

# NRCS – Snow Survey & Water Supply Forecasting

## Water Availability Task Force Meeting March 21<sup>st</sup>, 2013

Mage Hultstrand

Assistant Snow Survey Supervisor

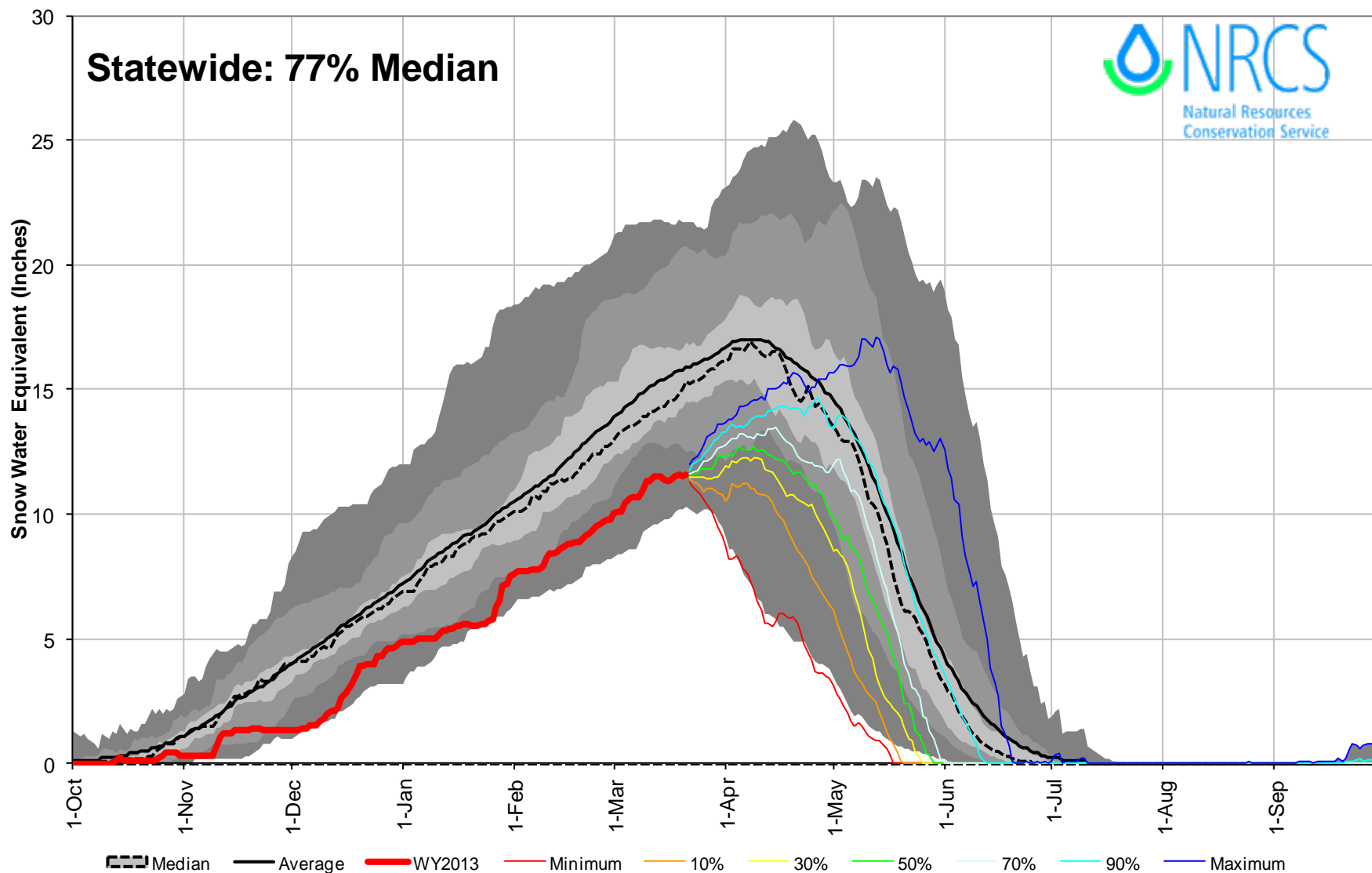
720-544-2855

[mage.hultstrand@co.usda.gov](mailto:mage.hultstrand@co.usda.gov)

