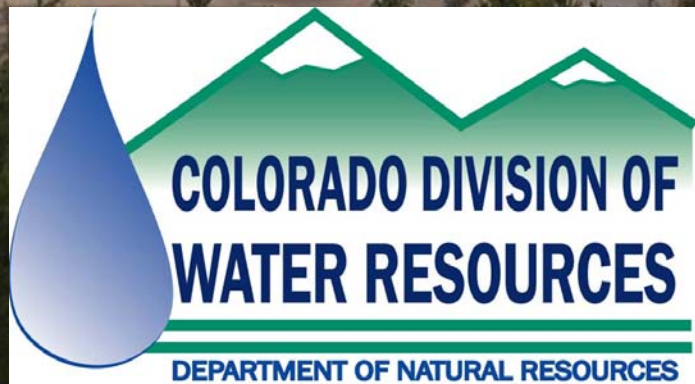


# **Drought in Colorado: 2002 Streamflow, Impacts, and 2003 Outlook**



By Jack Byers

Deputy State Engineer

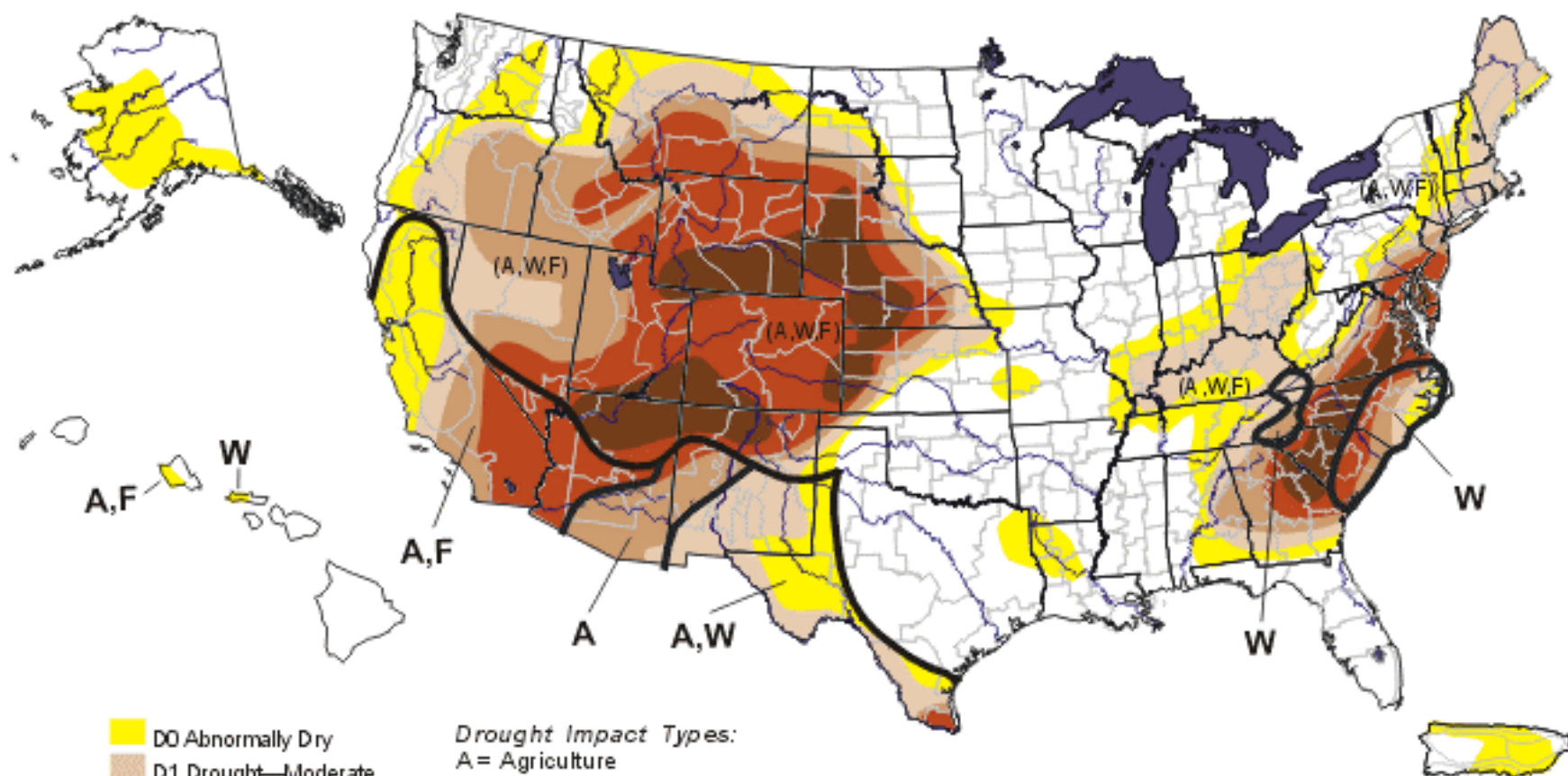
April 4, 2003

Dillon Reservoir

# U.S. Drought Monitor

August 27, 2002

Valid 8 a.m. EDT



- D0 Abnormally Dry
- D1 Drought—Moderate
- D2 Drought—Severe
- D3 Drought—Extreme
- D4 Drought—Exceptional

*Drought Impact Types:*  
A = Agriculture  
W = Water (Hydrological)  
F = Fire danger (Wildfires)  
— Delineates dominant impacts  
(No type = All 3 impacts)

