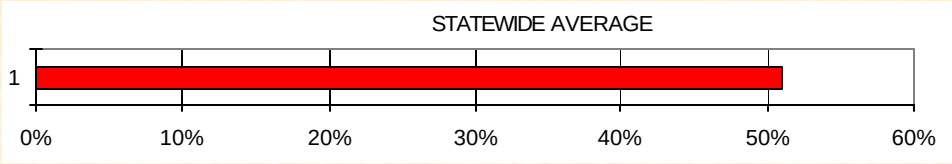
Colorado Drought Watch

April 2, 2002 Drought Updates...

Issue 1, Vol. 1

Statewide Snowpack 52% of Average
as of April 2, 2002



Dry Conditions Affecting Colorado Agriculture. Drought-like conditions are responsible for more than one-third of Colorado's eastern plains winter wheat crop to be rated in poor condition and may be threatening some summer crops. As the state moves closer to the summer months, livestock forage and irrigation water may also be threatened if current dry conditions continue.

Fire Activity Increasing. The first forest wildfire of the year occurred on April 1, 2002 in the Pike National Forest. Fires have also occurred on the eastern plains in Phillips, Kit Carson, El Paso, and Prowers counties. Dry conditions and wind are being cited as contributors to the quickly spreading Kokopelli fire in central New Mexico, which destroyed 28 homes. Several other fires continue to burn in New Mexico. Fire Danger is rated "very high" across most of Colorado, according to the National Interagency Fire Center.

Montana Declares Drought Disaster. Agriculture Secretary Ann Veneman declared the entire state of Montana a drought disaster area on March 28th. The designation clears the way for farmers and ranchers affected by drought to receive emergency loans or other assistance. According to the U.S. Drought Monitor, drought conditions exist across a wide area of the state, with Central Montana hardest hit.

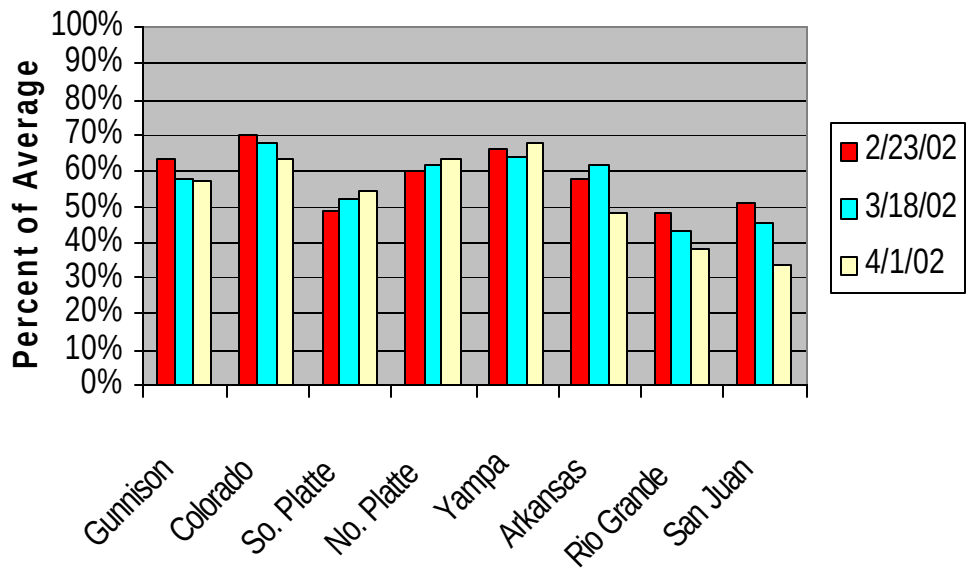
State Launches Drought Study. The Colorado Water Conservation Board has initiated a statewide drought planning assessment to determine Colorado's preparedness level for drought. The assessment will help determine the status of the state's water suppliers' water storage and identify how the CWCB can support water suppliers in planning for and mitigating the impacts of drought. For more information, go to: **www.cwcb.state.co.us**

Drought Facts:

- **Drought occurs when the demand for water exceeds the available supply of water, and it is typically associated with a deficiency of precipitation**
- **This is the fourth straight winter of below normal water conditions.**
- **Drought can occur locally, statewide, or regionally.**
- **After prolonged periods of drought, soil moisture levels may be slow to return to normal, even if precipitation levels increase.**

