Fact Sheet

Water Supply

Identifying and understanding the available water supply is essential to water planning. For the Southwest New Mexico water planning region (Catron, Grant, Hidalgo, and Luna Counties), existing sources of information about surface water and groundwater supplies were used to characterize the regional water supply. The sources of information used to assess water supply included documents by federal, state, and local agencies, academic research, and privately funded works.

Surface Water

The majority of surface water in the planning region is found within the Gila River Basin, San Francisco River Basin, and the upper Mimbres River Basin. These three rivers and a few of their larger tributaries are the only perennial (year-round) streams in the planning region (Figure 1).

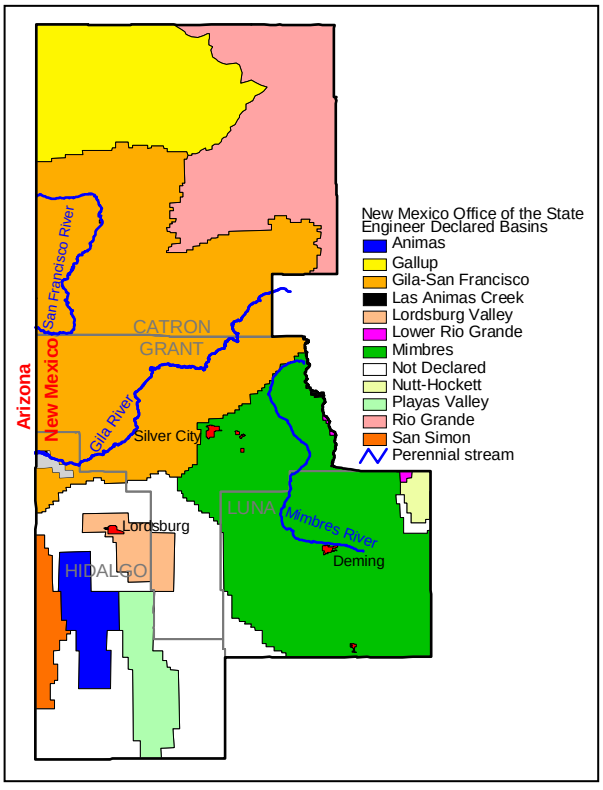

Figure 1. Major Rivers and Groundwater Basins

Surface water flows originate primarily in the higher elevations, as snowmelt during the spring and as monsoonal rainfall during the late summer. Flows are highly varied from year to year, and the streams are typically characterized by prolonged durations of low flows punctuated by short-duration, high-volume flows. Figure 2 shows annual flows observed at the Gila River near Gila, New Mexico, the San Francisco River near Reserve, and the Mimbres River at Mimbres U.S. Geological Survey gaging stations (USGS, 2002).

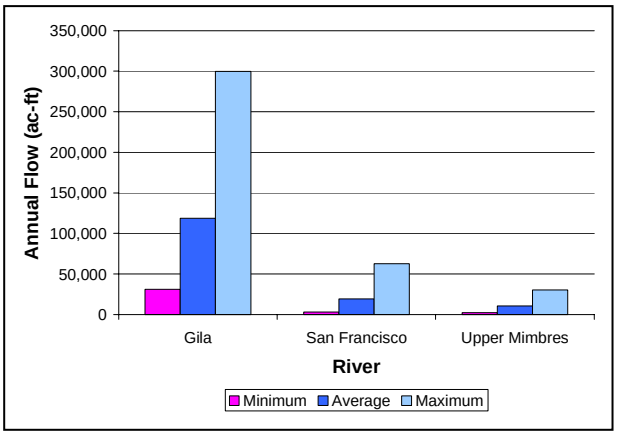

Figure 2. Typical Surface Water Flows, 1950-2002

Water in the three river basins in the planning region is used primarily for irrigation and mining. Major cities within the planning region do not rely on the rivers for domestic supply purposes.

Groundwater

The Southwest New Mexico planning region contains 10 separate groundwater basins declared by the New Mexico Office of the State Engineer (OSE), as well as several other areas that have not been declared (Figure 1). Nearly all of the groundwater resources within the planning region are contained within the declared basins. Groundwater availability is controlled to a large extent by the nature of the geology present, which in the planning region falls into three distinct geologic regions or "provinces."

Hidalgo, Luna, and southern Grant Counties are within the Mexican Highland section of the Basin and Range province, where the predominant aquifers are comprised of basin (or bolson) fill and the Gila Conglomerate. These aquifers are good sources of water, with water tables typically within 200 feet of ground surface and high permeabilities (which allow higher pumping rates). In addition, these aquifers are constantly recharged along the surrounding mountain fronts.

The northwestern corner of Catron County lies within the Navajo Section of the Colorado Plateau Province, where groundwater occurs primarily within Mesozoic sedimentary formations. The most extensive regional aquifer in this province is the Dakota Sandstone. Other sedimentary formations and alluvium provide small amounts of water for stock tanks and private domestic wells.

The remainder of Catron County and northern Grant County lie within the Datil-Mogollon section of the Transition Zone Province. This area is characterized by localized uplifts from Tertiary igneous intrusions and volcanics that are separated by intermontane basins. Groundwater occurs within alluvial fill material in the intermontane basins and within fractured zones of the tertiary volcanics. Productive aquifers in this part of the planning region are located in the San Agustin Basin and the Baca Formation.

As pumping from these groundwater sources increases, outpacing natural recharge, water tables throughout the planning region are dropping. Areas within the region where groundwater infrastructure is unlikely to meet future demand include the municipal well fields of Santa Clara, Bayard, Silver City, and Columbus-Deming, and agricultural wells in the Animas, Playas Valley, and Lordsburg Basins. As an example, a recent OSE study estimates that by 2020 agricultural use in the Animas Basin will have decreased water levels by 100 feet below pre-development levels (Johnson, 2002). Additional wells and deepening of existing wells can in most cases preserve production levels, but long-term planning should focus on reducing depletion rates in order to preserve water availability for the future.

Water Quality

Both surface and groundwater quality is generally very good throughout the planning region. It is well suited for agriculture use and for private domestic wells and is easily treated for public water supply systems. There are, however, a number of existing water quality concerns.

Surface water resources in the planning region include 67.3 river miles that have been identified by the New Mexico Environment Department as being impacted (NMWQCC, 2002). The water quality in most lakes and reservoirs in the planning region is good, but Bear Canyon Reservoir in Grant County has been impacted by excessive nutrients derived from agricultural lands.

Groundwater quality in the planning region is impacted in localized areas by leaking gasoline storage tanks, elevated sulfates and total dissolved solids from mining operations, nitrates from septic tanks, and chlorinated solvents from industrial operations in Deming.

Although the vast majority of surface and groundwater resources are not impacted, watershed protection planning would help ensure that these resources remain healthy and should be a priority in developing a regional water plan.

References

Johnson, M.S., L.M. Logan, and D.H. Rappuhn. 2002. *Analysis of effects of ground-water development to meet projected demands in regional planning district 4, Southwest New Mexico.* Draft Hydrology Report 02-X, New Mexico Office of the State Engineer Hydrology Bureau. March 2002.

New Mexico Water Quality Control Commission (NMWQCC). 2002. *Water quality and water pollution control in New Mexico.* NMED/SWQ-02/1.

U.S. Geological Survey. 2003. *Surface-water data for New Mexico.* <http://waterdata.usgs.gov/nm/nwis/sw>.