

*Trends in Runoff
and
Effects on Water Administration*
“Case Study Using La Plata River”

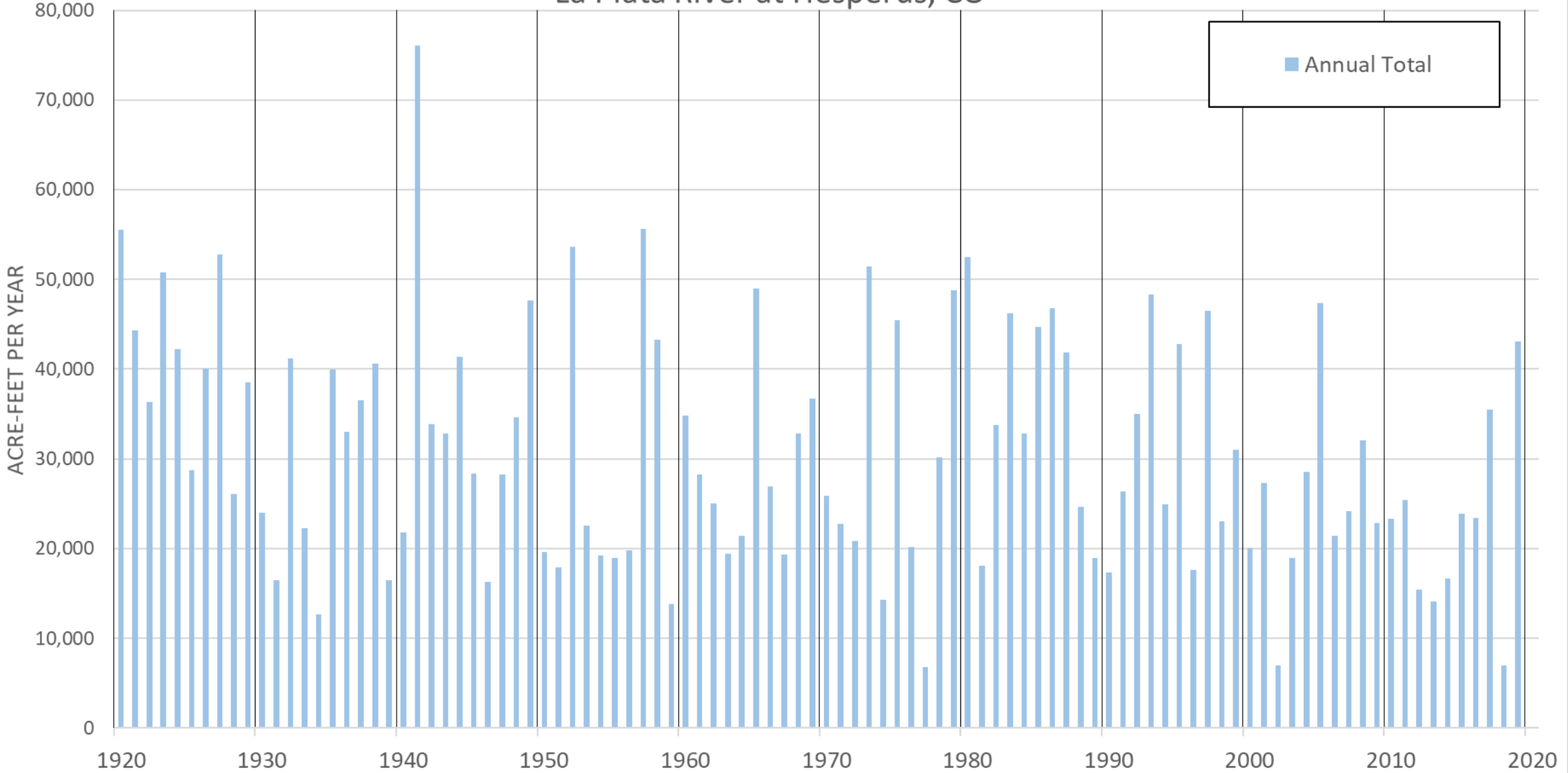
Southwestern Water Conservation District
April 1, 2022

Robert B. Genualdi, P.E., Division Engineer
Durango, CO
Colorado Division of Water Resources

