

# NRCS – Snow Survey & Water Supply Forecasting

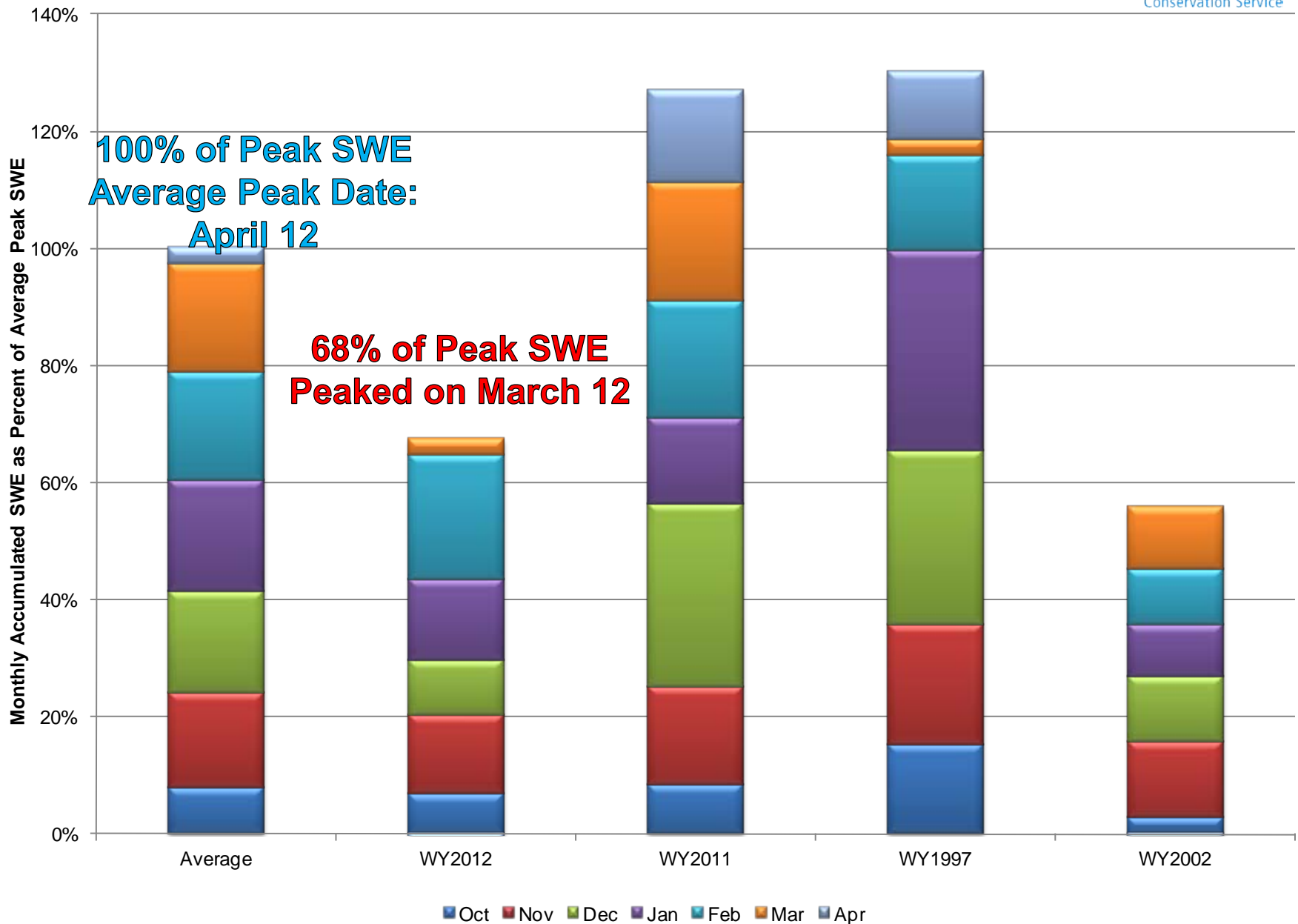
Mage Hultstrand

Water Availability Task Force Meeting

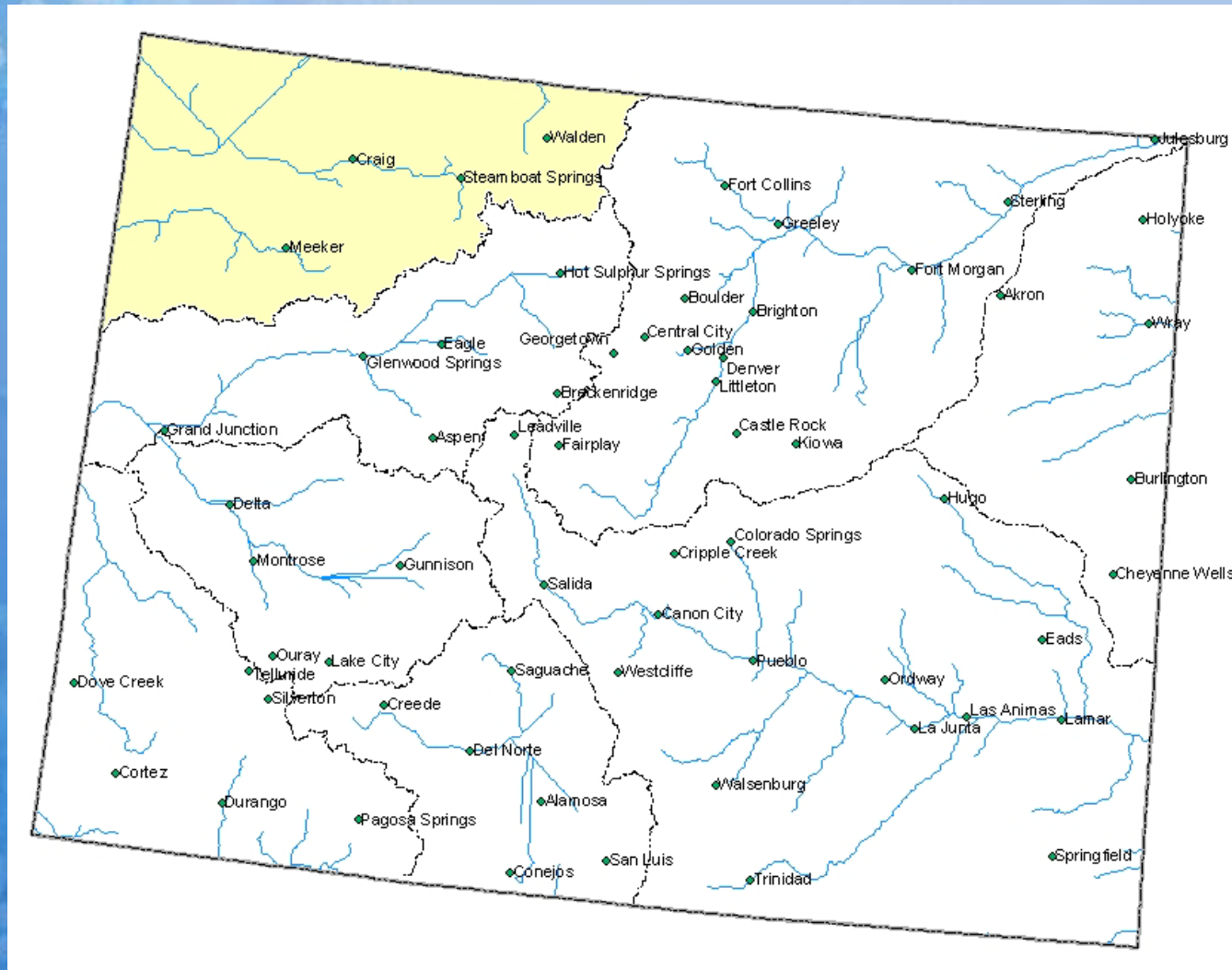
April 18, 2012

# Colorado Statewide High/Low Monthly Snowpack Summary

Based on Provisional SNOTEL data as of Apr 17, 2012

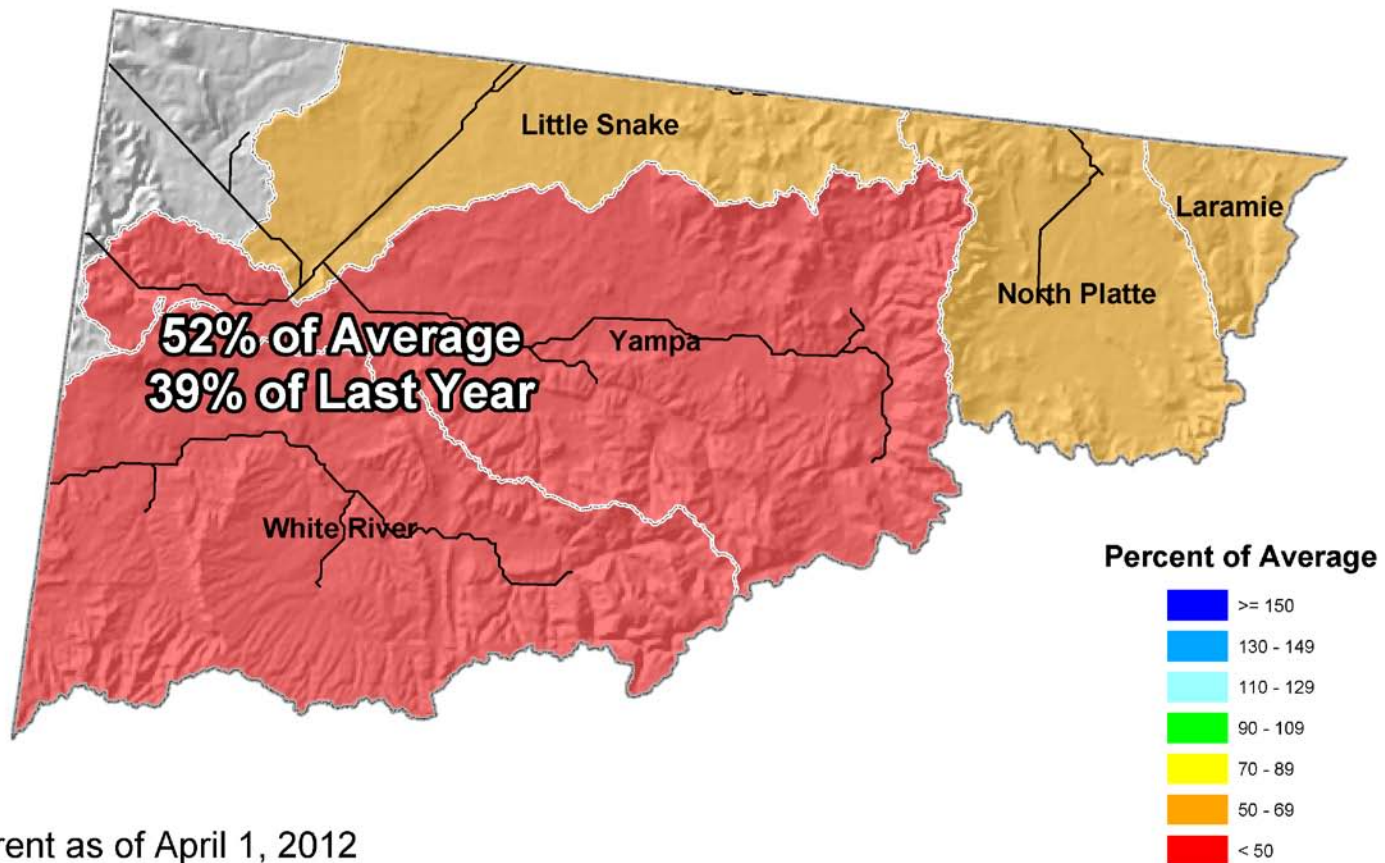


# Yampa, White & North Platte River Basins Summary



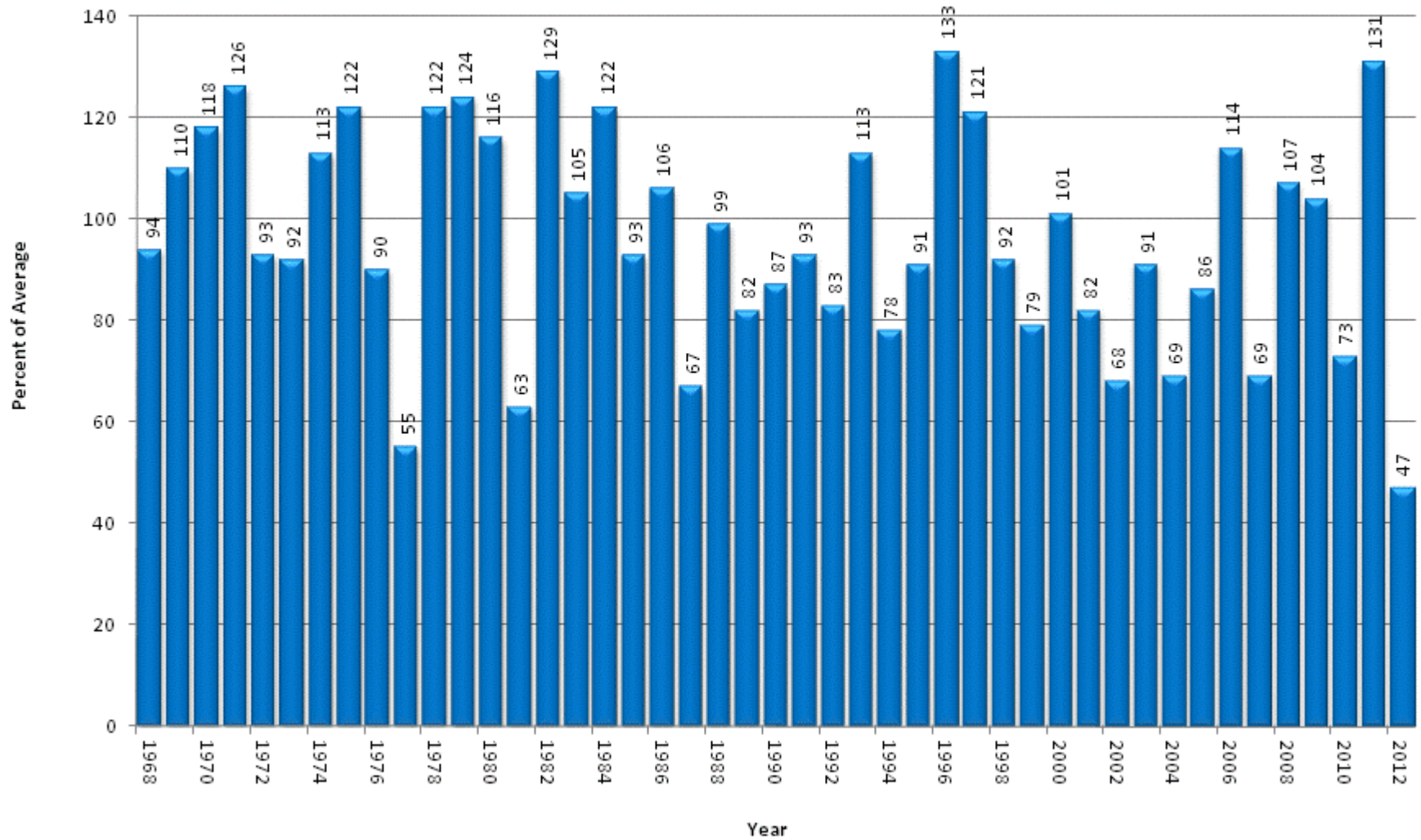
## Yampa, White and North Platte River Basins Snowpack Map

*Provisional Data  
Subject to Revision*



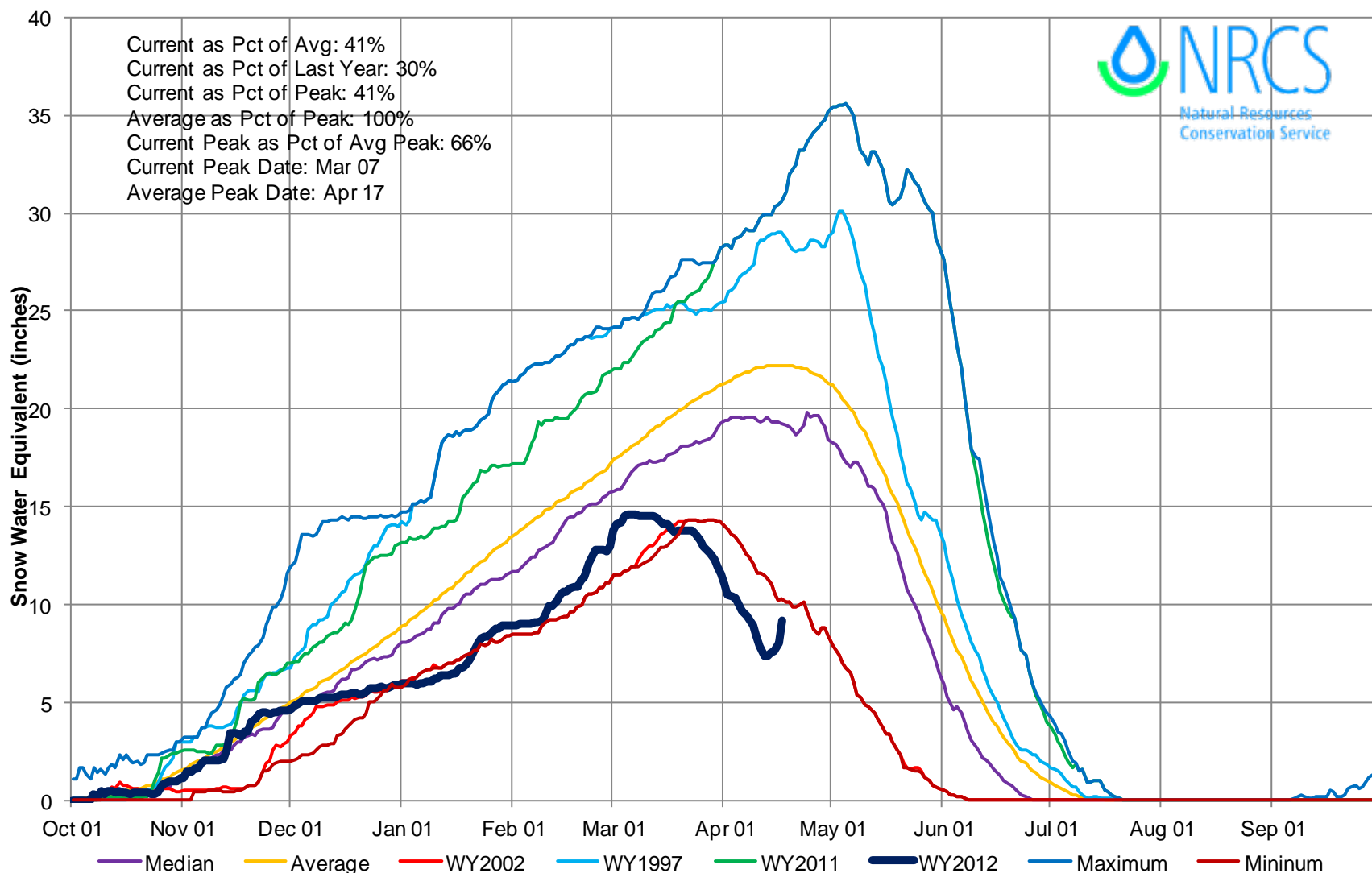


## April 1 Total Yampa & White River Basins Snowpack



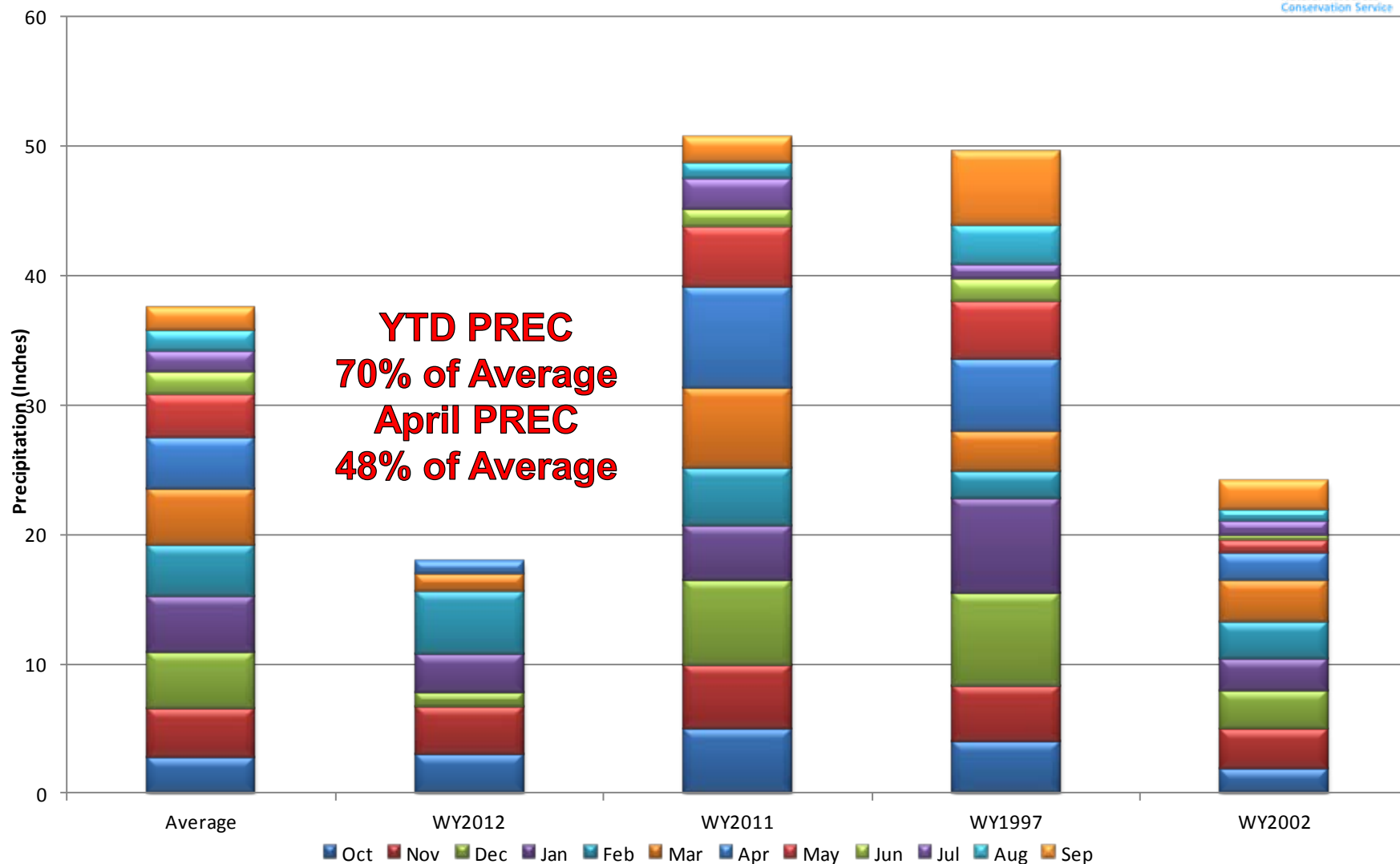
## Yampa, White and North Platte River Basins High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



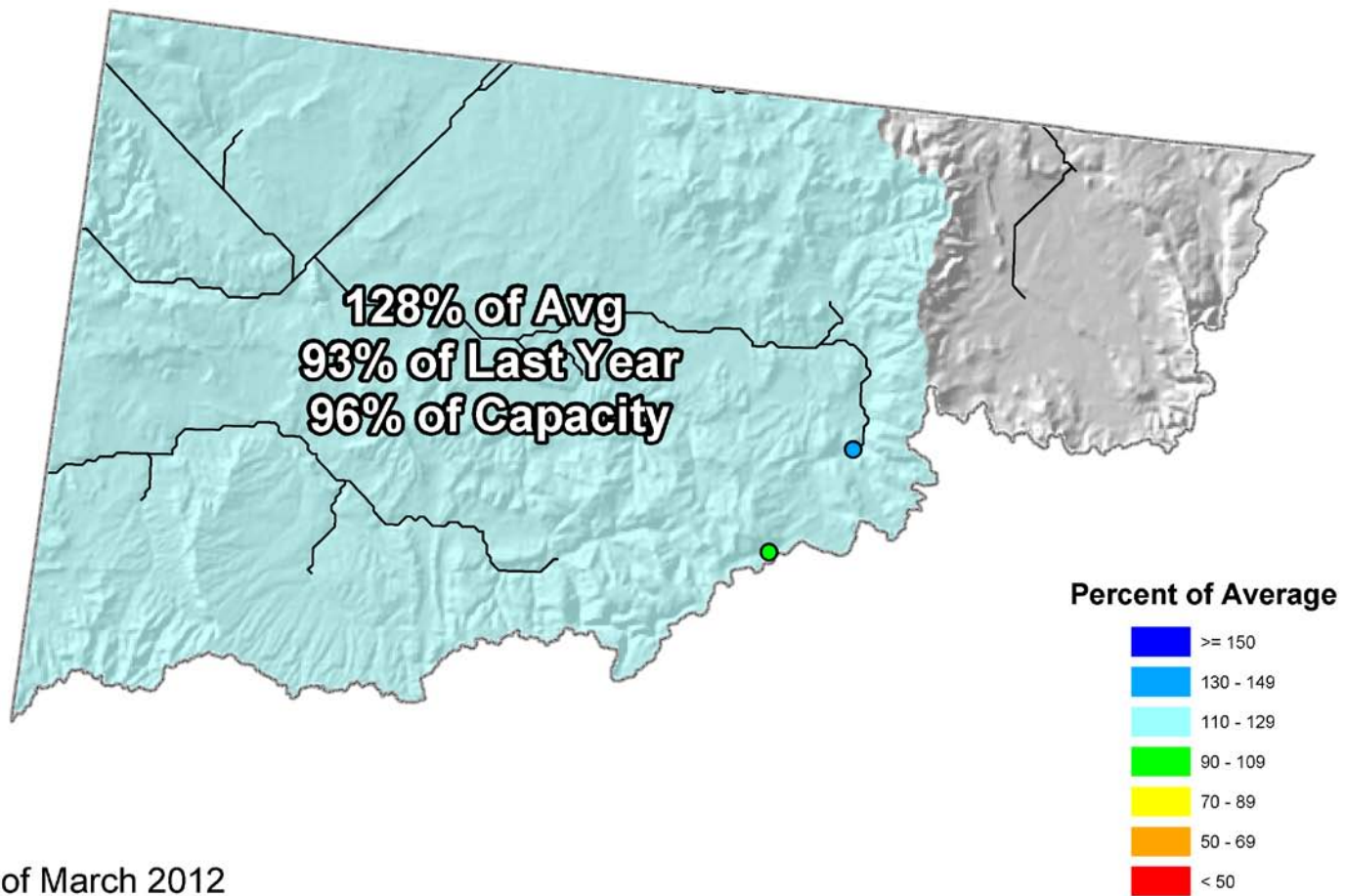
## Yampa and White River Basins High/Low Monthly Precipitation Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



# Yampa & White River Basins Reservoir Storage Map

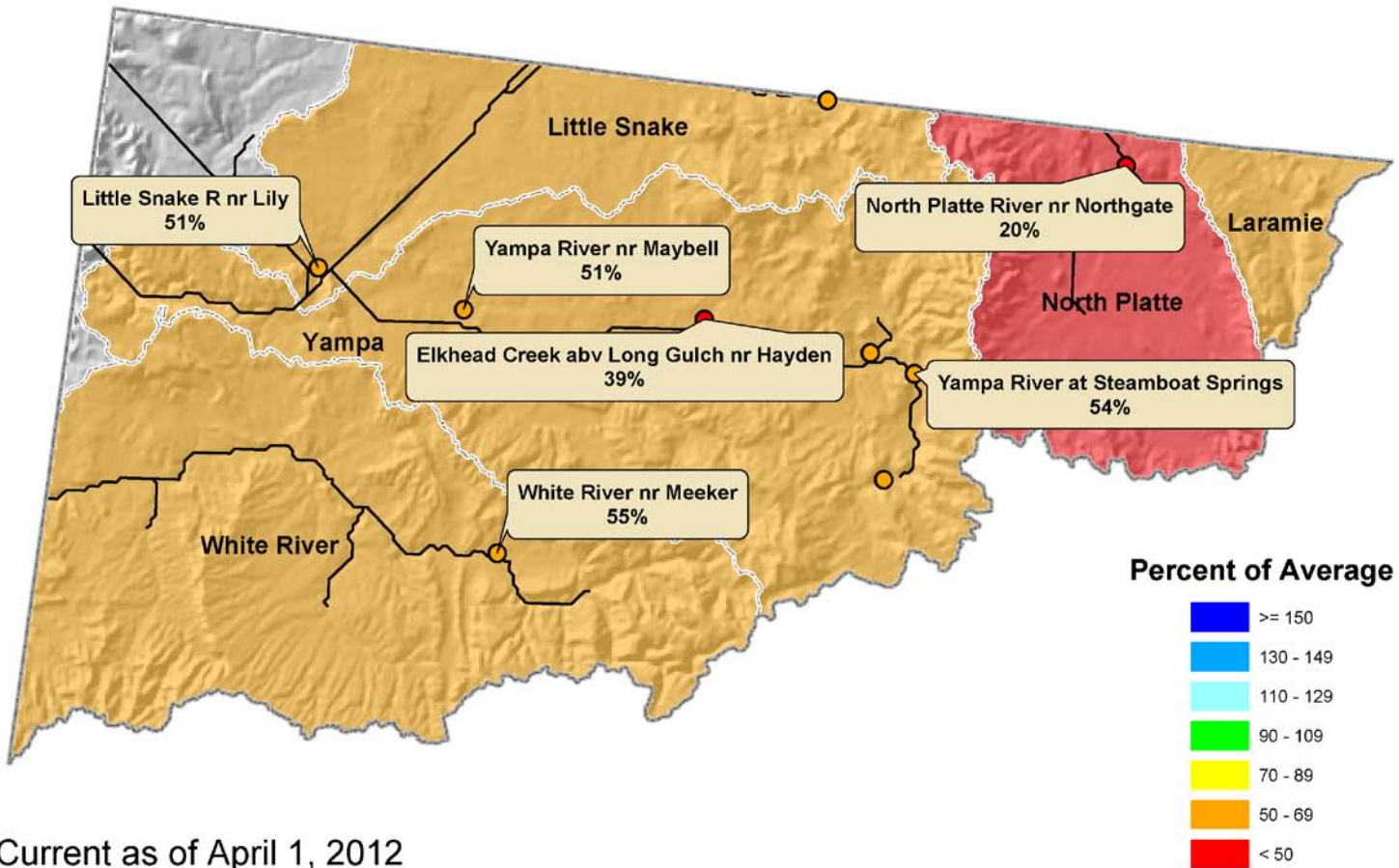
*Provisional Data  
Subject to Revision*