Snowpack Levels 52% of Average

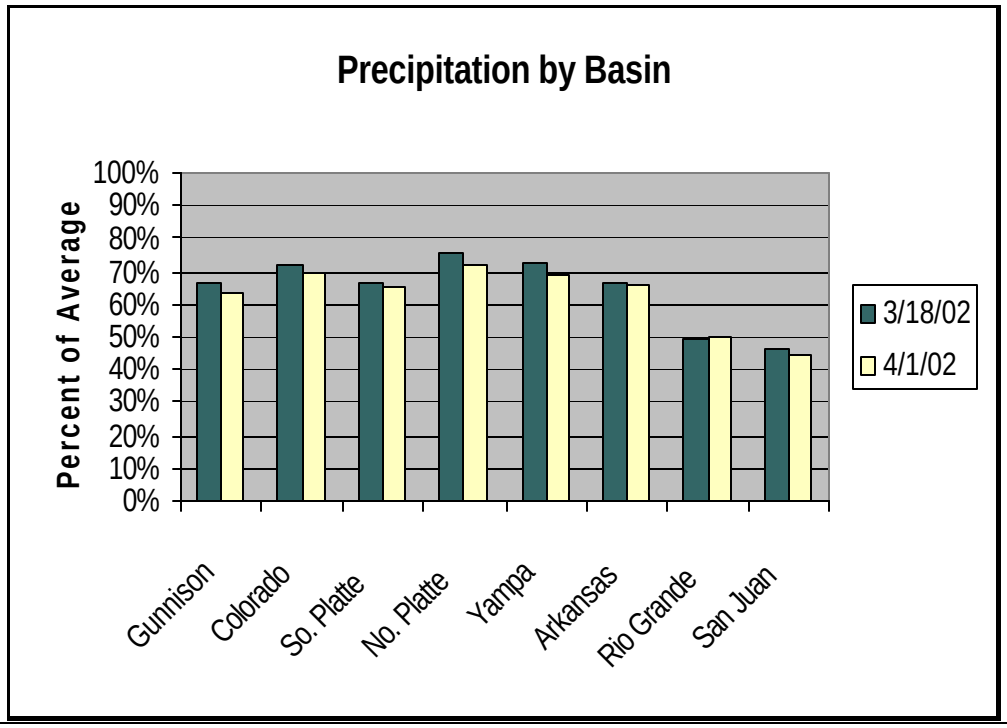
As of April 1, 2002



Snowpack

- Snowfall across Colorado was below average during February and March.
- This marks the fourth consecutive month with below normal snowfall and it has resulted in a continued decrease in the state's snowpack, as a percent of average.
- This is the lowest snowpack on this date since 1977.
- The state's snowpack typically reaches its maximum level around April 1 of each year.