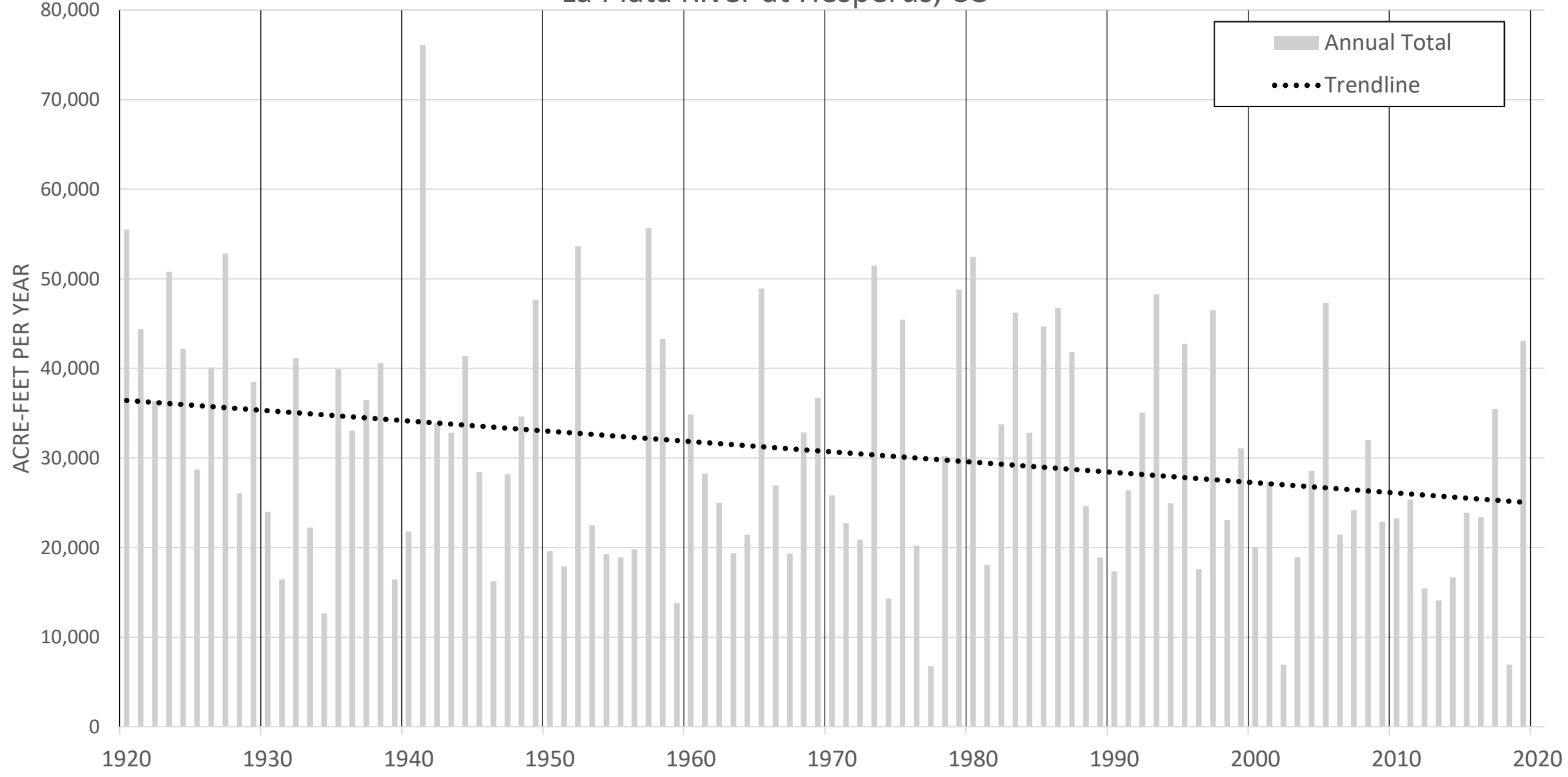


COLORADO
Division of Water Resources
Department of Natural Resources

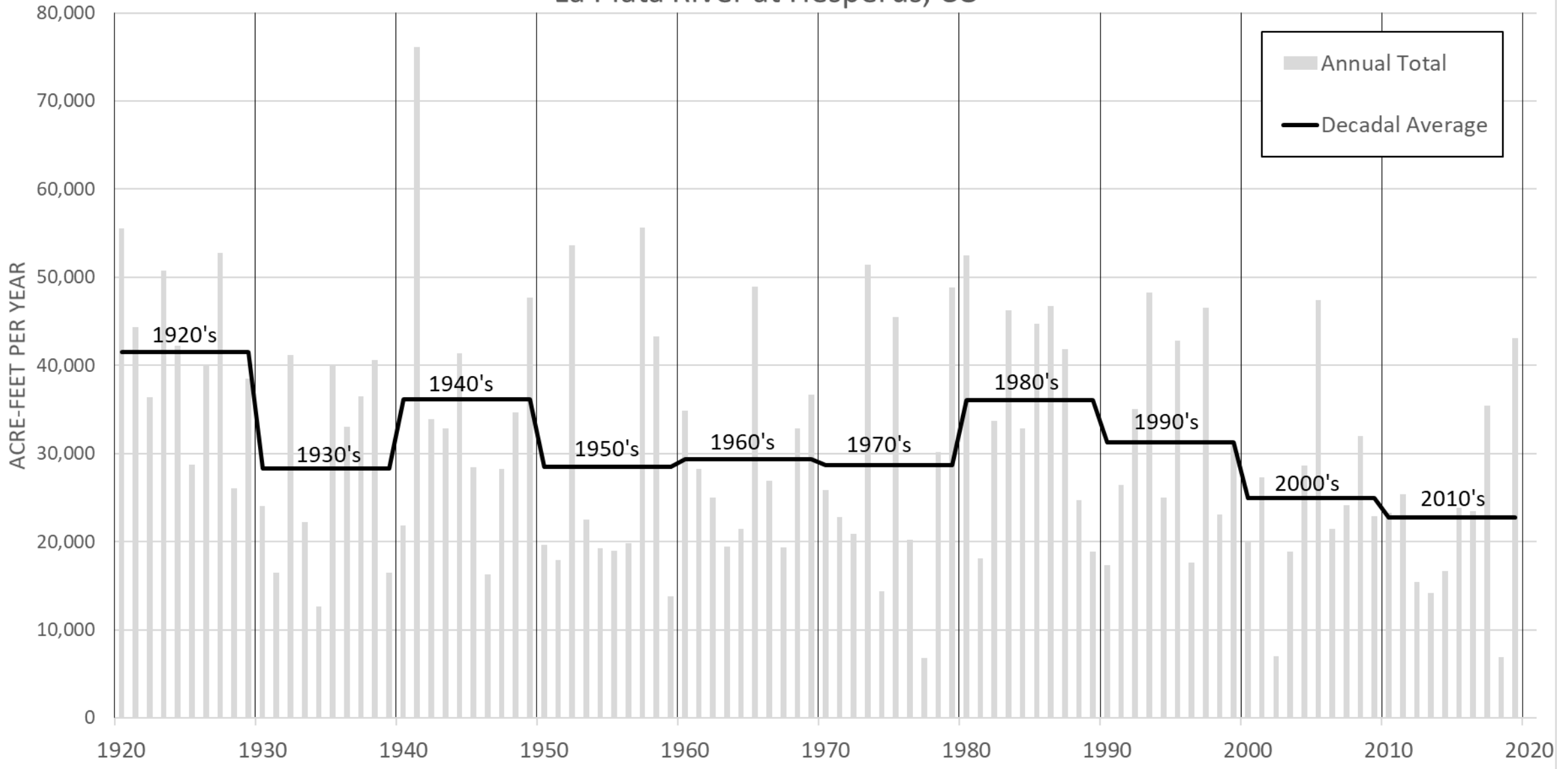
Yearly Runoff La Plata River at Hesperus, CO *