End of March 2012

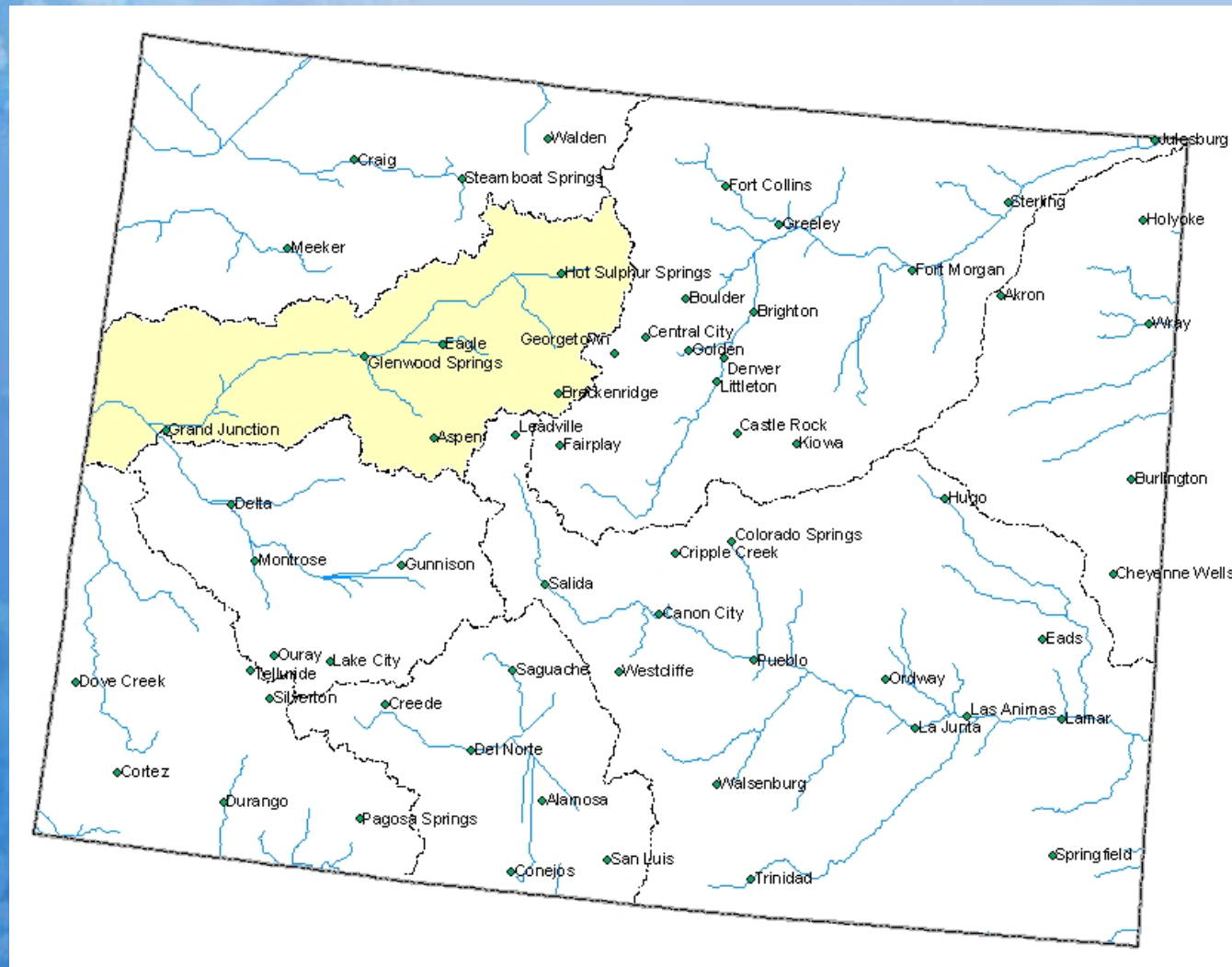


# Yampa, White and North Platte River Basins Streamflow Map



Current as of April 1, 2012

# Colorado River Basin Summary

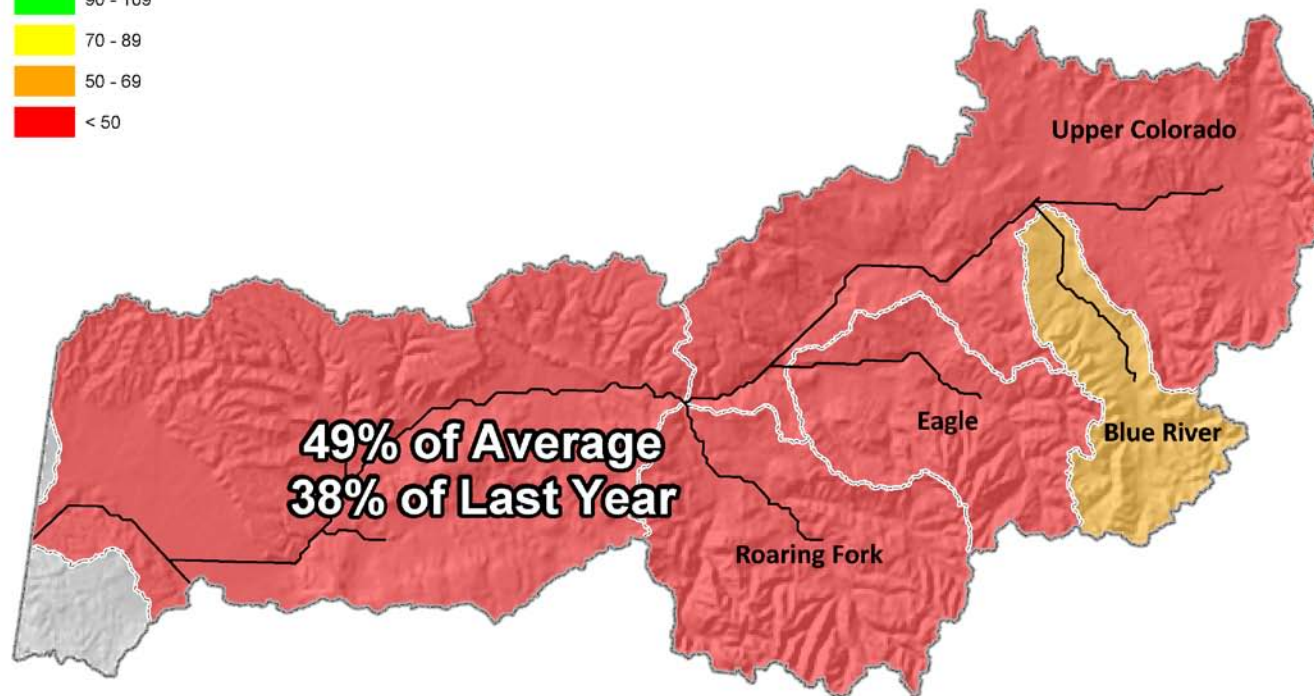


# Colorado River Basin Snowpack Map

## Percent of Average



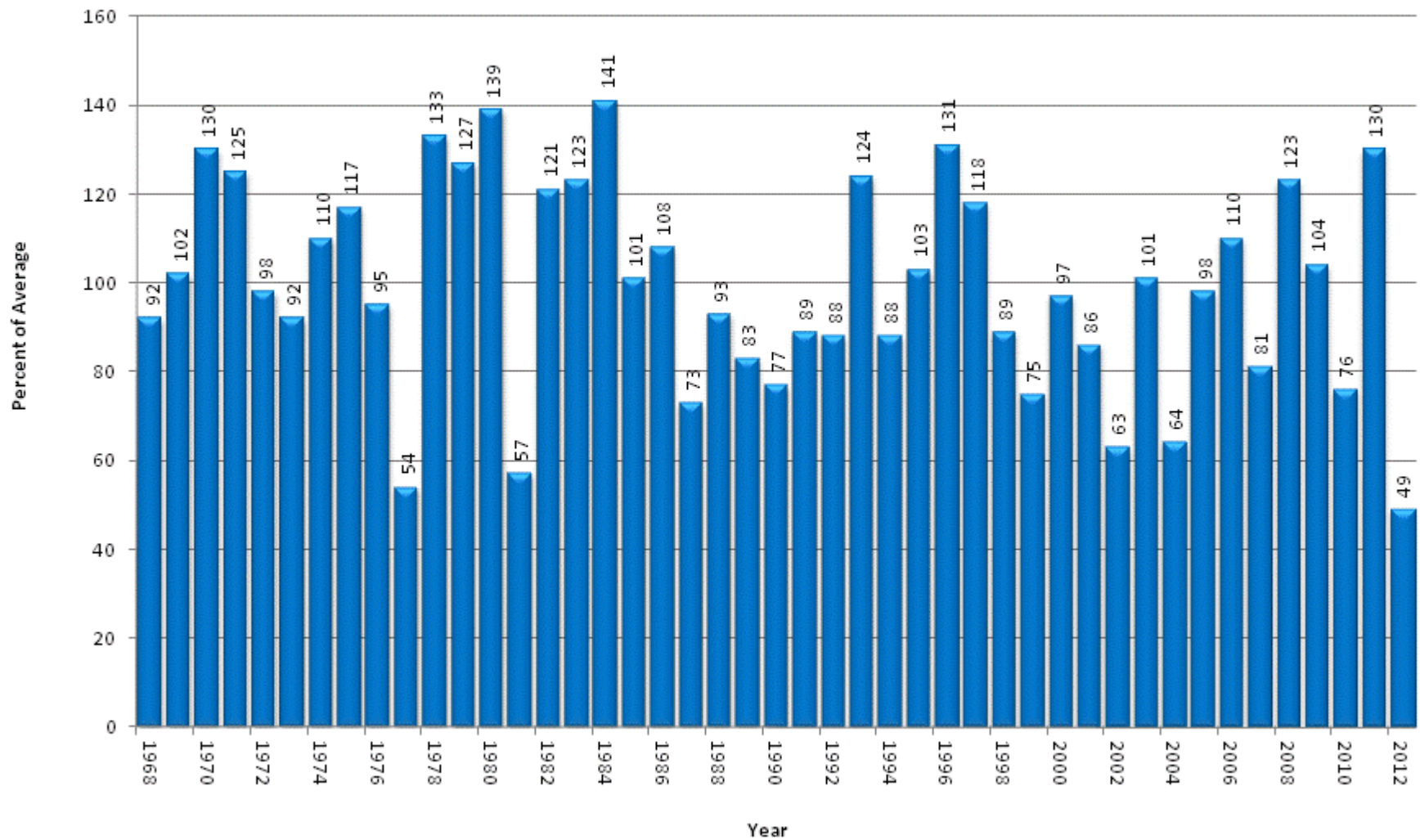
*Provisional Data  
Subject to Revision*



Current as of April 1, 2012



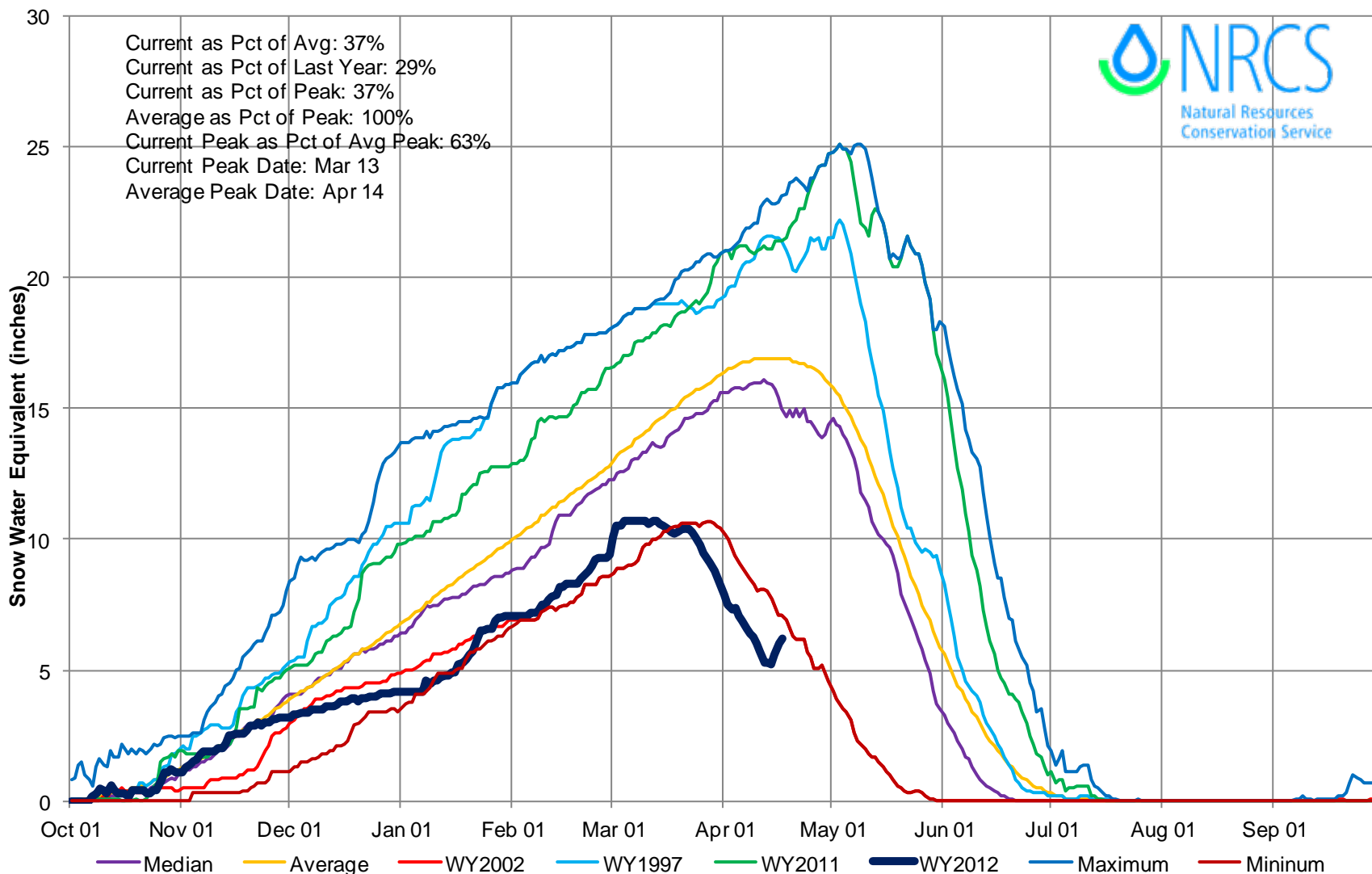
## April 1 Total Colorado River Basin Snowpack





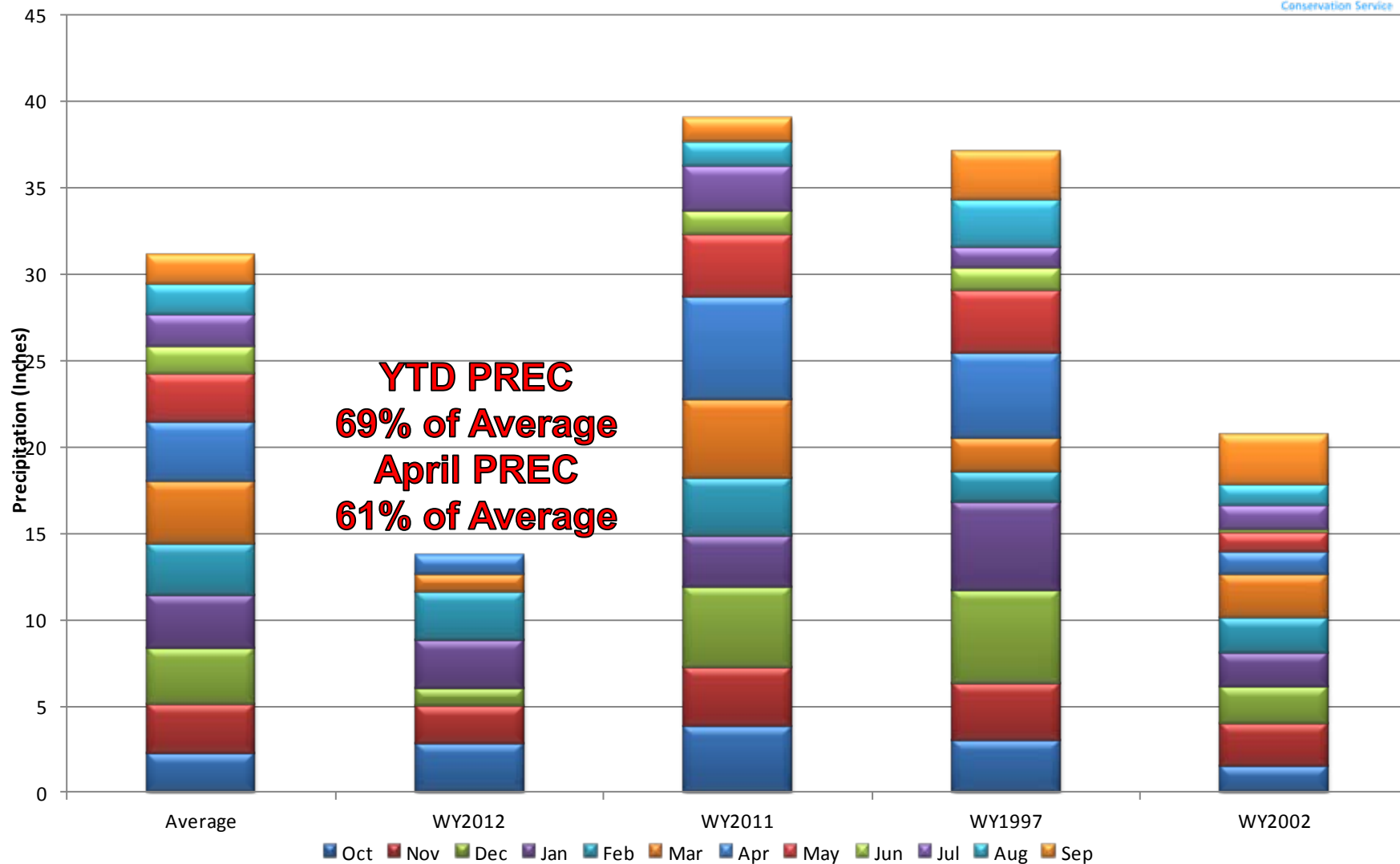
## Upper Colorado River Basin High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



## Upper Colorado River Basin High/Low Monthly Precipitation Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



# Colorado River Basin Reservoir Storage Map

## Percent of Average



*Provisional Data  
Subject to Revision*



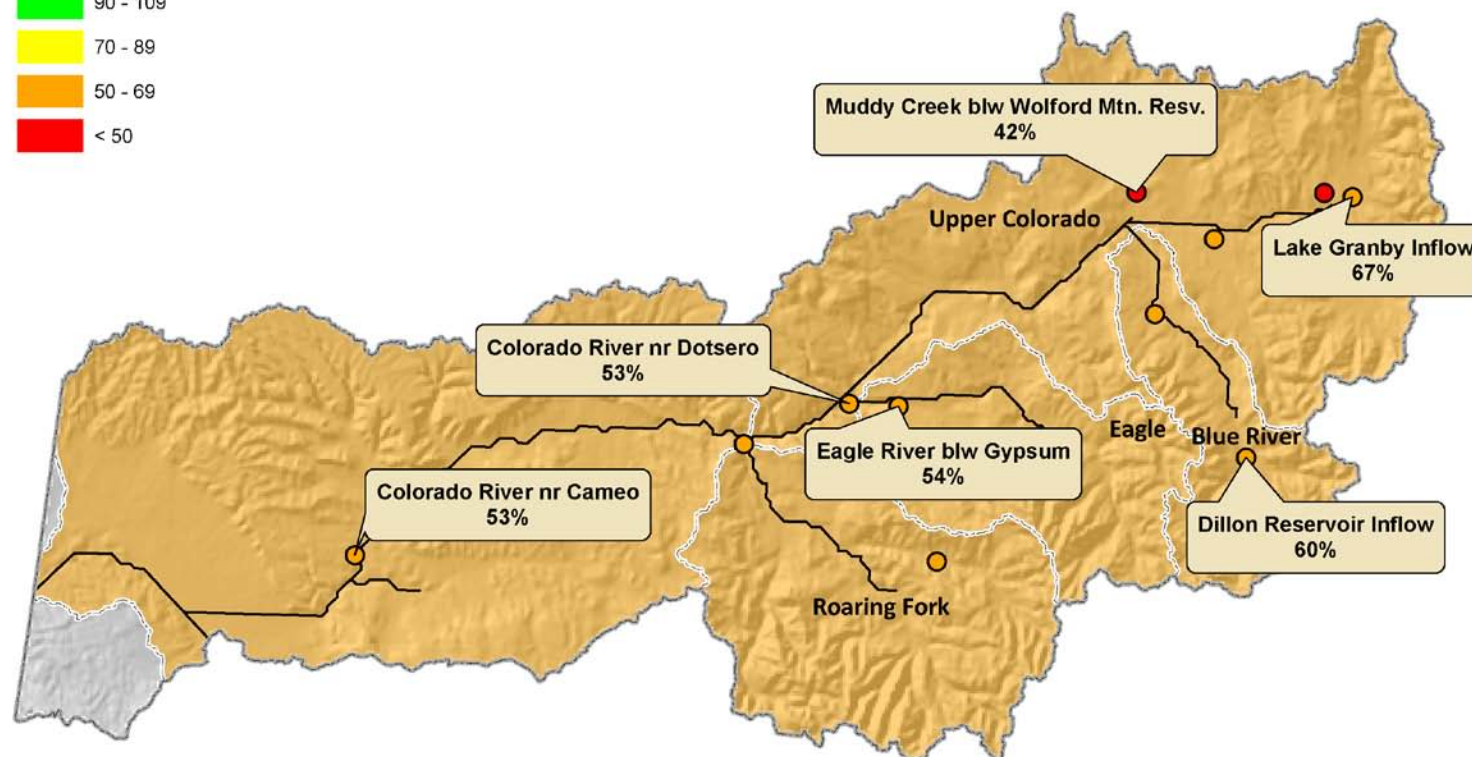
End of March 2012

# Colorado River Basin Streamflow Forecast Map

## Percent of Average



*Provisional Data  
Subject to Revision*

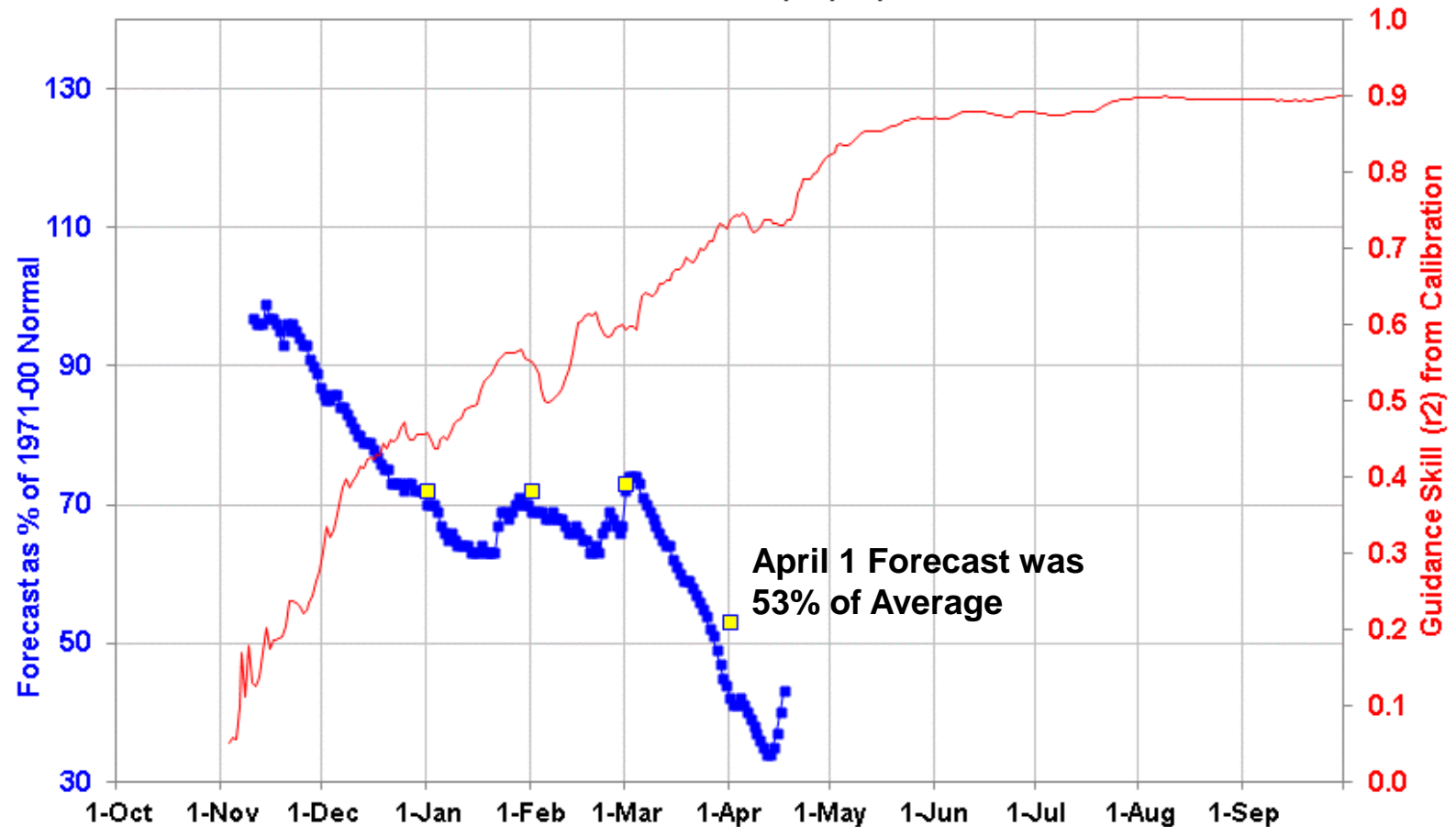


Current as of April 1, 2012



Created 11:23 Apr 17 2012

## Colorado River near Cameo (CO): Apr-Jul Volume

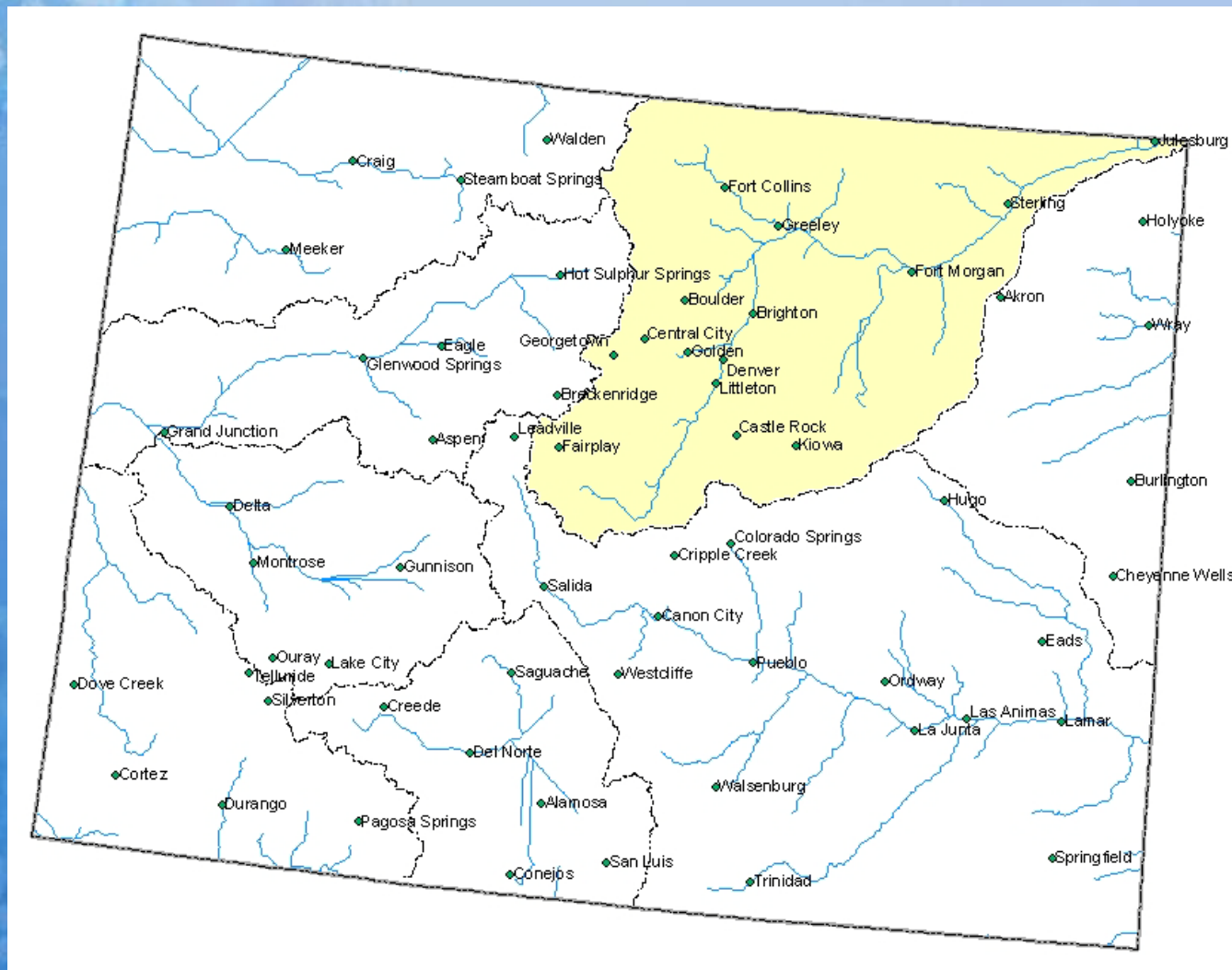


- Guidance fcast % norm
- Official fcast % norm
- Guidance Skill (r<sup>2</sup>)

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# South Platte River Basin Summary

