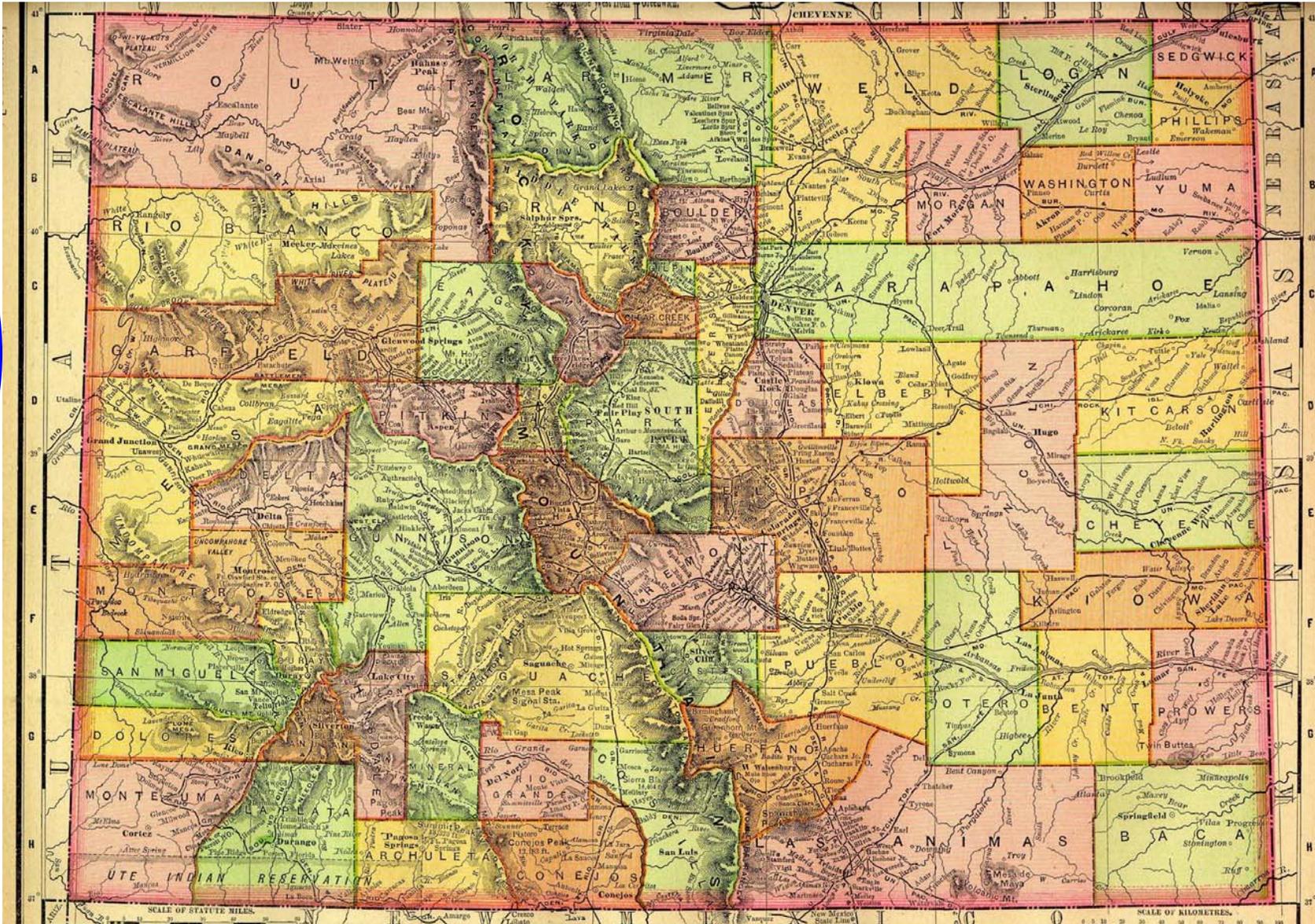


Colorado & Water Facts



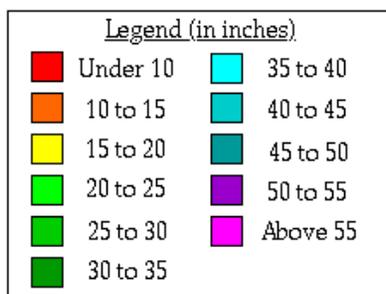
From: Color Landform Atlas of the United States
<http://fermi.jhuapl.edu/states/>