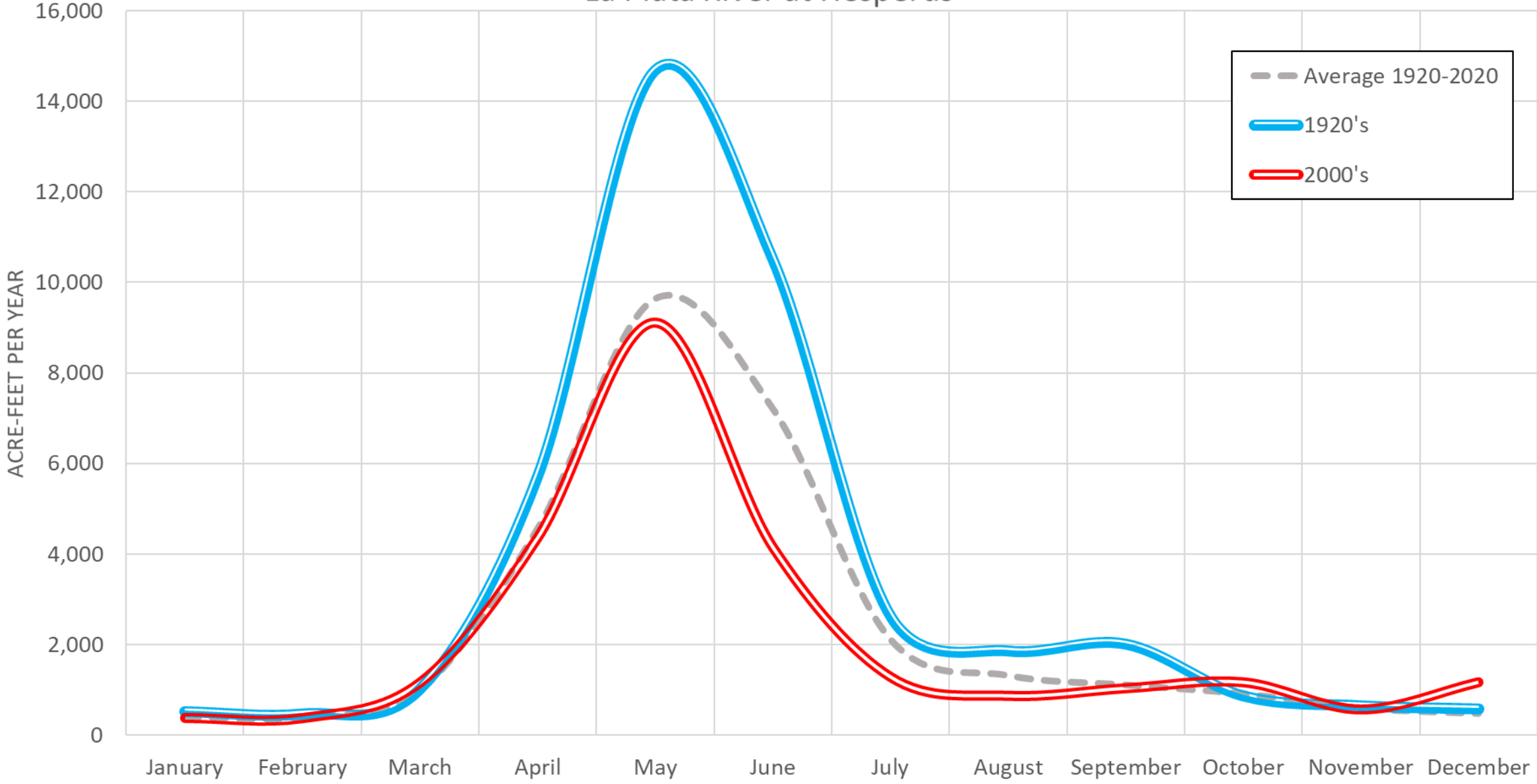
Yearly Runoff La Plata River at Hesperus, CO *



Decadal Trends of Yearly Runoff La Plata River at Hesperus, CO *



Decadal Average Hydrograph La Plata River at Hesperus *



Water Administration

The Priority System accounts for variability in supply and demand

“First in time, first in right”

A Water Right gets you a spot in the priority system.

It establishes your priority (your place in line) when there is a shortage of water.



