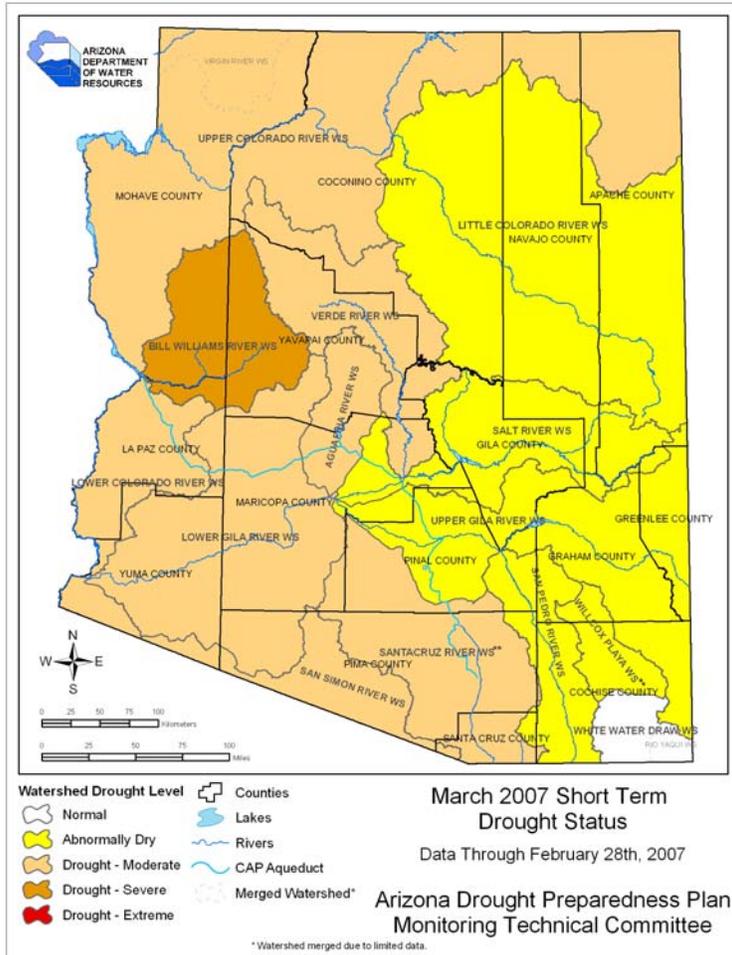


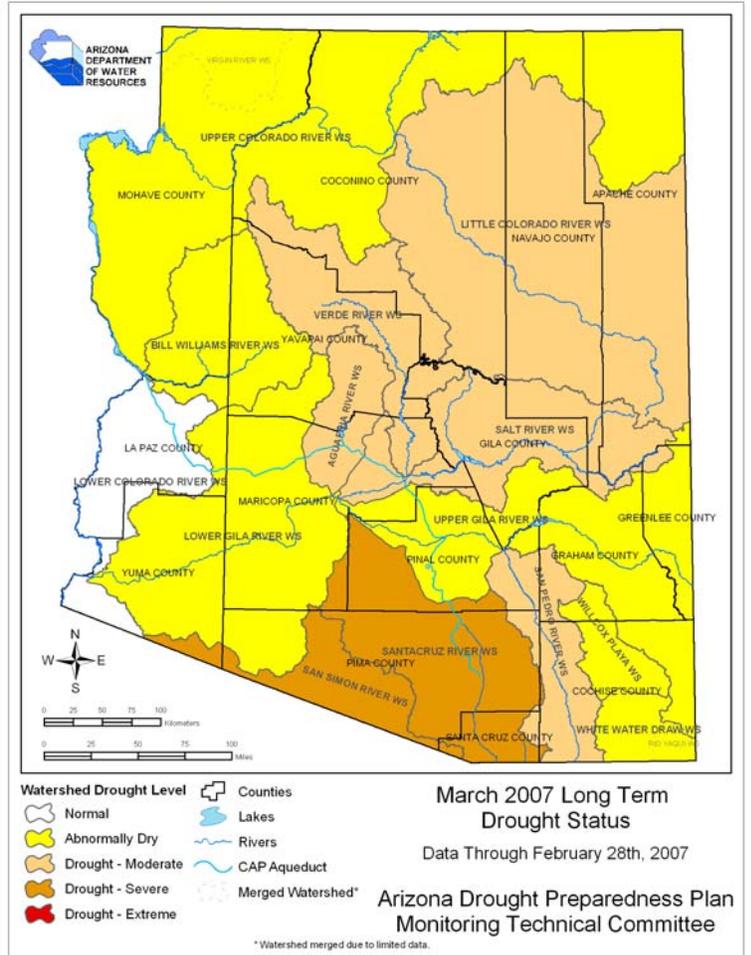
# Arizona Drought Monitor Report

## March 2007

### Short-term Drought Status



### Long-term Drought Status



#### Short-term Update

The western half of the state is in moderate to severe drought based on precipitation during the past 12 months, while the eastern half of the state is abnormally dry. The eastern half of the state has benefited from higher elevations which have wrung a little more moisture out of the few storms that crossed the state in the past year. Although the Bill Williams, Little Colorado, Lower Gila, and Salt River watersheds all improved by one category since last month's update, these short-term improvements are not likely to be maintained without additional spring precipitation. Although the March storms in the higher elevations brought some snow, most of the snowpack has already melted without bringing much relief to the rangeland.

#### Long-term Update

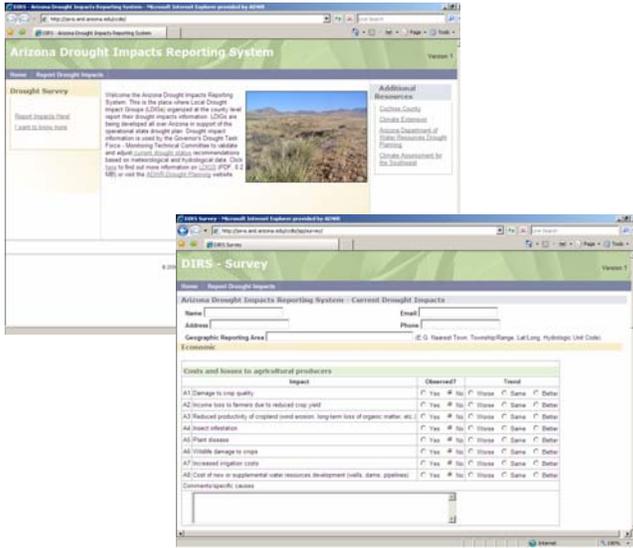
There is little change from last month, with the Lower Colorado being the only watershed under normal conditions. The northern, western, and southeastern watersheds are abnormally dry, while the central, Little Colorado and San Pedro watersheds are in moderate drought. The south central watersheds are in severe drought for the long-term. These conditions are consistent with last month's prediction from the National Drought Monitor that most of Arizona would have a persistent drought. This month the National Drought Monitor predicts persistent to worsening drought, and since April and May are normally dry in Arizona, no improvements in statewide long-term drought conditions are anticipated.