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

<http://drought.unl.edu/dm>

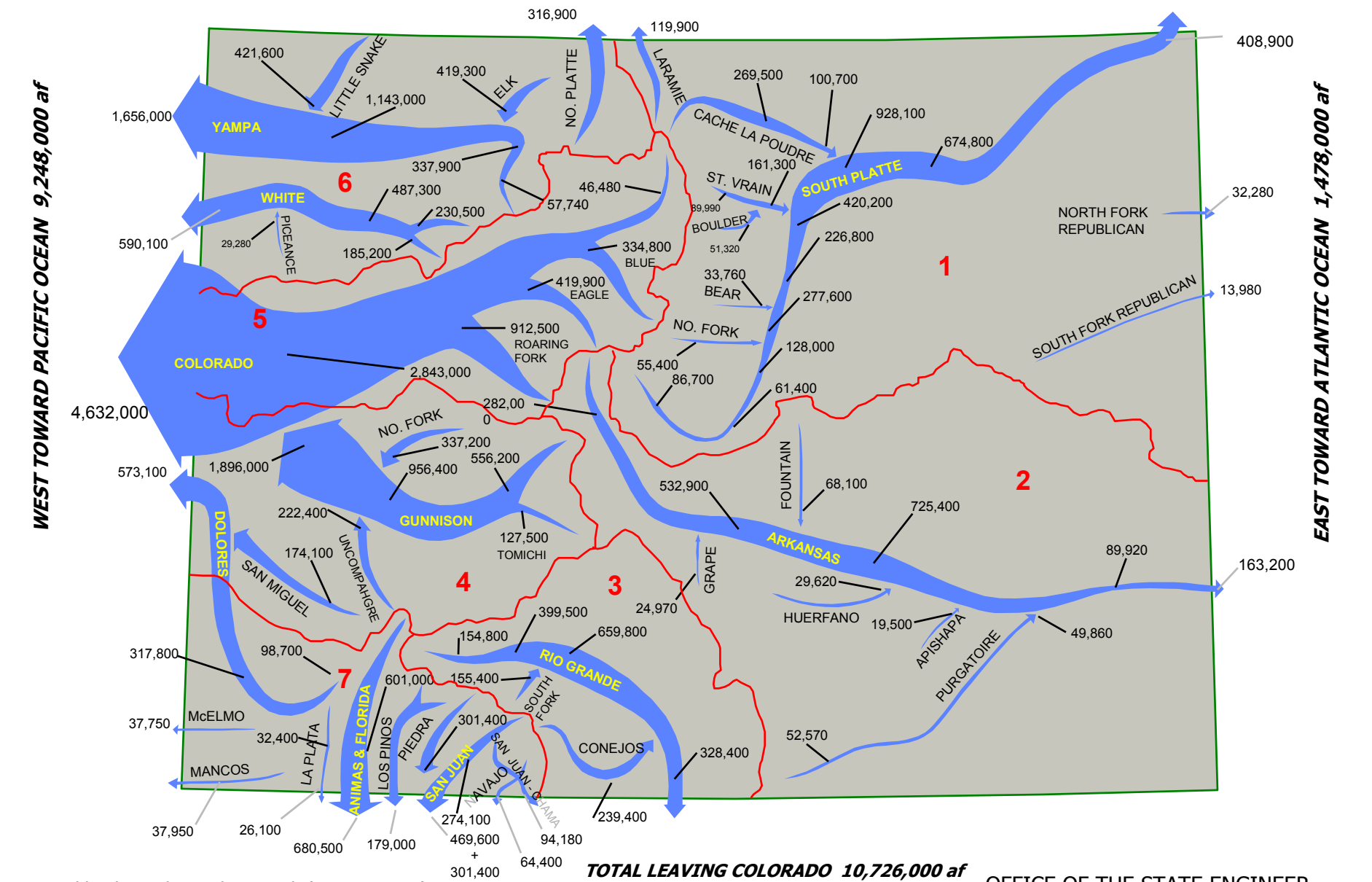


**Released Thursday, August 29, 2002**

**Authors:** Richard Heim/Karin Gleason, NCDC

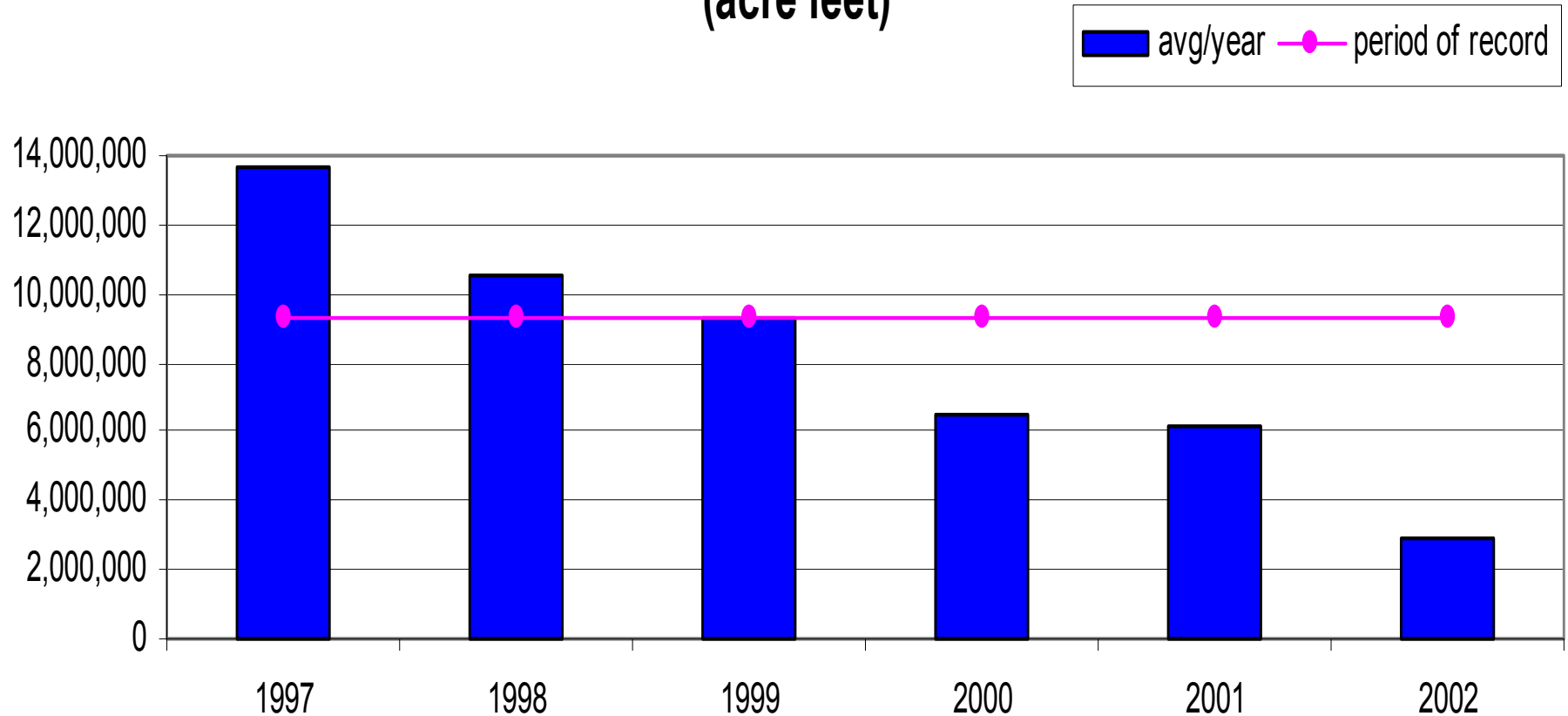
# COLORADO HISTORIC AVERAGE ANNUAL STREAM FLOWS

(acre feet)