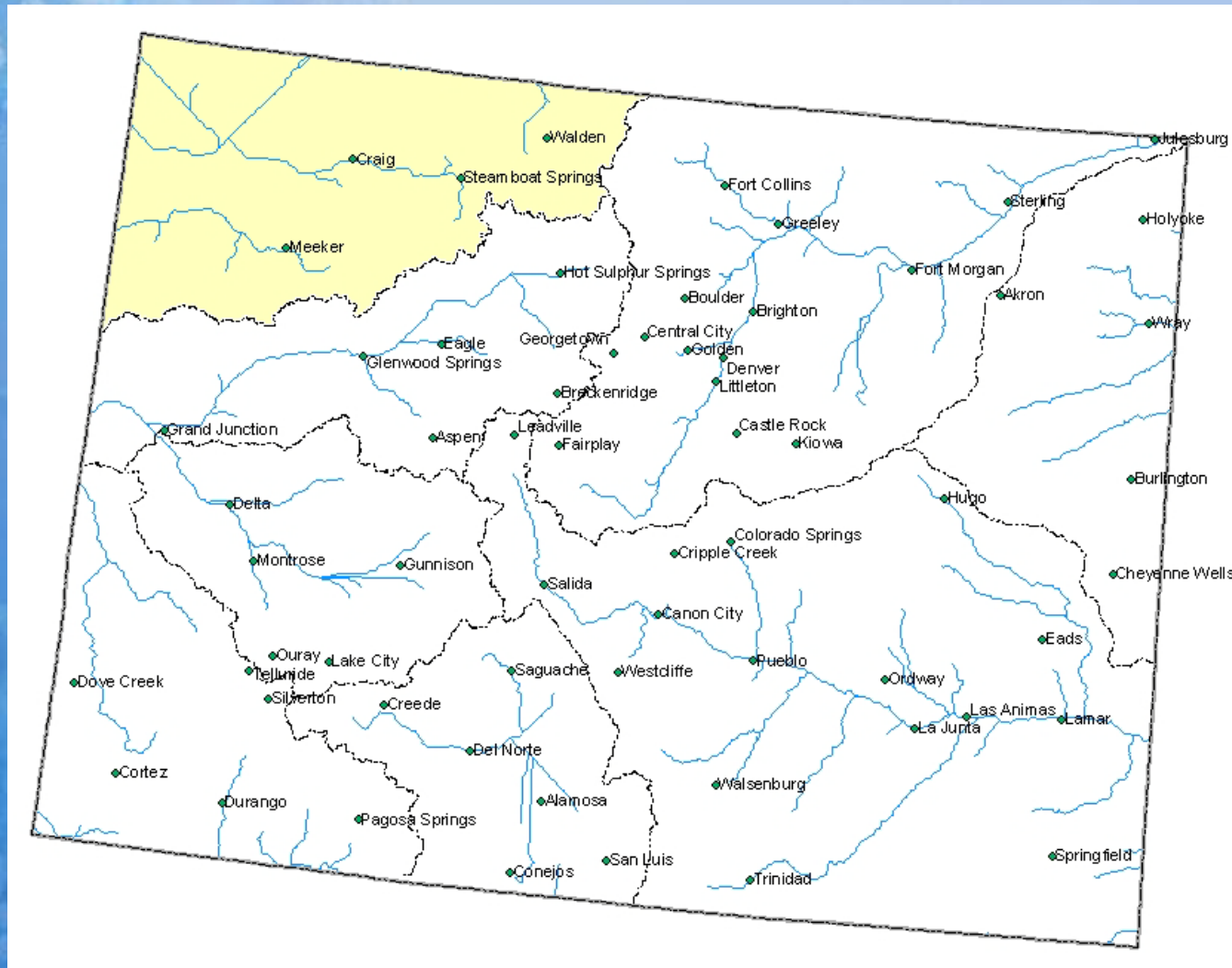
<http://www.co.nrcs.usda.gov/snow/>

## Colorado State-Wide with Non-Exceedence Projections

*Based on