# Drought Impacts



## Online Drought Impact Reporting Coming Soon!



### Who can report drought impacts?

Anyone and everyone! Arizona's online tool will provide easy reporting capabilities to anyone who is interested in monitoring drought. Help us spread the word. We're interested in hearing from:

- ◆ Citizen reporters
- ◆ Watershed groups
- ◆ Land management professionals - local, state and federal
- ◆ Farmers
- ◆ Ranchers
- ◆ Water resource professionals

### What will be reported?

- ◆ Costs and losses to agricultural and livestock producers
- ◆ Aquatic impacts
- ◆ Wildlife impacts
- ◆ Plant species and plant community impacts
- ◆ Hydrological impacts

### How do communities benefit from reporting drought impacts?

- ◆ Local "ground-truthing" provides a more accurate picture of drought in Arizona.
- ◆ Helps to inform local level planning efforts.
- ◆ Real impacts to Arizona citizens are more meaningful to state leaders than climatological statistics. Helps demonstrate state vulnerabilities and needs so that resources can be directed to most impacted areas.
- ◆ Web site allows users to view and compare other impact reports in their area and statewide.

### Impact Reporter

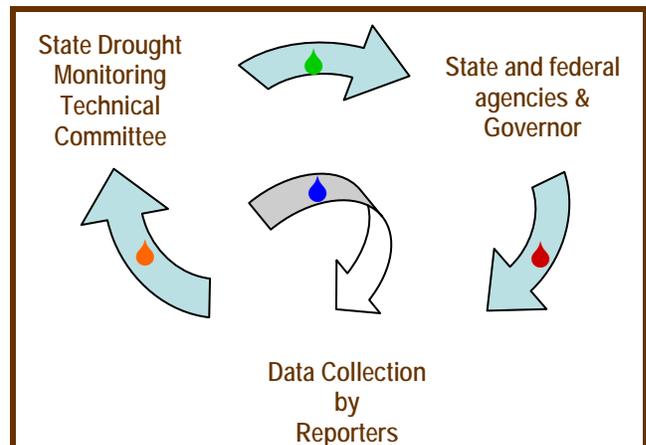
Drought impact reporters in Yavapai County report that stock tanks are beginning to dry. Those that do not hold very much water are rapidly being reduced and without adequate runoff could be dry by next month. Larger stock tanks could contain water a little longer, but by late April the majority of those could be dry.