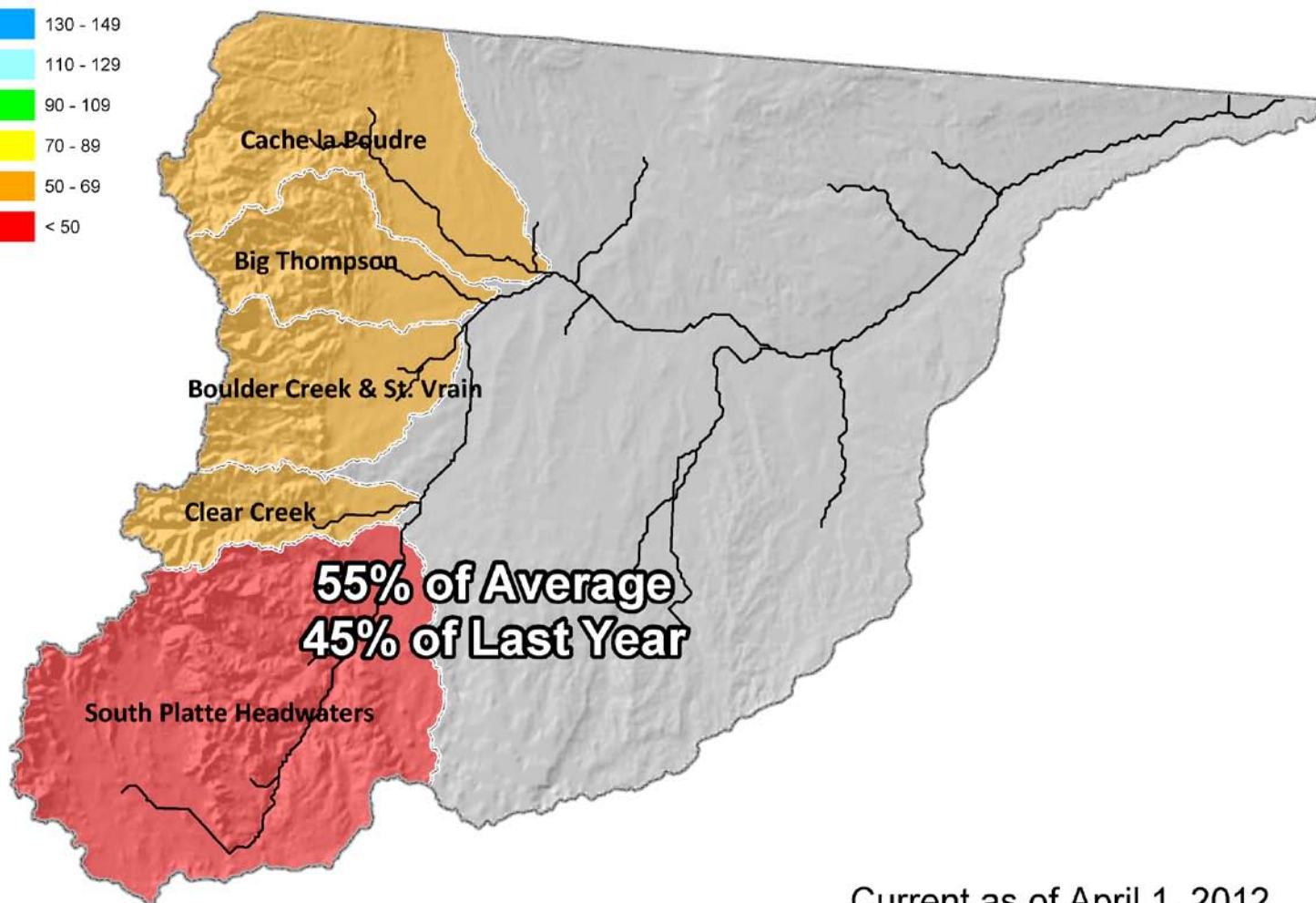


# South Platte River Basin Snowpack Map

## Percent of Average



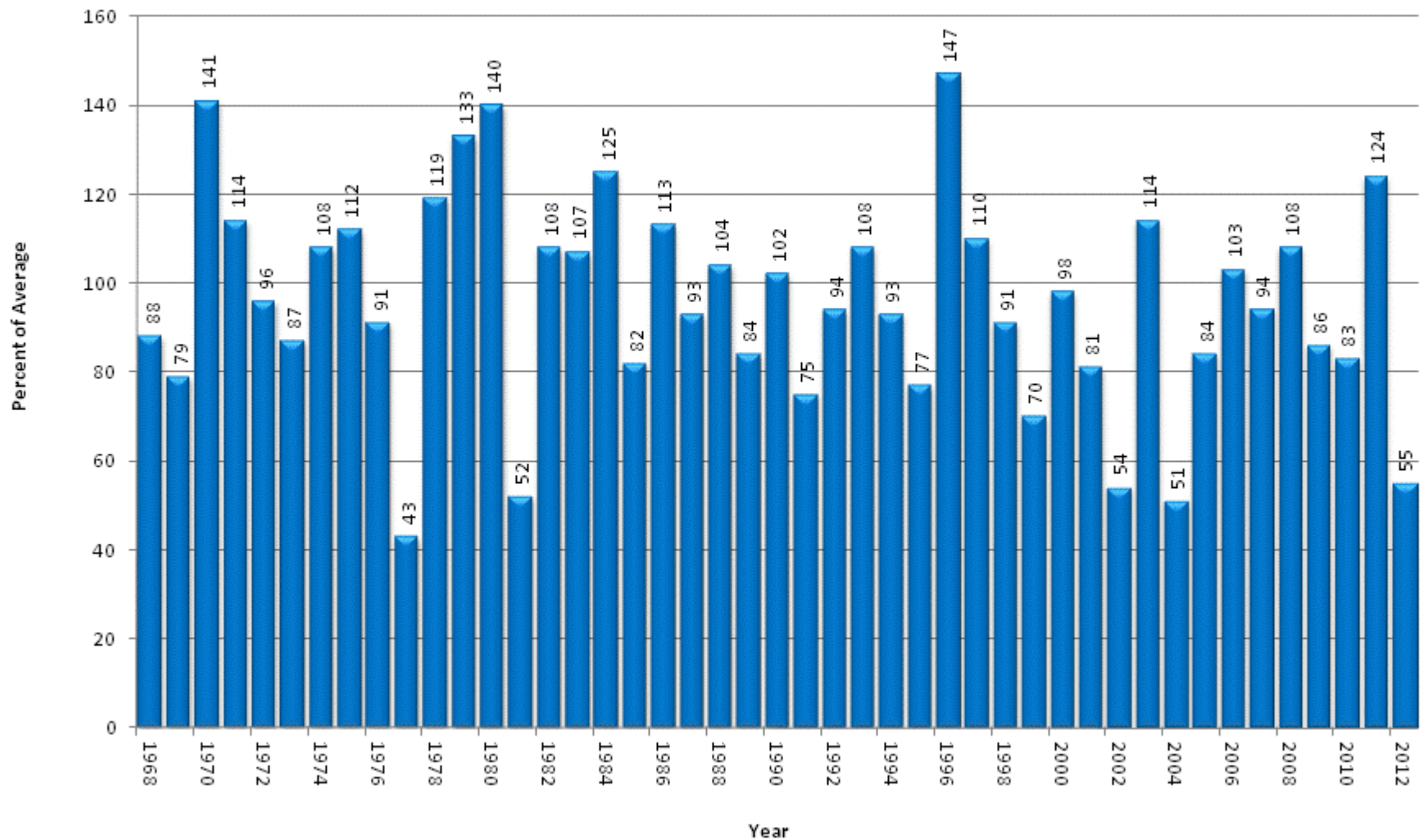
*Provisional Data  
Subject to Revision*



Current as of April 1, 2012



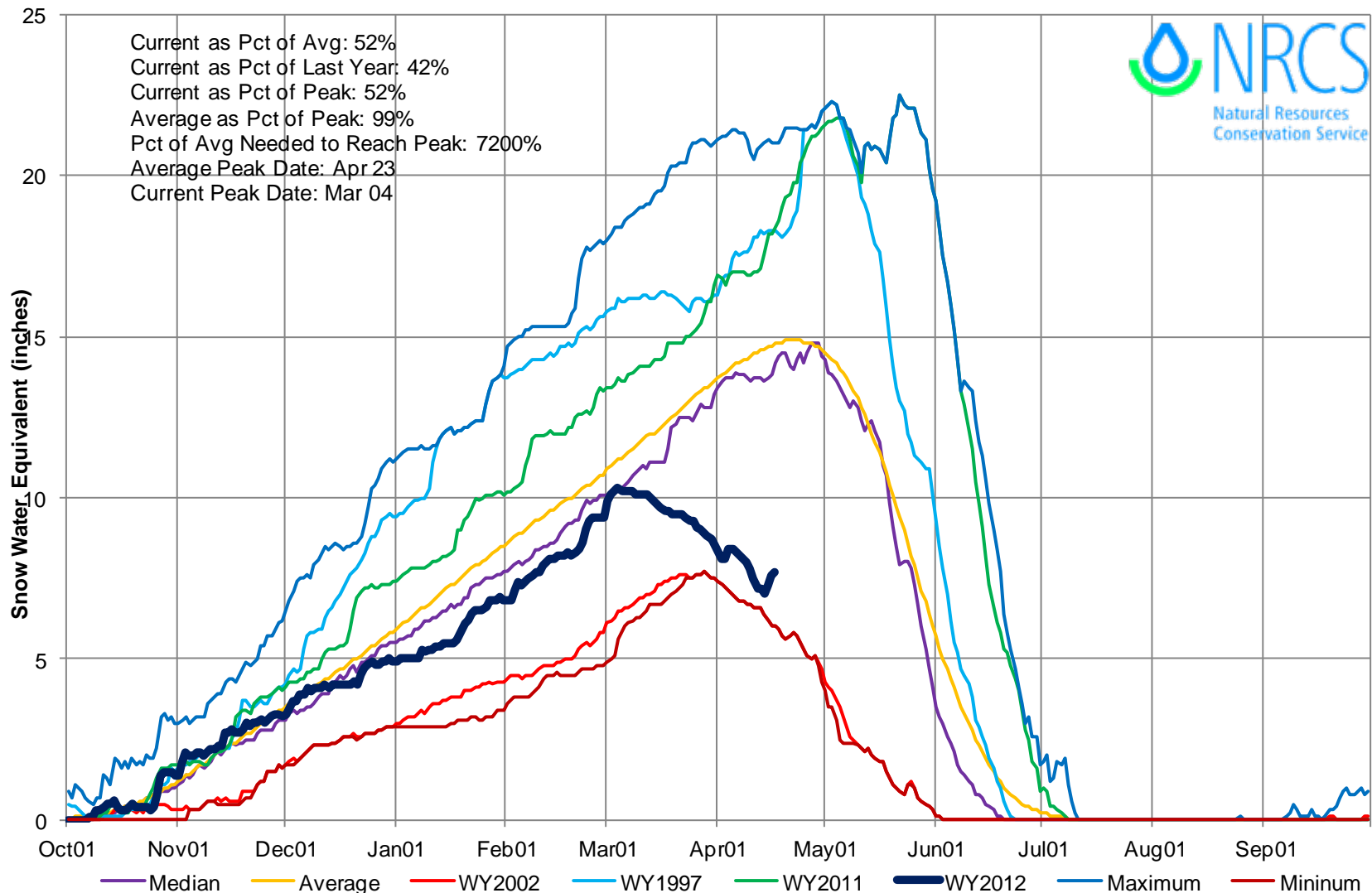
## April 1 Total South Platte River Basin Snowpack





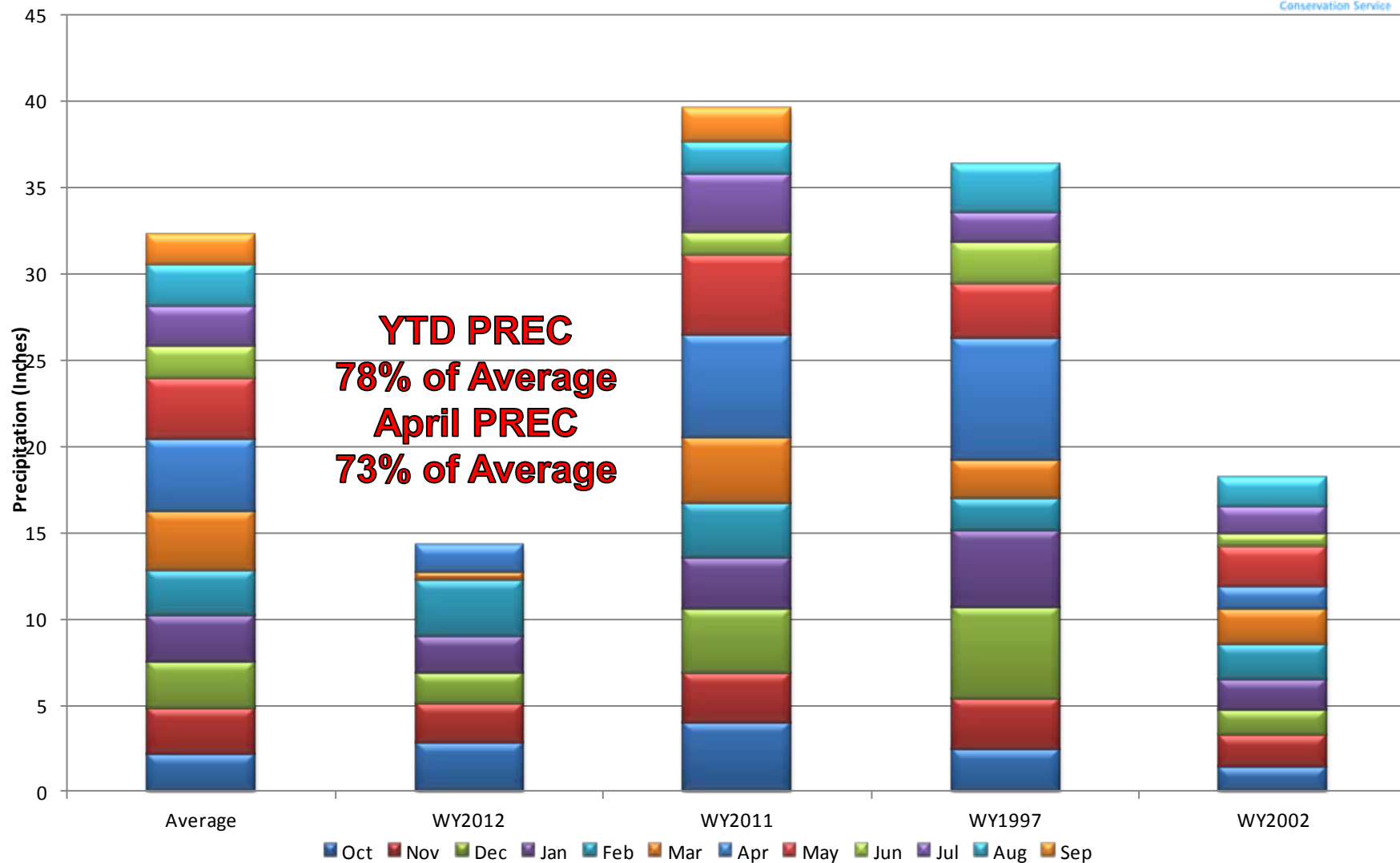
## South Platte River Basin High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



## South Platte River Basin High/Low Monthly Precipitation Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*

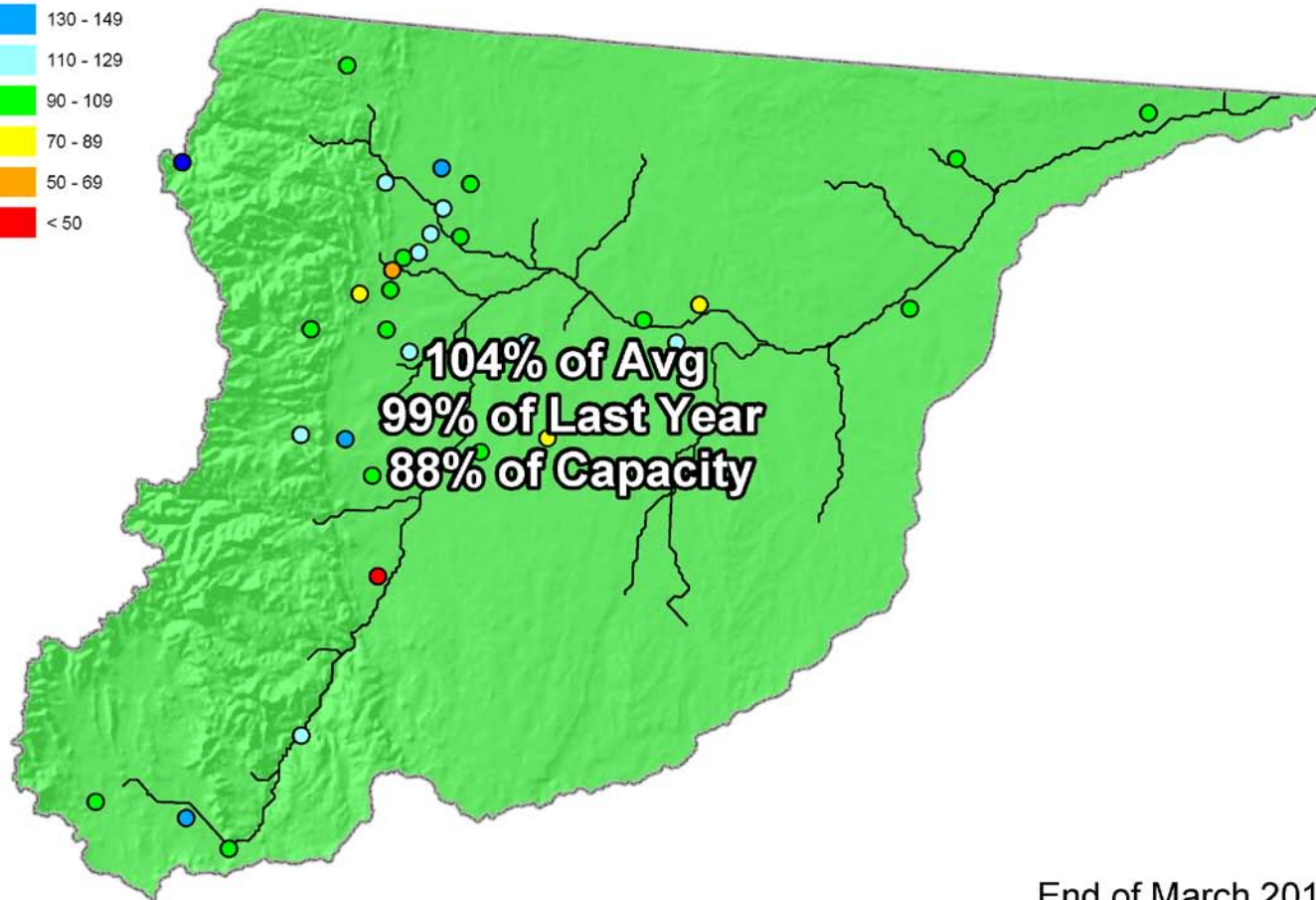


# South Platte River Basin Reservoir Storage Map

Percent of Average

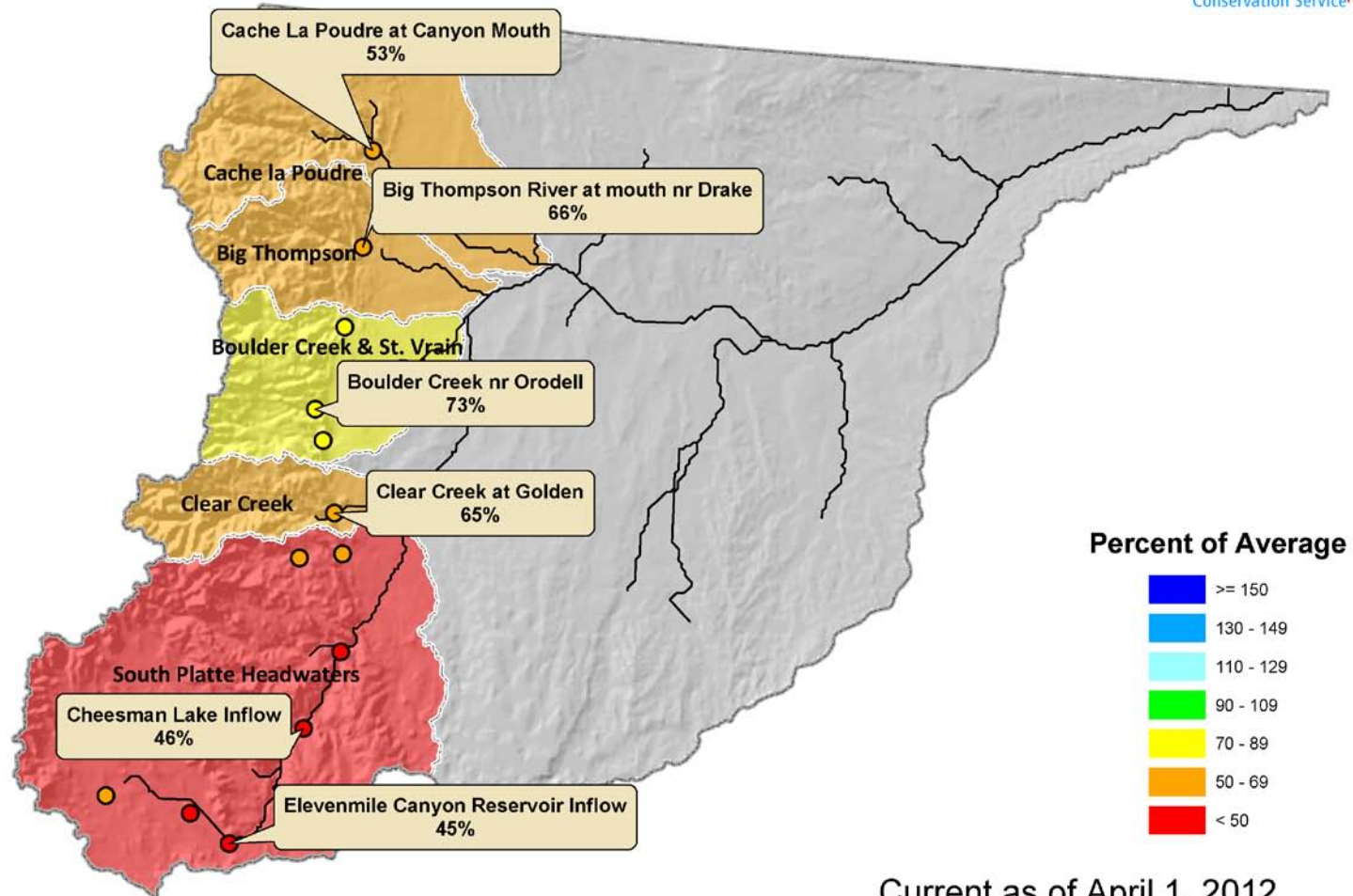


*Provisional Data  
Subject to Revision*



End of March 2012

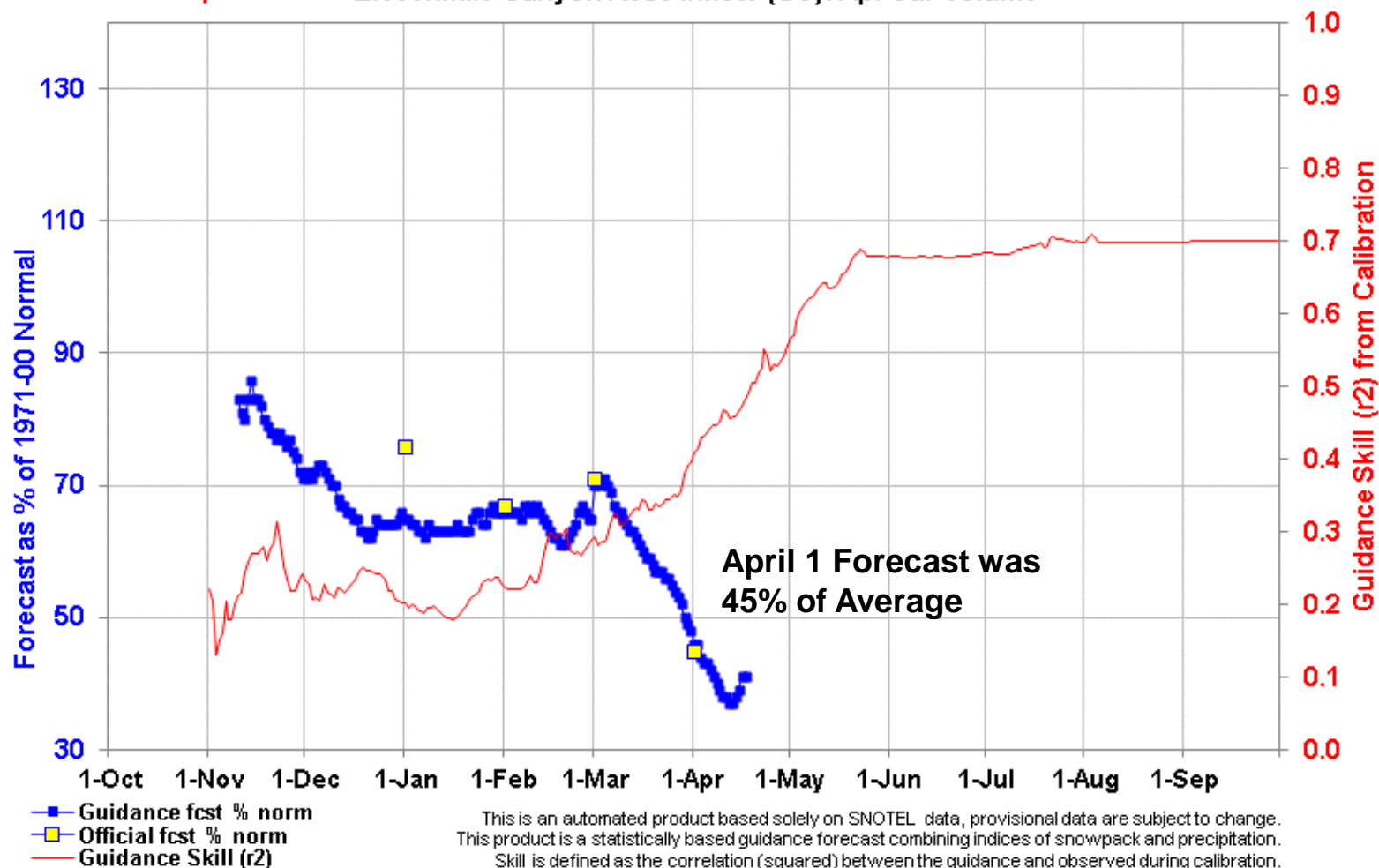
# South Platte River Basin Streamflow Forecast Map



Current as of April 1, 2012



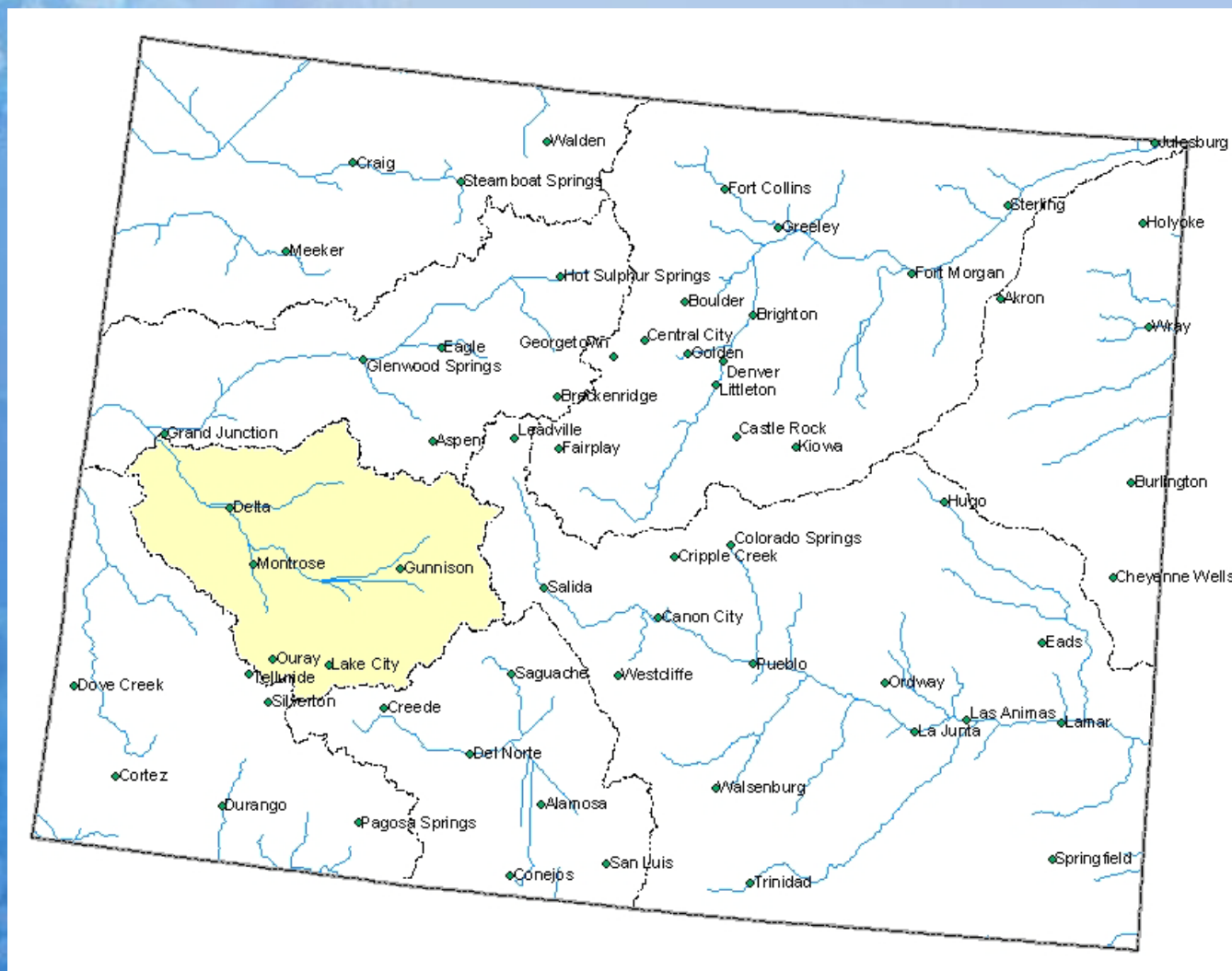
Created 11:09 Apr 17 2012 Elevenmile Canyon Resv Inflow (CO): Apr-Jul Volume