Provisional SNOTEL Data as of Mar 21, 2013*

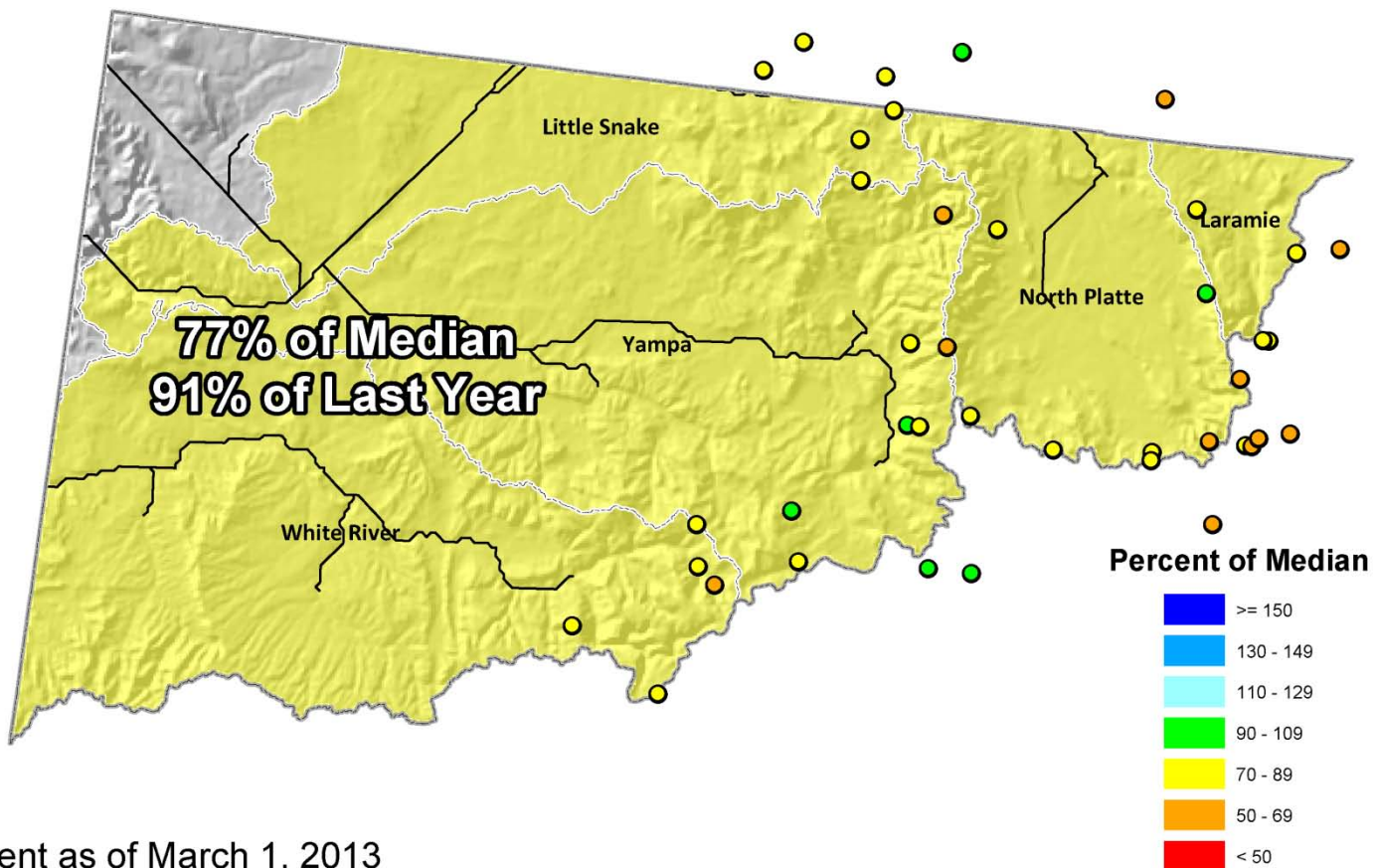


# Yampa, White & North Platte River Basins Summary



# Yampa, White