Forage production is beginning to suffer. Green annual production is significantly reduced and is very unlikely to recover even if there is some March precipitation. Perennial forage production is also beginning to suffer, and soil moisture is beginning to dry out due to lack of winter moisture and warm temperatures early in the year. Given the lack of winter precipitation to "carry" the rancher through the normally dry period of April through June, and the warm temperatures so early in the year, this period could become a very critical season for livestock and wildlife.

In northern Arizona, ranchers in Navajo and east Coconino County report that stock ponds are low. Annual vegetation is green, but there is very little flow in the Little Colorado and other area streams. They predict that plant life will begin suffering as temperatures rise. In the Colorado River watershed, ranchers report that snowpack is almost gone. Drought has been a battle for over 10 years, and herds have already been reduced to the point that the number of animals barely covers the bills.

### How is the data used?

- ◆ Members report impact data - qualitative and quantitative. Data is used by the State Drought Monitoring Technical Committee to confirm drought status in each watershed.
- ◆ Data gaps & needs are elevated to state agencies (Interagency Coordinating Group) & Governor
- ◆ Drought status feedback from the Monitoring Technical Committee provides guidance to Drought Impact Groups for mitigation & response strategies
- ◆ State helps locate and direct resources to help communities prepare for and respond to drought



# Reservoir Storage



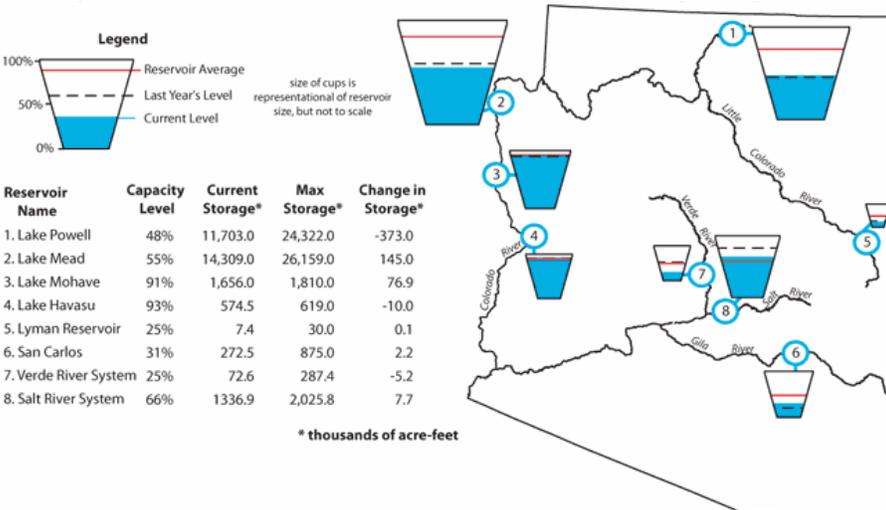
USDA NRCS Dr. Ken Dewey, High Plains Regional Climate Center

## Arizona Reservoir Status

Storage along the Colorado River generally saw a decline over the past thirty days due to limited inflow from abnormally dry conditions during January and February (see figure below). Lakes Powell, Mead, Mohave, and Havasu all saw significant reductions in water levels. Elsewhere, the San Carlos and Salt River systems experienced gains in water levels relative to last month.

Current snowpack above Lake Powell is 81 percent of average and April–July inflow is forecast to be 71 percent of average. Storage along the Colorado is expected to continue to decrease until mid-April when snowmelt runoff will once again increase water elevation. According to the U.S. Bureau of Reclamation's current inflow forecast, peak storage along the Colorado will be in late June or early July.

Arizona reservoir levels for February 2007 as a percent of capacity. The map depicts the average level and last year's storage for each reservoir, while the table also lists current and maximum storage levels.