This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Nino or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supercede the official forecasts produced in coordination with the National Weather Service. Science Contact: [Jim.Marron@por.usda.gov](mailto:Jim.Marron@por.usda.gov) [www.wcc.nrcs.usda.gov/wsf/daily\\_forecasts.html](http://www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html)



# Gunnison River Basin Summary

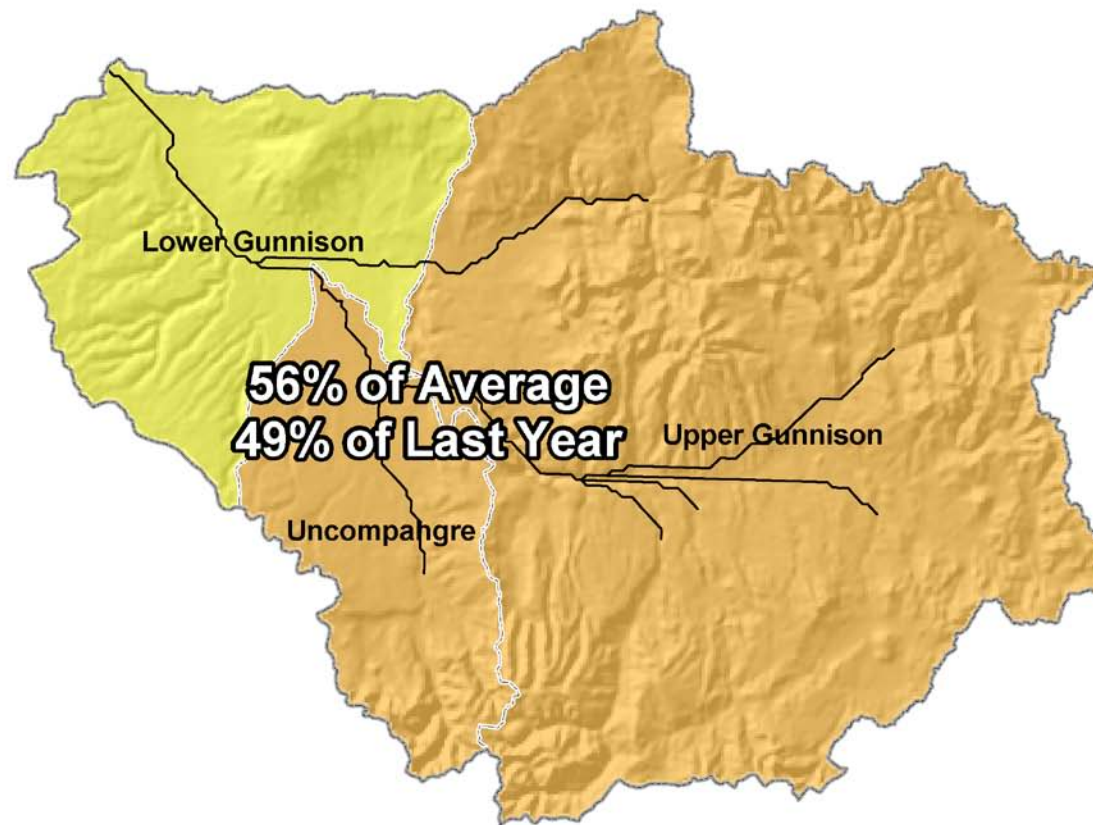


# Gunnison River Basin Snowpack Map

## Percent of Average



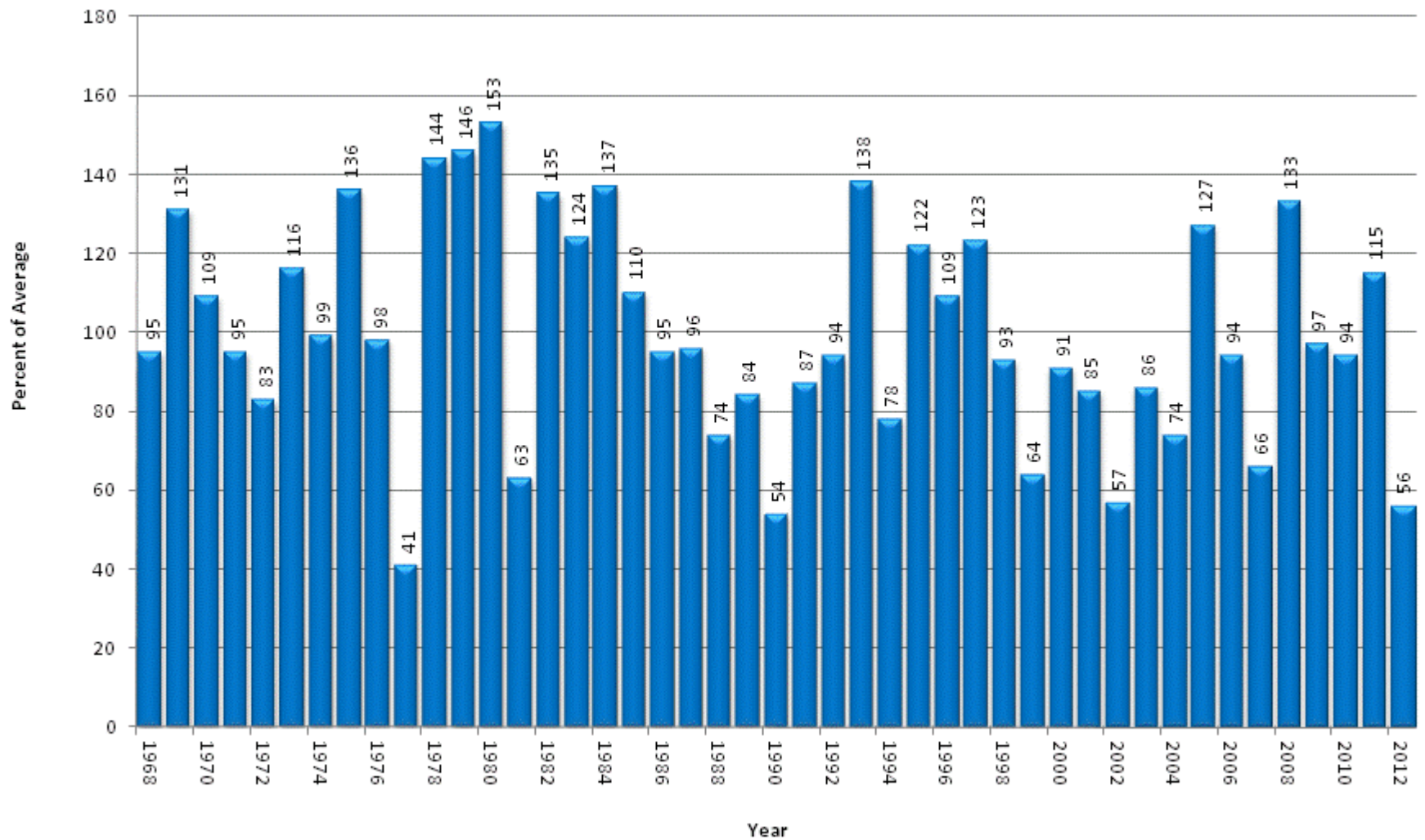
*Provisional Data  
Subject to Revision*



Current as of April 1, 2012



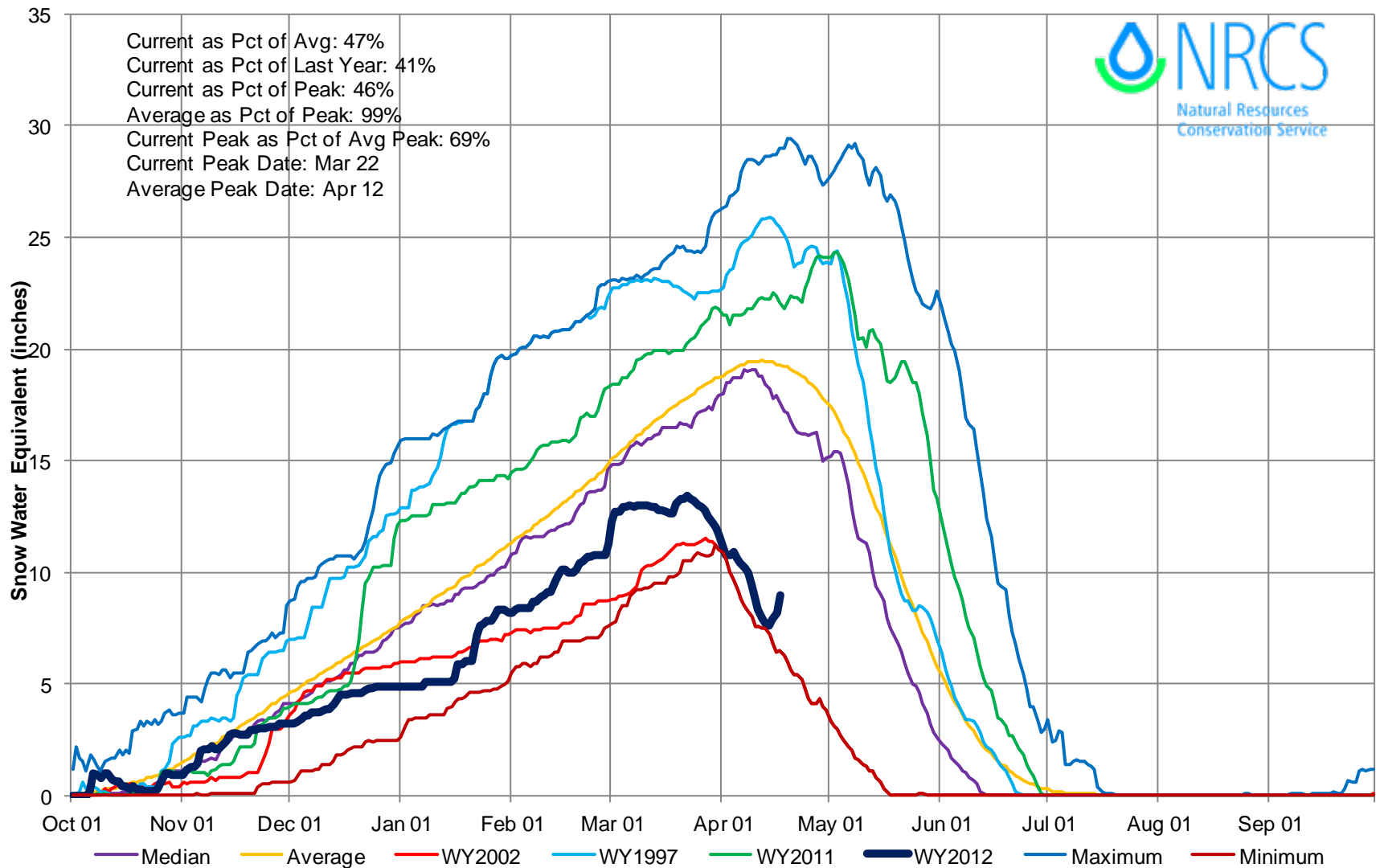
## April 1 Total Gunnison River Basin Snowpack





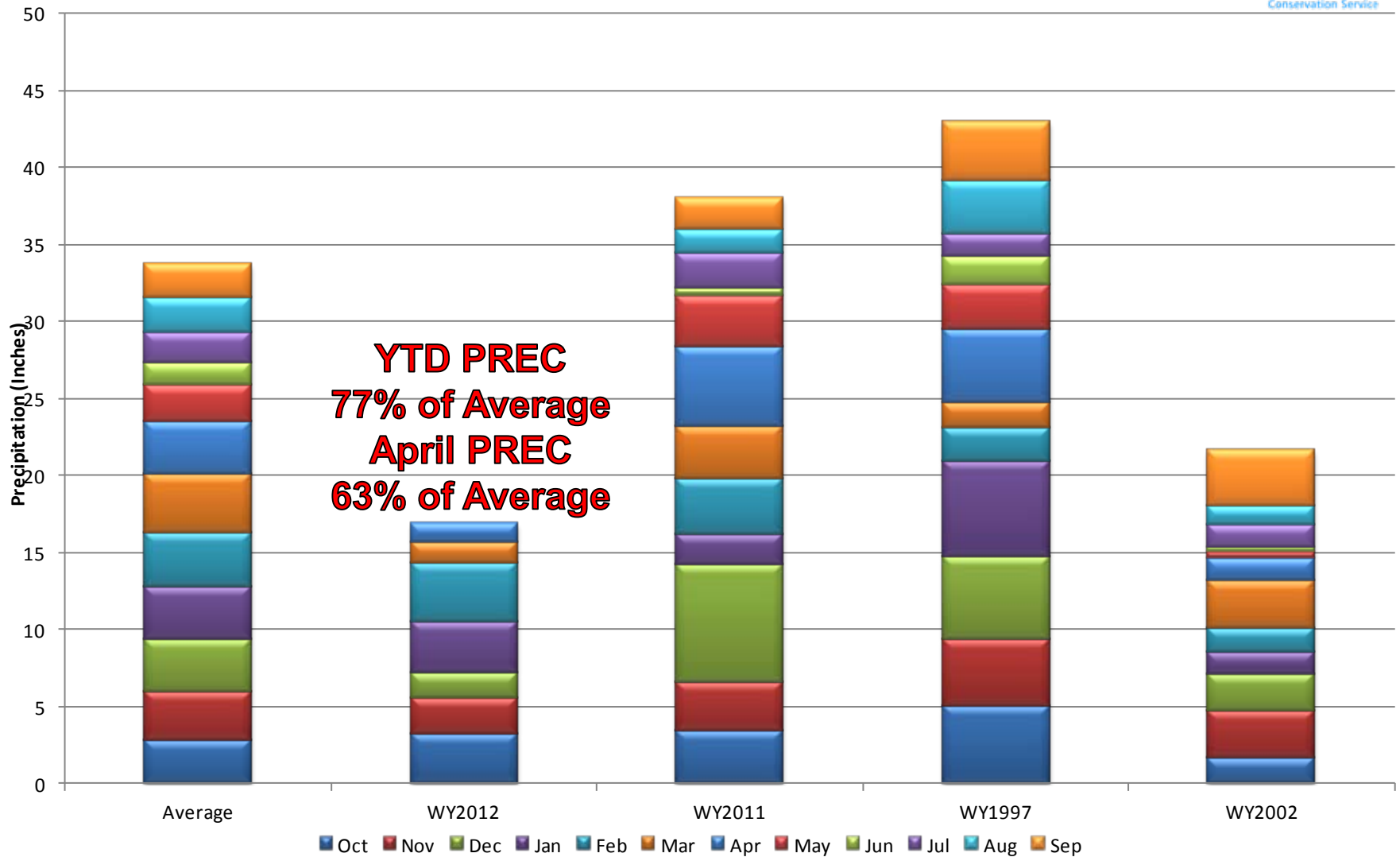
## Gunnison River Basin High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



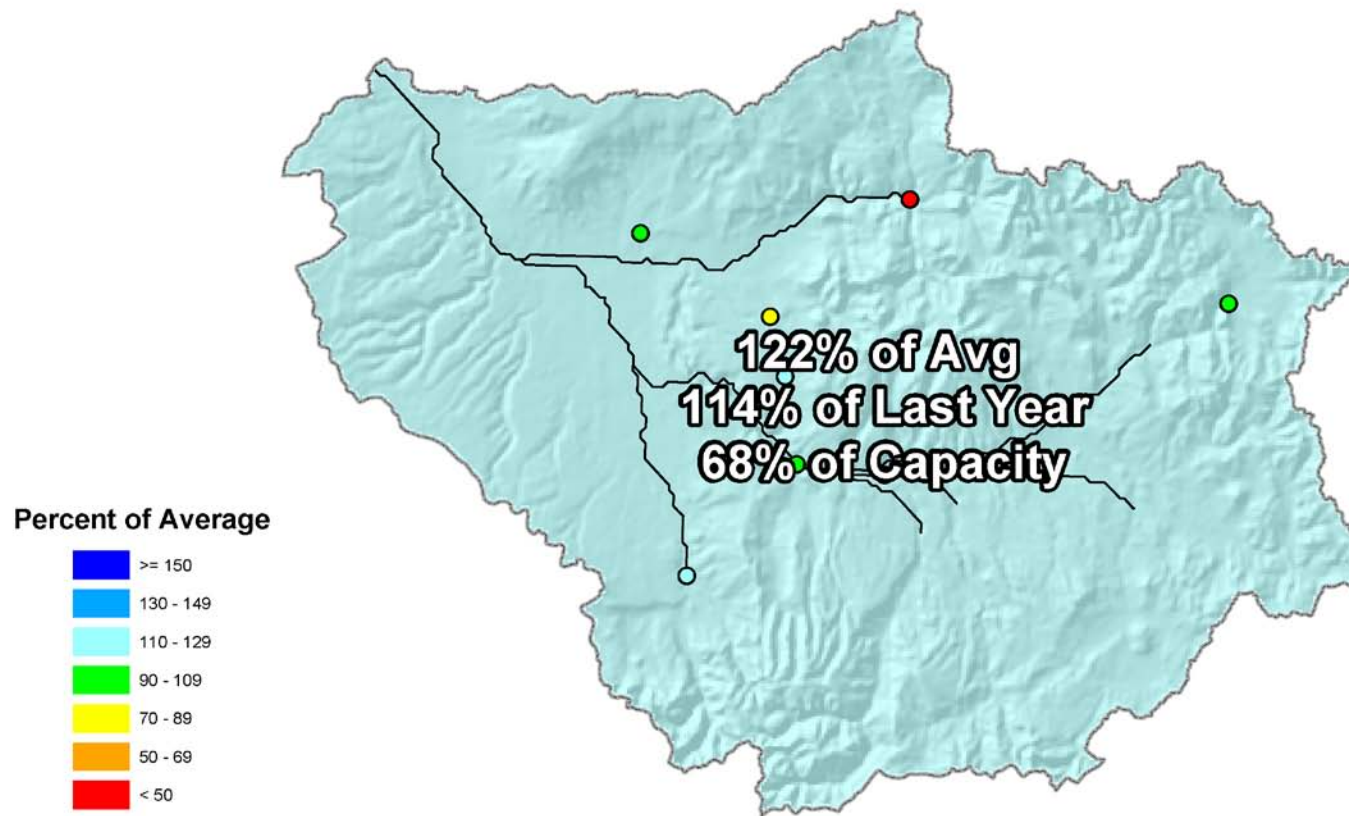
## Gunnison River Basin High/Low Monthly Precipitation Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



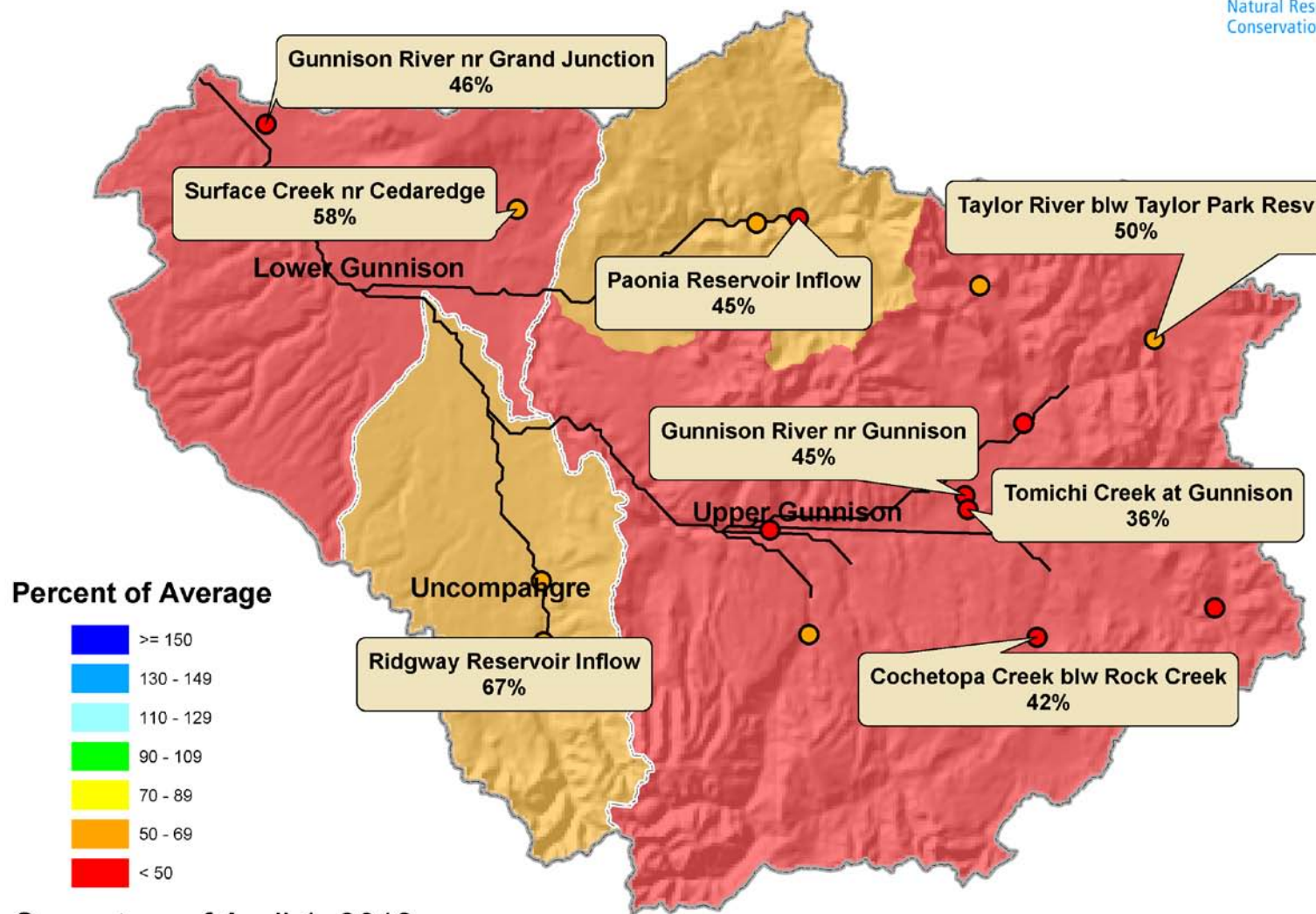
# Gunnison River Basin Reservoir Storage Map

*Provisional Data  
Subject to Revision*



End of March 2012

# Gunnison River Basin Streamflow Forecast Map

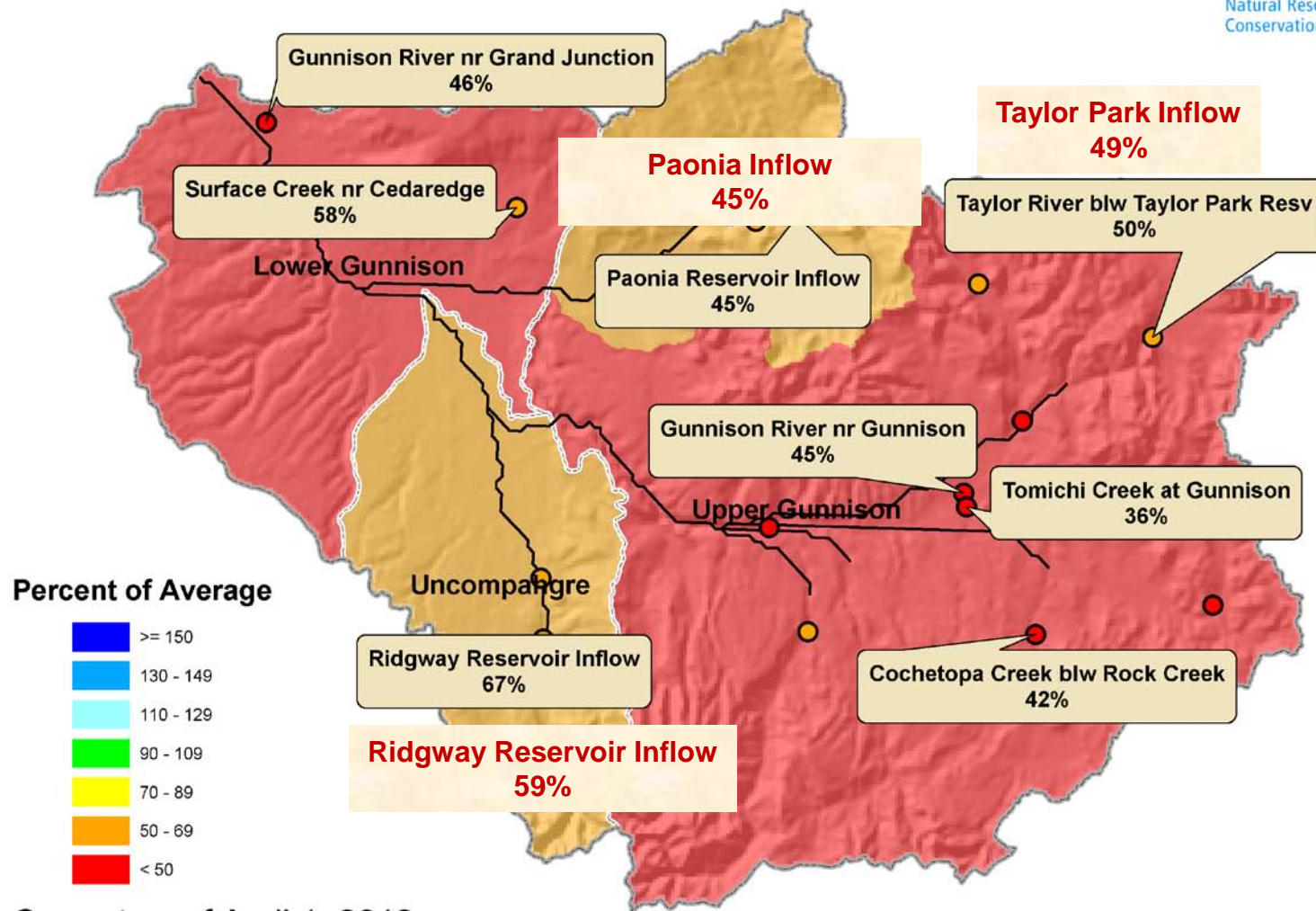


Current as of April 1, 2012



# Forecasts Updated April 16, 2012

## Gunnison River Basin Streamflow Forecast Map



Current as of April 1, 2012

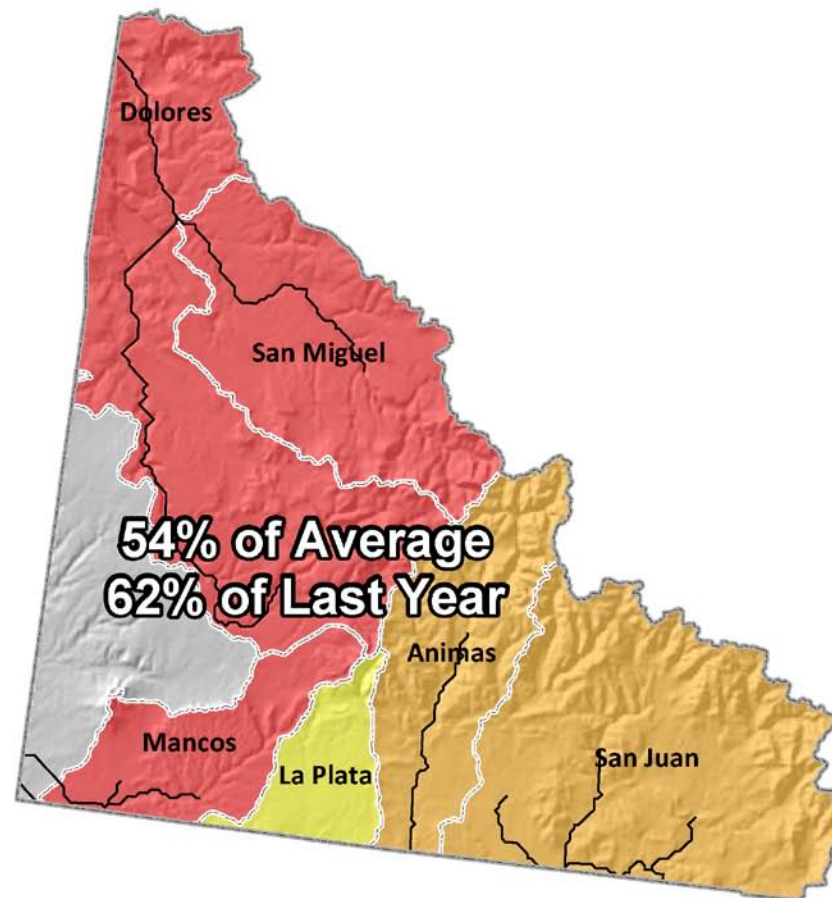
[illegible]

# San Miguel, Dolores, Animas and San Juan River Basins Snowpack Map

Percent of Average



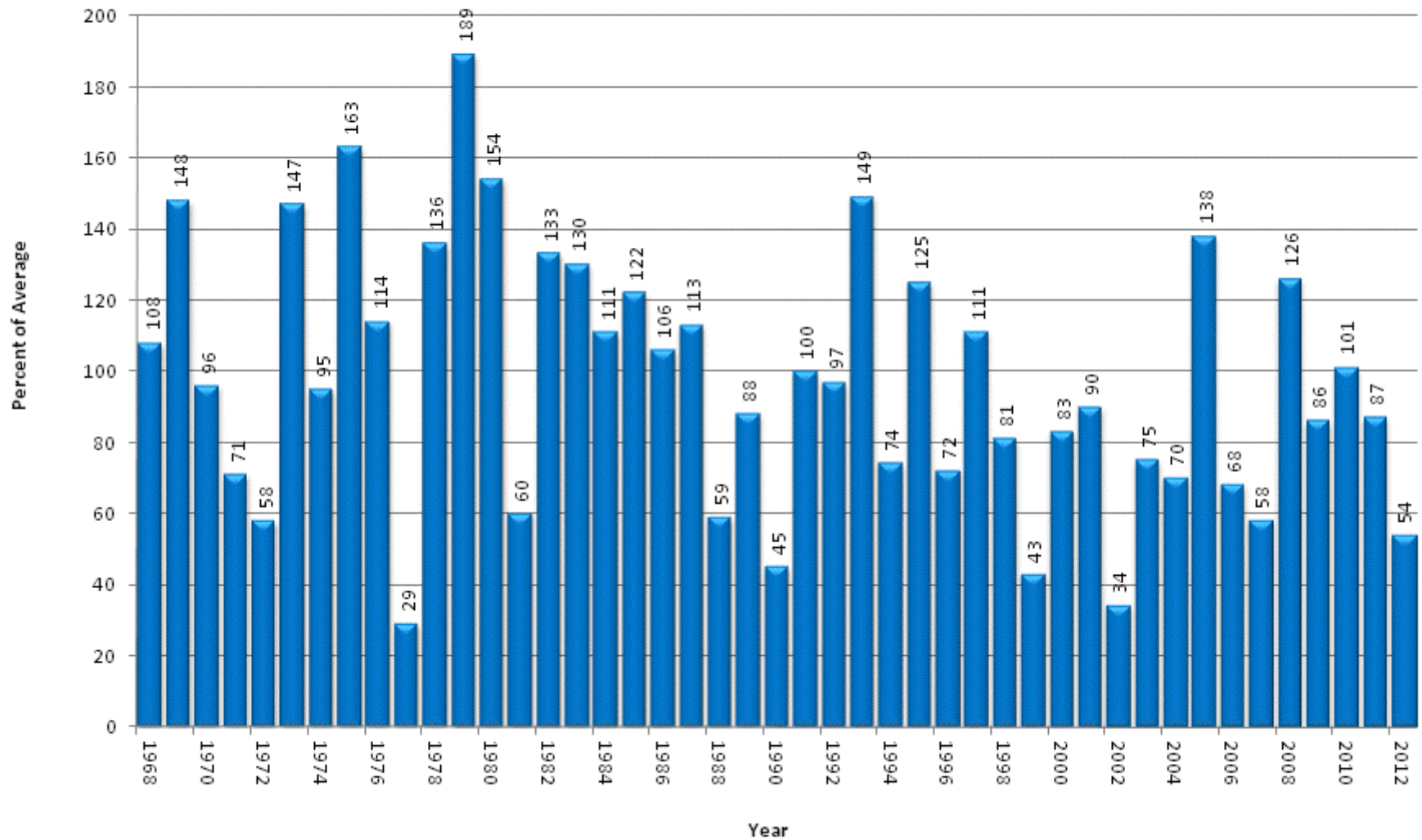
*Provisional Data  
Subject to Revision*