and North Platte River Basins Snowpack Map

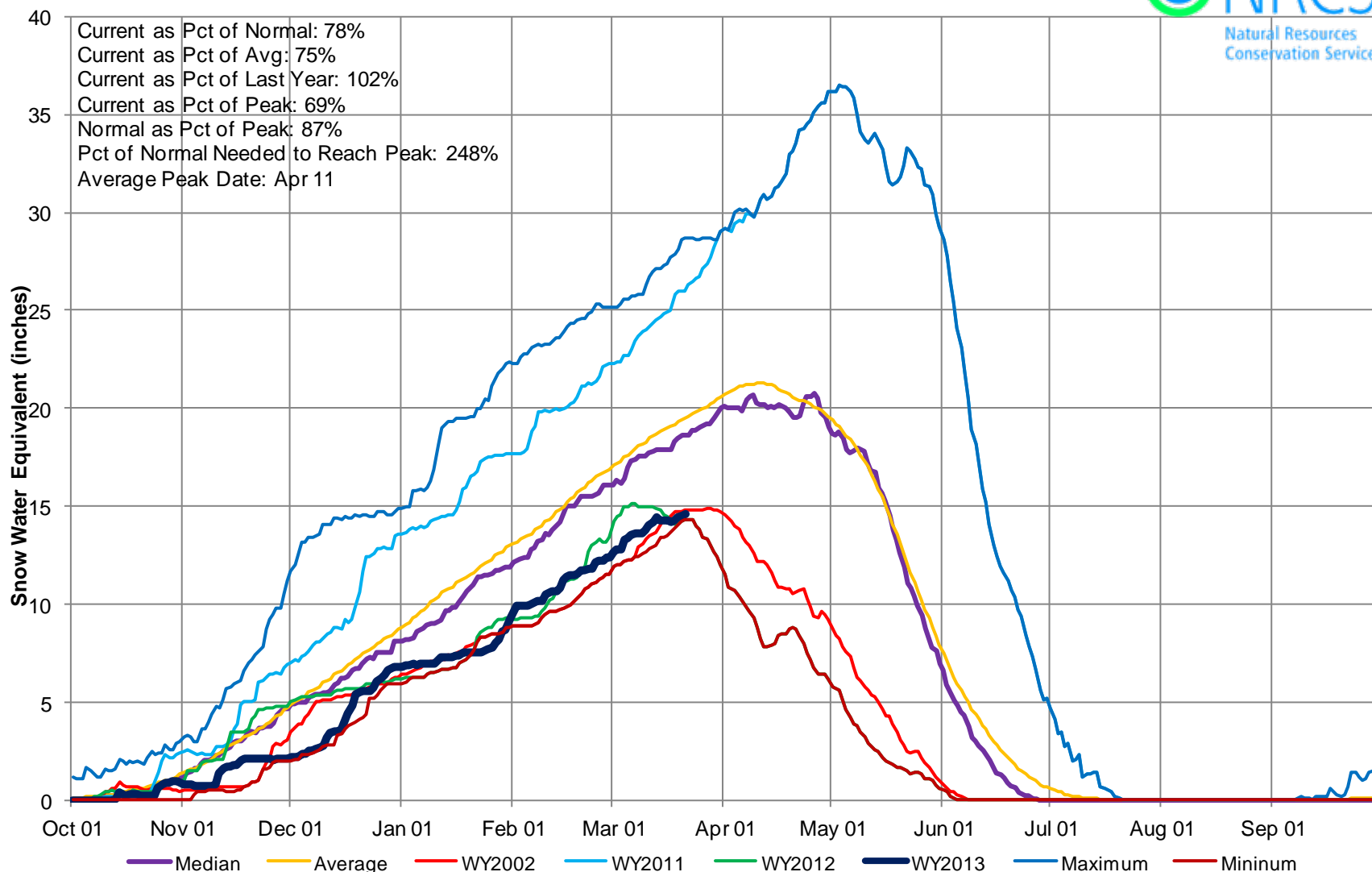
*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