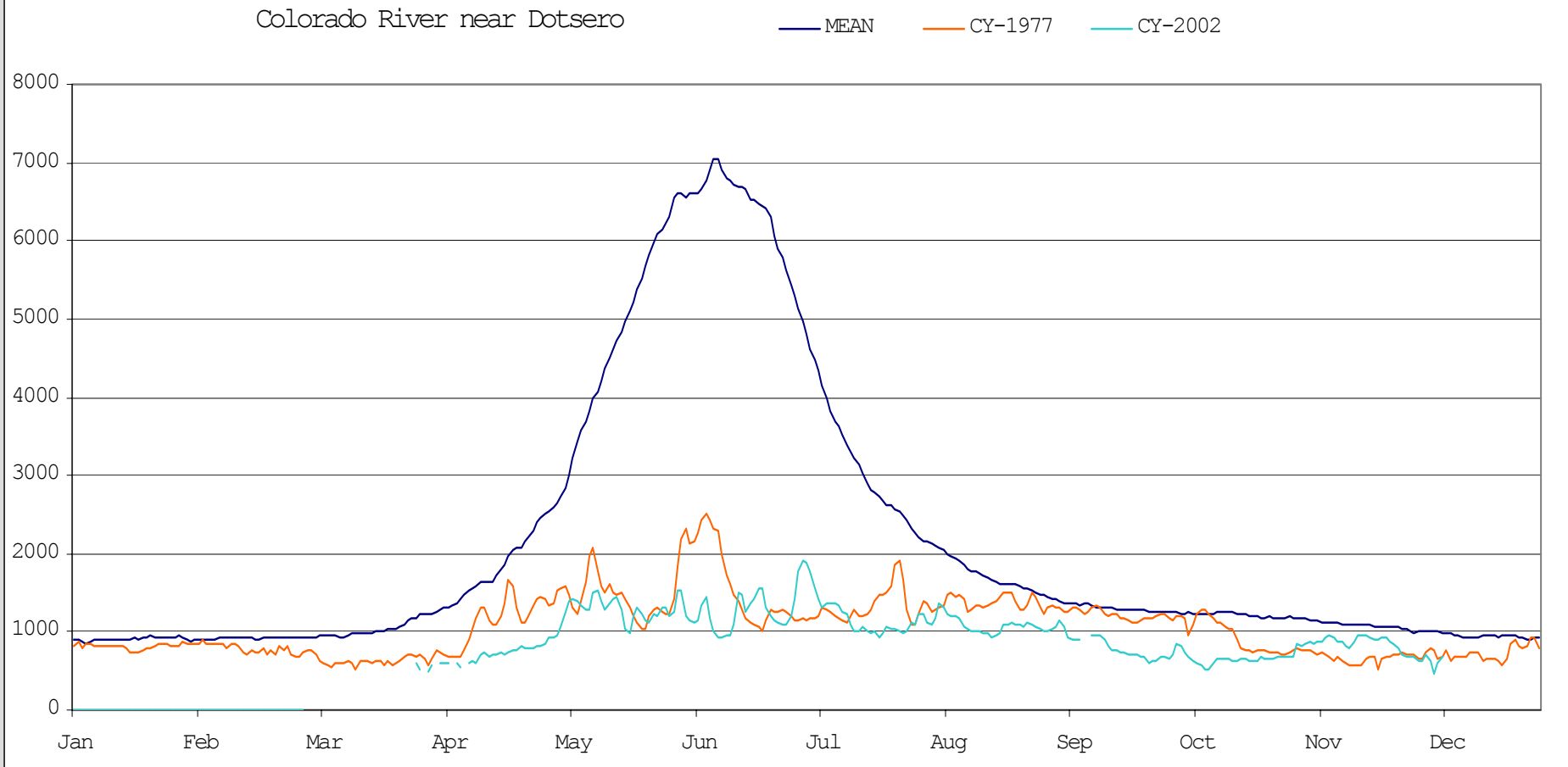




# COLORADO HISTORIC AVERAGE ANNUAL STREAMFLOWS LEAVING STATE (WEST) (acre feet)

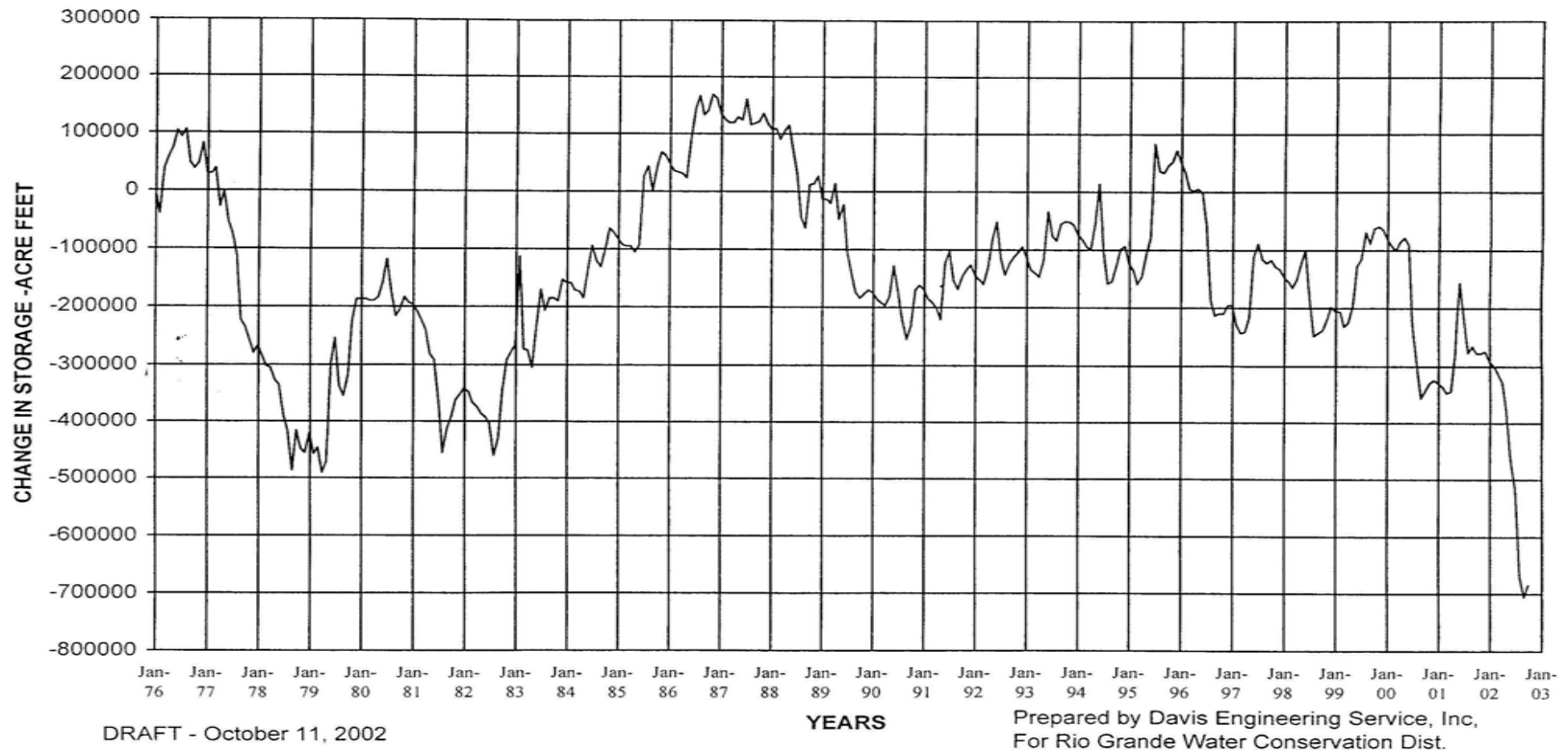


Colorado River near Dotsero



- **Statewide precipitation has been 45-50% of average since 1999.**
- **2002 was the driest year in the Colorado River Basin since 1579 based on tree ring studies.**

CHANGE IN UNCONFINED AQUIFER STORAGE  
WEST CENTRAL SAN LUIS VALLEY



➤ The unconfined aquifer of the Closed Basin lost record storage during 2002 dropping to a record 700,000 acre feet below the base storage level (1976). Recent measurements indicate some recovery.