Photos by the National Park Service

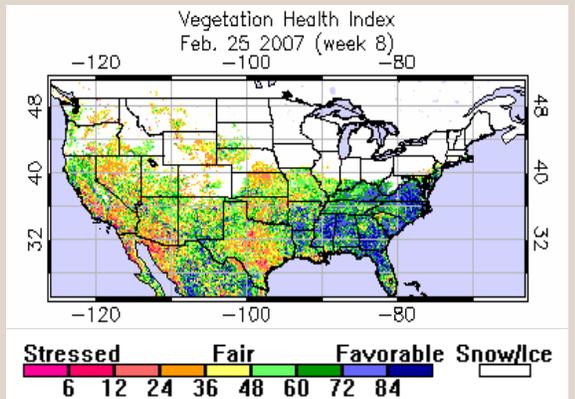
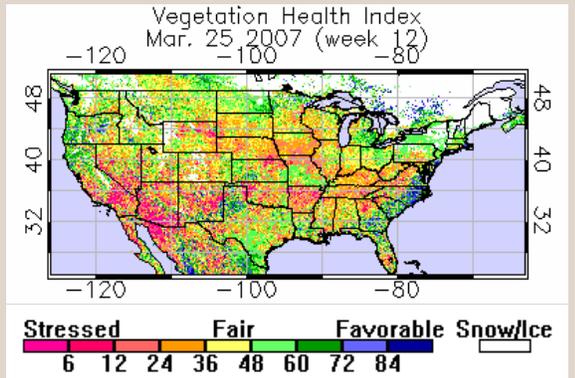
# Vegetation Health



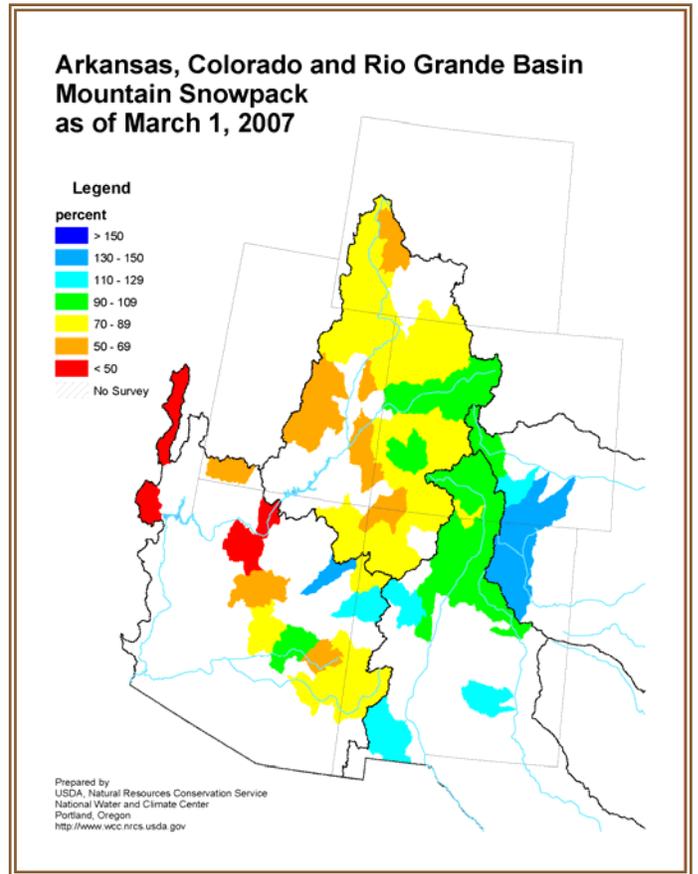
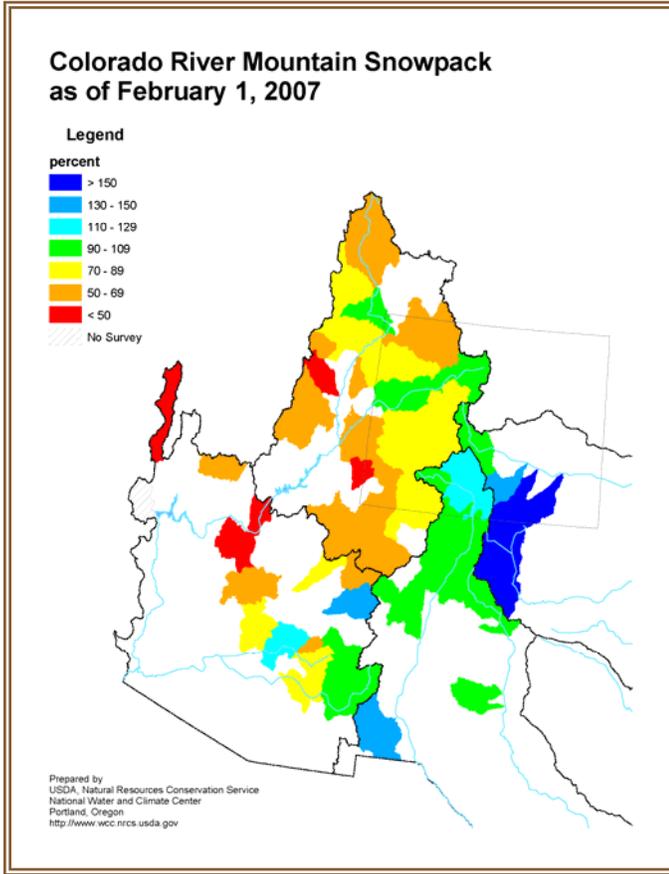
Jeff Sevoss