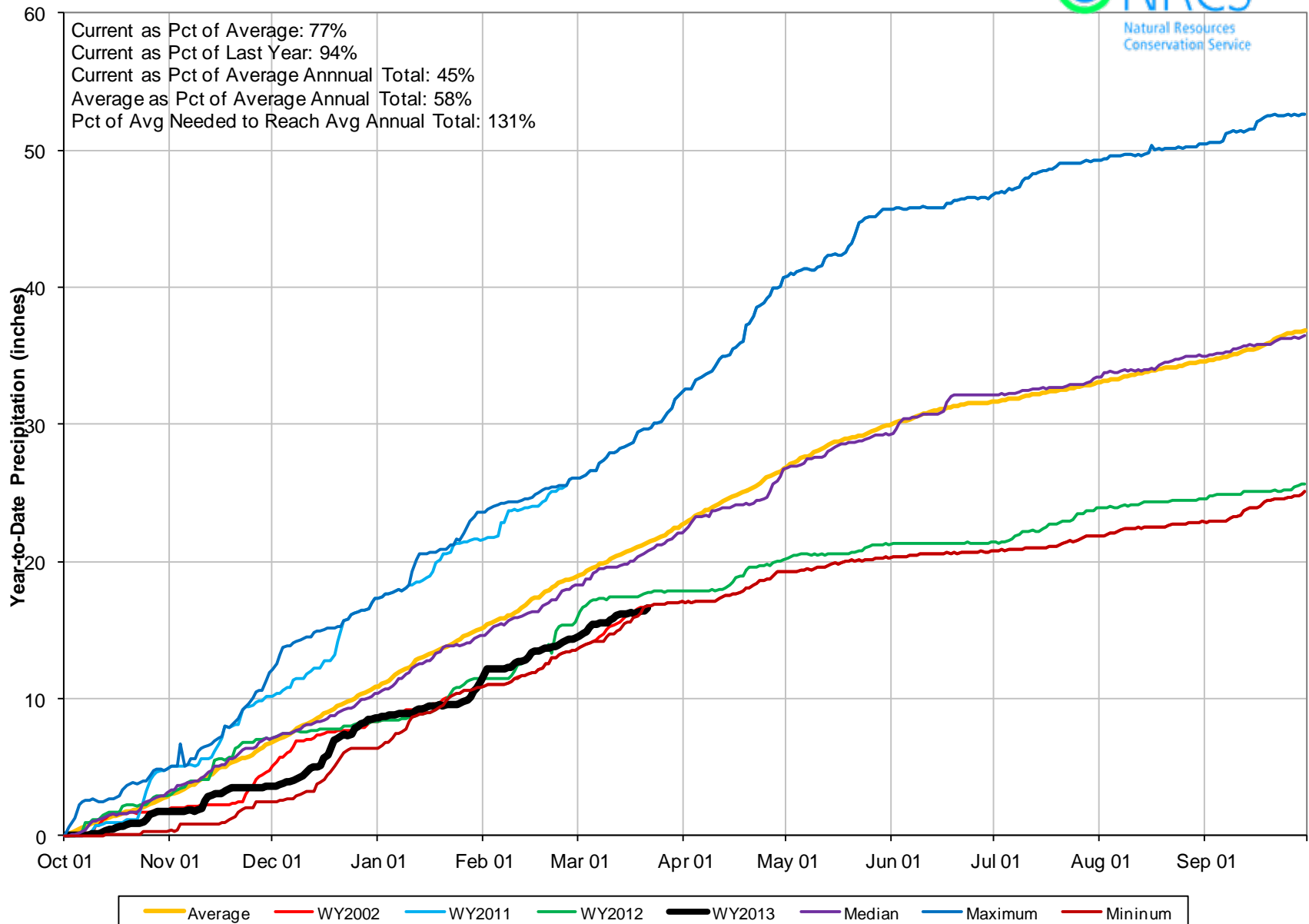
# Yampa, White and North Platte River Basins High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Mar 21, 2013



