

# Wyoming

At A Glance

# CRWUA

## Colorado River Profile



Home



Email



Top

**Basin area within Wyoming:**

17,104 miles (16 percent of state)

**Percentage of upper Colorado River basin land area within state:**

16 percent (109,580 square miles)

**Percentage of upper Colorado River basin allocation:**

14 percent

**State's mean elevation:**

16,100 feet (second highest U.S.)

**Highest point in state:**

Gannett Peak at 13,804 feet

**Admitted to union:**

July 10, 1890, 44th state

**State nickname:**

Equality State

**Wyoming firsts:**

National park -  
1872  
(Yellowstone)  
National forest -  
1891 (Shoshone)  
National monument -  
1906 (Devils  
Tower)  
Ranger station -  
Wapiti  
First women to vote  
First women to serve on  
juries  
First women to hold  
public office, including  
governor

**W**yoming...with a total land area of 97,914 square miles is home to 19,347 miles of streams, 427,219 acres of lakes and reservoirs, and an estimated 940,000 acres of wetlands.



The Continental Divide subdivides the state into four major drainage basins, including the Missouri, Columbia, Colorado and the Great Salt Lake basin. This geographic feature makes Wyoming the

headwaters of the West. The headwaters of the Green River, a major tributary of the Colorado River, arise in the glaciers and snowpack of the Wind River Mountains.

More than 90 percent of the water flowing through Wyoming originates within the state. Less than 10 percent of Wyoming receives more water as precipitation than is lost back to the atmosphere through evaporation and transpiration.

In the Wind River Mountain Range which gives rise to the Green River, precipitation averages between 40 and 60 inches per year. The largest concentration of glaciers in the American Rocky Mountains, covering more than 17 miles, occurs in the Wind River Range. Lower elevation portions of the basin receive 7-9 inches per year. By comparison, annual precipitation across the entire state averages 14.5 inches.

The mean annual water balance (precipitation minus evapotranspiration) for the Green River Basin has a negative value. However, runoff, of which about 70 percent is derived from snowmelt, occurs during a period (spring/early summer) when the basin has a positive water balance. Therefore, reservoir storage plays an important role for the Green River water supply during non-runoff months. The total reservoir storage capacity within Wyoming's portion of the Green River Basin is in excess of 4,400,000 acre-feet, including Flaming

Gorge Reservoir which impounds up to 3,780,000 acre-feet in both Utah and Wyoming. The state of Wyoming has contractually purchased 125,000 acre-feet of Fontenelle Dam storage from the federal government, ensuring the availability of water for Wyoming's agricultural, commercial, industrial, municipal and recreational needs both for the present and the future.



Wyoming's economic well-being revolves around three industries - the extraction of minerals, tourism and recreation, plus agriculture, which is the largest user of water in the state (about 80 percent of total).

Approximately 278,000 acres are irrigated in the basin. Alfalfa, native grasses and small grains are the predominate crops due to the short growing season and high elevation of the irrigated lands. The sparse rainfall makes most of the basin agriculturally suitable only for grazing and livestock, unless irrigated.

Wyoming's mineral and energy industries are of tremendous importance to southwestern Wyoming. Sweetwater County is the most industrialized county in Wyoming. More than half of the county's workforce is employed by industry, principally mining, petroleum, power generation and related services. The basin's coal mines produce more than 10 million tons annually. The only naturally occurring trona (soda ash) deposits in the United States are found in Sweetwater County. The five plants mining Wyoming trona produce about 90 percent of the nation's soda ash. Soda ash, chemically known as sodium carbonate, is the ninth most widely used chemical in the United States and is used as a chemical raw material to produce other industrial and consumer products. More than 50 percent of Wyoming's soda ash is used in the manufacture of glass products and the remainder in many diverse manufacturing processes.

Production of oil and natural gas and the generation of power at PacifiCorp's 2,000 megawatt capacity Jim Bridger Power Plant, along with the many other service and supply businesses that support the mineral and energy industries, have vitally important employment, tax and economic ramifications to Wyoming's economy.



Nearly 5 million visitors visit Wyoming each year, flocking to

the state's popular vacation and recreation attractions. Water-based recreation plays a significant role in the economic base of the basin. Flaming Gorge, Fontenelle, Fremont Lake, Green River and the Alpine areas of the Wind River Range support fishing, hunting, power boating, sailing, canoeing, rafting, skiing, hiking, mountaineering and wildlife observing. Across the entire state there are two national parks, two national monuments, two national recreation areas, 10 state parks, seven national forests and nearly 270,000 surface acres of lakes. Wyoming has 22 species of game fish, including six kinds of trout that find the clear and cold streams and lakes to their liking -- rainbow, brook, cutthroat, brown, golden and mackinaw. A 1991 survey by the Wyoming Game and Fish Department estimated that 915,600 angling days occurred in Wyoming's portion of the basin. Fishing success is generally high and Wyoming is well known as an outdoorsman's paradise.

To help maintain existing stream environments and fisheries, the Wyoming Legislature enacted an instream flow law in 1986, making instream flow, provided either from natural stream flow or from storage water, a beneficial use of water. To date, nine instream flow permits for stream segments within the basin have been issued by the Wyoming state engineer and fifty-nine applications are pending.

Construction of Fontenelle Dam induced changes in the Green River which Congress anticipated when it established the Seedskafee National Wildlife Refuge in 1965 to help offset the loss of habitat due to the construction of Fontenelle and Flaming Gorge dams. The refuge exists on about 14,000 acres adjacent to the Green River. Hundreds of thousands of pioneers crossed the Green River as they followed the Oregon and Mormon trails, which traversed lands now within the refuge.

Although Wyoming's portion of the basin encompasses 16 percent of the land area in Wyoming, it is home to 13 percent (62,000) of the state's population. Communities served by Green River Basin water include Pinedale, Big Piney, Farson, Kemmerer, Green River and Rock Springs. The largest transbasin diversion of Colorado River system waters is into the overappropriated North Platte River Basin to replace diversions for municipal use by the city of Cheyenne (13,981 acre-feet in 1990). In addition, two minor transbasin diversions occur for irrigation use.



Wyoming became the first state in the union to claim state ownership of water when the state constitution was ratified in 1890. Wyoming's water law

is based on the prior appropriation doctrine. Wyoming's first territorial engineer and state engineer, Elwood Mead (who later became commissioner of the U.S. Bureau of Reclamation and for whom Lake Mead was named) was largely responsible for writing Wyoming's water laws. It has not been found necessary to change much in those laws during the 100 years of statehood that have followed, and Wyoming's water laws formed the basis of water law in many other western states. Due to being a headwaters state, Wyoming is a party to seven interstate compacts and two U.S. Supreme Court decrees which govern her rights to beneficially use water, including the Colorado River Compact of 1922 and the Upper Colorado River Compact of 1948, which apportioned 14 percent of the Upper Basin water supply to the state of Wyoming.

Water Budget  
For Wyoming's Green River Basin

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Availability and Depletion of Green River Basin Streamflow  
for the period 1969 through 1990

Source: Wyoming Water Atlas, 1990

Streamflow entering Wyoming	487,300 acre-feet
Streamflow generated in Wyoming	1,950,100 acre-feet
Virgin stateline outflow	2,437,400 acre-feet
Irrigation depletion in Wyoming	259,200 acre-feet
Municipal/Industrial depletion	29,800 acre-feet
Reservoir evaporation depletion	26,700 acre-feet
Total Wyoming streamflow depletion	315,700 acre-feet
Depleted streamflow leaving Wyoming	2,121,700 acre-feet

\* Excludes Little Snake River Drainage