Satellite-derived images from the NOAA National Environmental Satellite, Data and Information Service were taken March 25, 2007 (top figure) and February 25, 2007 (bottom figure). Vegetation conditions have deteriorated throughout Arizona and the Southwest due to recent dry conditions.

Vegetation is stressed in most areas, especially in the south and southwestern portions of the state. From the current image, areas along the Mogollon Rim still have relatively healthy vegetation. Much of the state received precipitation March 22<sup>nd</sup>- March 24<sup>th</sup> that may improve vegetation health in the short term. Further improvements in vegetation health are uncertain as Arizona enters climatologically dry spring and climate forecasts call for equal chances of below, average, or above-average precipitation in the upcoming months.



# Mountain Precipitation



Snowpack levels remain well below average for this time of year, ranging from 58 percent to 87 percent of average (see table). Data from high elevation SNOTEL sites show that precipitation for February was 67 percent of average over the Salt River basin, 46 percent of average over the Verde River basin, and 68 percent of average over the San Francisco-Upper Gila River basin. The Little Colorado River basin received 72 percent of average precipitation in February. Cumulative precipitation since October 1 is low in all basins, ranging from 47 percent to 75 percent of average.

## Mountain Snowpack

Watershed	Snowpack Levels as of March 1 (% 30-yr. average)
Salt River Basin	77%
Verde River Basin	58%
Little Colorado River Basin	70%
San Francisco-Upper Gila River Basin	87%
<b>Other Points of Interest</b>	
Central Mogollon Rim	80%
Grand Canyon	13%
Arizona Statewide	71%

## Water Year Precipitation

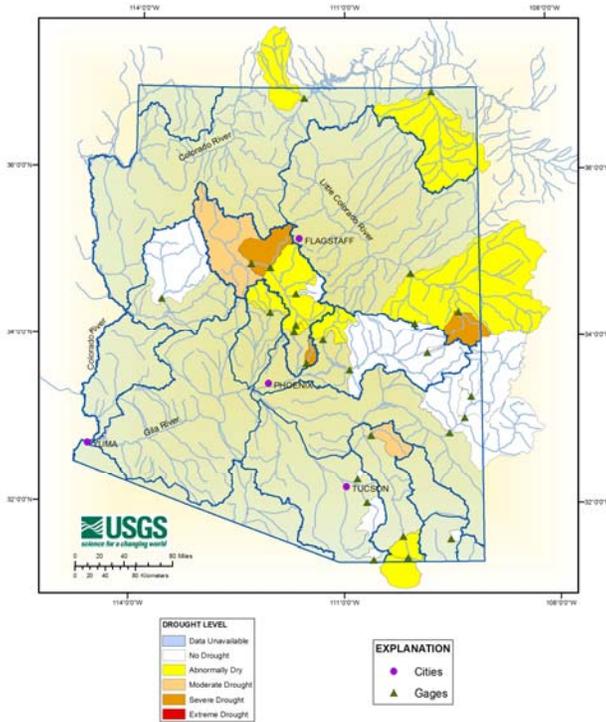
Watershed	Cumulative Precip. Oct. 1-February (% 30-yr. average)
Salt River Basin	69%
Verde River Basin	47%
Little Colorado River Basin	69%
San Francisco-Upper Gila River Basin	75%
<b>Other Points of Interest</b>	
Central Mogollon Rim	69%
Grand Canyon	55%
Arizona Statewide	----

# Mountain Streamflow



## Drought Levels Based on Monthly Streamflow Discharge

February 2007



## February Streamflow

February runoff volumes were below median.