Pre-1870's

Pre-Statehood

**No Water
Rights system
in place**

Early Uses



Pre-1870's

1870's-Early 1900's

Pre-Statehood

Early agriculture and
domestic uses.
**Need for water
administration-"Priority
System"**

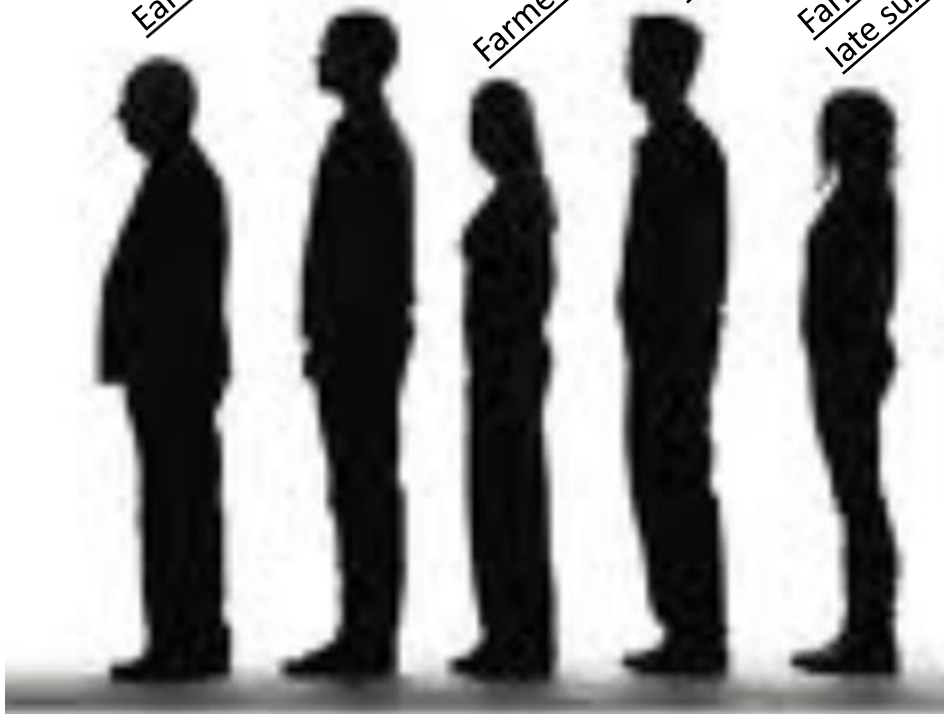
Early Uses

Farmers

Farmers

Towns

Farmers (unreliable
late summer water)



Pre-1870's
Pre-Statehood

1870's-Early 1900's
Early agriculture and
domestic uses

Early 1900's-1950's
Agricultural & population
expansion. Reservoir
building

Early Uses

Farmers

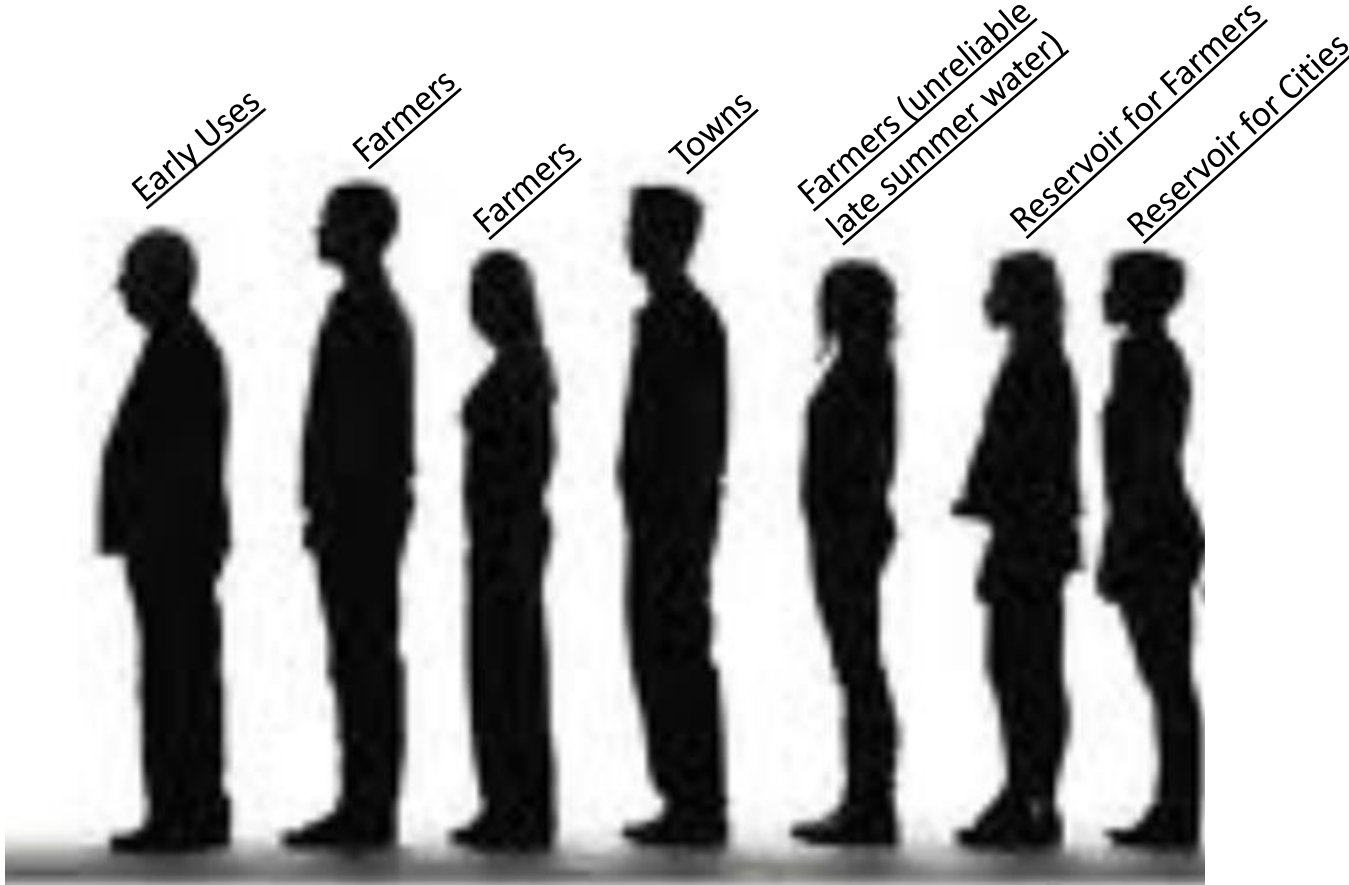
Farmers

Towns

Farmers (unreliable
late summer water)