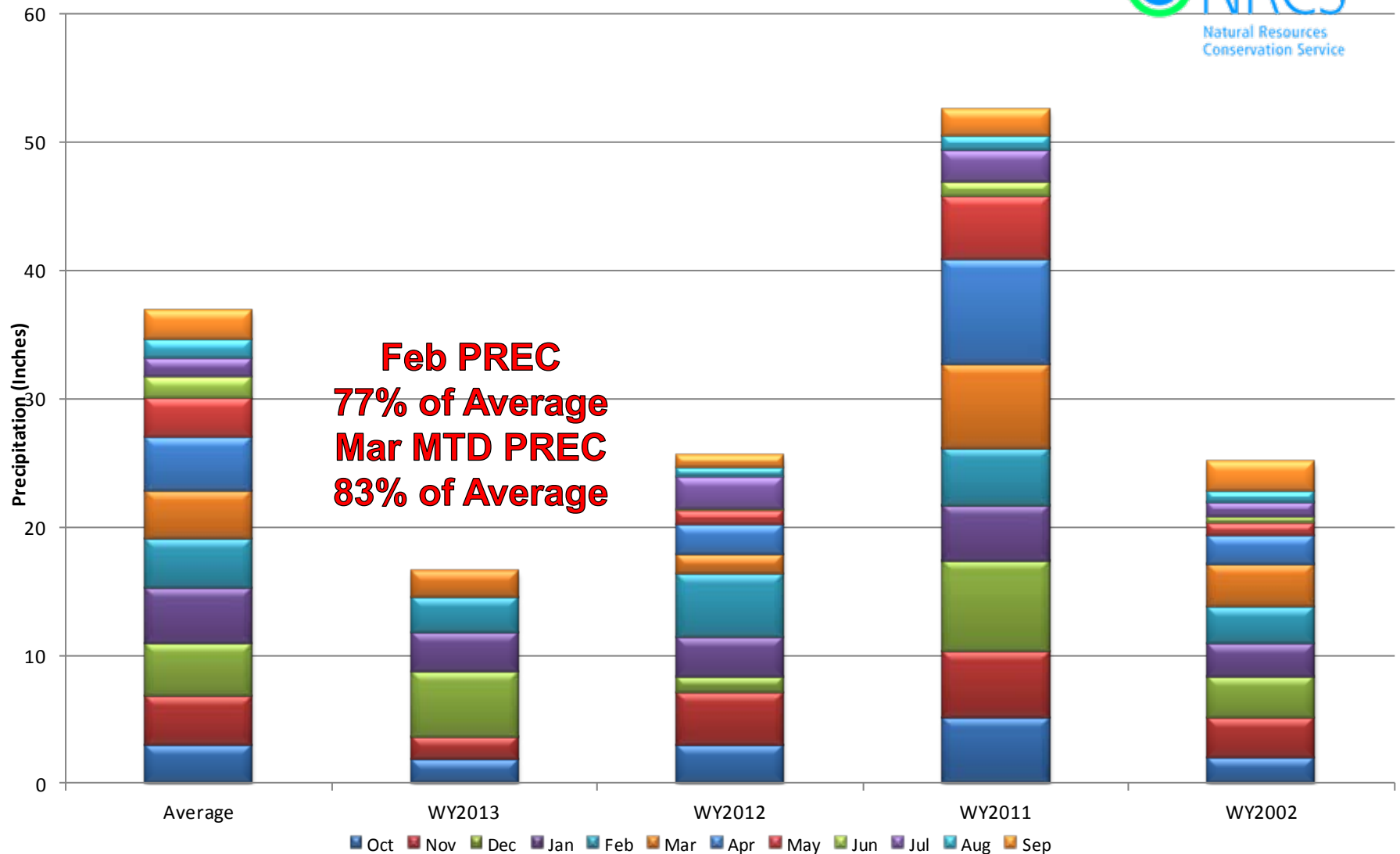
## Yampa and White River Basins High/Low Year-to-Date Precipitation Summary