Colorado Water Facts

- Colorado is a semi arid environment

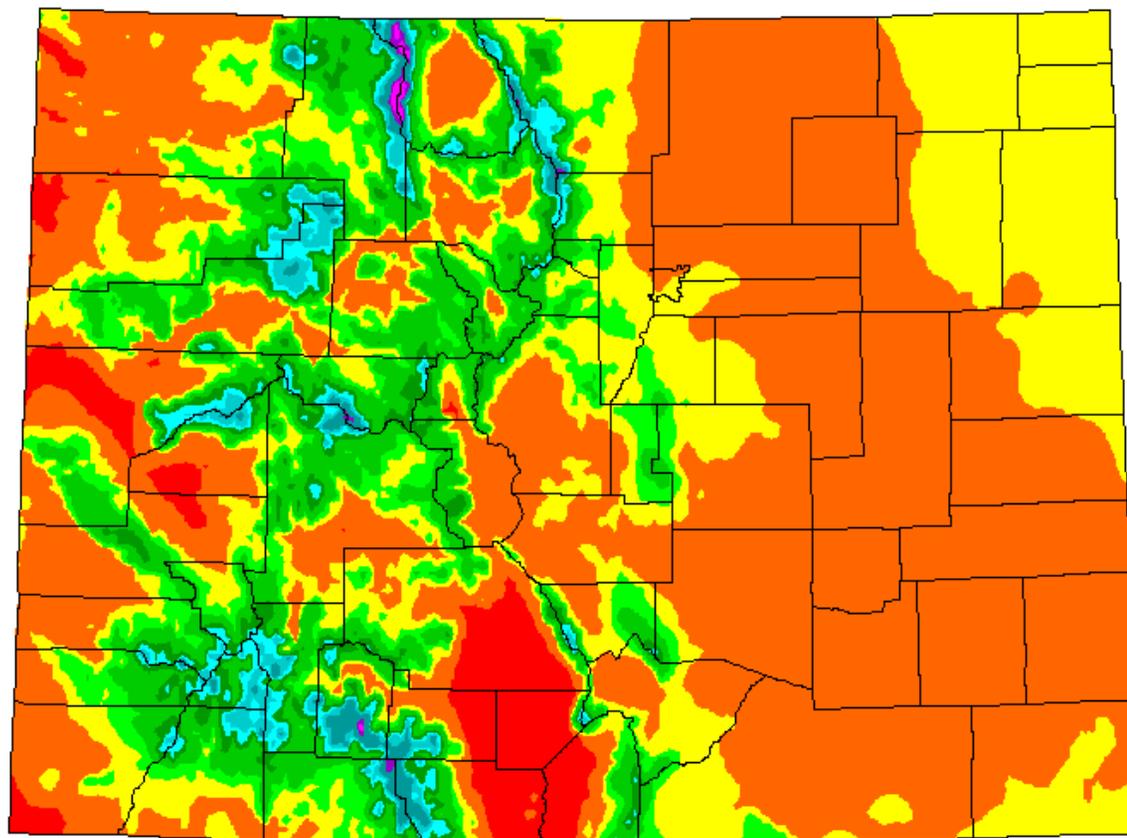
Average Annual Precipitation

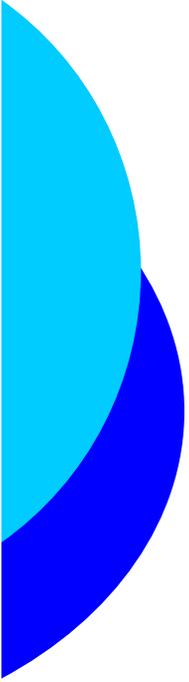
Colorado



Period: 1961-1990

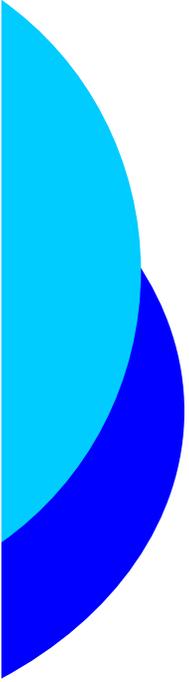
This map is a plot of 1961-1990 annual average precipitation contours from NOAA Cooperative stations and (where appropriate) USDA-NRCS SNOTEL stations. Christopher Daly used the PRISM model to generate the gridded estimates from which this map was derived; the modeled grid was approximately 4x4 km latitude/longitude, and was resampled to 2x2 km using a Gaussian filter. Mapping was performed by Jenny Weisburg. Funding was provided by USDA-NRCS National Water and Climate Center.