Precipitation as of April 1, 2002

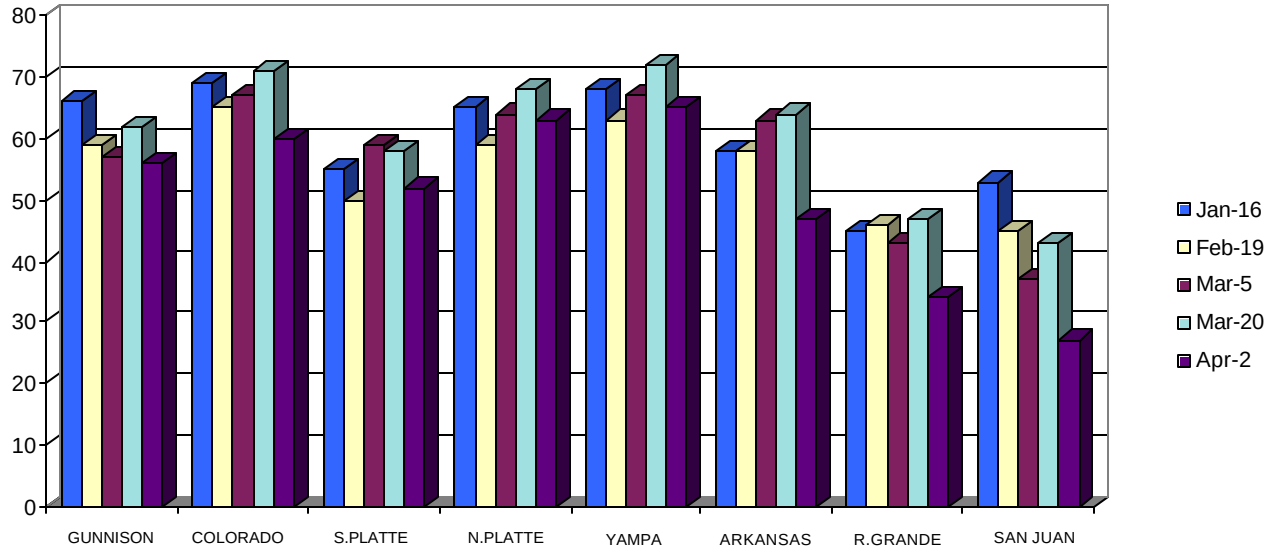


Precipitation:

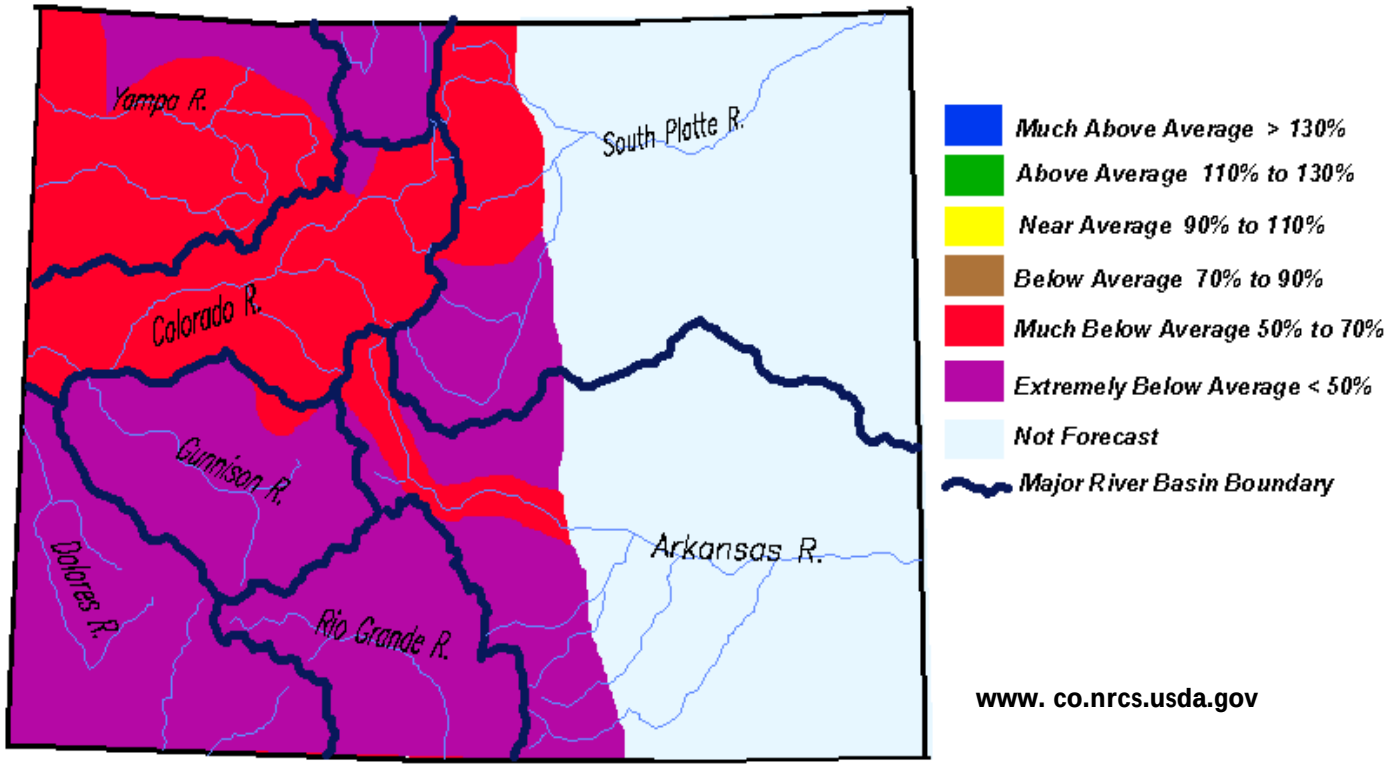
- The liquid equivalent (inches) of rainfall, snow, sleet, or hail, collected by precipitation storage gauges.
- Manually measured precipitation gauges are usually used and are measured near the end of the month to determine an approximate monthly precipitation total.