Current as of April 1, 2012



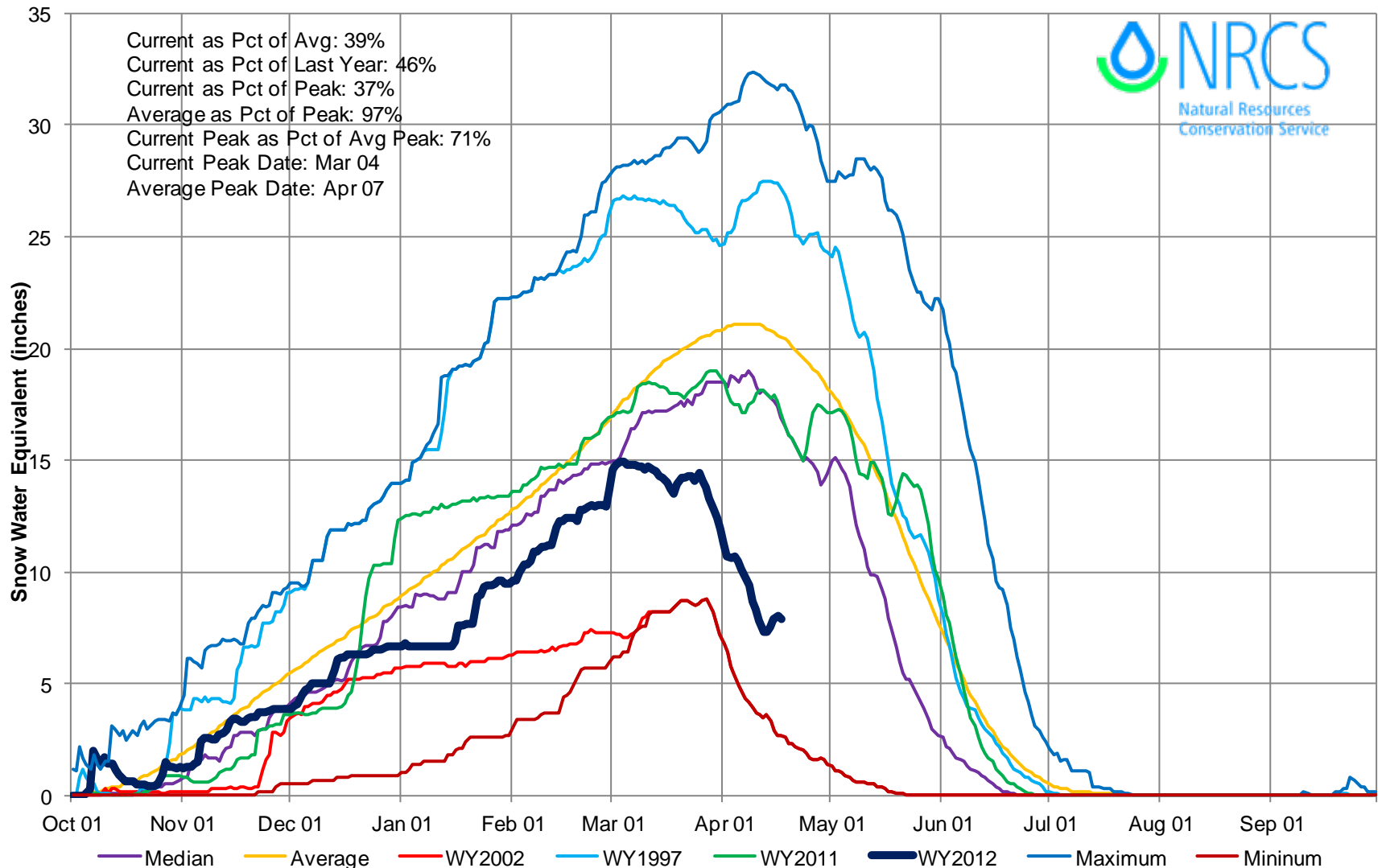
## April 1 Total San Miguel, Dolores, Animas & San Juan River Basins Snowpack





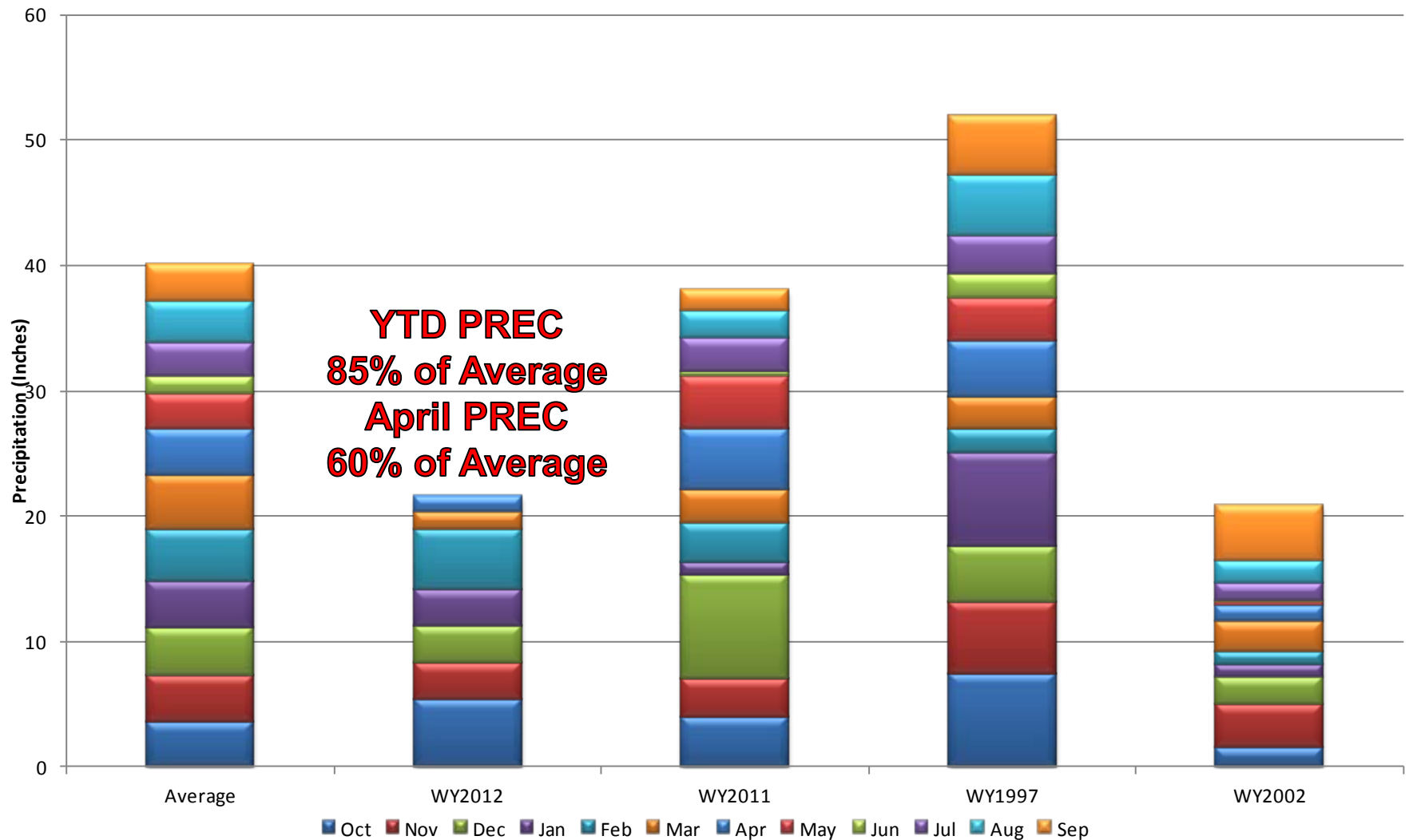
## San Miguel, Dolores, Animas & San Juan River Basins High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



# San Miguel, Dolores, Animas & San Juan River Basins High/Low Monthly Precipitation Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*

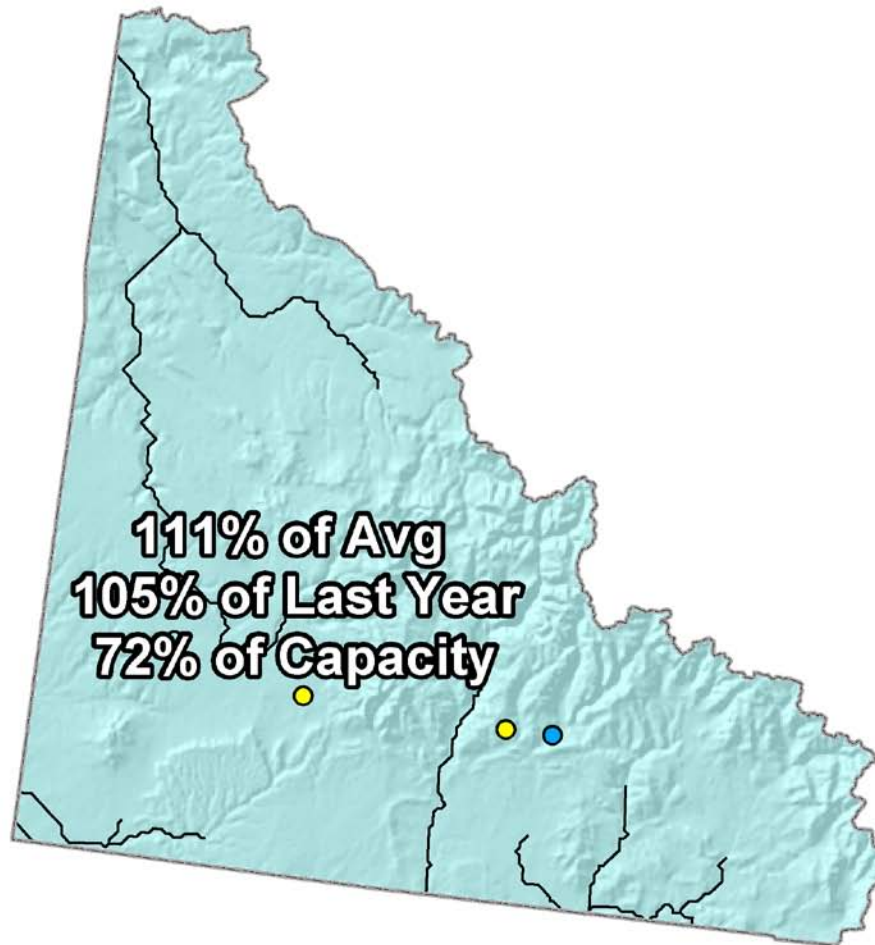


# San Miguel, Dolores, Animas and San Juan River Basins Reservoir Storage Map

## Percent of Average



*Provisional Data  
Subject to Revision*



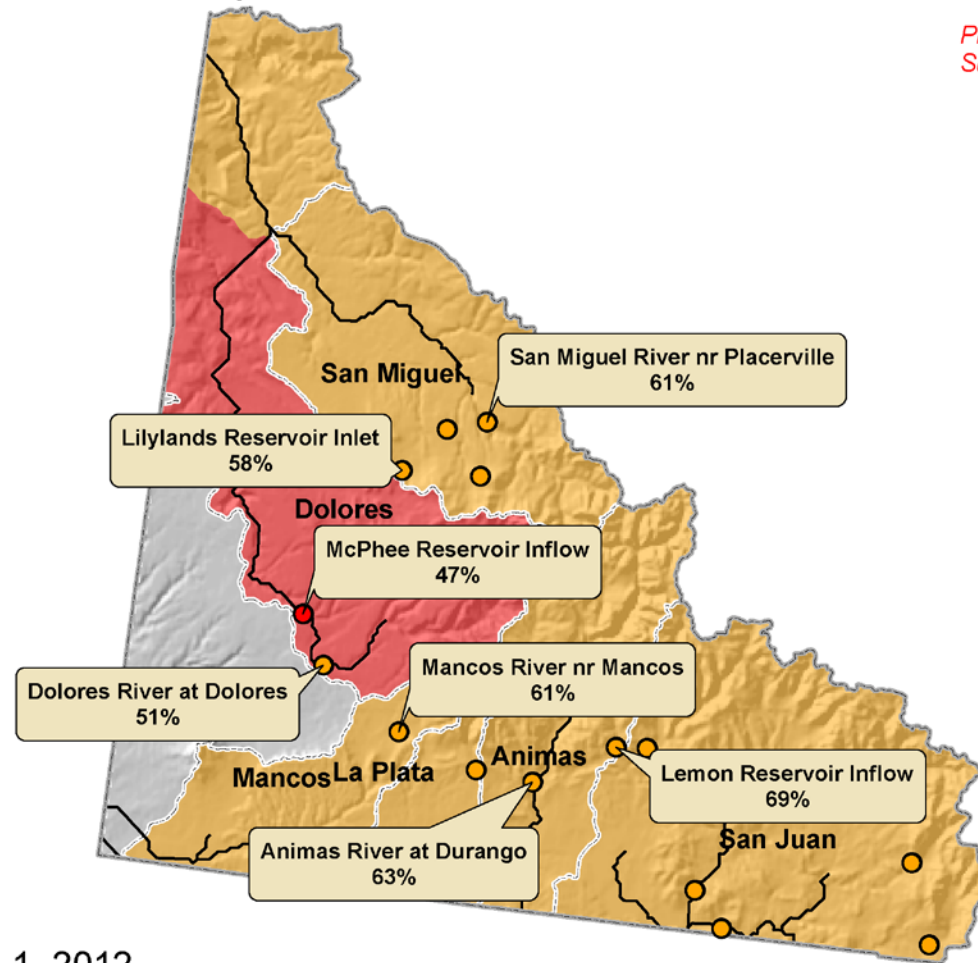
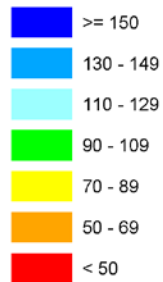
End of March 2012

# San Miguel, Dolores, Animas and San Juan River Basins Streamflow Forecast Map



*Provisional Data  
Subject to Revision*

## Percent of Average



Current as of April 1, 2012



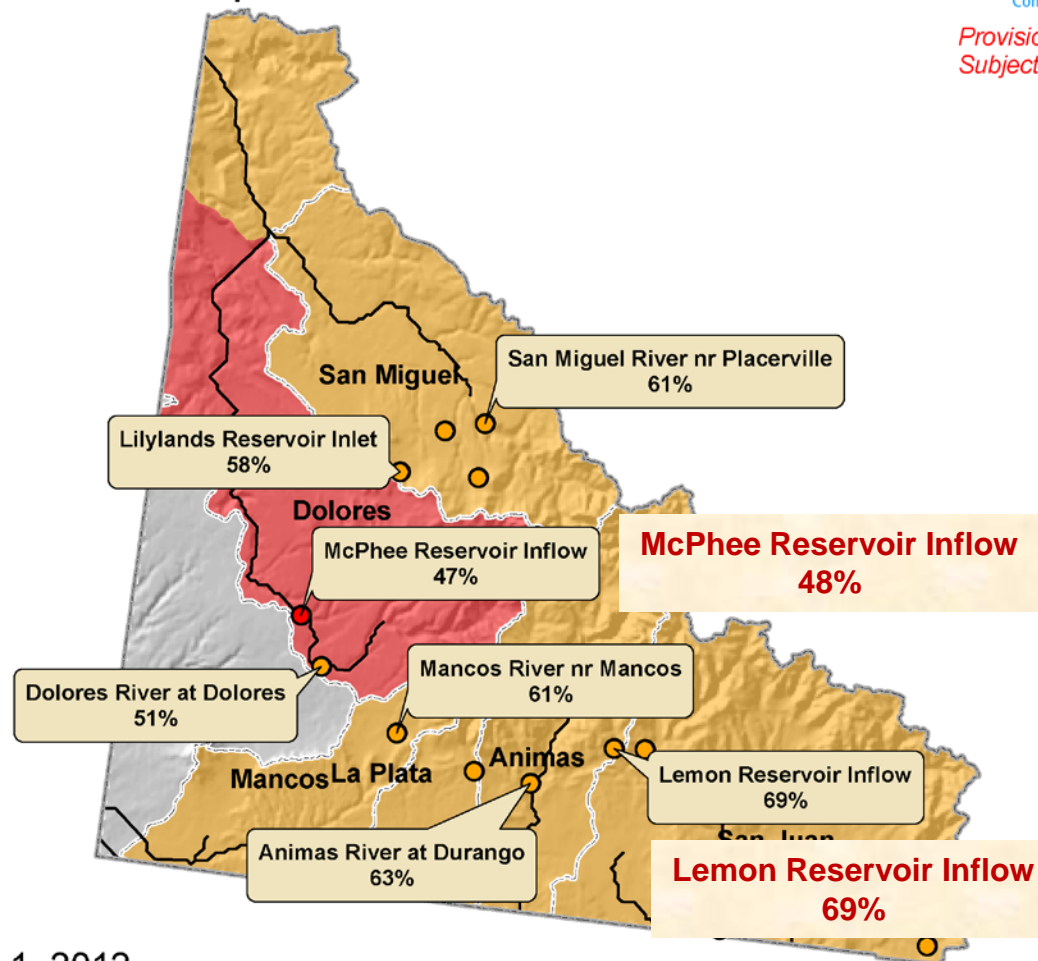
# Forecasts Updated April 16, 2012

## San Miguel, Dolores, Animas and San Juan River Basins Streamflow Forecast Map



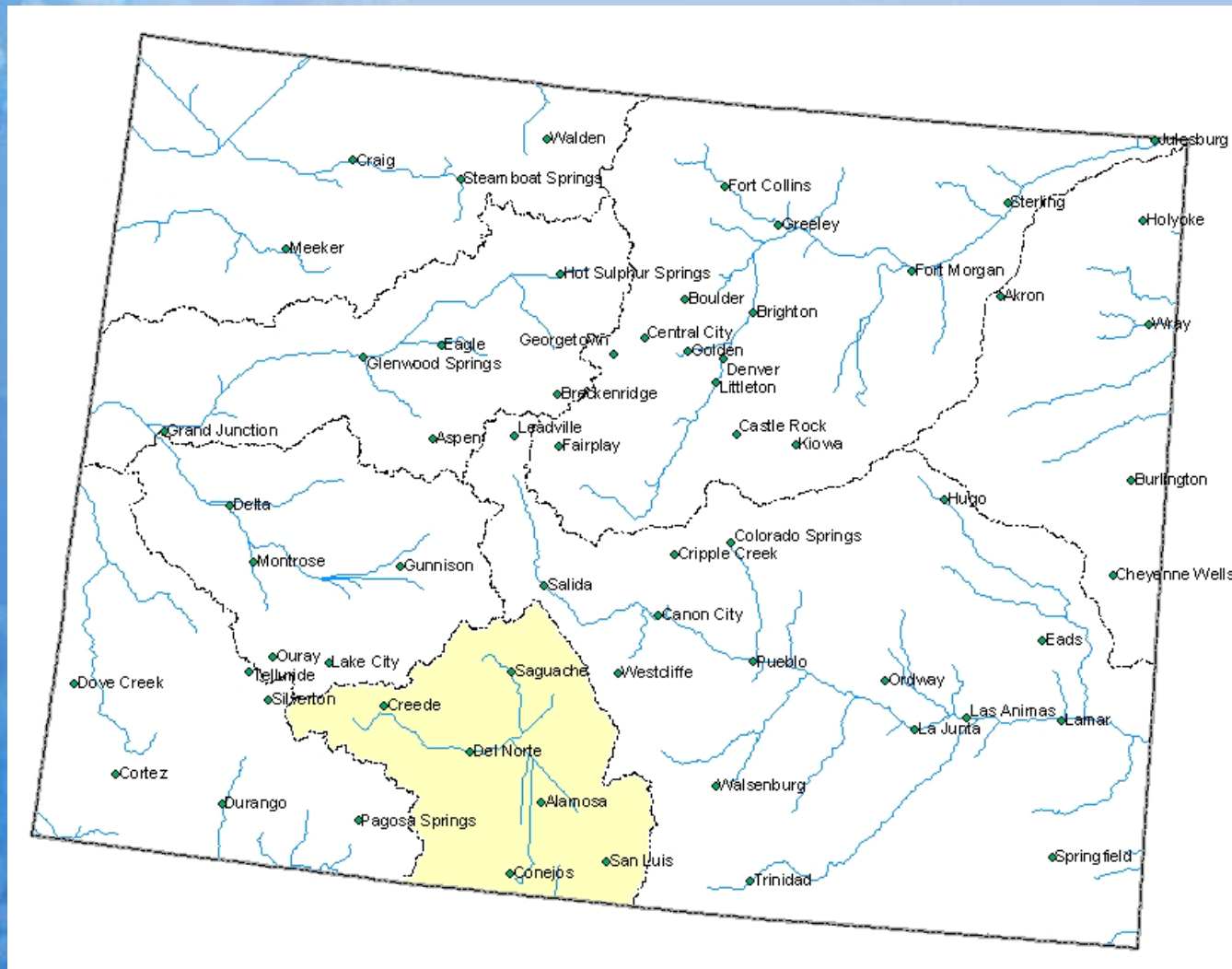
*Provisional Data  
Subject to Revision*

### Percent of Average



Current as of April 1, 2012

# Upper Rio Grande Basin Summary

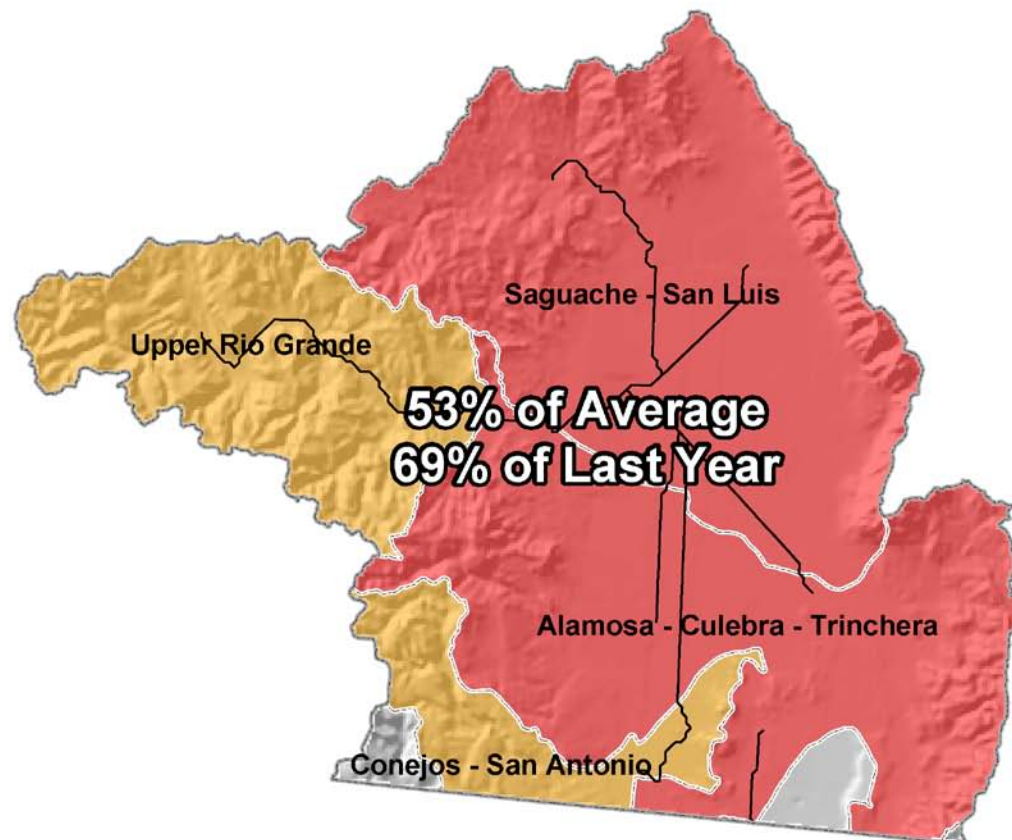


# Upper Rio Grande Basin Snowpack Map

## Percent of Average



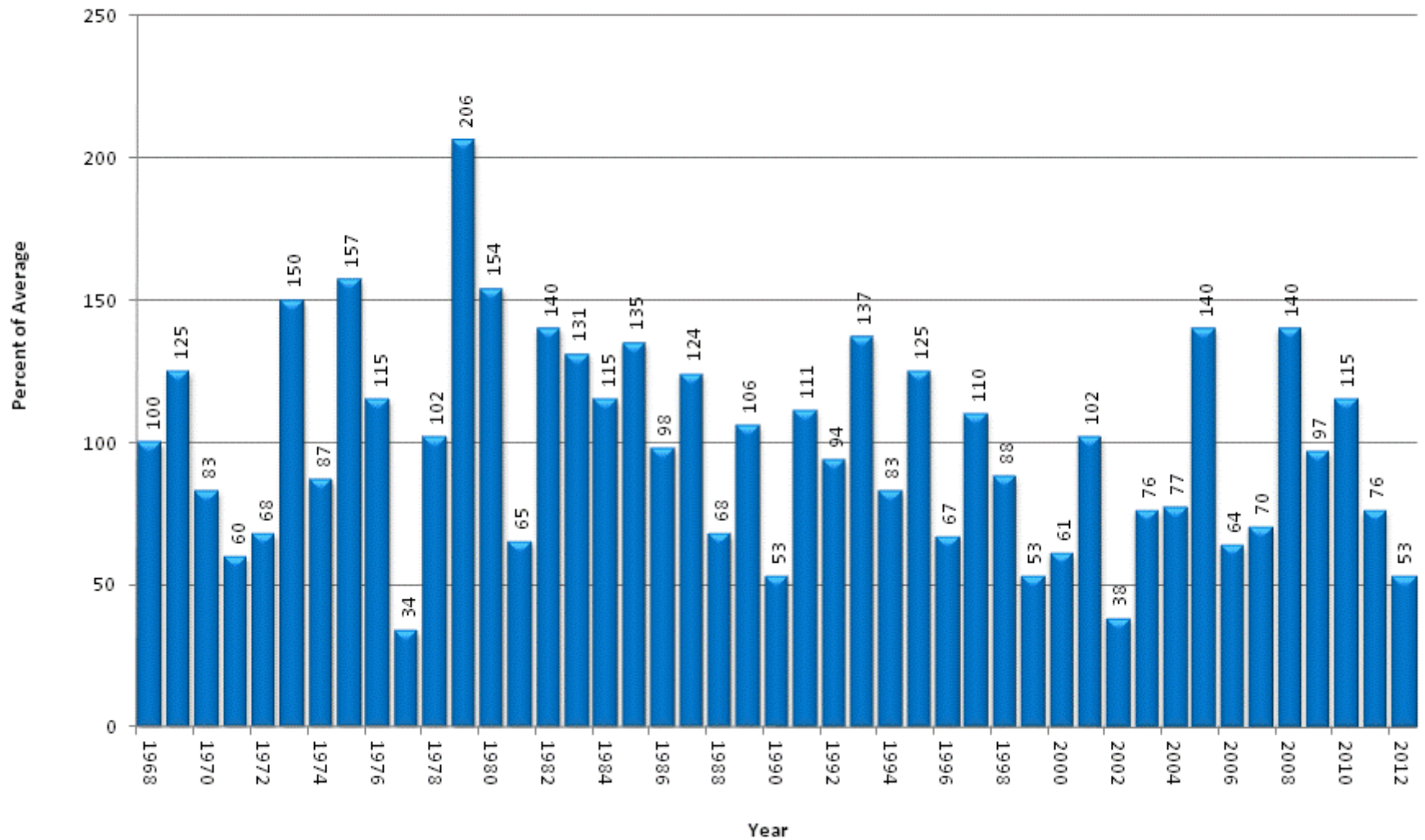
*Provisional Data  
Subject to Revision*