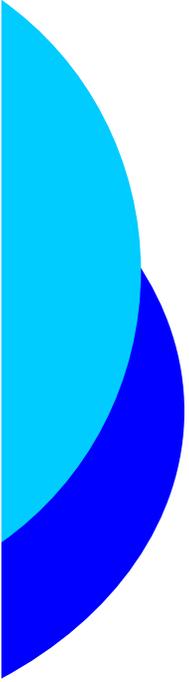
Colorado Water Facts

- **Water** is the most common substance found on earth.
- **Water** is the only substance found commonly in all elemental forms: solid, liquid and gas.
- Common metrics
 - A cubic foot of **water** is 7.48 gallons
 - A gallon of **water** weighs 8.34 pounds
 - An acre-foot of **water** is 325,851 gallons
 - 91% of a football field covered in 1 foot of **water** (without the endzones)



Colorado Water Facts

- Average Coloradan (non-agriculture) uses about 250 gallons/day
 - About half of that goes to **water** grass (non-native)
- Statewide use about 390 billion gallons/year (2000 data)
 - Nearly 3 days of watching Niagara Falls
 - 27% of Colorado River's average annual flow



Colorado Water Facts

- **Water** is inexpensive as compared to other products
- A 12 ounce glass of Colorado Springs tap **water** costs 0.04 Cents

“When the well is dry, we know the worth of water.”

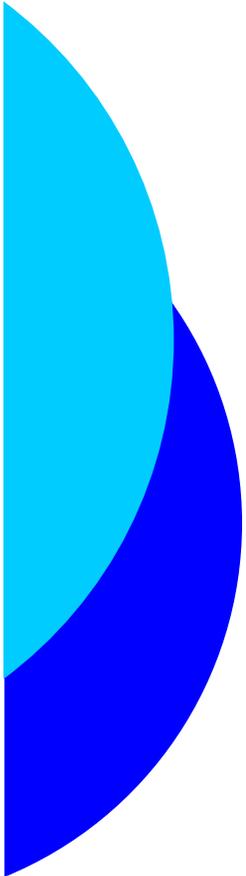
BENJAMIN FRANKLIN, (1706-1790), Poor Richard's Almanac, 1746

Colorado Water Facts

80% of Colorado's
water supply is
from snow fall
into

- Man made reservoirs
- Forested watersheds provide natural reservoirs





“In the West, when you touch
water, you touch everything.”

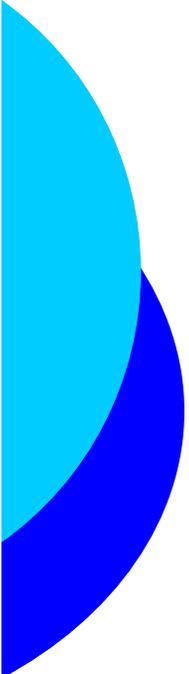
Wayne Aspinall
Colorado Congressman

Colorado Water Facts

86% of Colorado's **water** is used for agricultural

- 49% of irrigated agriculture is east of continental divide.
- Represents 1.4% of State's real gross state product with 73% ranching & 23% farming





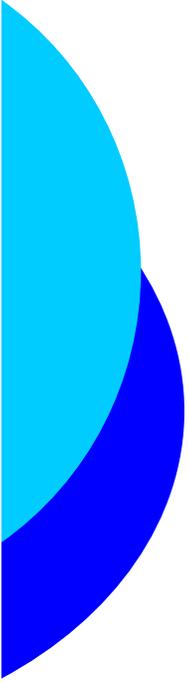
Colorado Water Facts

- Colorado's Constitution mandates the prior appropriation system to regulate **water**
 - Prior: earlier water rights have better (more reliable) **water** supply, especially during time of shortage
 - Appropriation:
 - Put to or plan to put water to beneficial use
- Most agriculture **water** uses have very early **water** rights (Senior water rights)

Colorado Water Facts

88% of Colorado's population is east of continental divide, Front Range





Colorado Water Facts

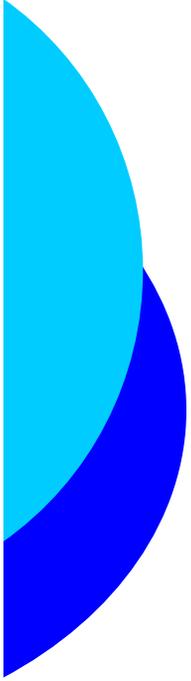
- **State population is expected to grow** from 4.3 million in 2000 to 7.2 million in 2030, with **85% of increase along the Front Range**
- **Projected statewide gap in water supply** by 2030
 - **205 billion gallons or 53% increase** in current non-agricultural demand, represents 4.9% of today's agricultural and non-agricultural supply
 - 81% is on Front Range
 - Assumes all planned projects are completed.
 - SU's SDS, SE District's PSOP, Denver's, Northern's, Grand Junction's projects, & others
 - Over reliance on nonrenewable groundwater supplies to meet demands adds to the problem

Whiskey's for drinking and
water is for fighting ..."