Snow Water Equivalent by Basin

The depth of water in the snowpack, if the snowpack were melted, expressed in inches.

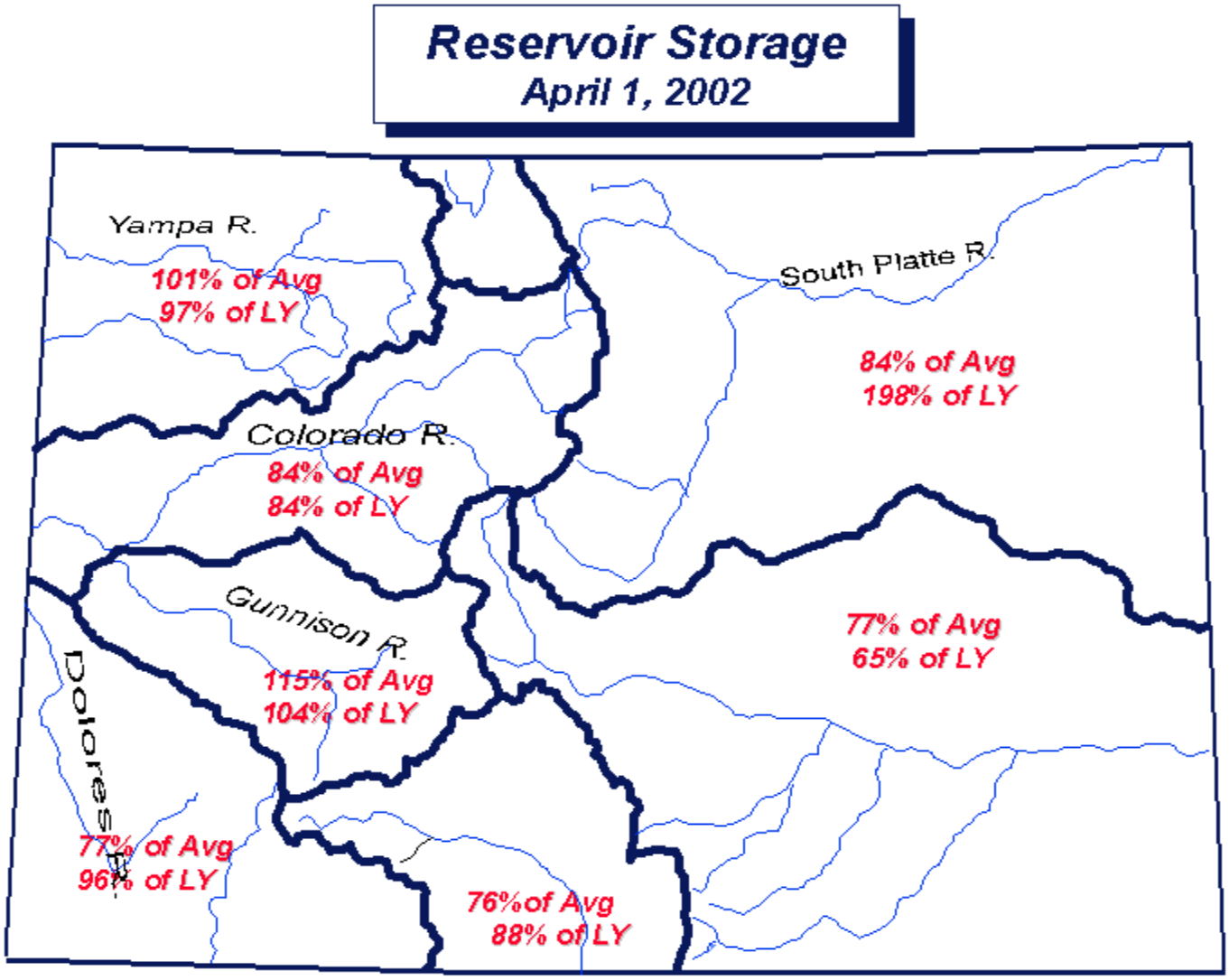


Streamflow Forecasts April 1, 2002



www. co.nrcs.usda.gov

Reservoir Storage by Basin (NRCS) www.co.nrcs.usda.gov/