Vallecito Reservoir 2002



Glenwood Springs 2002



# **2002 Drought Impacts**

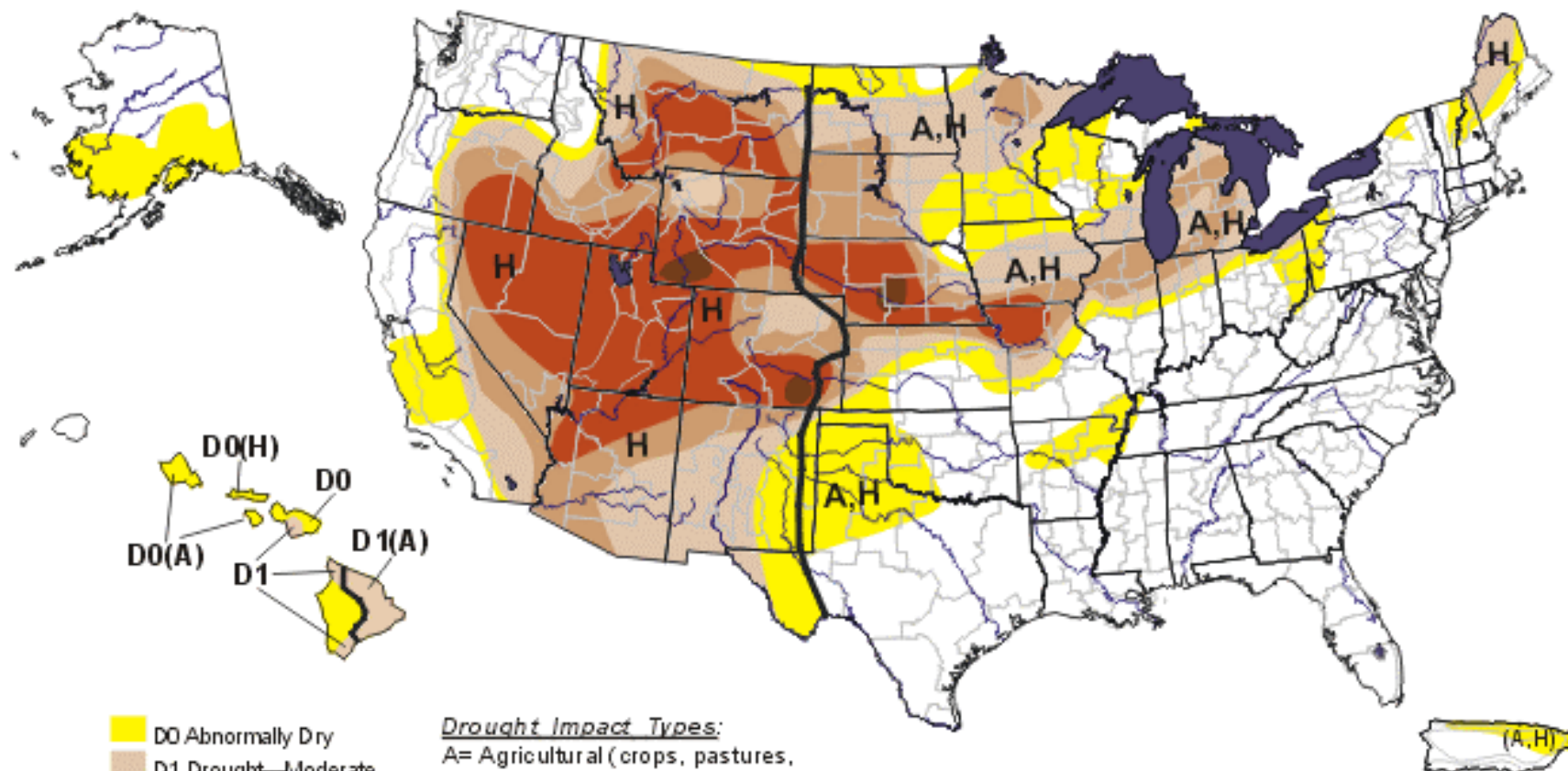
- **Calls were placed early in April and continue with the calls being more senior as the summer progressed. November 1865 call in Water District 2 is the most senior call in 35 years in this reach of the South Platte.**
- **The plains irrigation reservoirs east of Denver were empty by the end of August and are storing winter flow.**
- **Well augmentation entities have had to continuously acquire additional augmentation water to deal with the extended call period resulting in a reduction of allowable pumping by 25%, some well pumping was curtailed to prevent violation of compact delivery requirements.**
- **The City of Pueblo's 1874 direct flow right for 45 cfs, which was the cities drought reserve water supply, was junior to a senior call on the Arkansas River.**
- **Over 20 communities had shortages or have experienced water supply emergencies requiring special actions and include Rocky Ford, Beulah, Victor, Cripple Creek and Penrose. Many municipalities implemented restrictions on outside water use. Nearly all communities implemented some water use restrictions.**

- **2012 wildfires, 500,000 ac, 384 homes, 624 structures, \$200 million impact.**
- **Over \$2 Billion estimated impact to the Colorado economy including agriculture, tourism and recreation industries.**
- **Dryland farmers wheat production, 36 million bushels, 45% ten year average, about 30% of plantings abandoned.**
- **Irrigated corn production varies across the state from 50-85% of average.**
- **Estimate reduction of 40-50% of breeding stock (250,000 head), estimated losses of \$460 million.**
- **Outfitters estimate visitation down 45%, a projected \$25 million impact.**

# U.S. Drought Monitor

April 1, 2003

Valid 7 a.m. EST



- D0 Abnormally Dry
- D1 Drought—Moderate
- D2 Drought—Severe
- D3 Drought—Extreme
- D4 Drought—Exceptional

Drought Impact Types:

- A= Agricultural (crops, pastures, grasslands)
- H= Hydrological (water)
- Delineates dominant impacts (No type = both impacts)