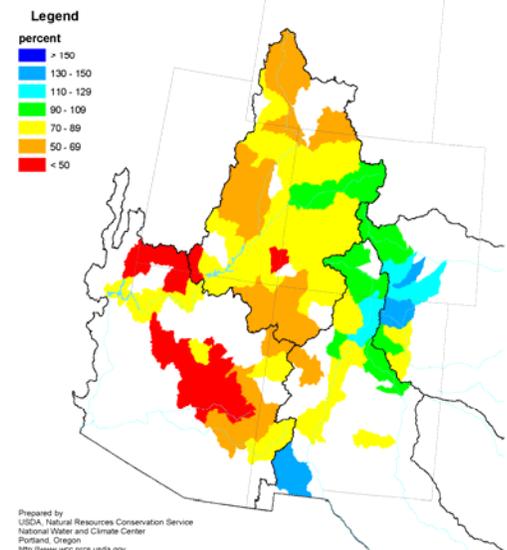
Water body	February Runoff in Acre Feet	% of Median
Salt River near Roosevelt	25,888	60%
Tonto Creek	3,909	26%
Verde River at Horseshoe Dam	15,297	43%
Combined Inflow to Salt River Project (SRP) reservoir system	45,094	41%
Little Colorado River above Lyman Lake	224	45%
Gila River to San Carlos Reservoir	17,410	87%

## Streamflow Forecasts

Water users and managers can expect below normal flows this spring and summer, ranging from 49 percent of average in the Virgin River at Littlefield, AZ to 86 percent of median in the Little Colorado River at Woodruff, AZ.

Water body	Forecasted Runoff (February-May unless noted) in Acre Feet	% of 30-yr. median (unless noted)
Salt River near Roosevelt	195,000	55%
Tonto Creek	35,000	70%
Verde River at Horseshoe Dam	140,000	70%
San Francisco River at Clifton	48,000	81%
Gila River near Soloman	111,000	77%
San Carlos reservoir inflow	66,000	79%
Little Colorado River above Lyman Lake	Feb-June – 5,700	80%
Little Colorado River at Woodruff	2,400	86%
Colorado River inflow to Lake Powell	Apr-July – 5.9 million	74% of 30-yr. avg.
Virgin River at Littlefield	Apr-July – 36,000	49% of 30-yr. avg.

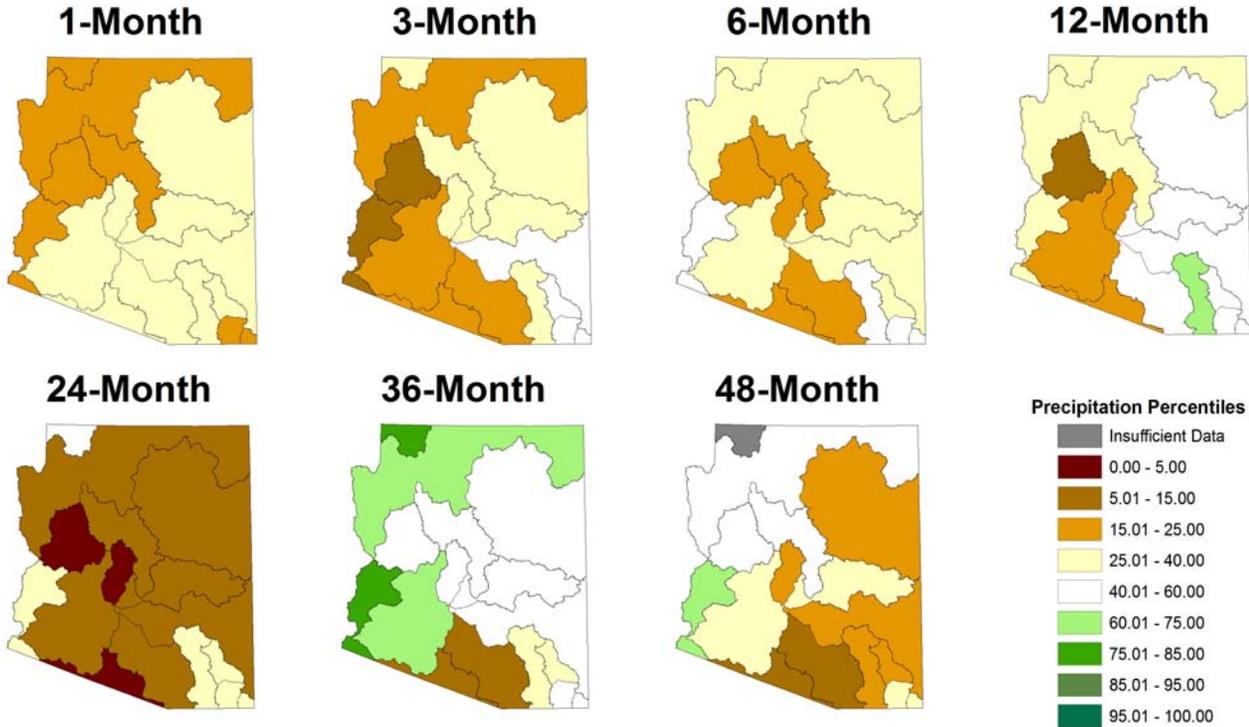
## Arkansas, Colorado and Rio Grande Spring and Summer Streamflow Forecasts as of March 1, 2007