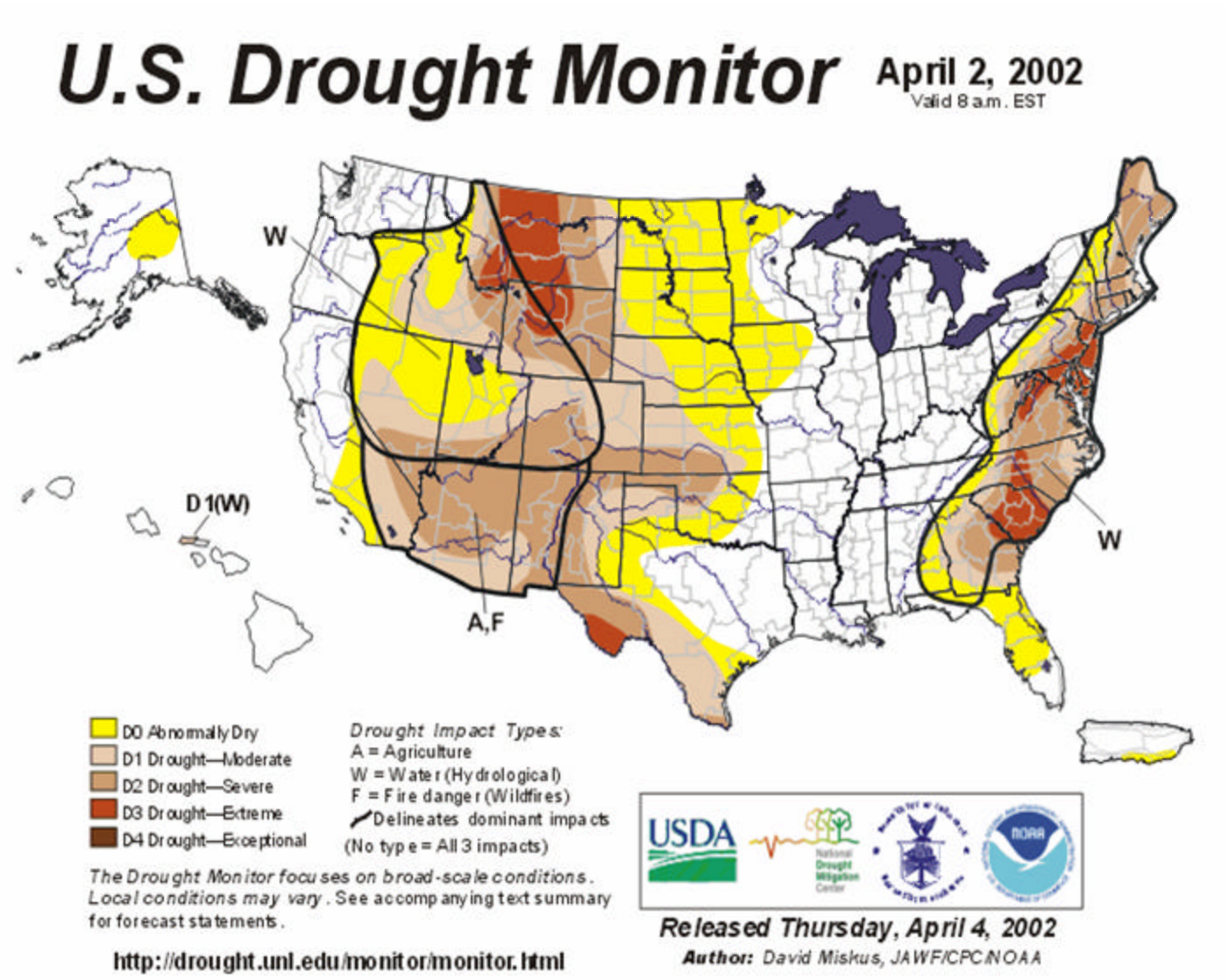


Statewide: 88% of Average
89% of Last Year

Reservoir Storage:

All major western-state storage reservoirs are below their seasonal averages.

Colorado storage percentages are higher than all other western states except California.