Mark Twain



Discussing Water Rights, A Western Pastime



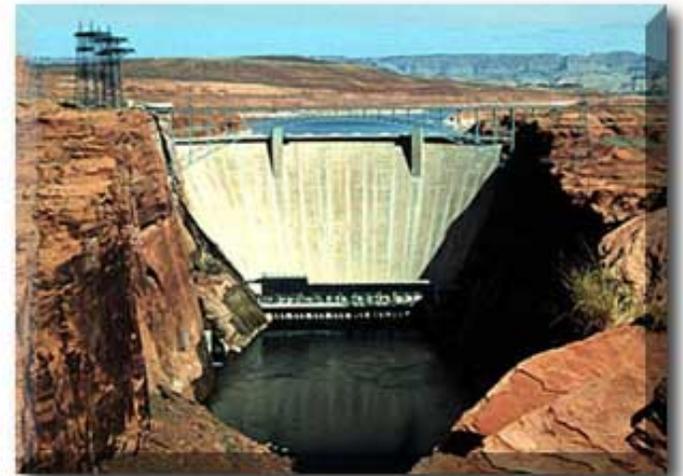
*"A man from the west will fight over three things:
water, women and gold,
and usually in that order."*

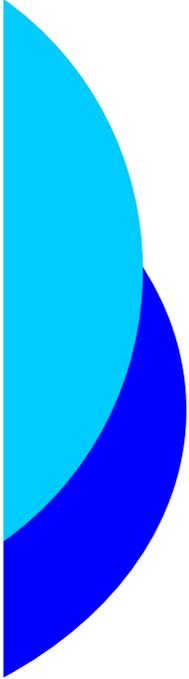
Senator Barry Goldwater, AZ

Colorado Water Facts

➤ Colorado has 25 Interstate **Water** Compacts and Endangered Species Programs

- Manage & deliver **water** to 19 other states
- Critical to Colorado Springs & El Paso County
 - Colorado River Compact
 - Arkansas River Compact
 - Colorado River Endangered Fish Recovery Program

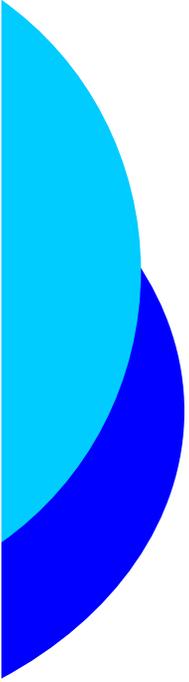




96% of water in and on Earth is salty

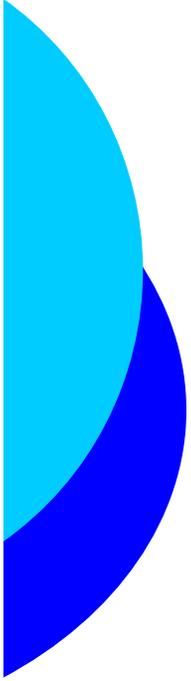
"If we could ever competitively, at a cheap rate, get fresh **water** from salt**water**, ..(this) would be in the long-range interests of humanity which could really dwarf any other scientific accomplishments."

John F. Kennedy



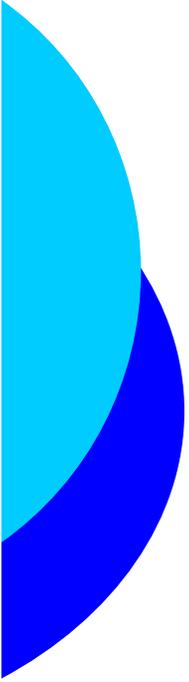
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***"The Anasazi and Maya were among
the past societies to be undone by
water problems,....."***