Current as of April 1, 2012



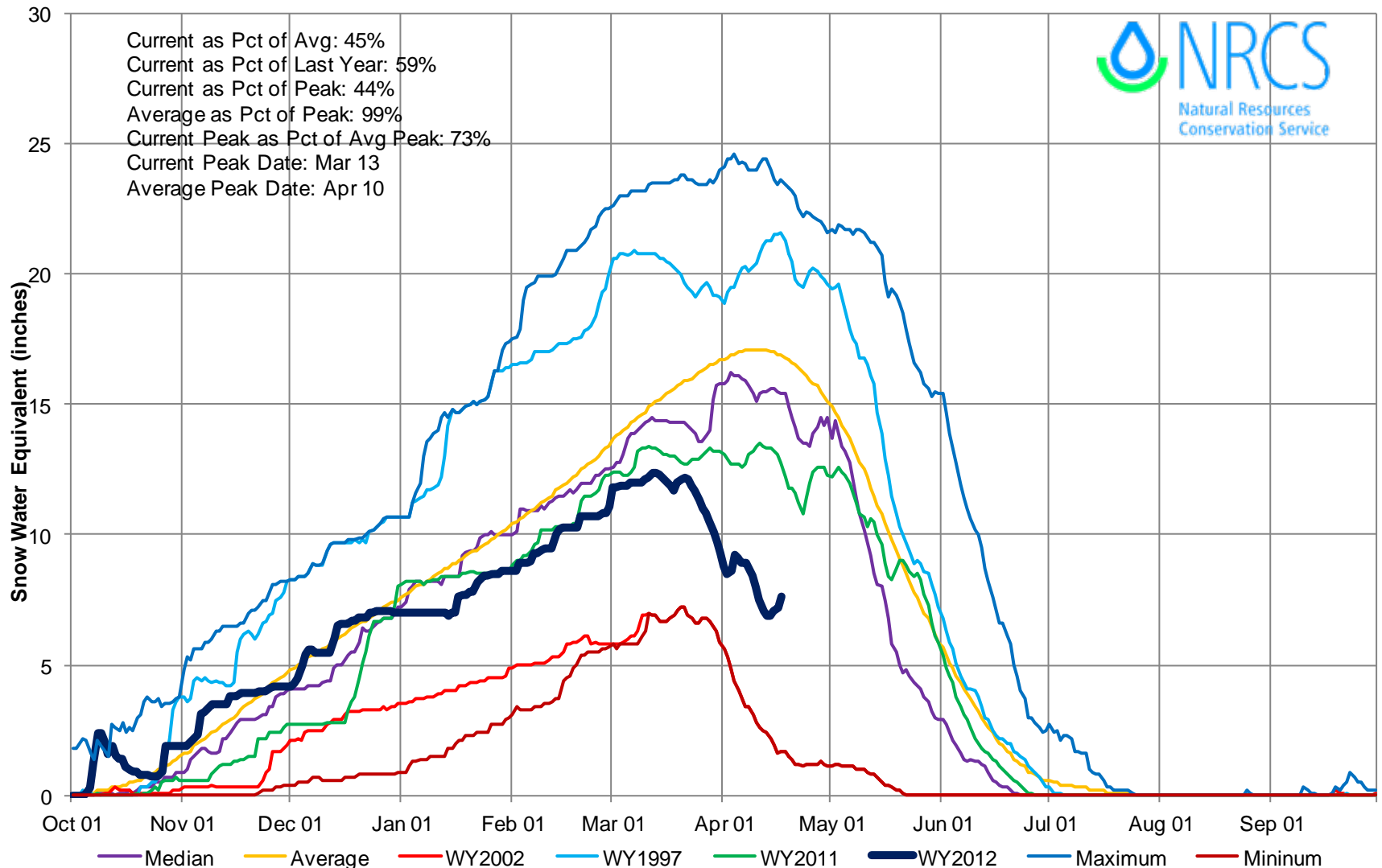
## April 1 Total Upper Rio Grande Basin Snowpack





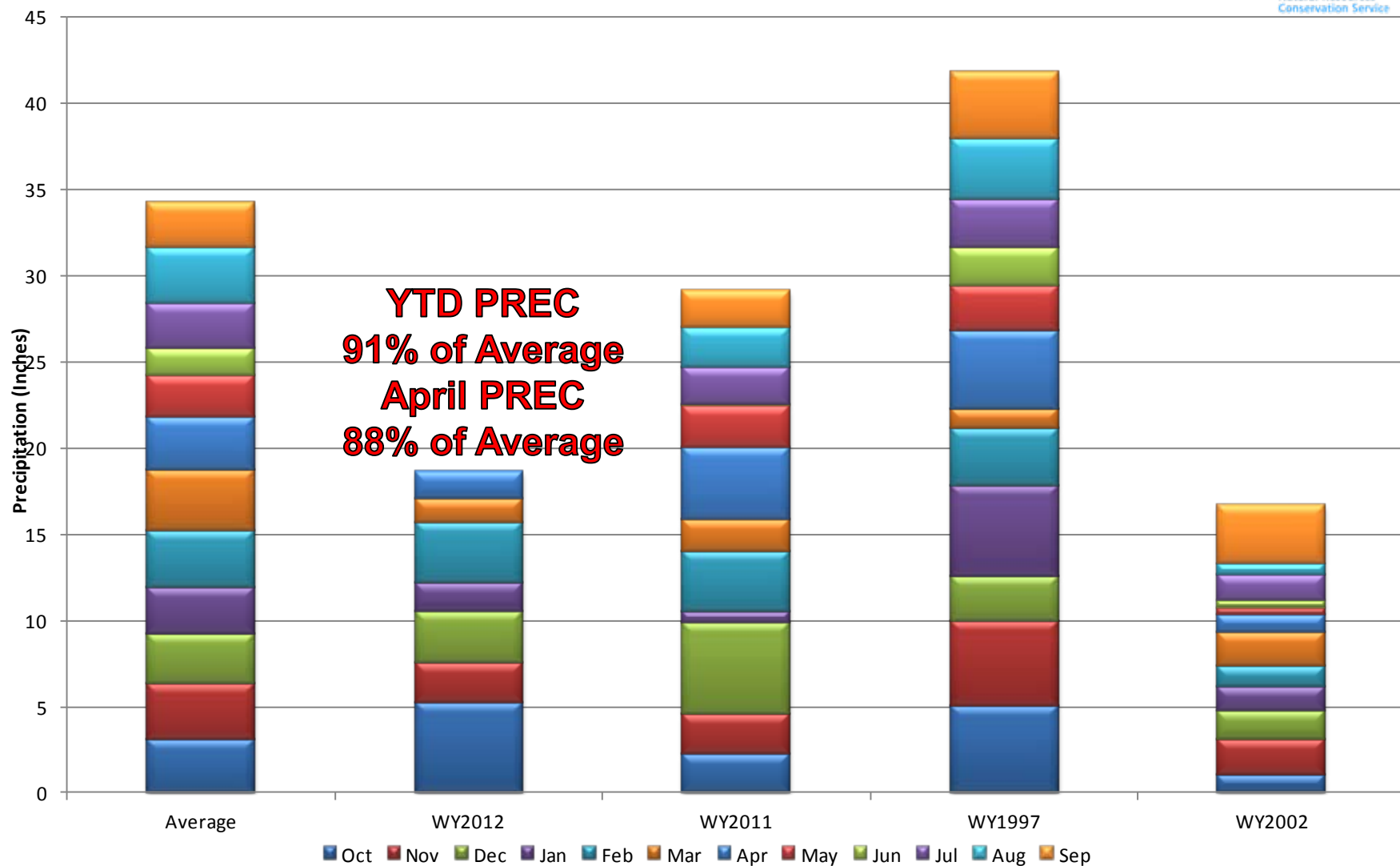
## Upper Rio Grande Basin High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



## Upper Rio Grande Basin High/Low Monthly Precipitation Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*

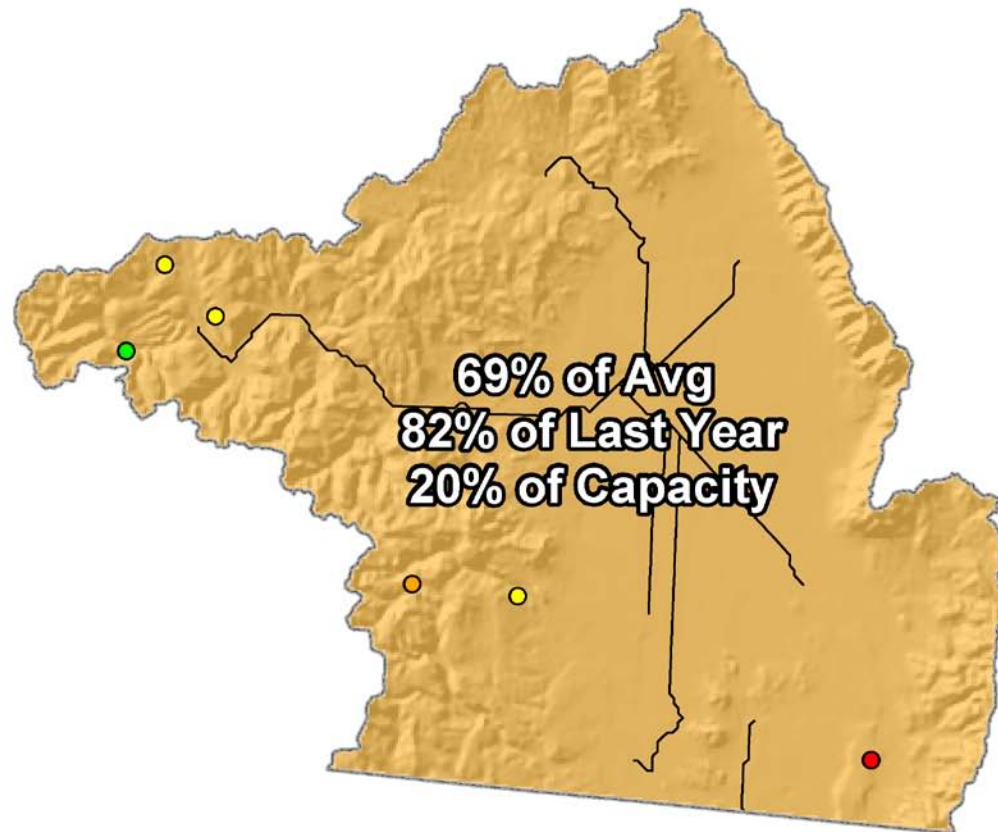


# Upper Rio Grande Basin Reservoir Storage Map

## Percent of Average



*Provisional Data  
Subject to Revision*

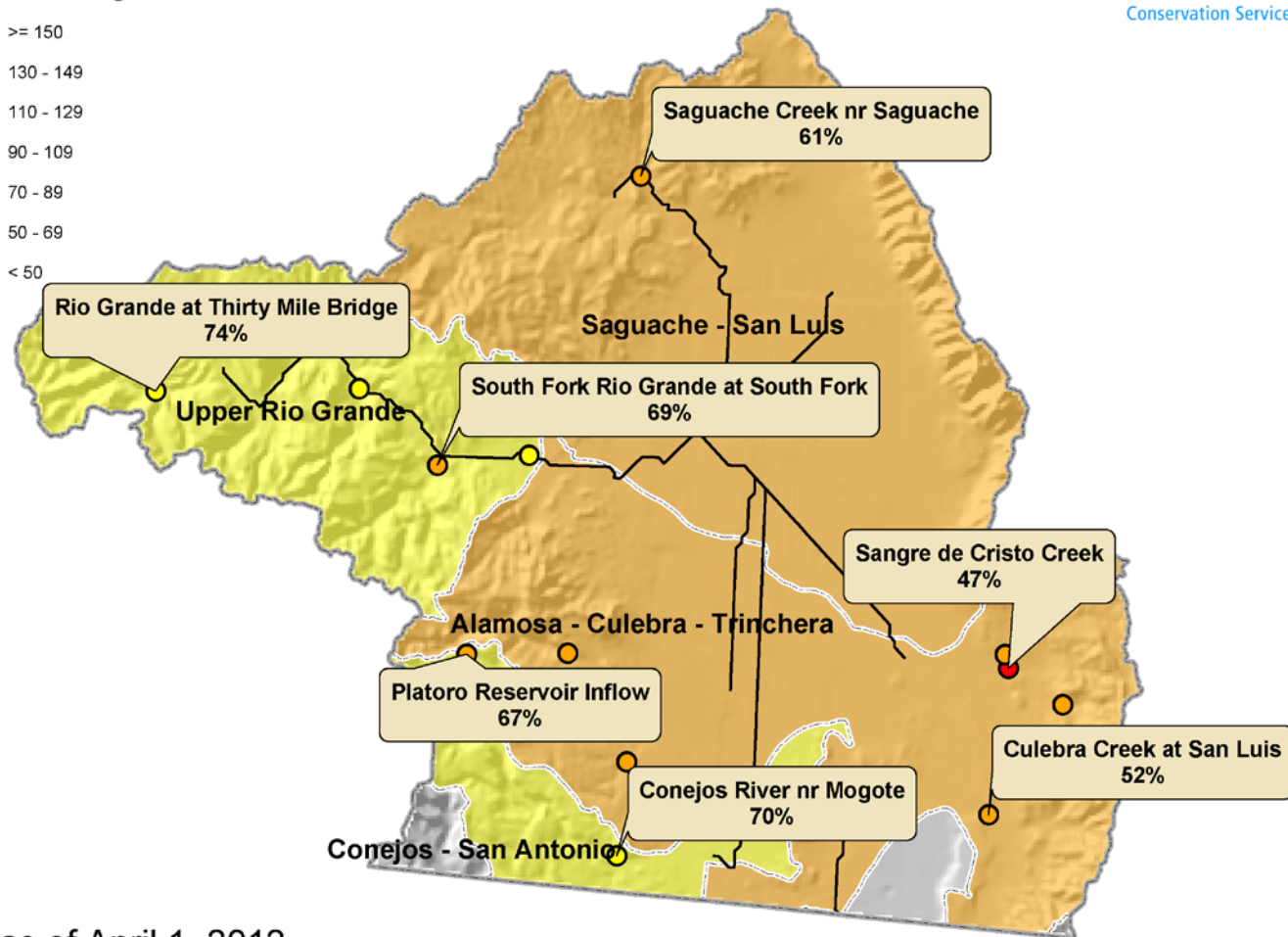
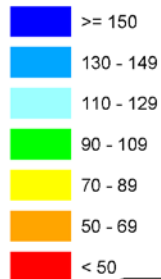


End of February 2012

# Upper Rio Grande Basin Streamflow Forecast Map



## Percent of Average

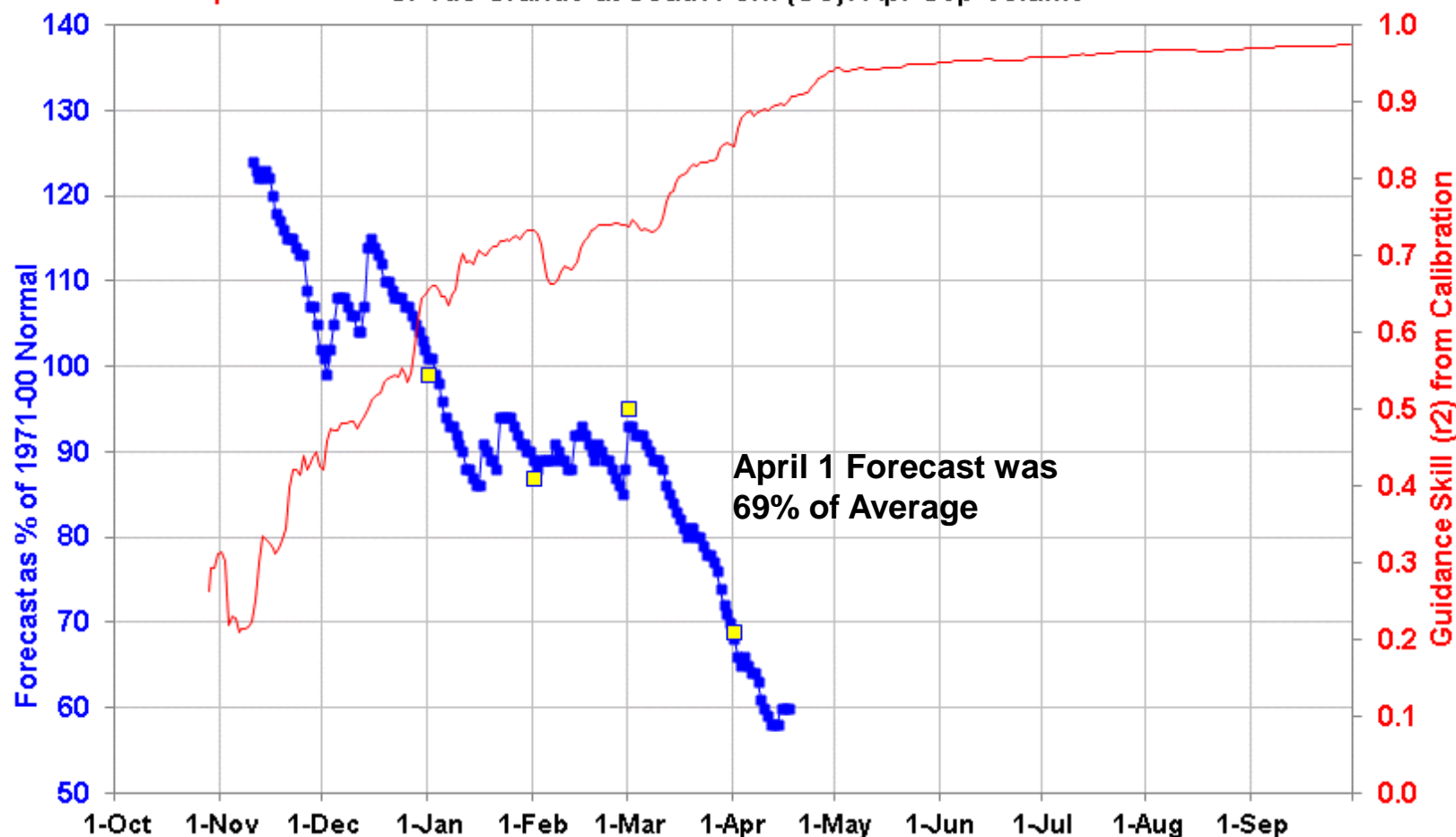


Current as of April 1, 2012



Created 11:14 Apr 17 2012

# SF Rio Grande at South Fork (CO): Apr-Sep Volume

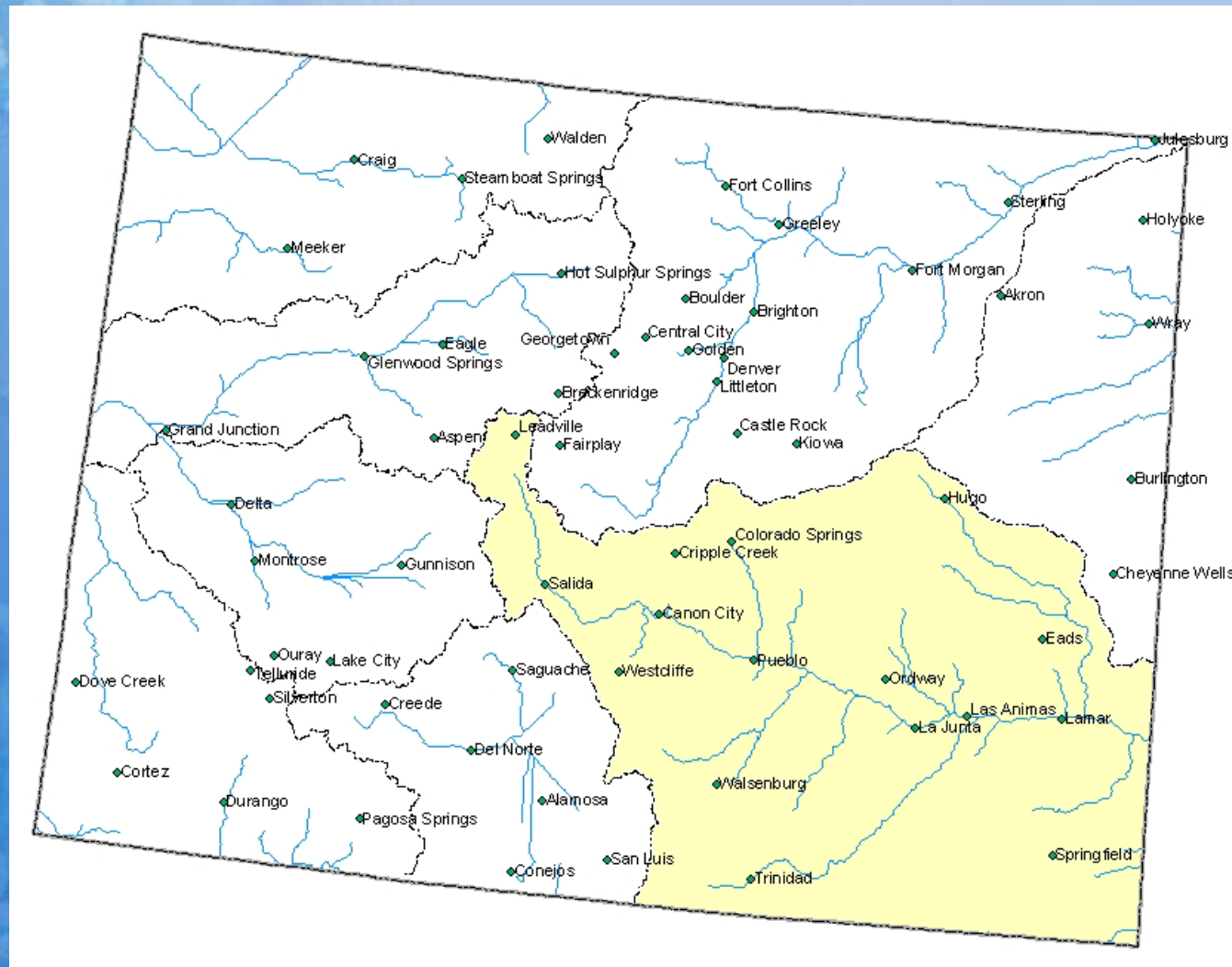


- Guidance fcst % norm
- Official fcst % norm
- Guidance Skill ( $r^2$ )

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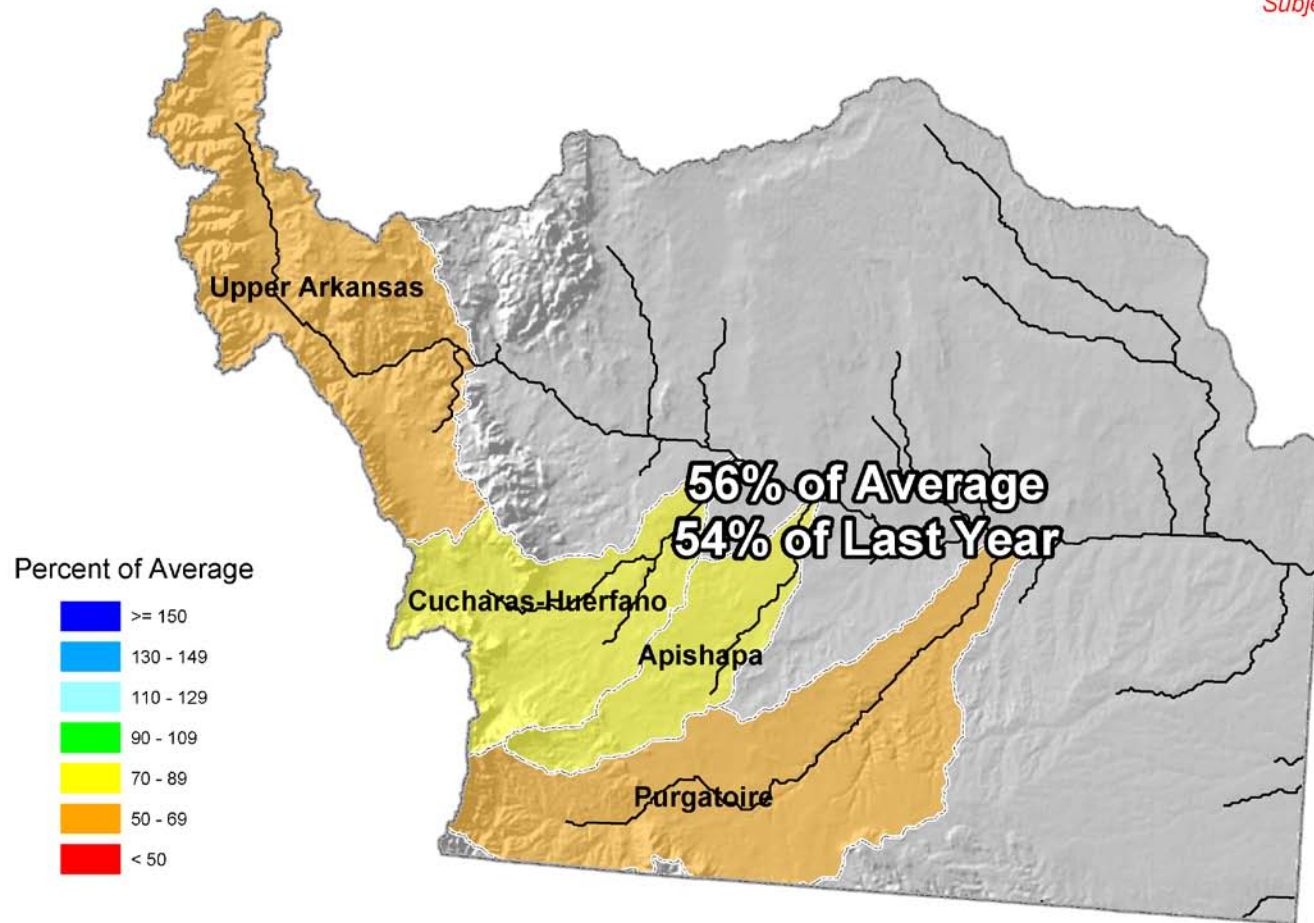


# Arkansas River Basin Summary



# Arkansas River Basin Snowpack Map

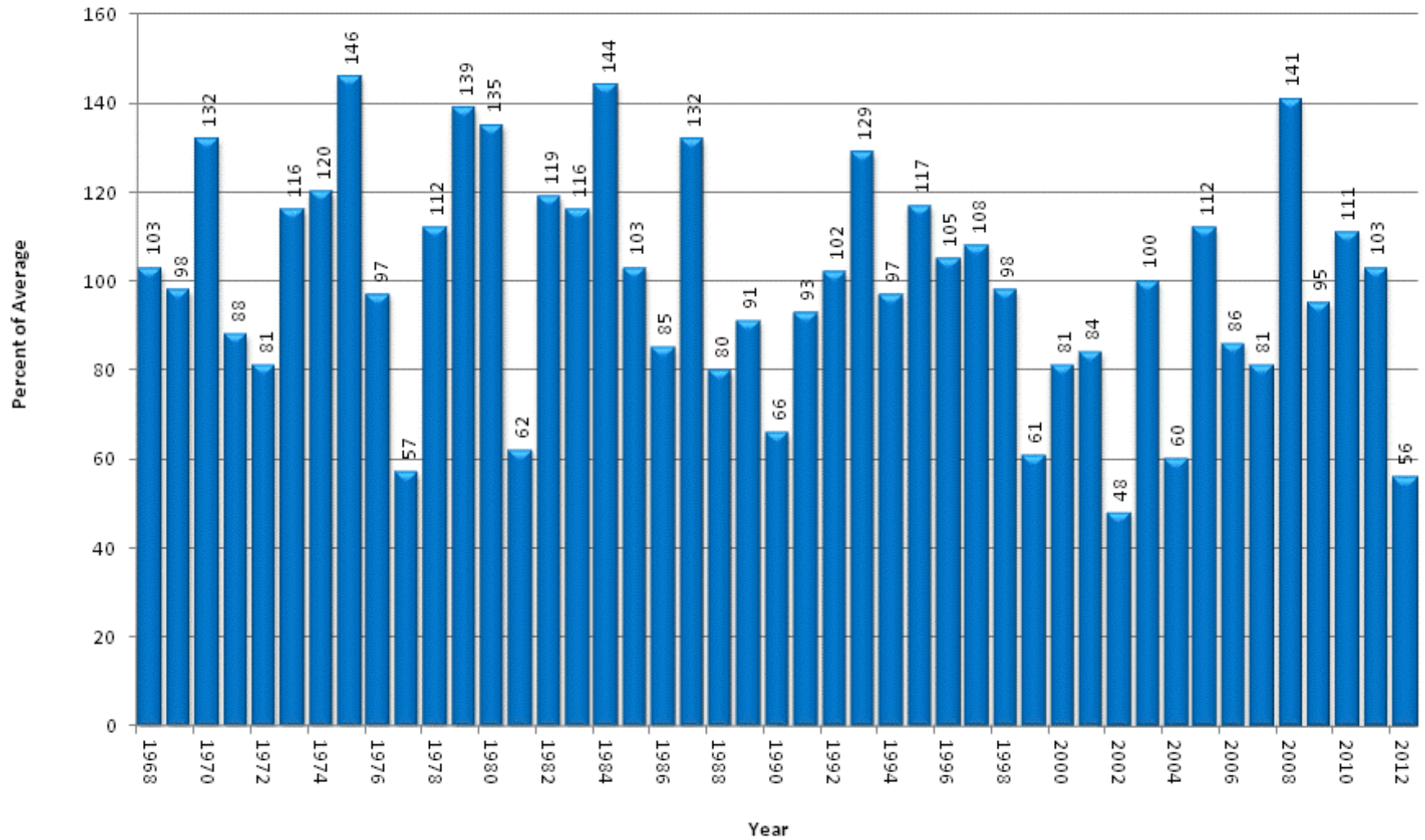
*Provisional Data  
Subject to Revision*