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

<http://drought.unl.edu/dm>



**Released Thursday, April 3, 2003**

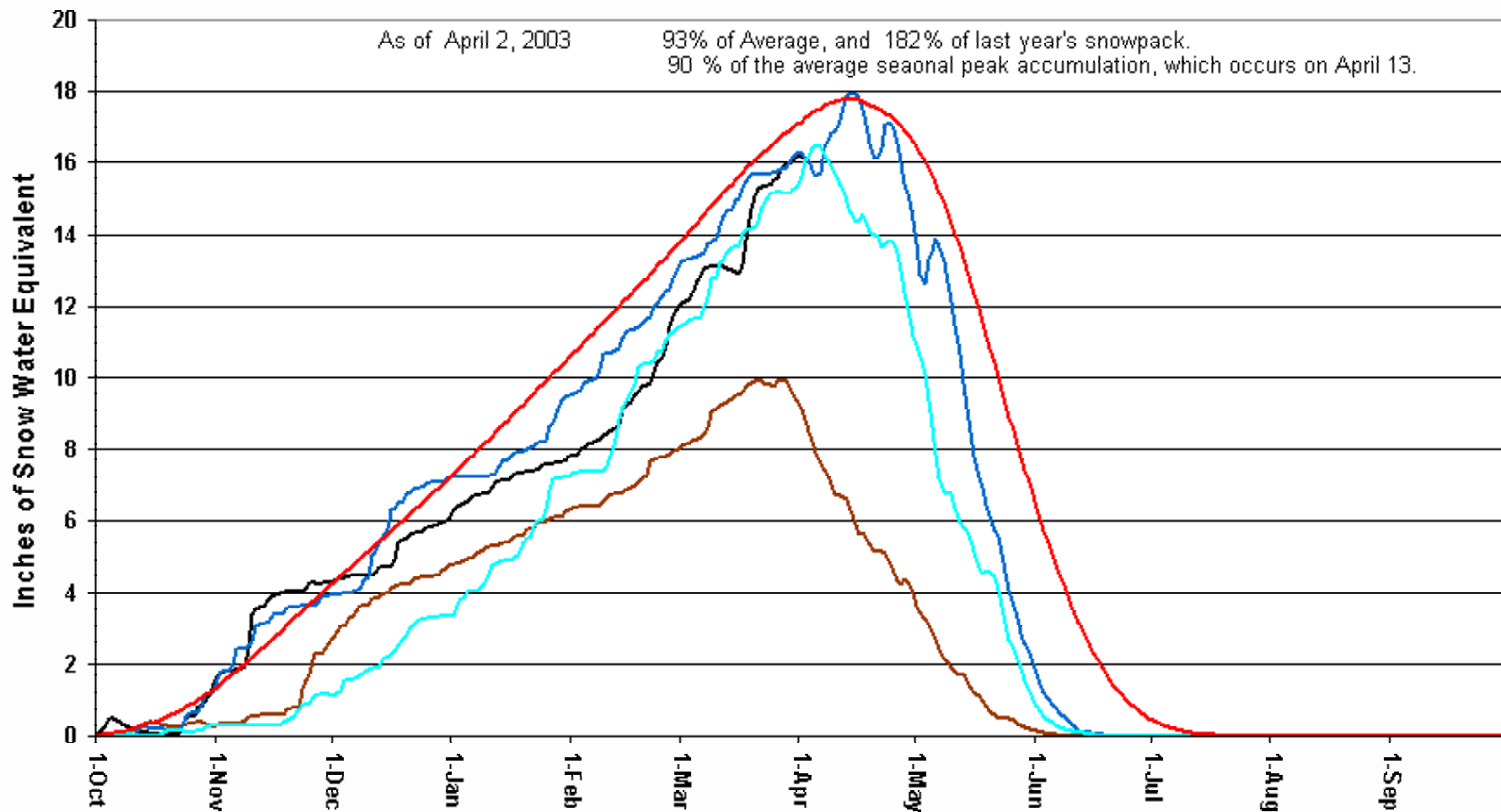
**Author:** Douglas Le Comte, NOAA/NWS/CPC