Reservoir for Farmers

Reservoir for Cities



Pre-1870's
Pre-Statehood

1870's-Early 1900's
Early agriculture and
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Early 1900's-1950's
Agricultural & population
expansion. Reservoir
building

1950's-1970's
Growing cities. Trans-
mountains and reservoir
building

Early Uses

Farmers

Farmers

Towns

Farmers (unreliable
late summer water)

Reservoir for Farmers

Reservoir for Cities

Trans-mtns for Farmers

Cities (unreliable source)

Trans-mtns for Cities



Pre-1870's
Pre-Statehood

1870's-Early 1900's
Early agriculture and
domestic uses

Early 1900's-1950's
Agricultural & population
expansion. Reservoir
building

1950's-1970's
Growing cities. Trans-
mountains and reservoir
building

1970's-present
Environmental
considerations and growing
cities

Early Uses

Farmers

Farmers

Towns

Farmers (unreliable
late summer water)

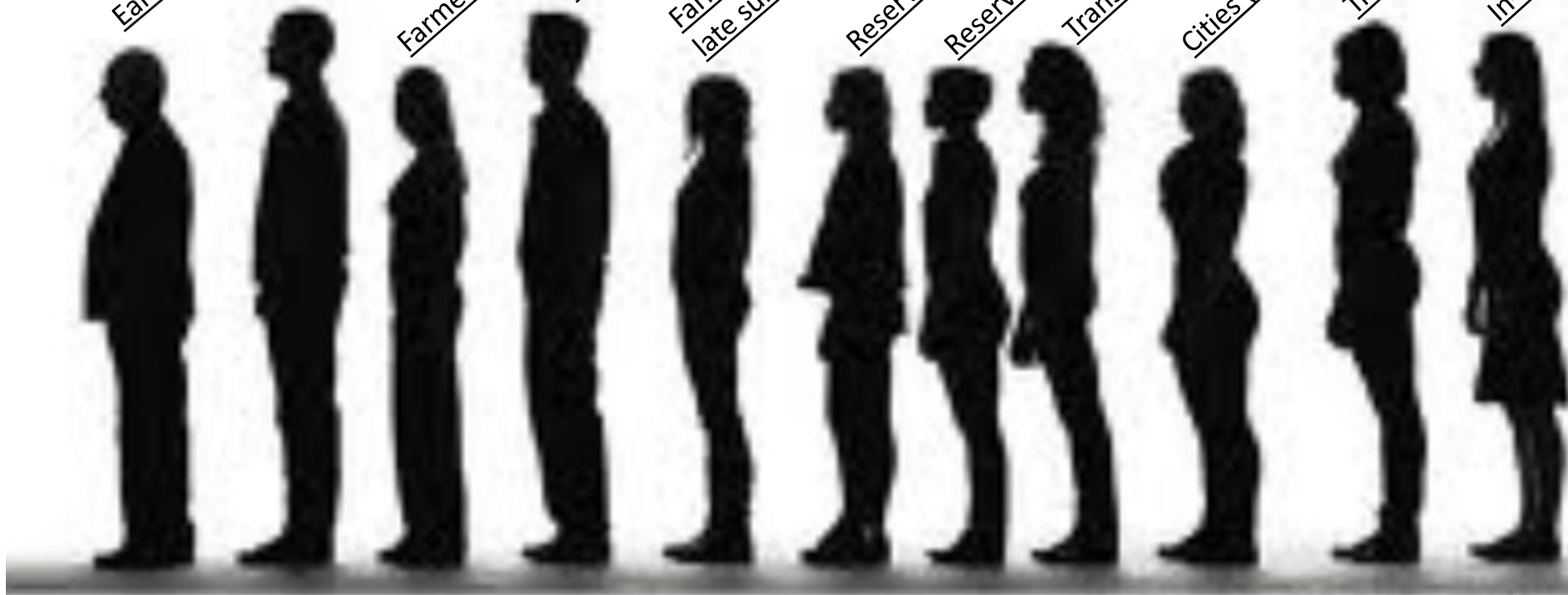
Reservoir for Farmers

Reservoir for Cities

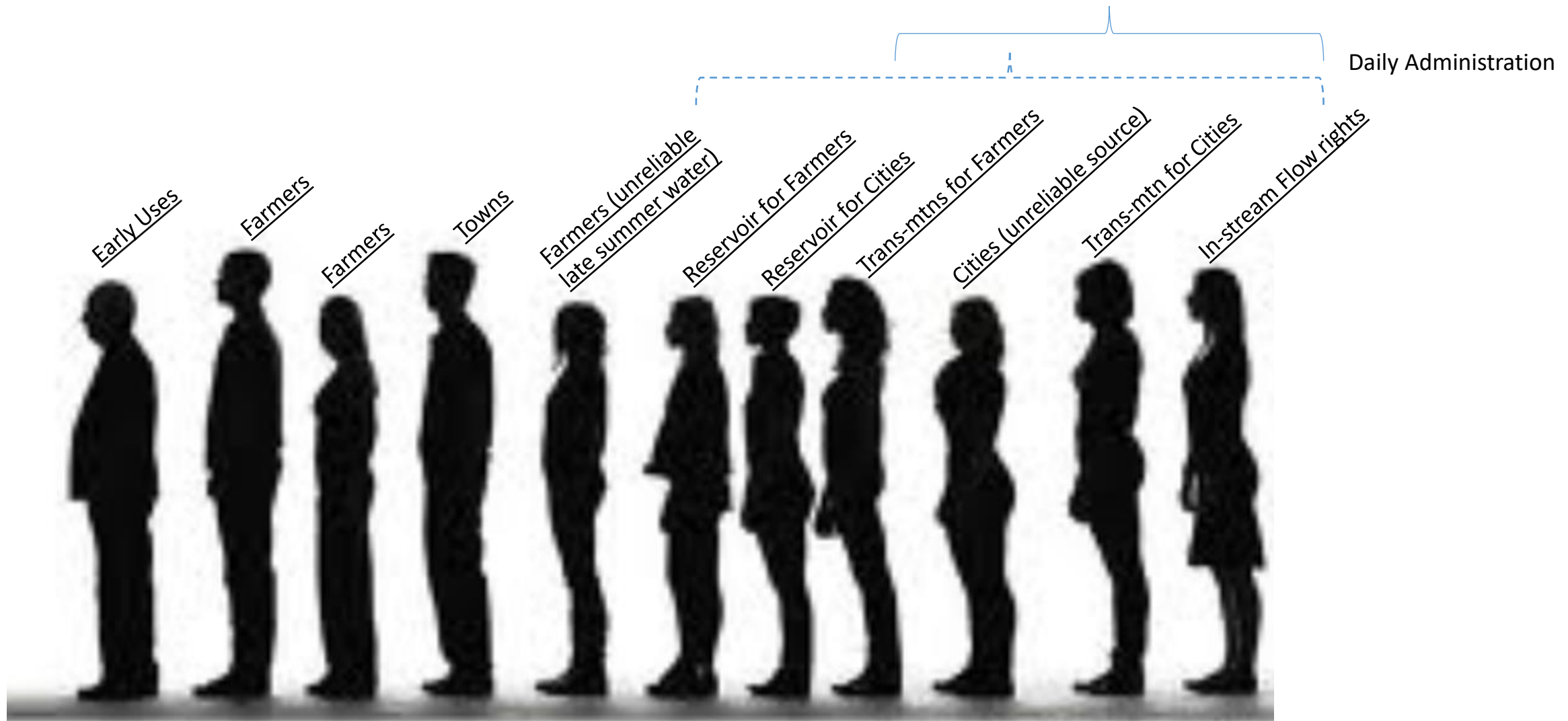
Trans-mtns for Farmers

Trans-mtn (unreliable source)

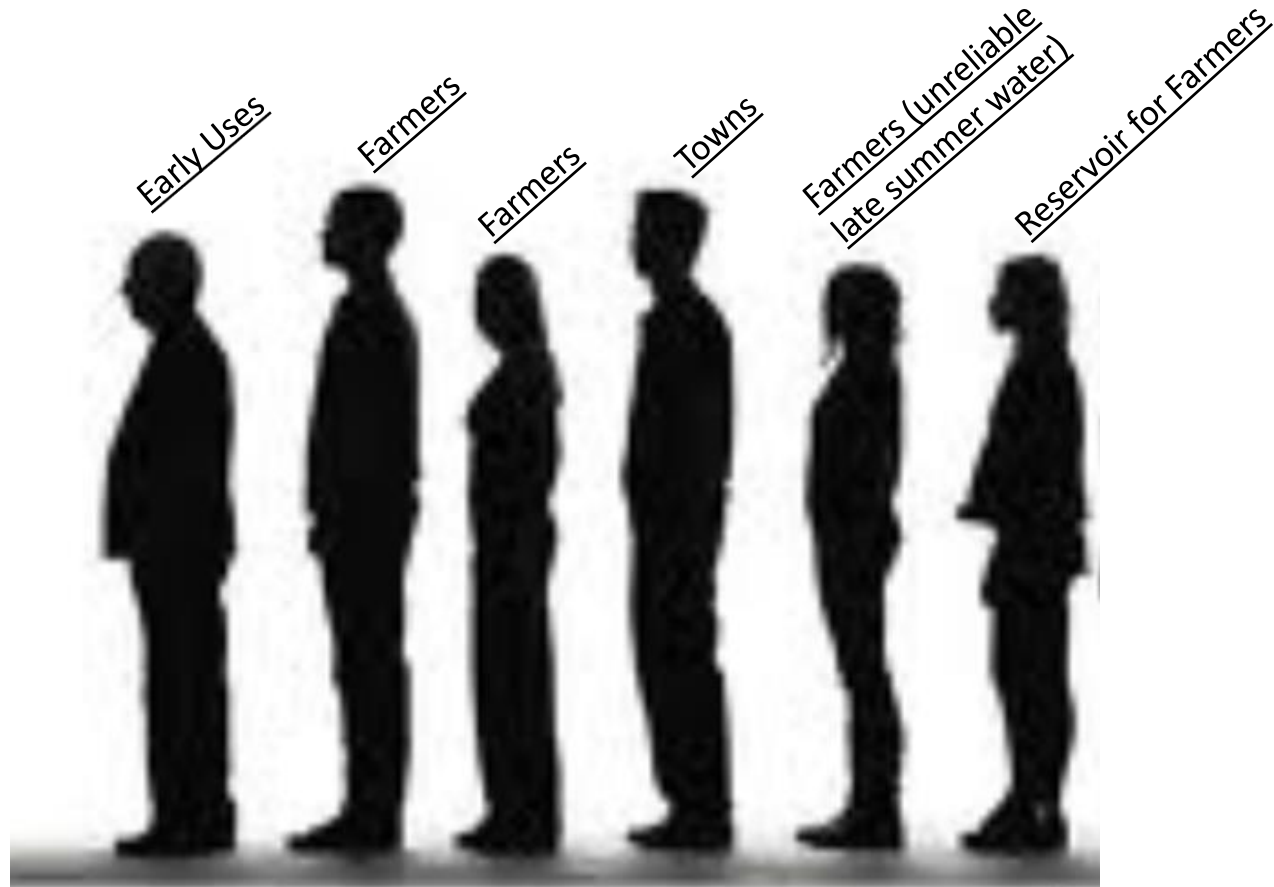
In-stream Flow rights



Junior water rights go “out-of-priority” depending on how much water is in the river...