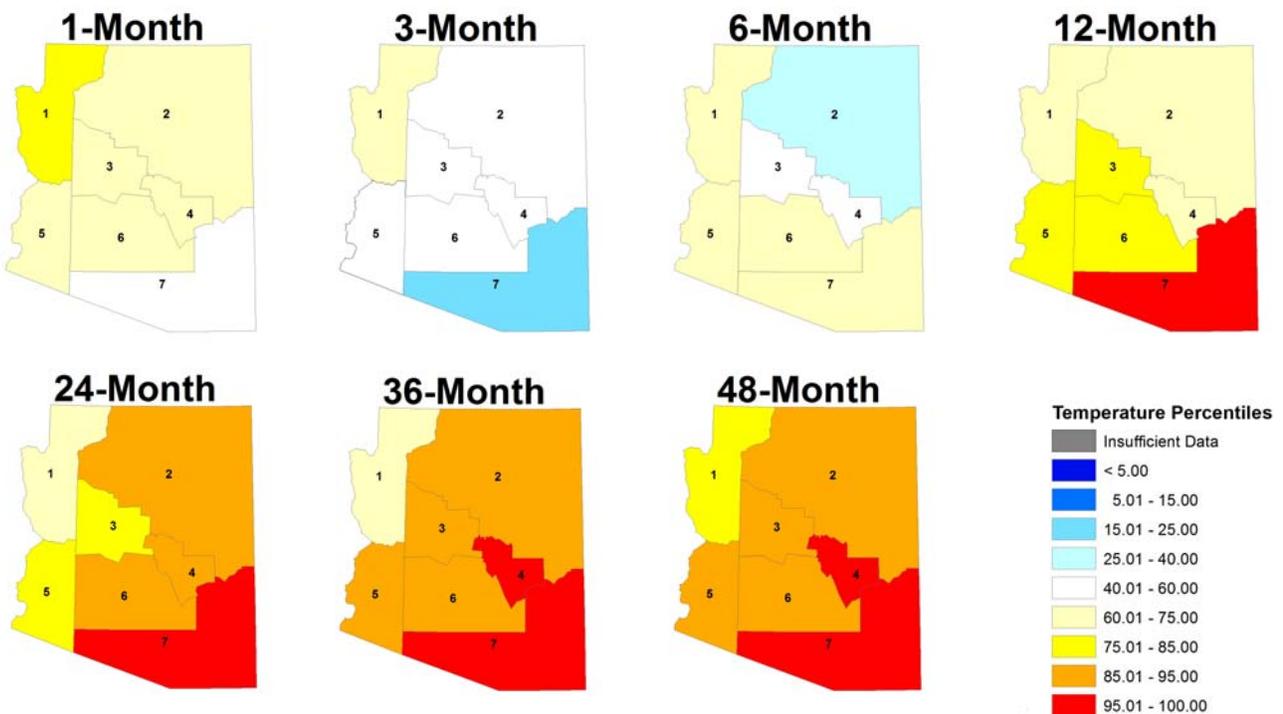
# Temperature and Precipitation



## Precipitation Percentiles by Watershed



## Temperature Percentiles by Climate Division



For more information, visit <http://www.public.asu.edu/~aunj/Update.html>.

# Weather Outlook



*Arizona Drought Monitor Report* -  
Produced by the Arizona State Drought  
Monitoring Technical Committee

Co-chairs:  
Gregg Garfin, University of Arizona –  
Institute for the Study of Planet Earth  
Tony Haffer, National Weather Service

Mike Crimmins, Extension Specialist,  
University of Arizona Cooperative  
Extension

