

WATER IN NEW MEXICO SAN JUAN BASIN

BRIEF HISTORY & REVIEW OF WATER RESOURCES

SAN JUAN WATER COMMISSION

For more than a thousand years San Juan Basin inhabitants, from Chaco to the Four Corners, have regulated their water supply. Their ancient irrigation canals remind us that prehistoric residents cooperated in managing scarce water resources. Dams and man-made canals channeled water for irrigation and domestic purposes. Coronado, with 350 Spaniards and 800 Indians in 1541, named the three rivers and probably observed ditches whose remnants were evident in the San Juan Basin until the 1960's.

These early inhabitants depended on agriculture to support their existence. The 16th century Spanish brought their technological advances in ditch irrigation and a European legal system of water control, some believe was borrowed from ancient Roman law. When New Mexico became a United States Territory in 1848, a conflicting system based on diverse rules of land ownership and water rights existed. Contemporary with the territorial status was the entry of mining, another water supply competitor. Joining the Indians, Spanish, and Americans were the German miners. Each mining camp designed its own water laws based loosely on civil laws originating from the Germanic Middle Ages. Resulting from these conflicts was New Mexico water rights law, rules setting the standard for Southwestern water right law.

Understanding the complexity of water law starts by recognizing water's nature. Water is a dynamic resource, in constant motion, traveling in the hydrologic cycle. The San Juan Basin receives less precipitation than New Mexico, the third most arid state, on average, 9 inches vs. 13 inches annually. Precipitation, plus river flow from Colorado (San Juan River/Tributaries) represent the available supply. However, New Mexico, under existing interstate compacts is allowed only a portion of the surface water flowing through the San Juan Valley.

New Mexico, as the beneficiary of prehistoric custom, classic civil law and modern technology, today has a set of strong, workable water laws, enabling the best use of this scarce resource in an arid environment.

By 1851, the New Mexico Territorial Legislature began establishing water laws using the Indian-Spanish concept of public water control and community ditch ownership. From this beginning, the 1907 Territorial Legislature adopted comprehensive surface water law reflecting the diverse citizenry. The basic concept of that law, prior appropriation, has been administered by the "Territory" and New Mexico State Engineer. Prior appropriation means simply the first person to take the water and put it to beneficial use is entitled to that water use, first in time, first in right. Including the 63% of New Mexico's surface water flowing through the Basin, fully 2/3 of this annual flow (supply) occurs during late spring/early summer runoff. While this represents an ample supply, the timing is inadequate for communities, agriculture and related demands of humanity. During the winter months of December, January and February only 3% of annual flows occur. Demands can easily exceed the available supply.

New Mexico was apportioned an 11.25% share of the annual yield from the Upper Colorado Basin share of the Colorado River supply, approximately 670,000 acre-feet of depletions. Renewable water supply access depends on storage capacity. This stored spring/early summer runoff is used during the high demand of late summer and low flow of winter. This "conserved" water-storage assures wet supplies throughout the year for New Mexico use, including municipal, industrial and agriculture. In addition, water storage provides flood control, recreational sports (including fishing) and hydroelectric power.

New Mexico currently uses approximately 400,000 acre-feet of Colorado River water, including 110,000 acre feet transferred to the Rio Grande Valley via the San Juan-Chama. The other large user is the Navajo Indian Irrigation Project. Native American agriculture continues to be the largest water consumer in the Basin. If New Mexicans are to fully use their water, storage development will need to continue, otherwise downstream, out of state users will continue to enjoy New Mexico 's resource.

In 1902, the United States Bureau of Reclamation (USBR) was created as an agency of the federal government. Over the past 90 years, the USBR has coordinated the planning, construction, and accomplishment of many water conservation projects in the Western United States. Irrigation projects throughout the West are a result of the USBR; contributing vast food and fiber, and western water supply, improving our nation 's economy. User repayment contracts and hydroelectric power revenues are combined to fully fund these projects.

NEW MEXICO WATER FACTS

Over 60% of New Mexico surface waters are San Juan River flows. The Colorado River Compact (1922) divided the water between the upper and lower Colorado River Basin states. Later, the upper Colorado Basin states divided the upper basin share, New Mexico received 11.25% of the annual upper basin water.

Today, approximately 400,000 acre-feet are beneficially applied in New Mexico out of the San Juan Basin, from an estimated total of 670,000 acre feet available. The 110,000 acre-feet transbasin Rio Grande diversion via the San Juan/Chama Tunnel system and the New Mexico portion of the Animas La-Plata Water Development Project, are included.

Stable water supplies for all seasons (63% of this water flow during the spring and early summer, 3 to 5% during late summer) and conditions require adequate water storage in Colorado River Basin reservoirs.

NEW MEXICO WATER TABLE

AND

WATER TERMS

One "acre foot" of water equals ...

- * an acre of land covered with one foot of water
- * 325,900 gallons of water
- * enough water to supply a family of 5 for one year

One "cubic foot per second" (CFS) equals

- * 450 gallons of water per minute
- * 1.983 acre feet (AF) of water in 24 hours of water flow
- * 646,320 gallons of water in 24 hours of water flow

One million gallons of water per day (MGD) equals

* 3.07 arce-feet (AF) in one day

* 1,120 acre-feet (AF) in one year