...resulting in “Priority Administration”,
juniors are turned off



What is Priority Administration?



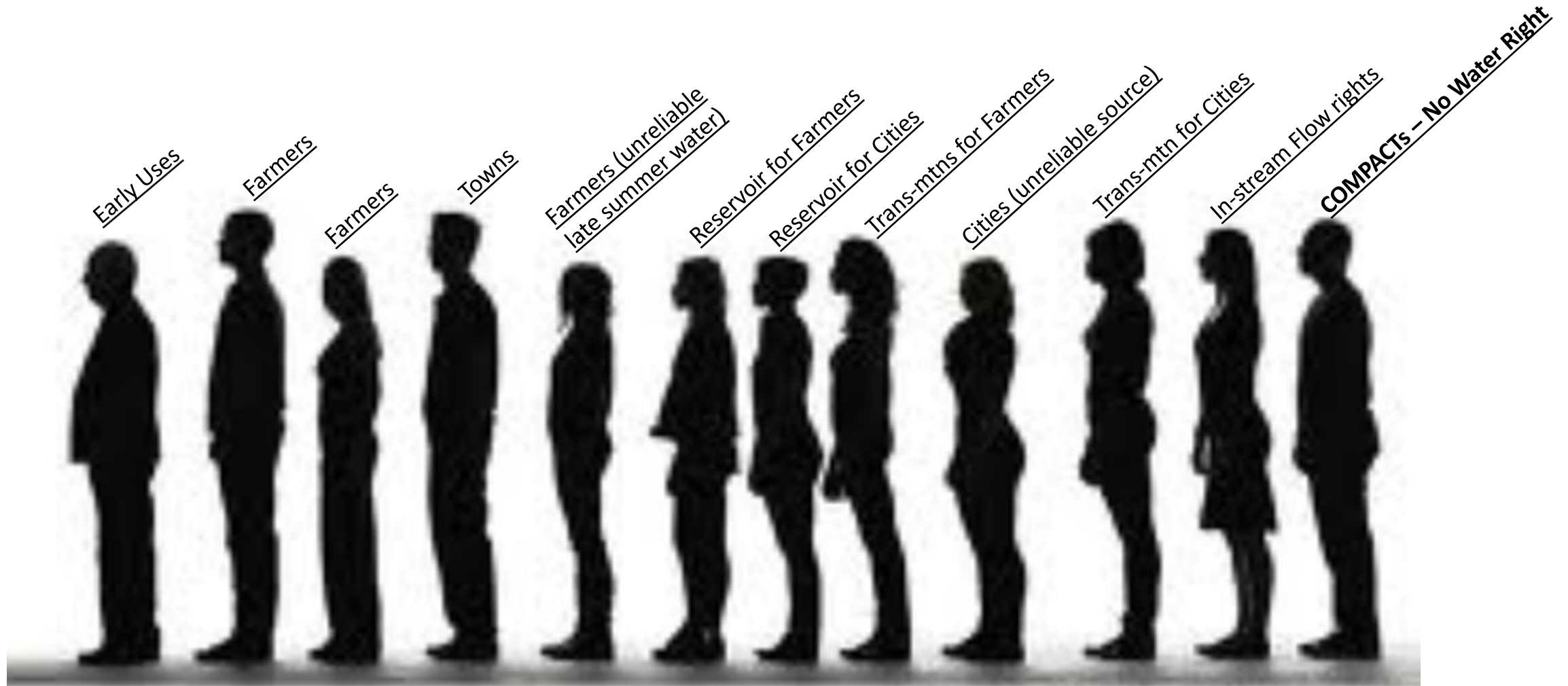
Water Commissioner adjusting a headgate on the river.