Current as of April 1, 2012



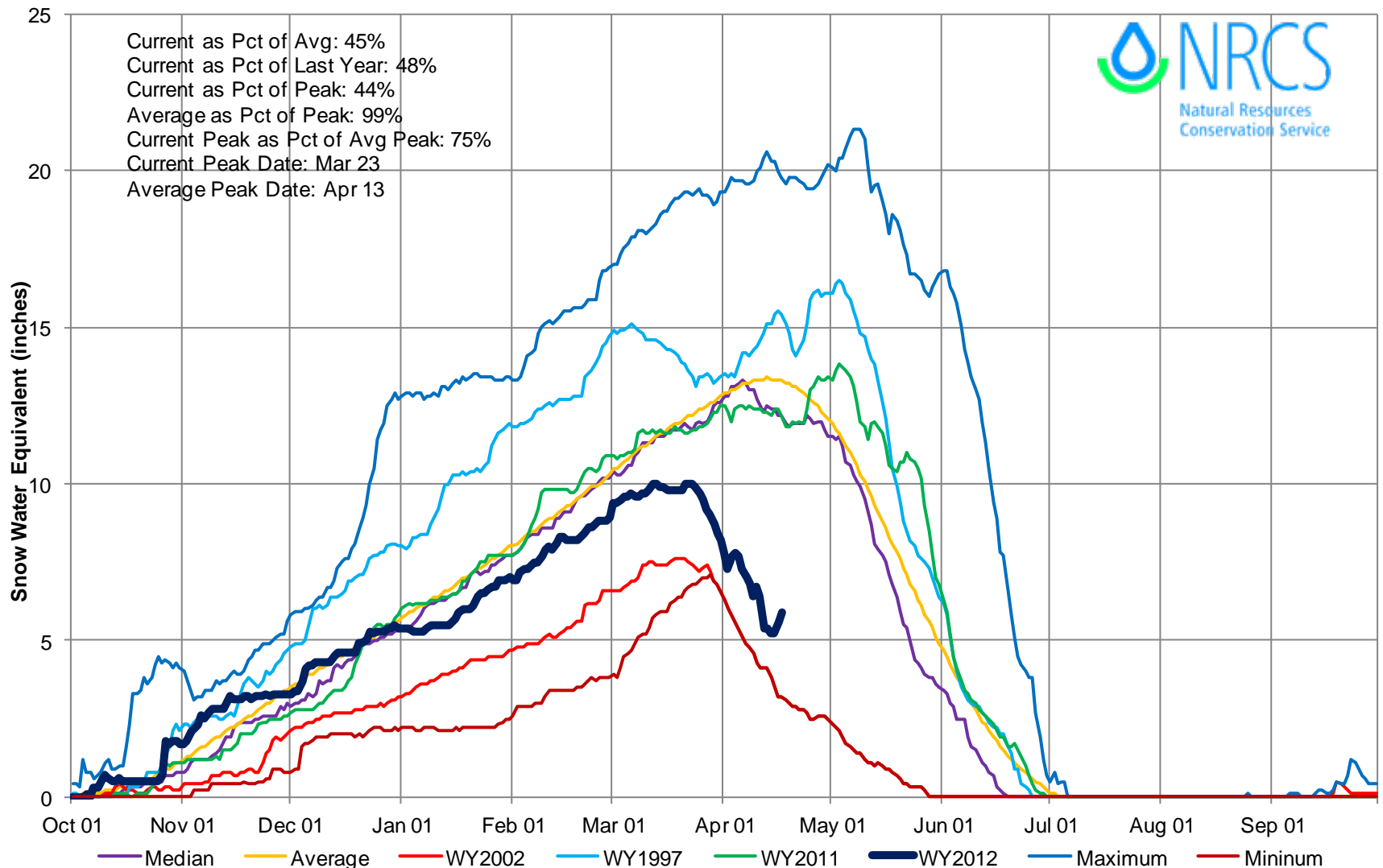
## April 1 Total Arkansas River Basin Snowpack





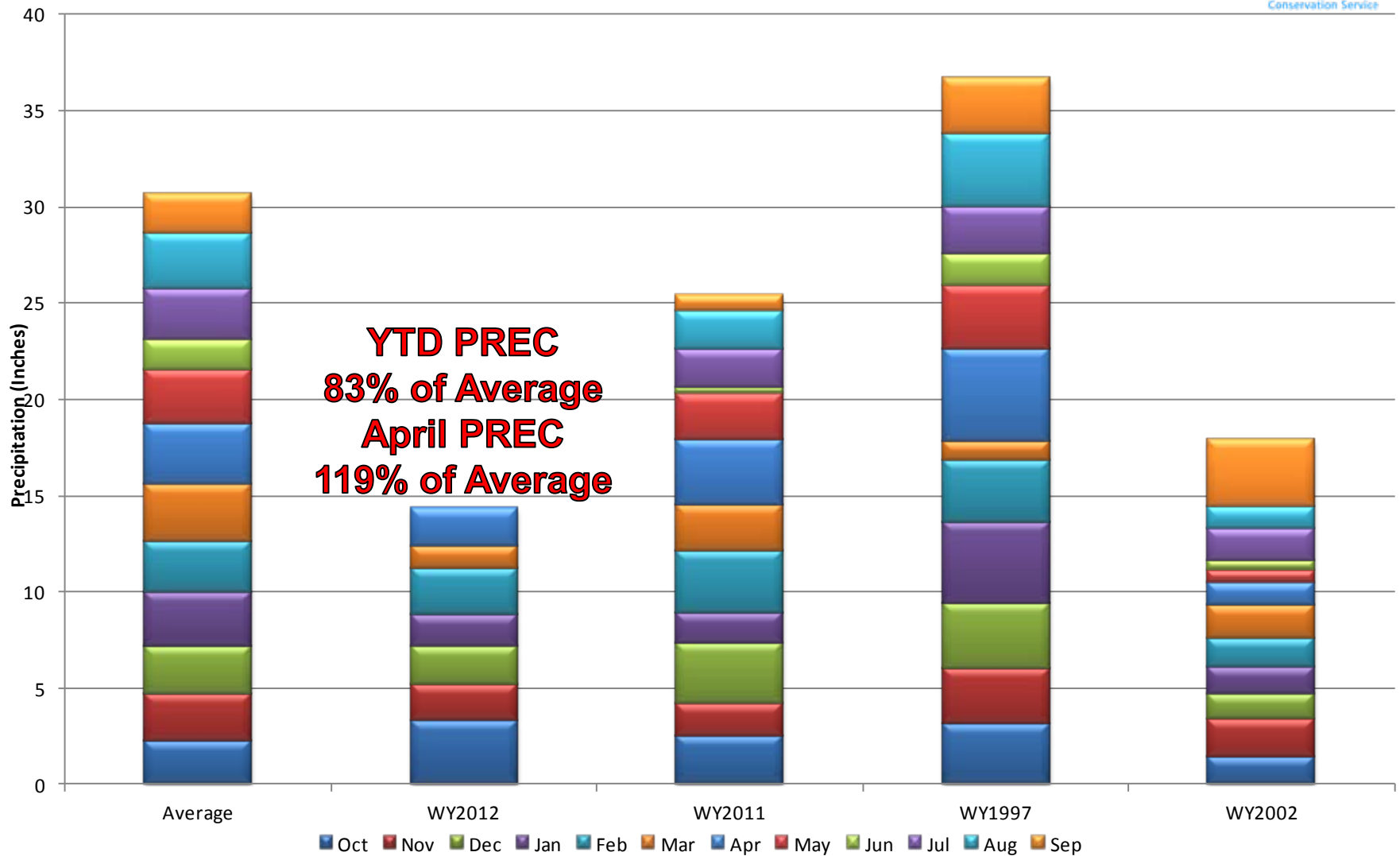
## Arkansas River Basin High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



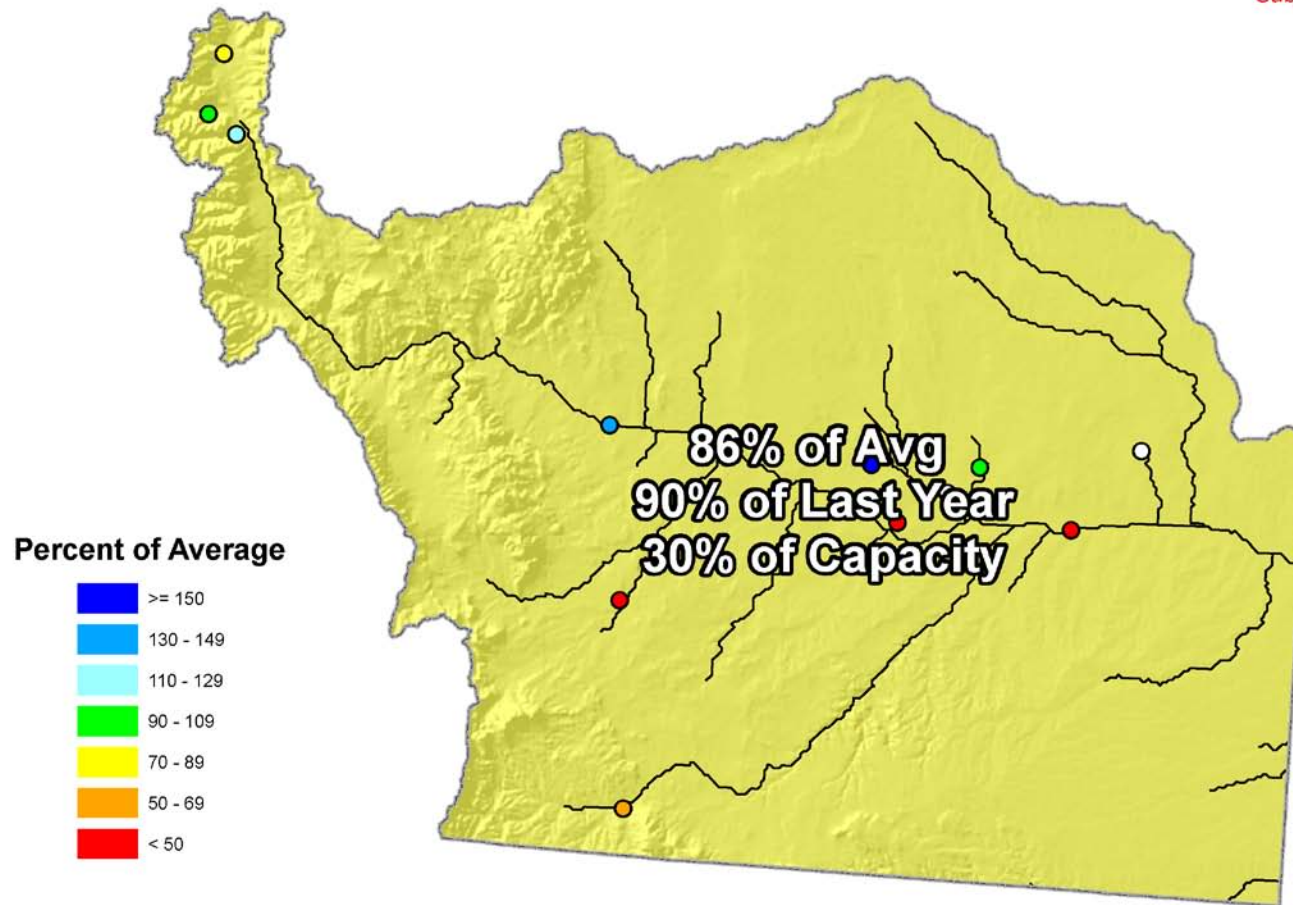
## Arkansas River Basin High/Low Monthly Precipitation Summary

*Based on Provisional SNOTEL data as of Apr 17, 2012*



# Arkansas River Basin Reservoir Storage Map

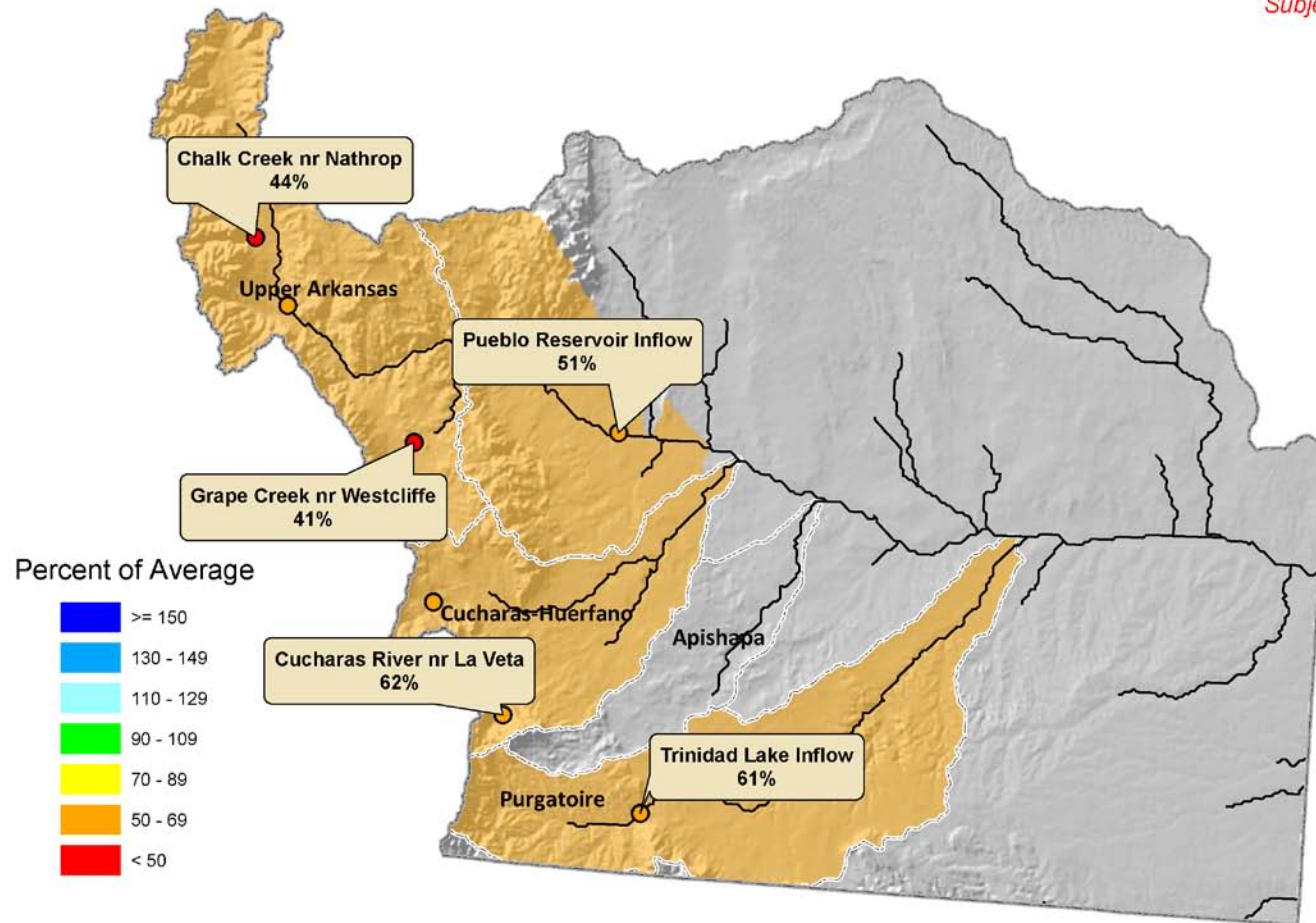
*Provisional Data  
Subject to Revision*



End of March 2012

# Arkansas River Basin Streamflow Forecast Map

*Provisional Data  
Subject to Revision*

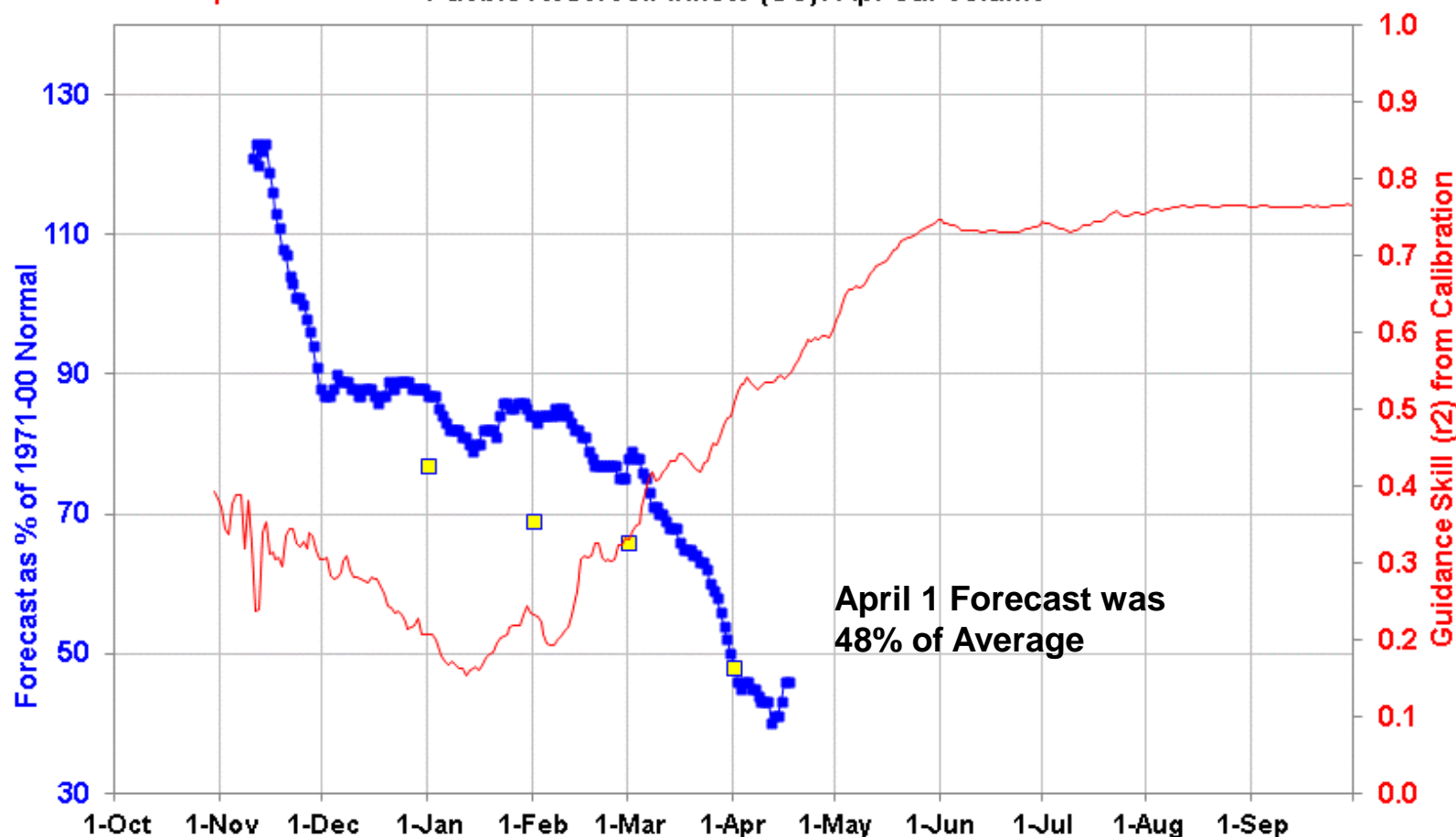


Current as of April 1, 2012



Created 11:12 Apr 17 2012

## Pueblo Reservoir Inflow (CO): Apr-Jul Volume

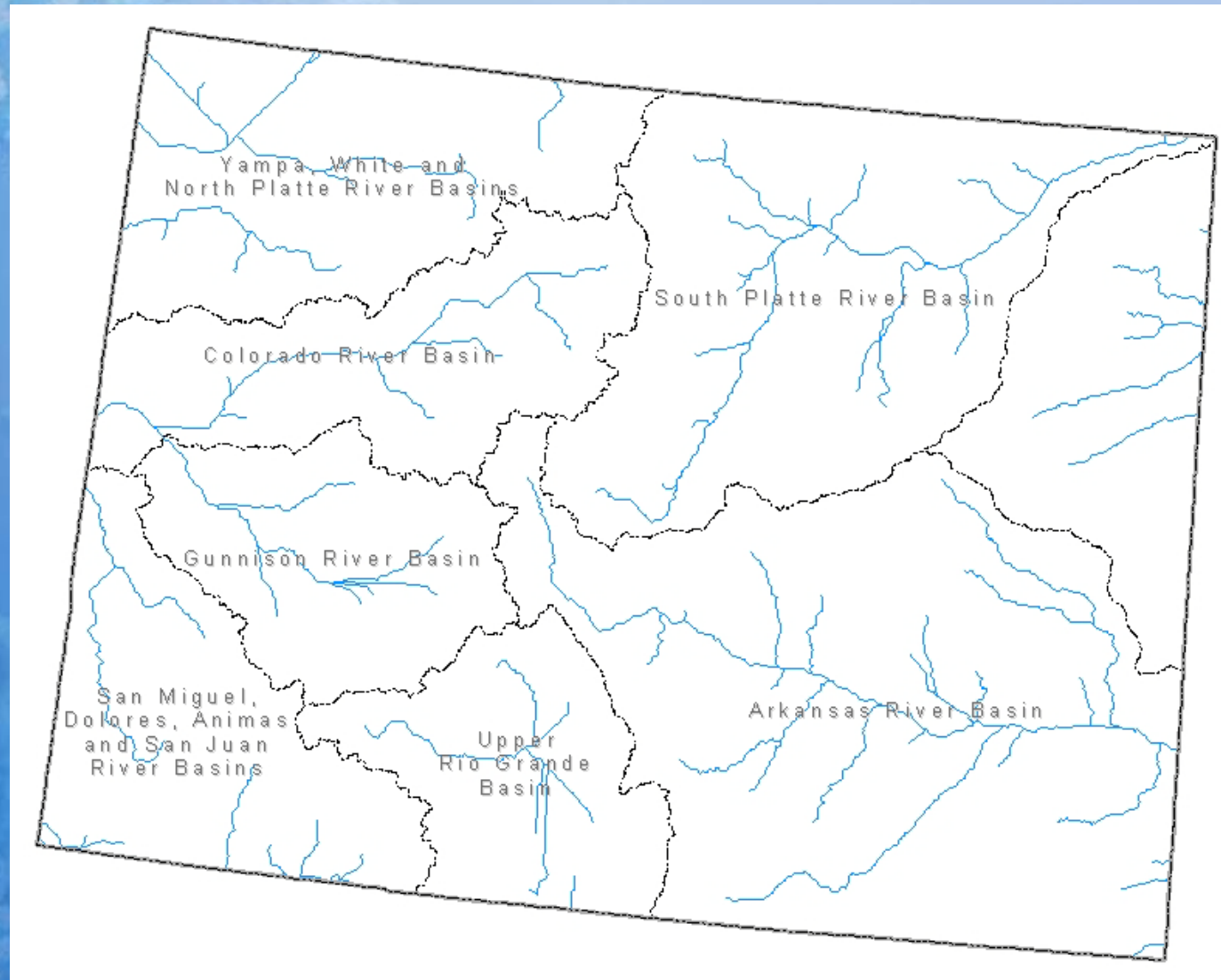


- Guidance fcst % norm
- Official fcst % norm
- Guidance Skill ( $r^2$ )

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# Colorado Statewide Summary



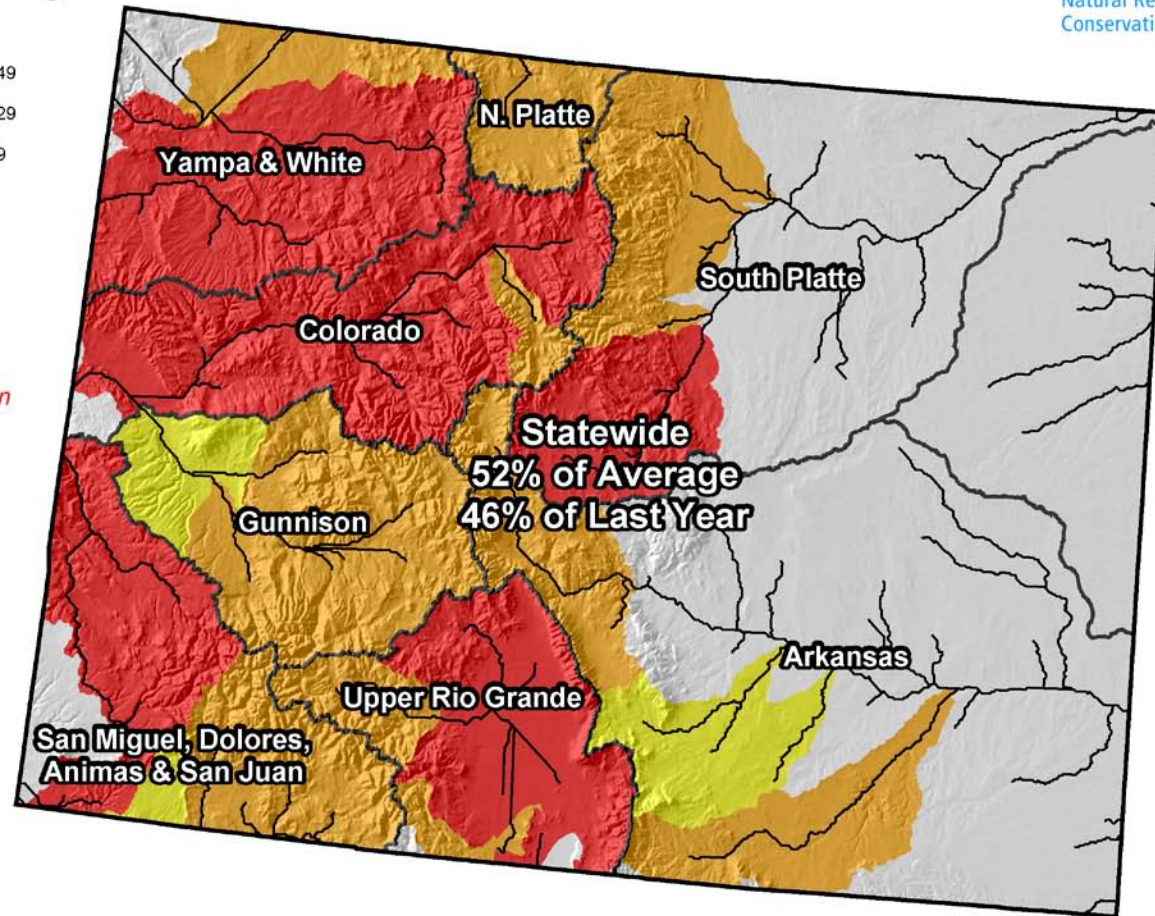
# Colorado Snowpack Map



## Percent of Average



*Provisional Data  
Subject to Revision*

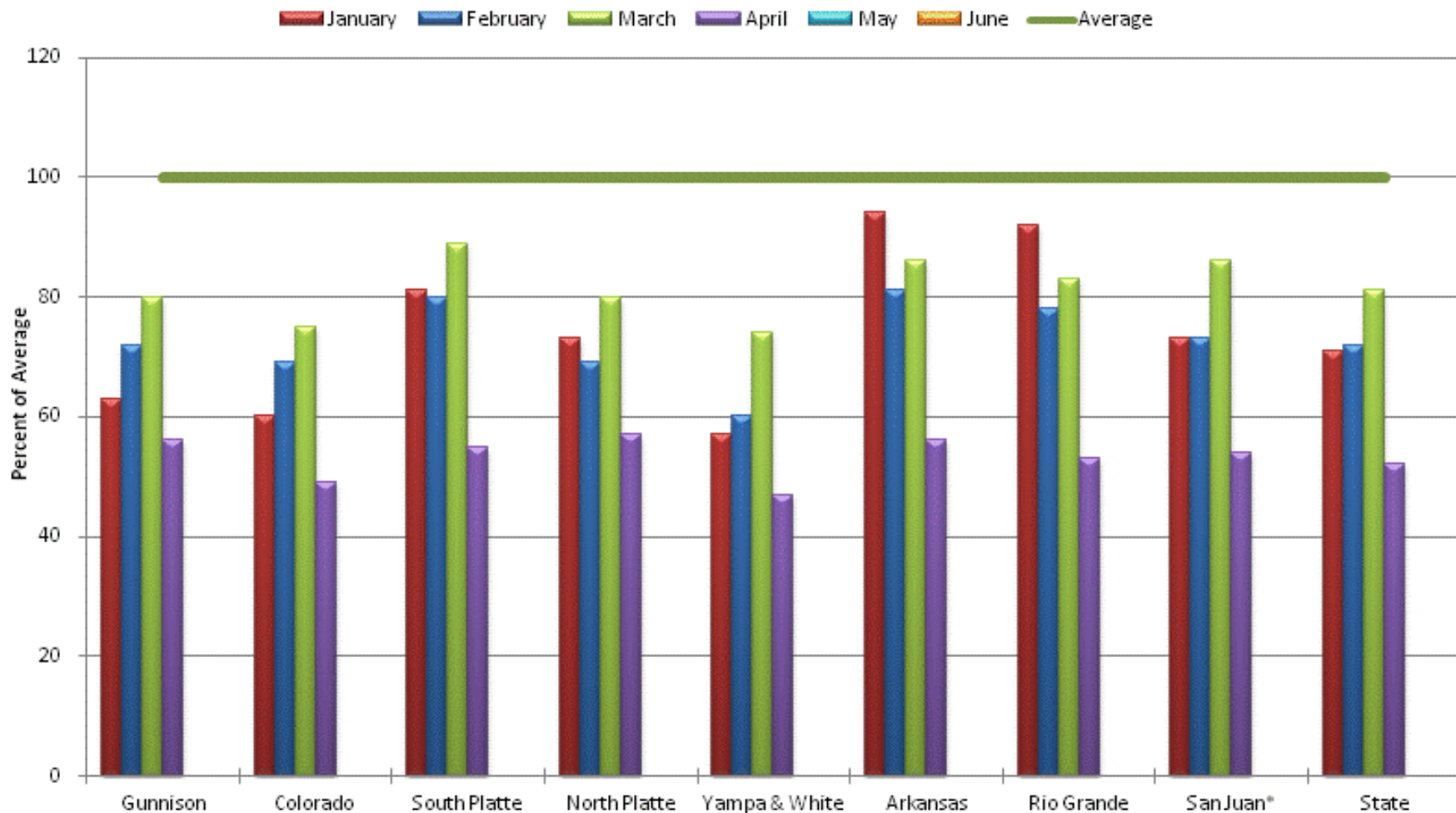


Current as of April 1, 2012



# Colorado Snowpack Summary for 2012

USDA Natural Resources Conservation Service

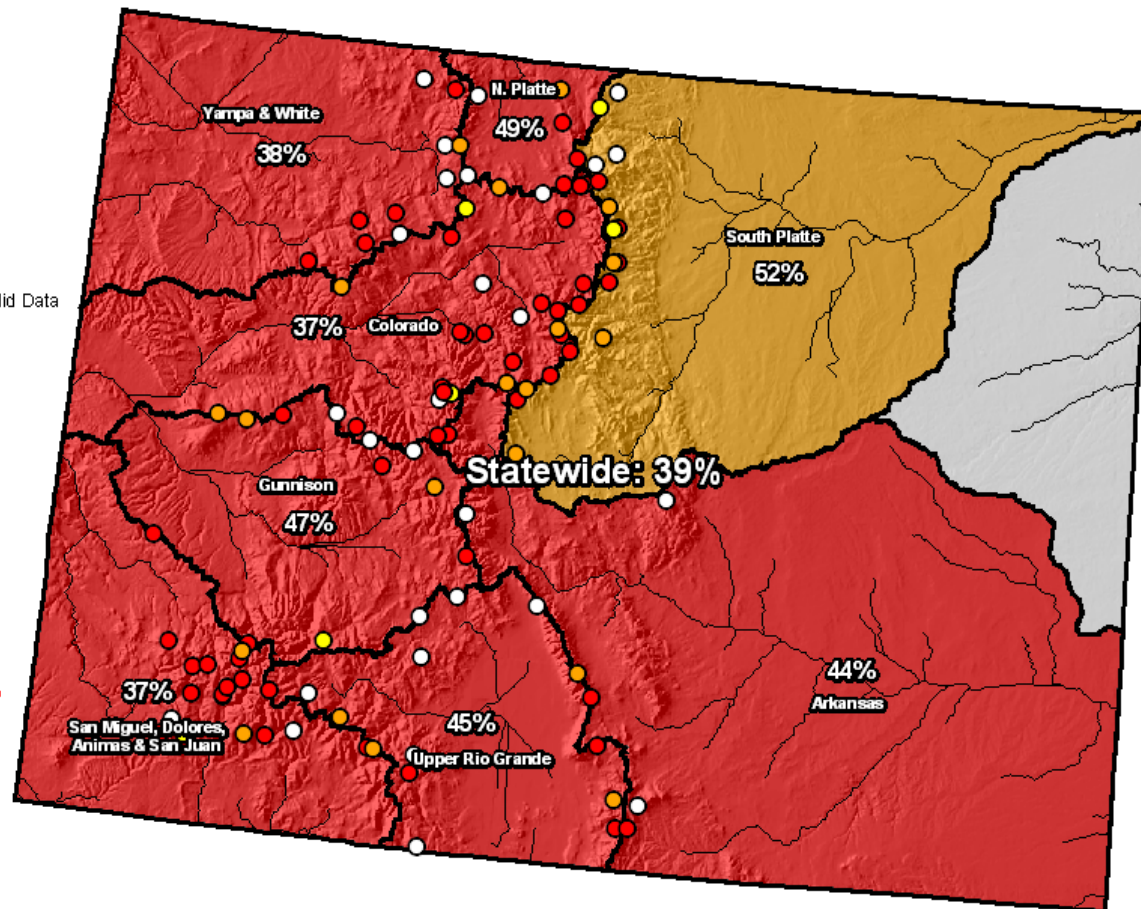
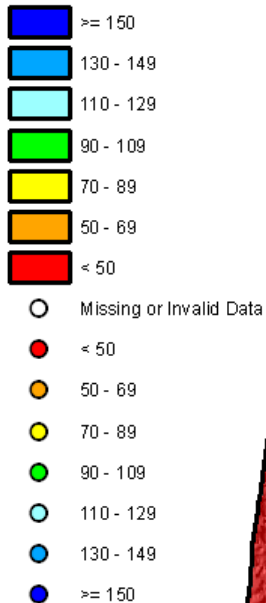