*Collapse
How Societies Choose to Fail or Succeed
by
Jared Diamond*



Colorado Water Facts

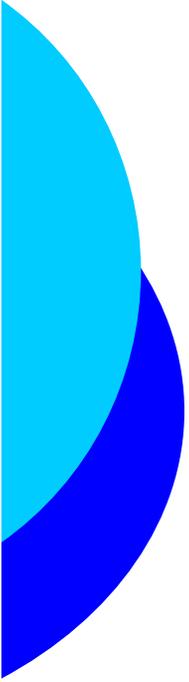
- **Who was the American explorer who compared the western plains to the sandy deserts of Africa?**

Zebulon Pike

explorer

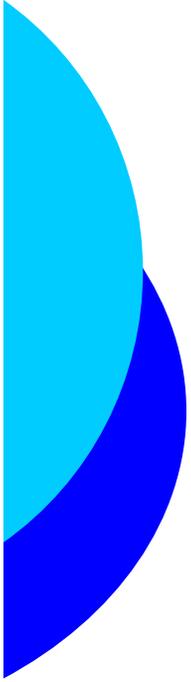
as in Pikes Peak

Edwin James was the first man (non-native) to climb Pikes Peak



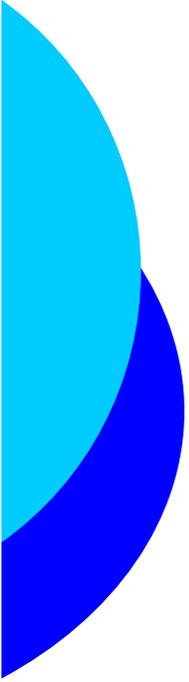
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"Anyone who can solve the problems of water will be worthy of two Nobel prizes - one for peace and one for science."

John F. Kennedy



Colorado Water Facts

- **What is the largest reservoir in Colorado?**
 - **Blue Mesa, near Gunnison**
 - Is also the largest body of **water** @ 306 billion gallons when full
 - **John Martin, near La Junta**
 - second-largest @ 202 billion gallons when full

What is the largest natural lake in Colorado?

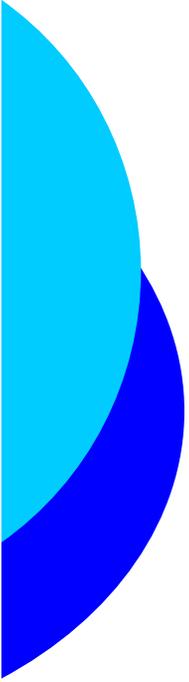
- **Grand Lake, near Granby**
 - intake for Colorado Big Thompson Project @ 22.4 billion gallons, but never varies more than 1 foot.
 - Small when compared to manmade reservoirs used to save **water** during hydrological cycle

The Future

“We are no longer developing a resource.
We are learning how to share a developed
resource.”

Chief Justice Hobbs, 2005

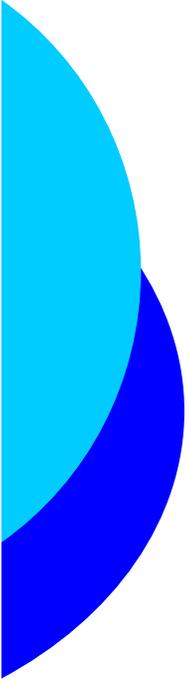




Earth

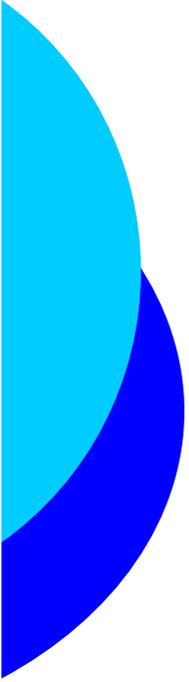
- About 70% of the earth water.
- Total water in and on the earth is about 326 million mi³ of water, over 96 percent is salty.
- Of the 4% of total freshwater, over 68 percent is locked up in ice and glaciers. Another 30 percent of freshwater is in the ground.
- **Thus, surface-water sources (such as rivers) only constitute about 300 mi³ (about 1/10,000th of 1% of total water).**
- **Lake Baikal in southwestern Siberia contains one-fifth of the world's fresh water.**





Human Body

- Human body contains 68-72% **water**.
- For a 150 pound person that is about 105 pounds or 12.6 gallons of **water**.



A concern

*The US has 52,837 **water** systems.*

More than half of them serve 500 or fewer people.

*Colorado has many such small **water** systems.*

Do such small entities have the technical and financial abilities to meeting growing demands and stronger regulatory requirements?

*What about the wast**water** systems?*