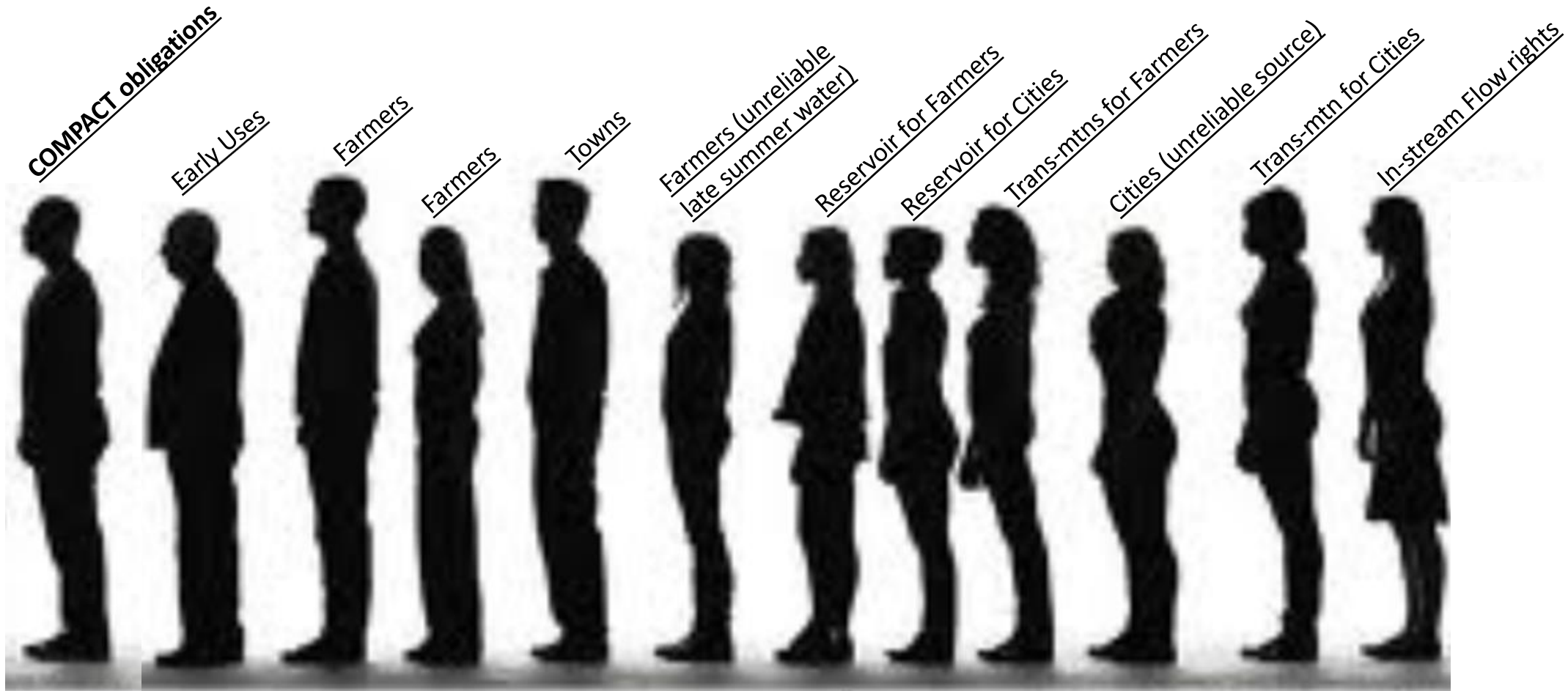
With an increased demand, or decrease in supply, cities and high value uses buy senior rights.



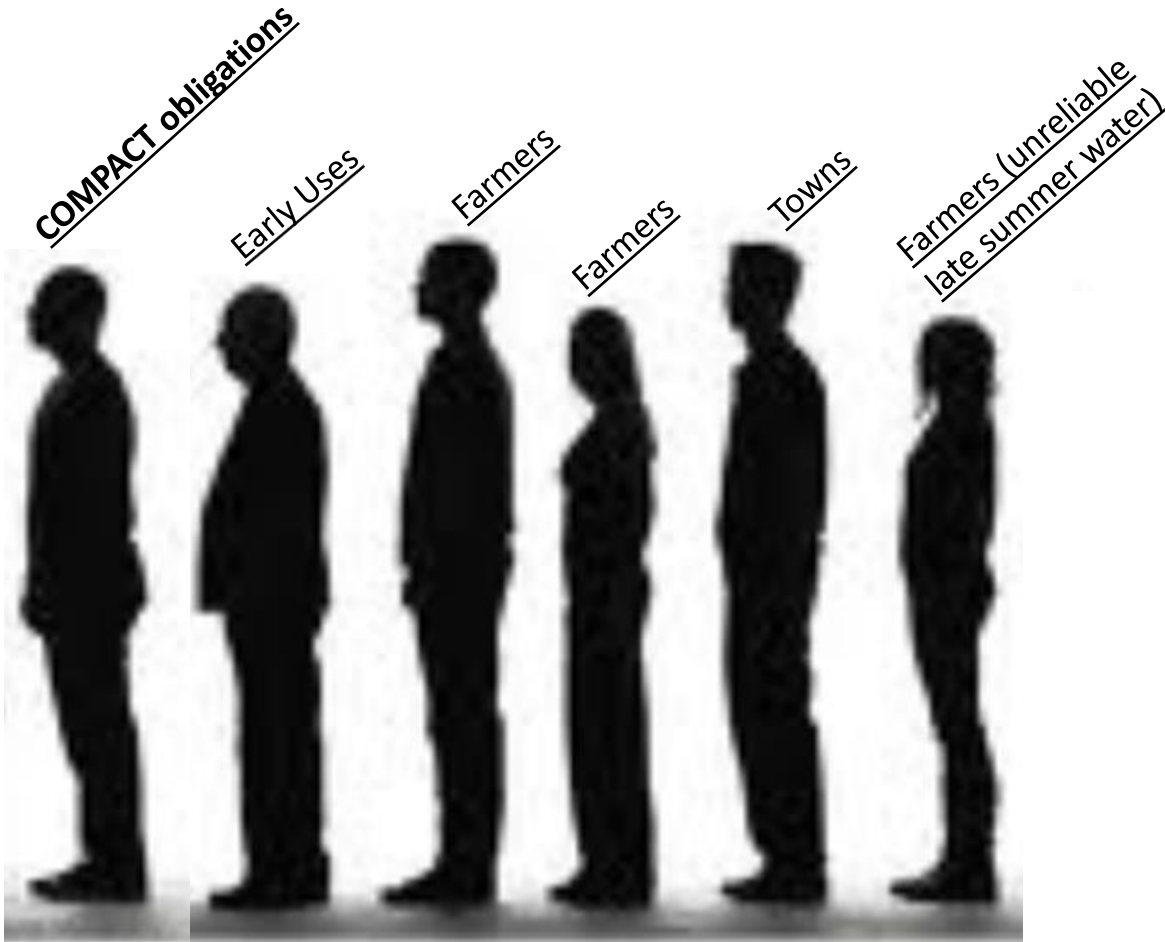
What happens when you introduce a “Compact Call”?



On the La Plata River, the Compact is treated as the top priority...



...and junior water rights may become less reliable.





Long Hollow Reservoir - La Plata Drainage