Charlie Ester, Salt River Project

Larry Martinez, Natural Resources  
Conservation Service

Ron Ridgway, Arizona Division of Emer-  
gency Management

Nancy Selover, Asst. State Climatologist  
Arizona State University

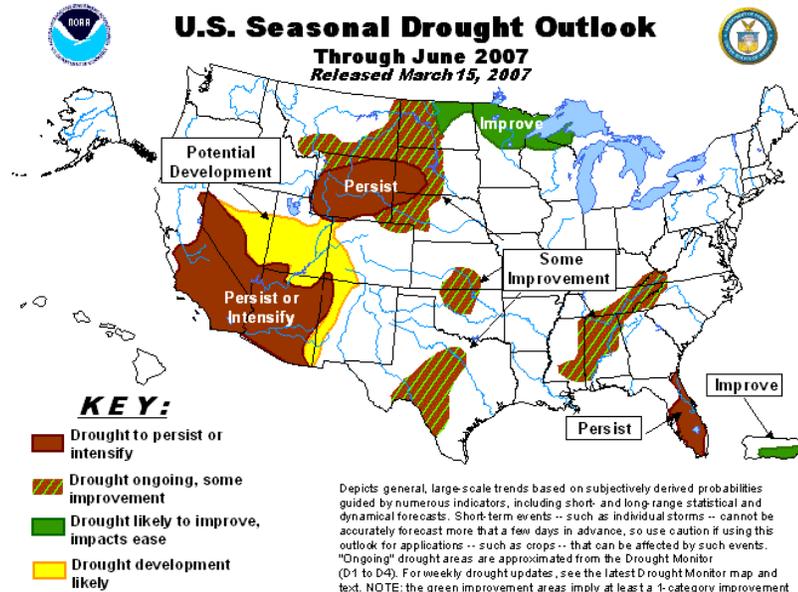
Chris Smith, U.S. Geological Survey

Coordinator: Susan Craig, Arizona  
Department of Water Resources  
Computer Support: Andy Fisher, Arizona  
Department of Water Resources



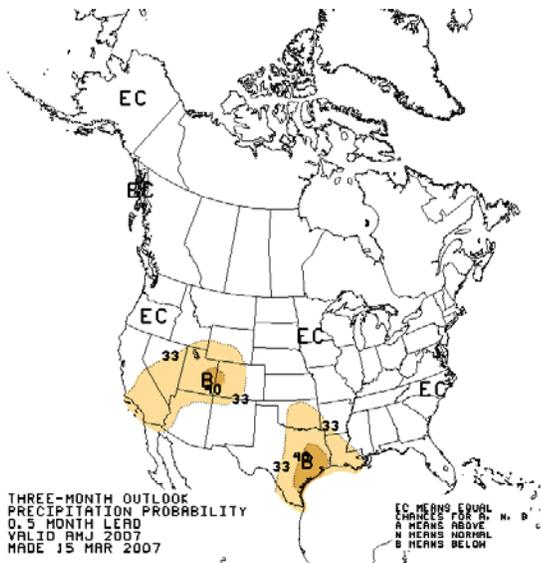
## Drought Outlook

The NOAA Climate Prediction Center Seasonal Drought Outlook indicates the entire state will see drought conditions persist or intensify through June 2007.



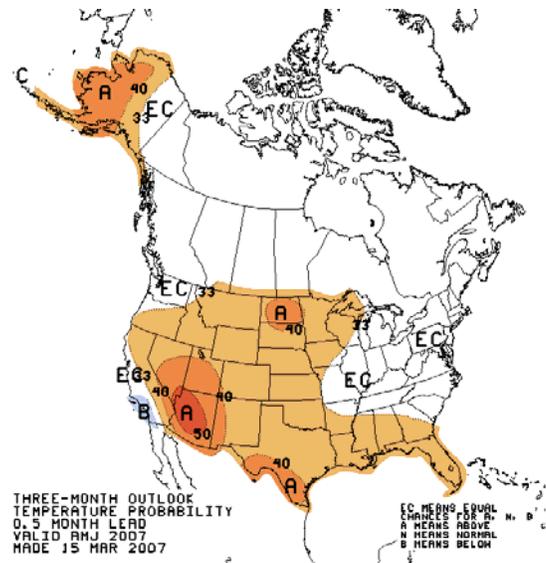
Also see the most current Southwest Climate Outlook - [www.ispe.arizona.edu/climas/forecasts/swoutlook.html](http://www.ispe.arizona.edu/climas/forecasts/swoutlook.html)  
For additional weather information from the Office of the State Climatologist for Arizona - <http://geography.asu.edu/azclimate>

## April to June Weather Outlooks



### Precipitation

Fair amount of confidence precipitation will be near to below average statewide during the 90-day period. It must be noted the April through June period is typically a very dry period for Arizona virtually every year.



### Temperature

High level of confidence temperatures will be above average