## Colorado Statewide Snowpack

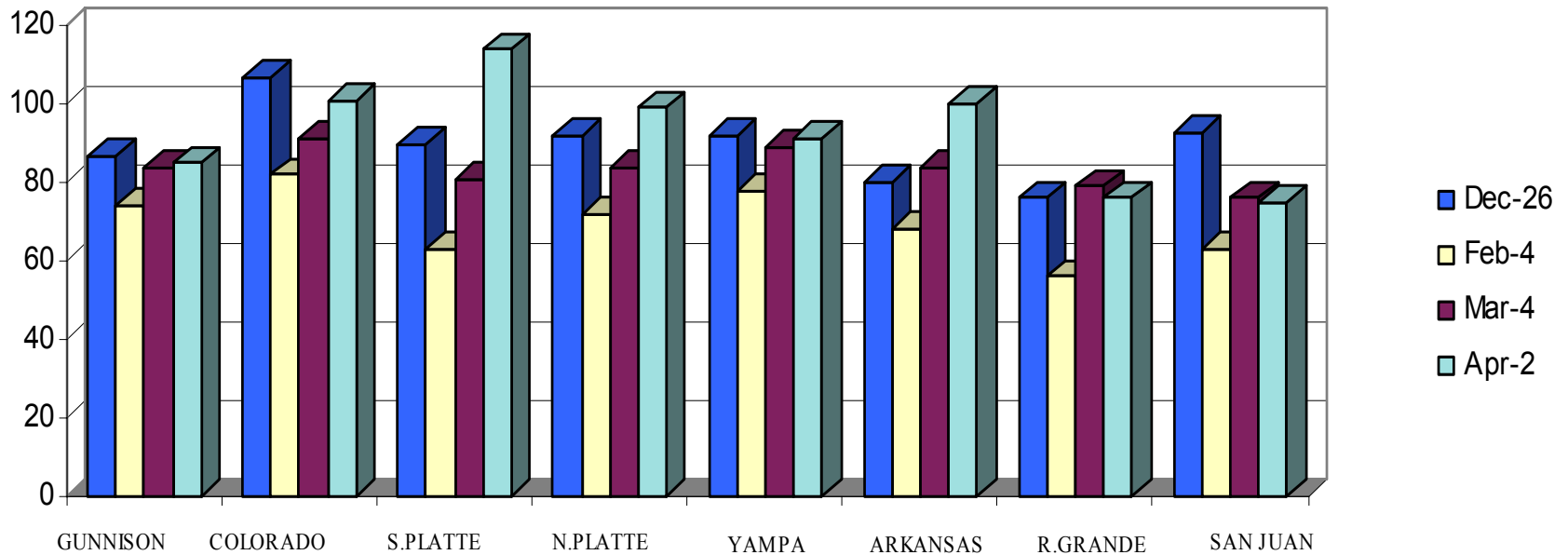
*Based on provisional SNOTEL data.*

— 2003 — 2002 — 2001 — 2000 — Average

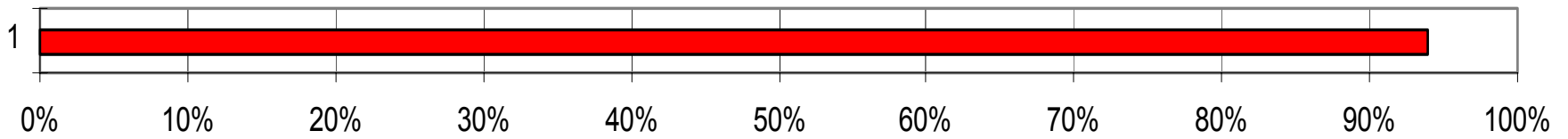




# Statewide Snowpack 94% of Average

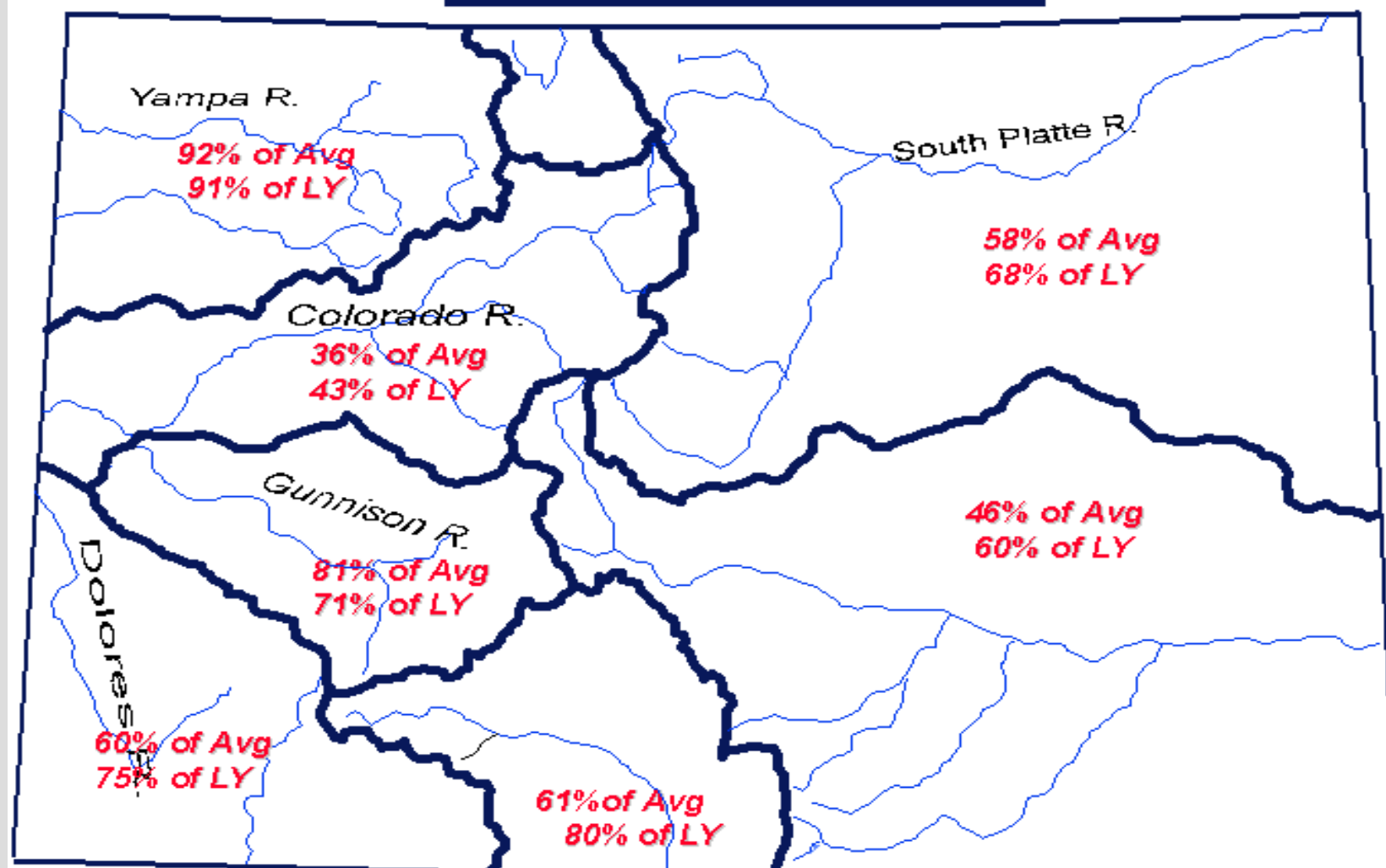


STATEWIDE 94 % OF AVERAGE APR. 02, 2003



# Reservoir Storage

April 1, 2003



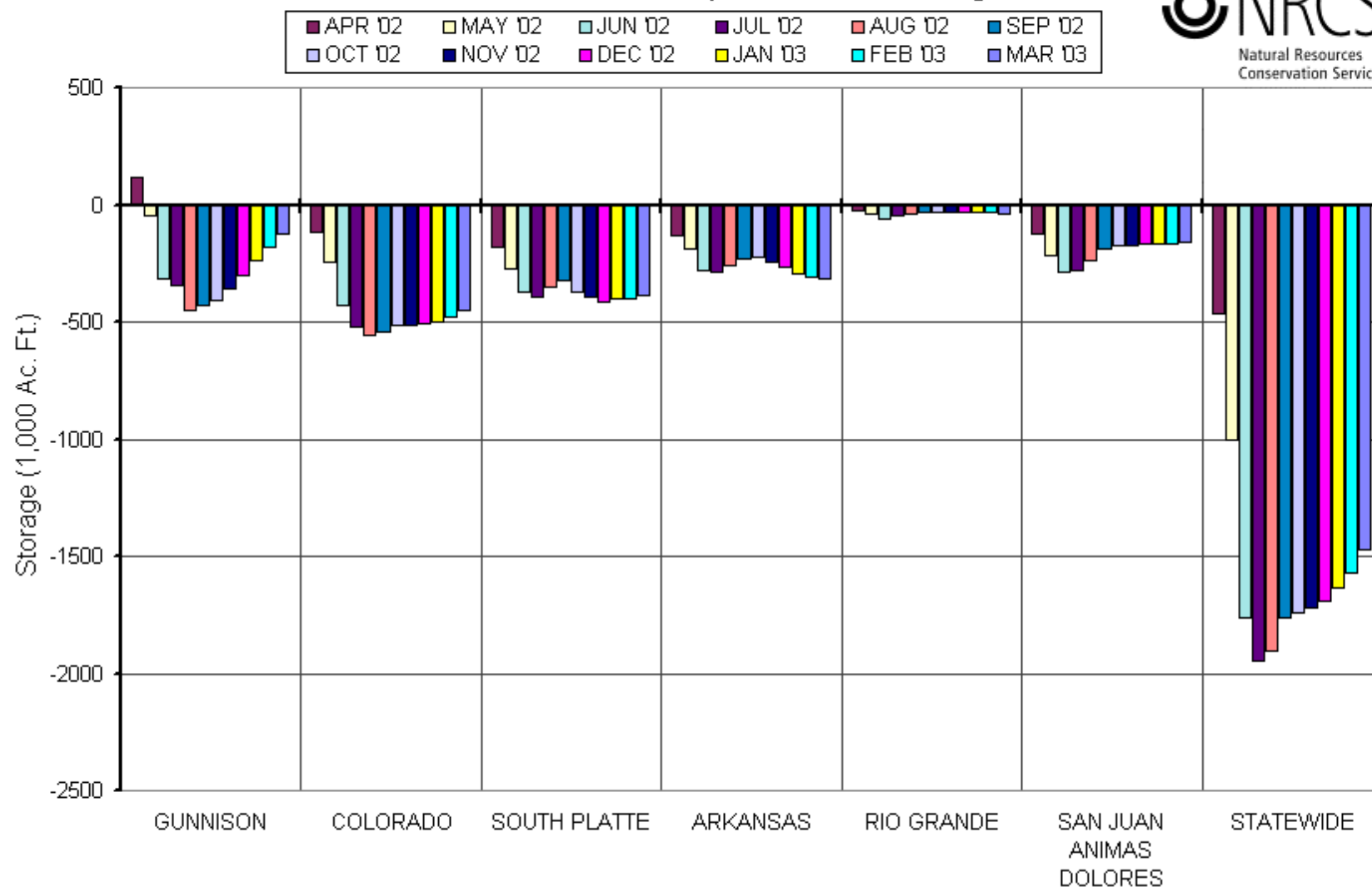
**Statewide: 57% of Average  
64% of Last Year**

# COLORADO RESERVOIR STORAGE

## End-of-Month Departure from Average



Natural Resources  
Conservation Service



# **2003 Drought Conditions**

- **Statewide Snowpack is currently 94% of average, 152% of 2002.**
- **The spring forecast provides great hope for additional snow and rain.**
- **El Nino influence for increased snow and rain appears positive through June with average to wetter than average conditions forecast.**
- **Statewide wildfire conditions will depend on additional spring-summer precipitation.**
- **Many water providers are planning on low water supplies and continued restrictions to recover storage used in the previous three years.**
- **Replacement water to offset well depletions in the South Platte and Arkansas River Basins is extremely limited at this time.**



# Questions?



Think Snow

**The End**