Nevada Regional Water Authority (CNRWA) has identified three priority water-resources needs for communities in the central region of Nevada: 1) compilation and analysis of hydrologic data, 2) water-resources planning, and 3) information management and dissemination. To satisfy these needs, a robust information management system of accessible, current, and continuously maintained information is being developed. This cooperative project between USGS, CNRWA, and NDWR provides hydrologic data, demographic information, and supporting documentation to assist county and regional water-resources planners and serve as a model for all Nevada counties.

Discharge measurement on the Walker River.

Diamond Valley Regional Flow System

The Diamond Valley regional flow system study focuses on describing the occurrence and movement of ground water and historical water-level changes in the basin-fill aquifers that underlie the five valleys in northeast Nevada that make up the flow system. The project, in cooperation with Eureka, Lander, and Nye Counties and NDWR, will benefit local and other water-resources agencies by providing information necessary for sound resources development and management decisions.

Evapotranspiration station in Diamond Valley.

Basin and Range Carbonate-Rock Aquifer System Study

The Basin and Range Carbonate-Rock Aquifer System Study in White Pine County and adjacent areas in Nevada will improve current understanding of processes controlling regional ground-water flow and initiate long-term studies of potential impacts of future ground-water pumping. Results of this study will provide needed information on the aquifer system in White Pine County to help water-resource agencies and interested stakeholders make informed decisions about future water-supply issues.

Ground-water-quality sampling in eastern Nevada.

Ground-Water Modeling

In southern Nevada, Federal and county agencies are working with the USGS to develop an adaptive-management tool to better assess potential impacts to natural resources from population growth and associated increases in water use. The USGS is modifying the recently (2004) calibrated numerical model of the Death Valley regional ground-water flow system (DVRFS) to evaluate potential pumping-induced changes to water levels and spring discharge near Ash Meadows National Wildlife Refuge and Devils Hole. The DVRFS model will be modified to include a finer-resolution ground-water flow model and, working together, the models will have the capability to simulate small-scale changes near these areas of concern, but incorporate regional stresses from ground-water pumping or changes in atmospheric conditions. Cooperators for this effort include Nye County, National Park Service, Bureau of Land Management, and U.S. Fish and Wildlife Service.

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For more information about these studies or other USGS water-resources studies in Nevada, please contact:

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