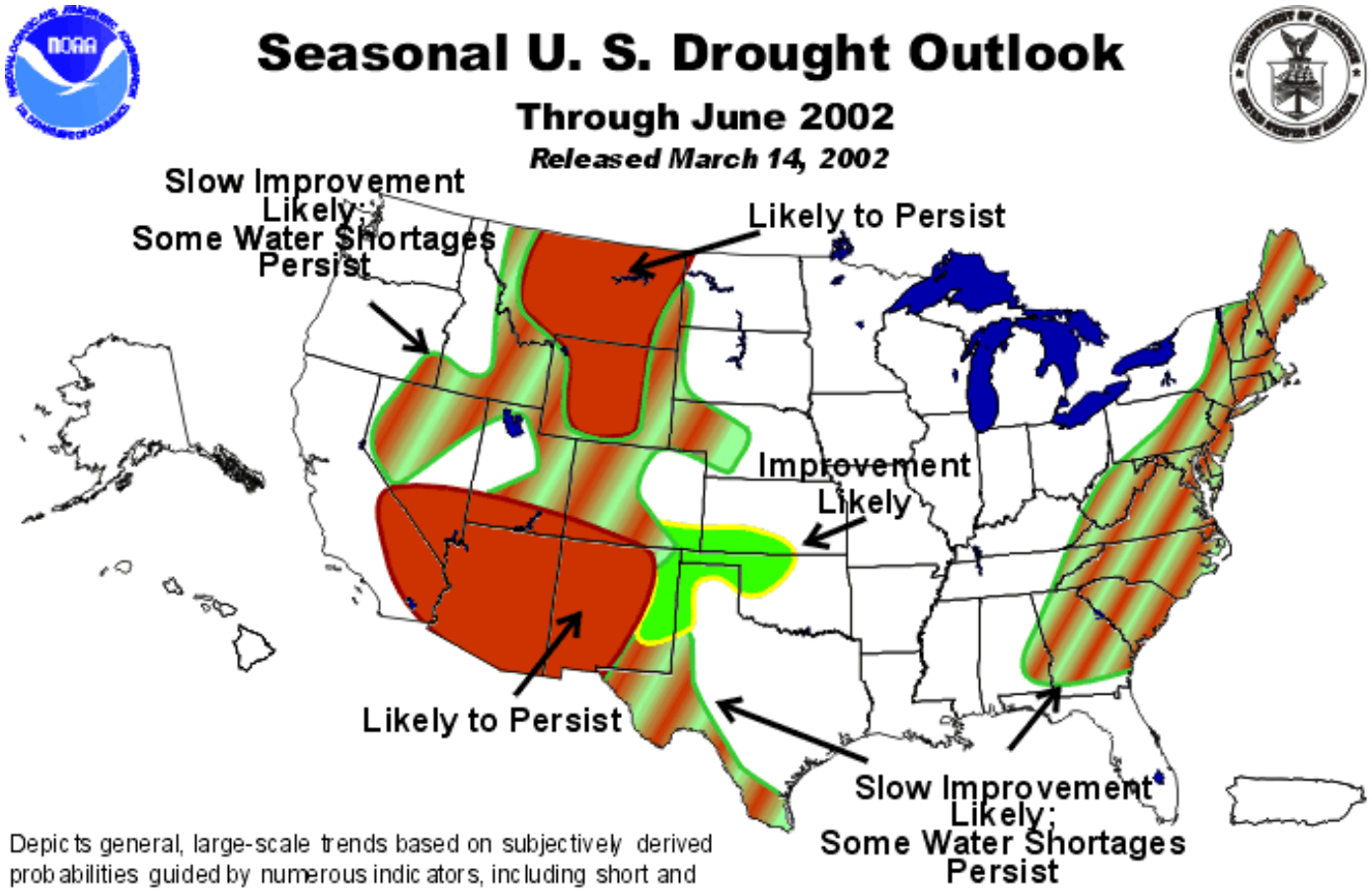
U.S. Drought Monitor

The Drought Monitor is intended to provide a general and up-to-date summary of current drought conditions across the 50 states. It is designed to provide the "big picture" so the general public, media, government officials, and others can see what is happening around the country.

Drought intensity categories are based on six key indicators and numerous supplementary indicators.

The final drought category tends to be based on what the majority of the indicators show.