\*Includes Animas, Dolores, San Miguel Basins



# Colorado SNOTEL Snowpack Update Map with Site Data

Percent of Average



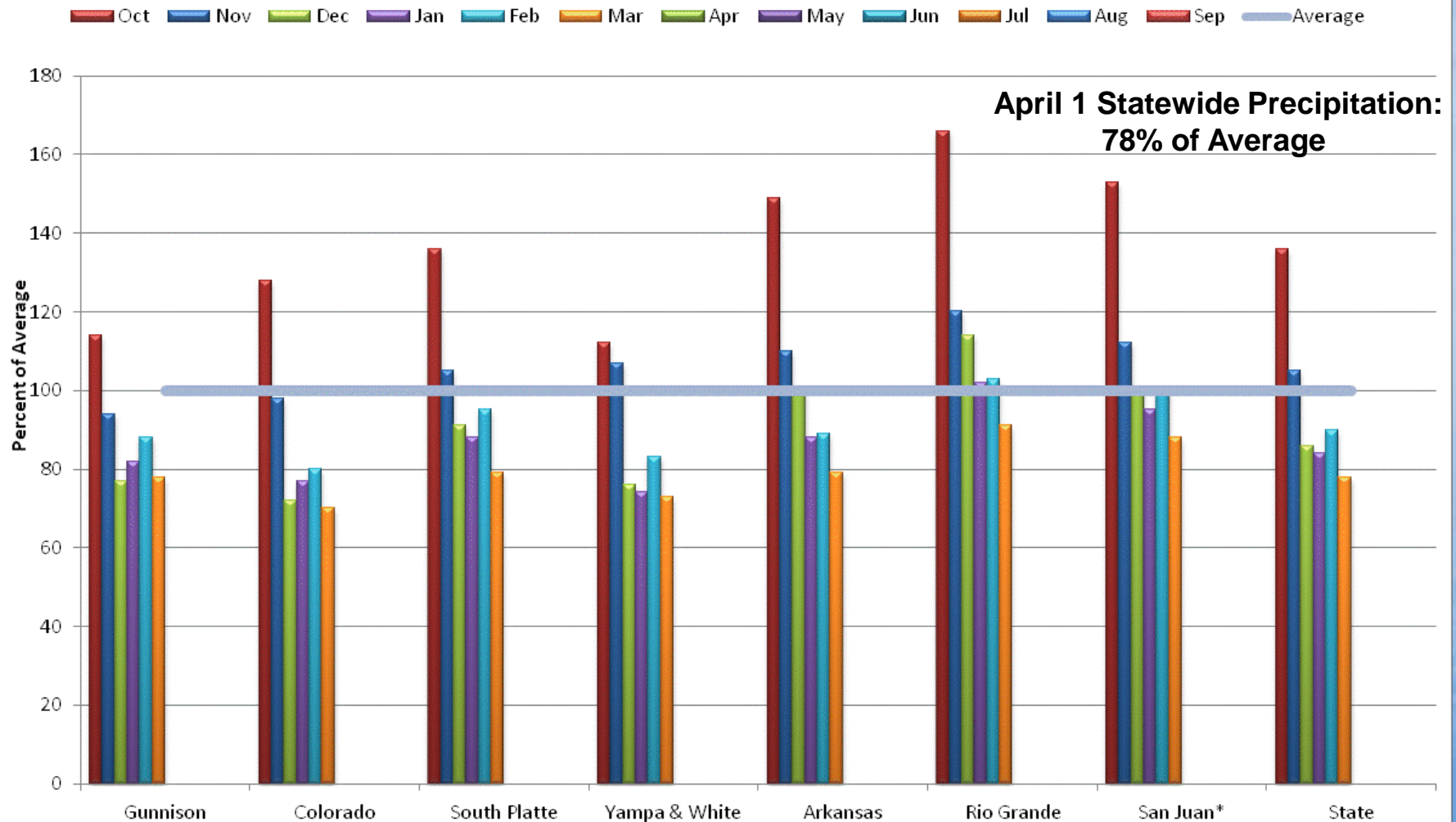
*Provisional Data  
Subject to Revision*

Current as of Apr 17, 2012

\*Data may not provide a valid measure of conditions

# Colorado Year-to-Date Precipitation Summary for WY2012

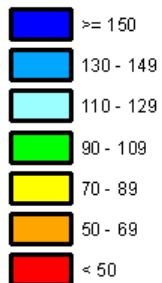
USDA Natural Resources Conservation Service



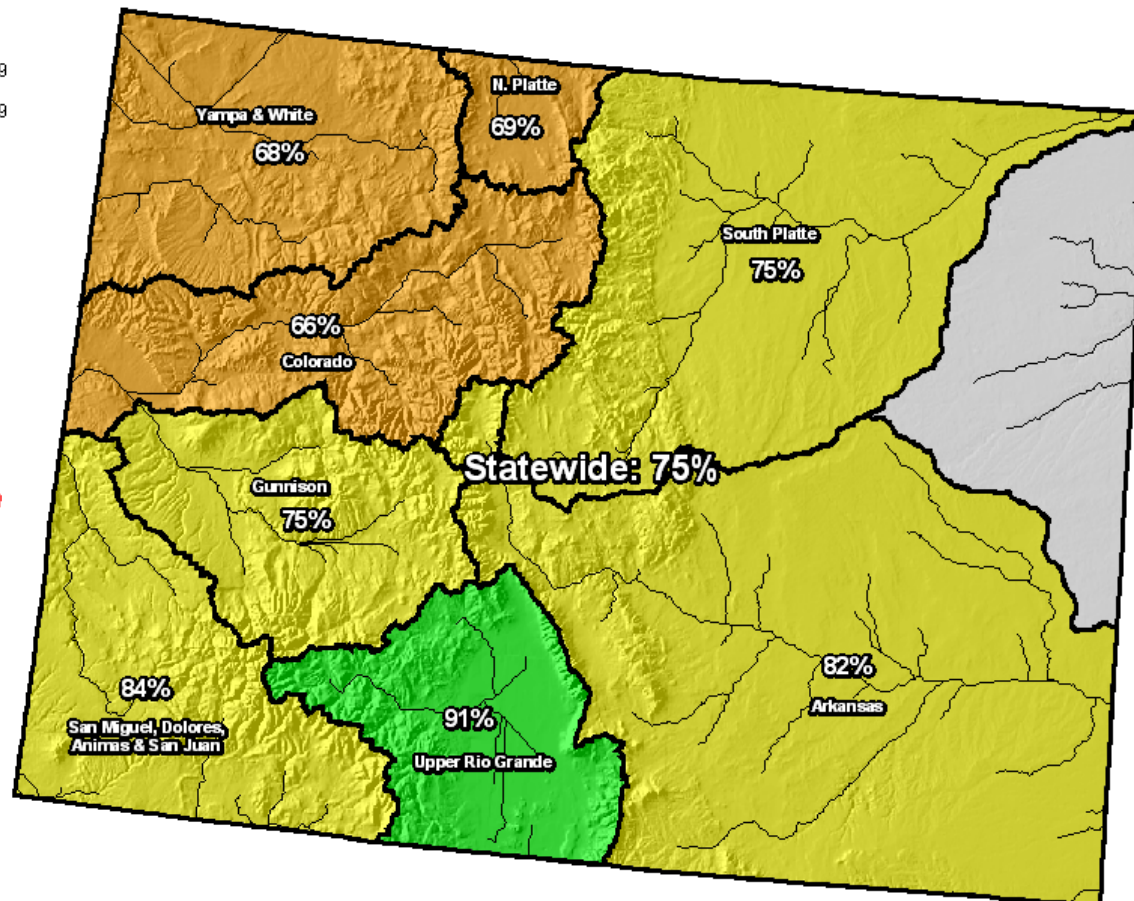
\*Includes Animas, Dolores, San Miguel Basins

# Colorado SNOTEL Water Year-to-Date Precipitation Update Map

Percent of Average



*Provisional Data  
Subject to Revision*



Current as of Apr 11, 2012

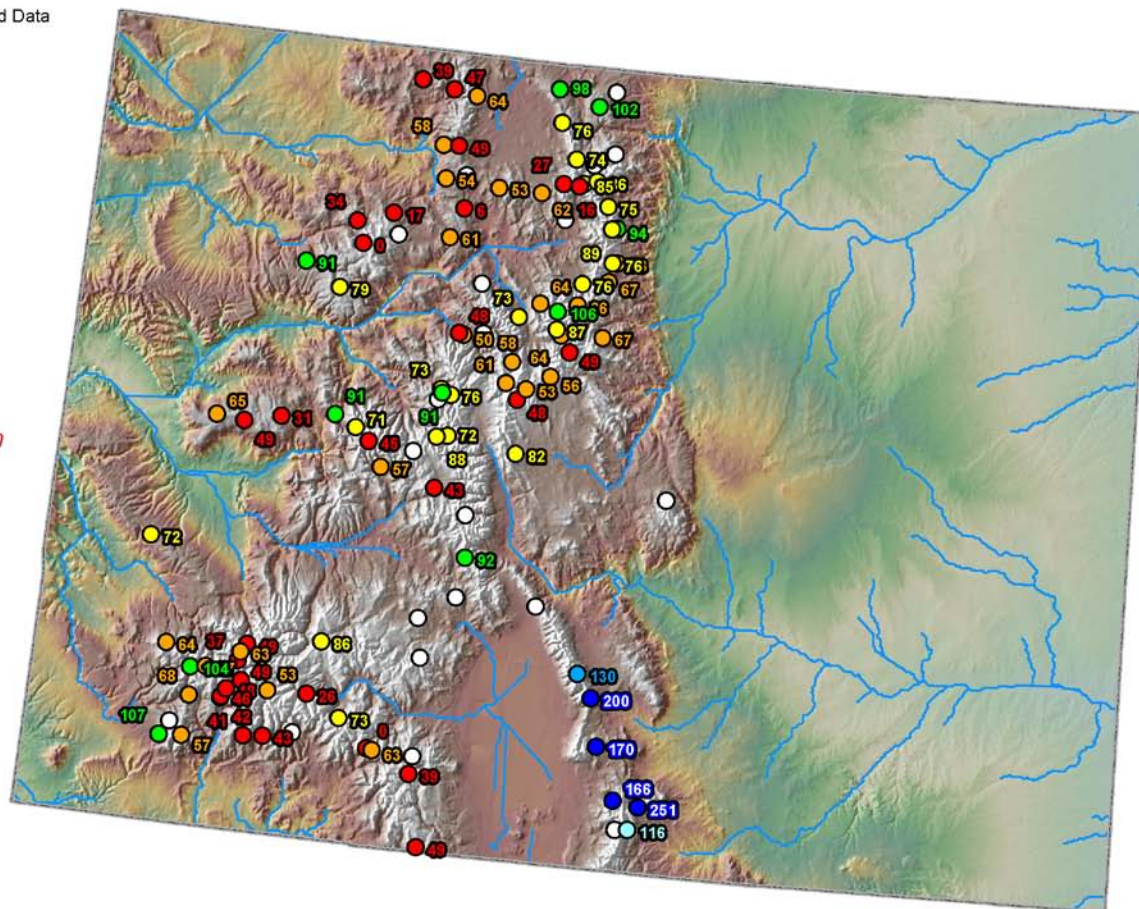


# Colorado SNOTEL Month-to-Date Precipitation

Percent of Average

- Missing or Invalid Data
- < 50
- 50 - 69
- 70 - 89
- 90 - 109
- 110 - 129
- 130 - 149
- ≥ 150

*Provisional Data  
Subject to Revision*



Current as of Apr 17, 2012



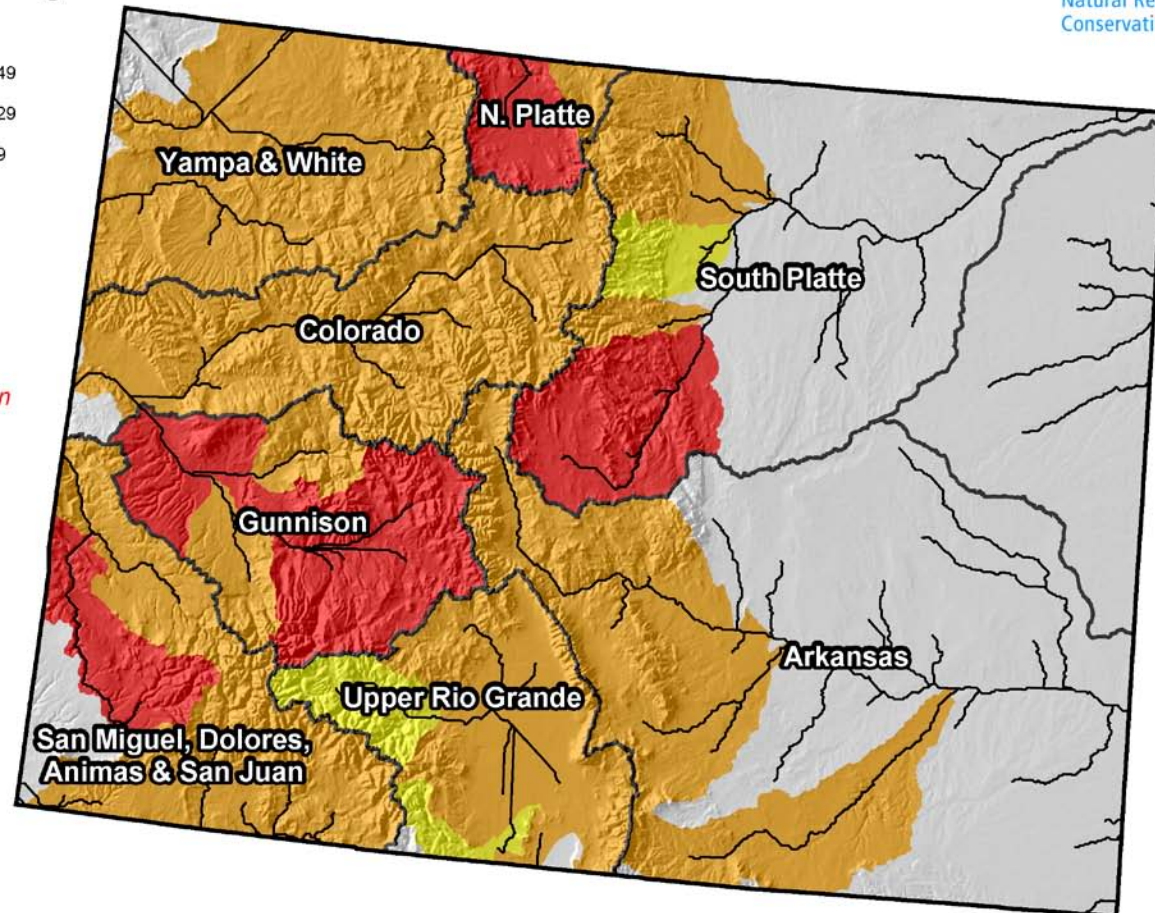
# Colorado Streamflow Forecast Map



## Percent of Average



*Provisional Data  
Subject to Revision*

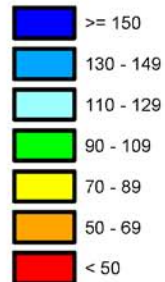


Current as of April 1, 2012

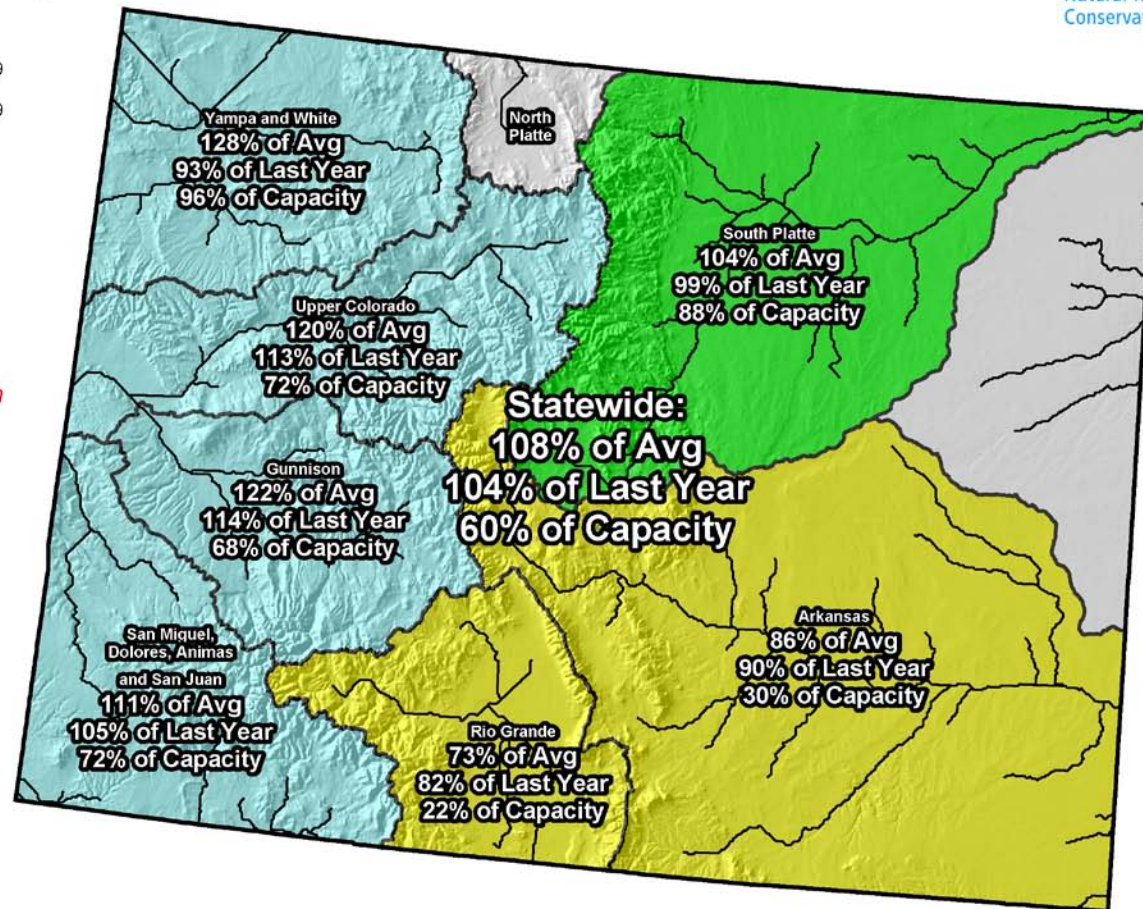
# Colorado Reservoir Storage Map



## Percent of Average



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Subject to Revision*



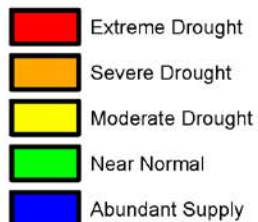
End of March 2012



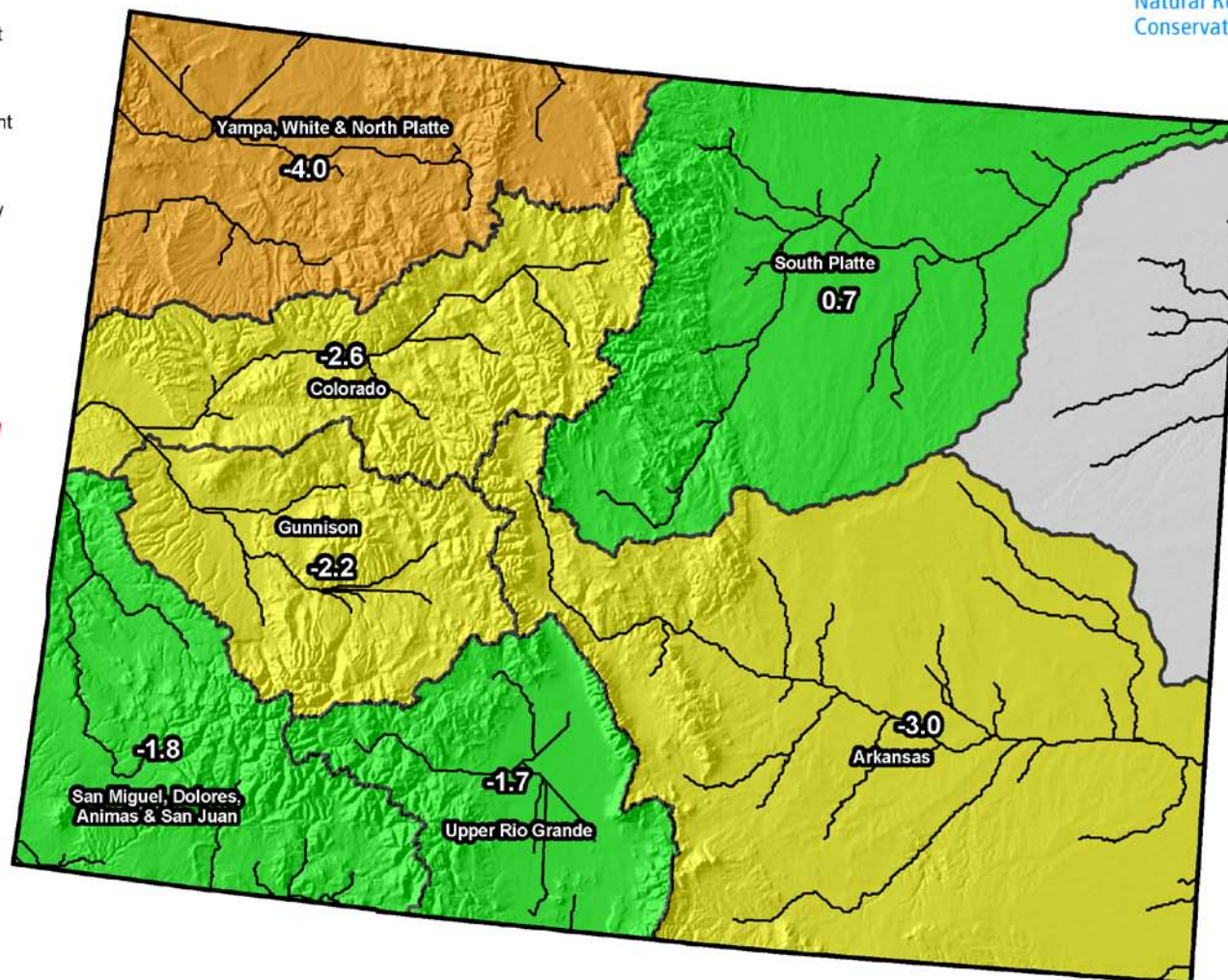
# Colorado Surface Water Supply Index (SWSI) Map



## Legend



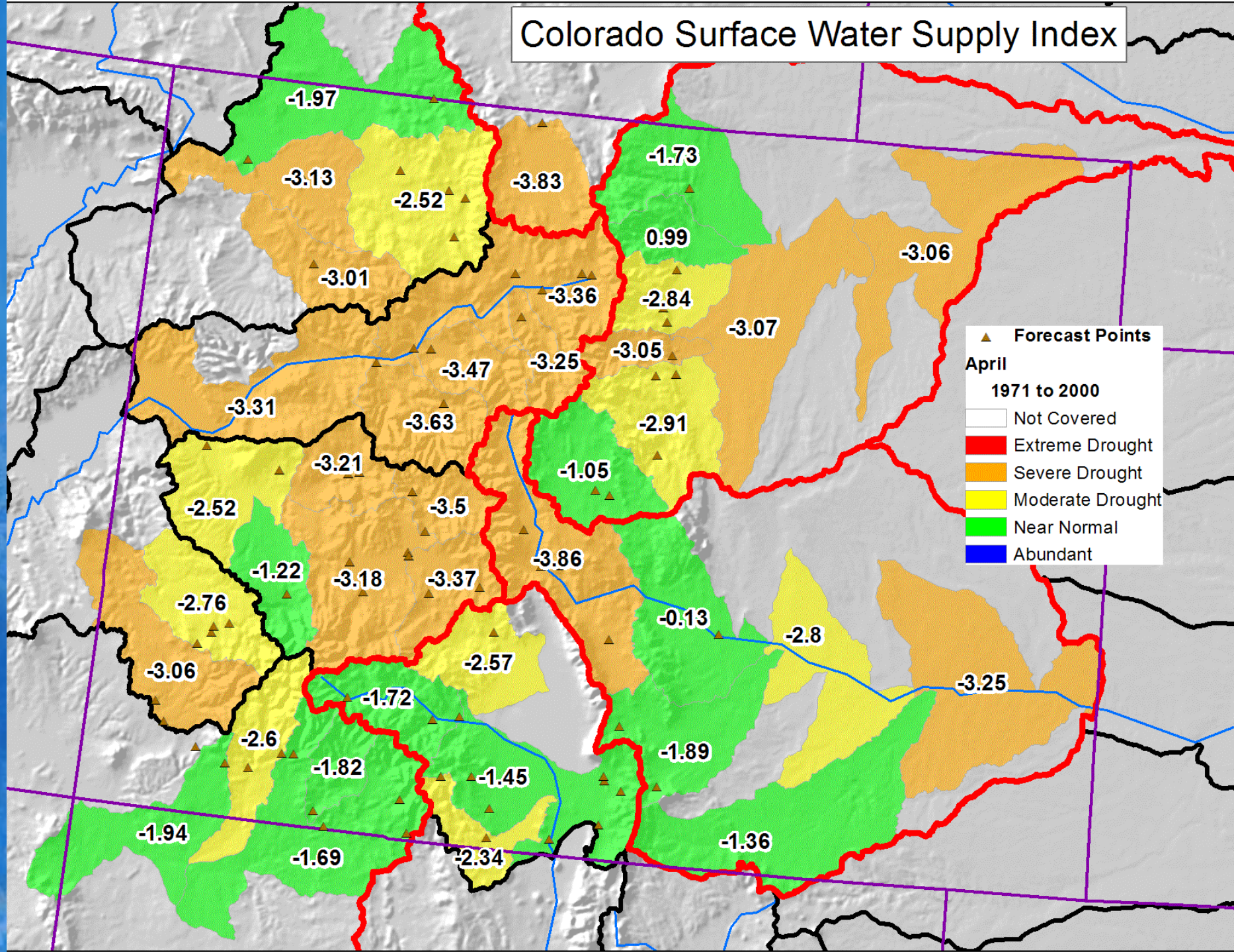
*Provisional Data  
Subject to Revision*



Current as of April 1, 2012



# Colorado Surface Water Supply Index





# The 2012 Water Year

- **October** - Well above average precipitation in all basins. Upper Rio Grande, Arkansas and South Platte basins had above average SWE also. All other basins had below average SWE.
- **November** - Cumulative precipitation was near or above average in all basins. November was drier than average across the state, except for in the Yampa/White. Statewide, SWE was tracking along at average until the last week in Nov when things dried up and ended Nov below average.
- **December** - DRY across the state. The only basin to see average precip during Dec was Upper Rio Grande. The Yampa/White recorded just 29% of average precip. SWE as of Jan 1 was below average in all basins. The Arkansas & Upper Rio basins were near average (~90%). Yampa/White was at just 57%.
- **January** - Dry until ~16<sup>th</sup> across the state. The Gunnison and Colorado basins saw well above average snowfall the last half of Jan. All other basins returned to typical accumulation. Feb 1 measured SWE was still below average in all basins. Southern basins had dropped 13 -15 percentage point since Jan 1. Precip in Gunnison and Colorado basins was near average in Jan all other basins were below average.
- **February** - Had near or above average snowfall and precipitation across the state. The Colorado and Upper Rio Grande basins reported snowfall totals at 97% of average. Boosted snowpack totals in all basins, greatest increases in the Yampa and San Juan basins. Statewide the snowpack increased by 9 percentage points.
- **March** - Extremely DRY month! Little to no additional snow accumulation across the state. All basins snowpack percentages decreased significantly and look to have reached peak SWE in early to mid March, two to seven weeks early!
- **April** - Not quite as dry as March however most basins are still reporting below average prec so far this month with the exception of the Arkansas. Streamflow forecasts across the state have dropped 20 -50 percent from those issued on March 1 and are still decreasing. Yampa, White, and Colorado basins are fairing the worst with snowpack's below 50% of average and very low forecasts.