NOAA Drought Outlook



Depicts general, large-scale trends based on subjectively derived probabilities guided by numerous indicators, including short and long-range statistical and dynamical forecasts. Short-term events--such as individual storms--cannot be accurately forecast more than a few days in advance, so use caution if using this outlook for applications–such as crops–that can be affected by such events. Initial drought areas--shown schematically–are approximated from the Drought Monitor. For weekly updates on drought, see the latest Drought Monitor map and text.

NOAA Seasonal Assessment:

The outlook indicates continued slow improvement in most of the Great Basin and central Rockies, but drought is likely to persist in Montana and Wyoming as well as in the Southwest. Normal to above-normal snowpack extends across the Pacific Northwest, but snowpacks diminish dramatically eastward into the northern Rockies and southward into the Desert Southwest. With the snow season soon coming to a close in the northern Rockies, it is unlikely enough precipitation will fall to bring significant drought relief to Montana and Wyoming. In the Southwest, where recent dryness has raised fire concerns, the season is also coming to an end, making significant dryness relief difficult until the summer rainy season starts. Slow improvement, with some lingering water shortages, can be expected in west and south Texas. Drought improvement is likely in Kansas, Oklahoma, southeast Colorado, and northwestern New Mexico.

"Drought improvement is likely in Kansas, Oklahoma, southeast Colorado, and northwestern New Mexico"

About SNOTEL

The Natural Resources Conservation Service (NRCS) installs, operates, and maintains an extensive, automated system to collect snowpack and related climatic data in the Western United States called, SNOwpack TELemetry (SNOTEL). The system evolved from NRCS's congressional mandate in the mid-1930's "to measure snowpack in the mountains of the West and forecast the water supply." The programs began with manual measurements of snow courses; since 1980, SNOTEL has reliably and efficiently collected the data needed to produce water supply forecasts and to support the resource management activities of NRCS and others.

The sites are generally located in remote high-mountain watersheds where access is often difficult or restricted. Access for maintenance by NRCS includes various modes from hiking and skiing to helicopters.

Sites are designed to operate unattended and without maintenance for a year. They are battery powered with solar cell recharge. The condition of each site is monitored daily when it reports on 8 operational functions. Serious problems or deteriorating performance trigger a response from the NRCS electronic technicians located in six data collection offices.

Common Drought and Moisture Indexes

- **Surface Water Supply Index** (SWSI) is a weighted index of snow pack, stream flow, precipitation and reservoir storage.
- **Standardized Precipitation Index** (SPI) is considered to be the simplest and most robust index for describing drought patterns. It is based on current and historical precipitation data for a particular location.
- **Palmer Drought Index** is a complex soil moisture calculation used by federal agricultural agencies in determining drought assistance to local farmers and ranchers.
- **Crop Moisture Index**, developed from the Palmer Drought Index, evaluates short-term moisture conditions across major crop producing regions of the U.S.
- **Reservoir levels** indicates the amount of water in storage at various water supply reservoirs.

About the U.S. Drought Monitor

The Drought Monitor map identifies general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. D0 drought watch areas, are either drying out and possibly heading for drought, or are recovering from drought but not yet back to normal, and are suffering long-term impacts such as low reservoir levels.

Drought intensity categories are based on six key indicators and numerous supplementary indicators. Because the ranges of the various indicators often don't coincide, the final drought category tends to be based on what the majority of the indicators show. The analysts producing the map also weigh the indices according to how well they perform in various parts of the country and at different times of the year. Also, additional indicators are often needed in the West, where winter snowfall has a strong bearing on water supplies.

A partnership consisting of the U.S. Department of Agriculture, the National Weather Service's Climate Prediction Center, and the National Drought Mitigation Center at the University of Nebraska Lincoln produces the Drought Monitor. However, advice from many other sources is incorporated in the product, including virtually every government agency dealing with drought.

Colorado Drought Watch

The Colorado Water Conservation Board would like to thank the following entities for their cooperation with Colorado Drought Watch:

United States Department of Agriculture
NRCS Natural Resources Conservation Service
National Water & Climate Center

http://www.nrcs.usda.gov/

http://www.noaa.gov/

Colorado Division of Water Resources

http://water.state.co.us/

Colorado Department of Local Affairs

http://www.dola.state.co.us/