*Based on Provisional SNOTEL data as of Mar 21, 2013*



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

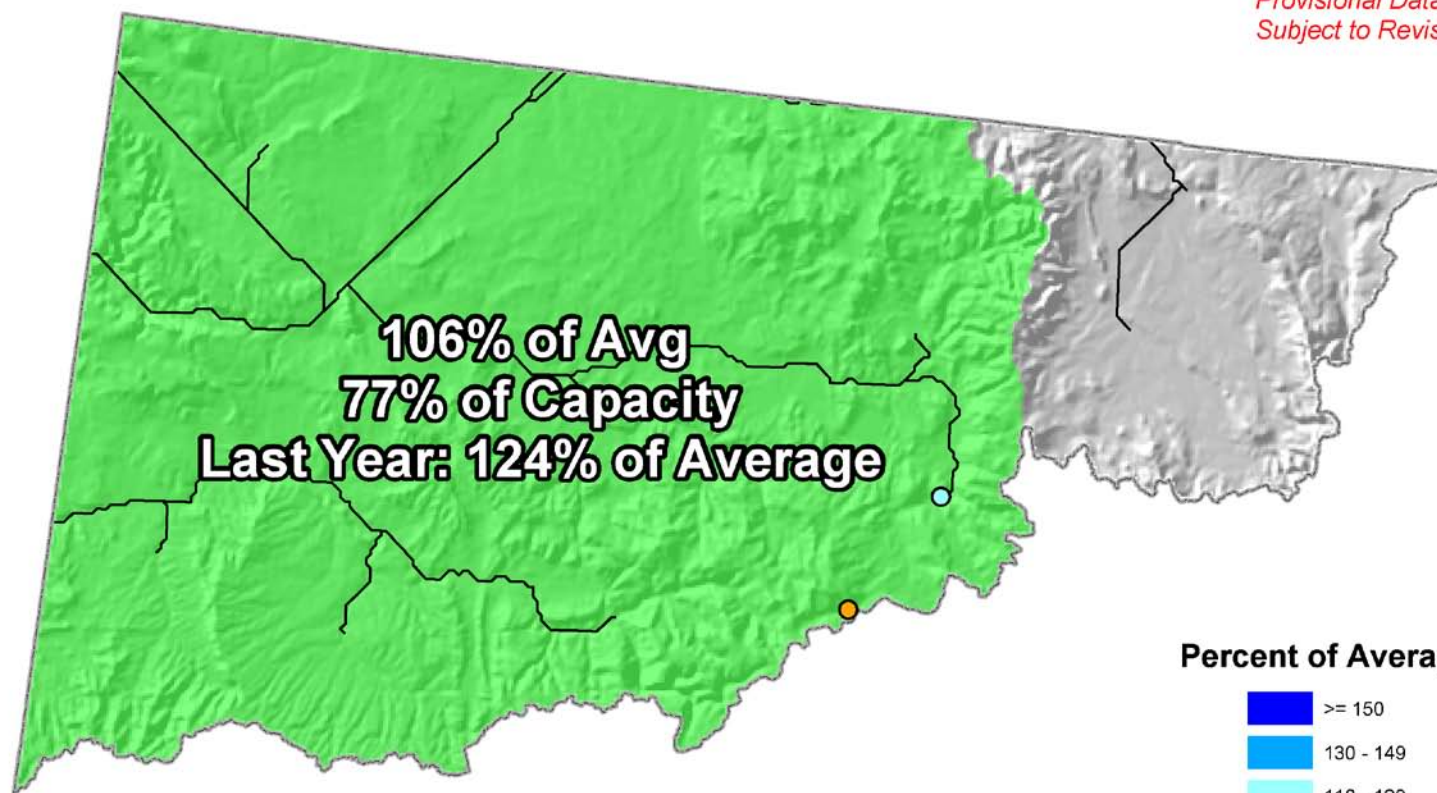
*Based on Provisional SNOTEL data as of Mar 21, 2013*



# Yampa & White River Basins Reservoir Storage Map



*Provisional Data  
Subject to Revision*

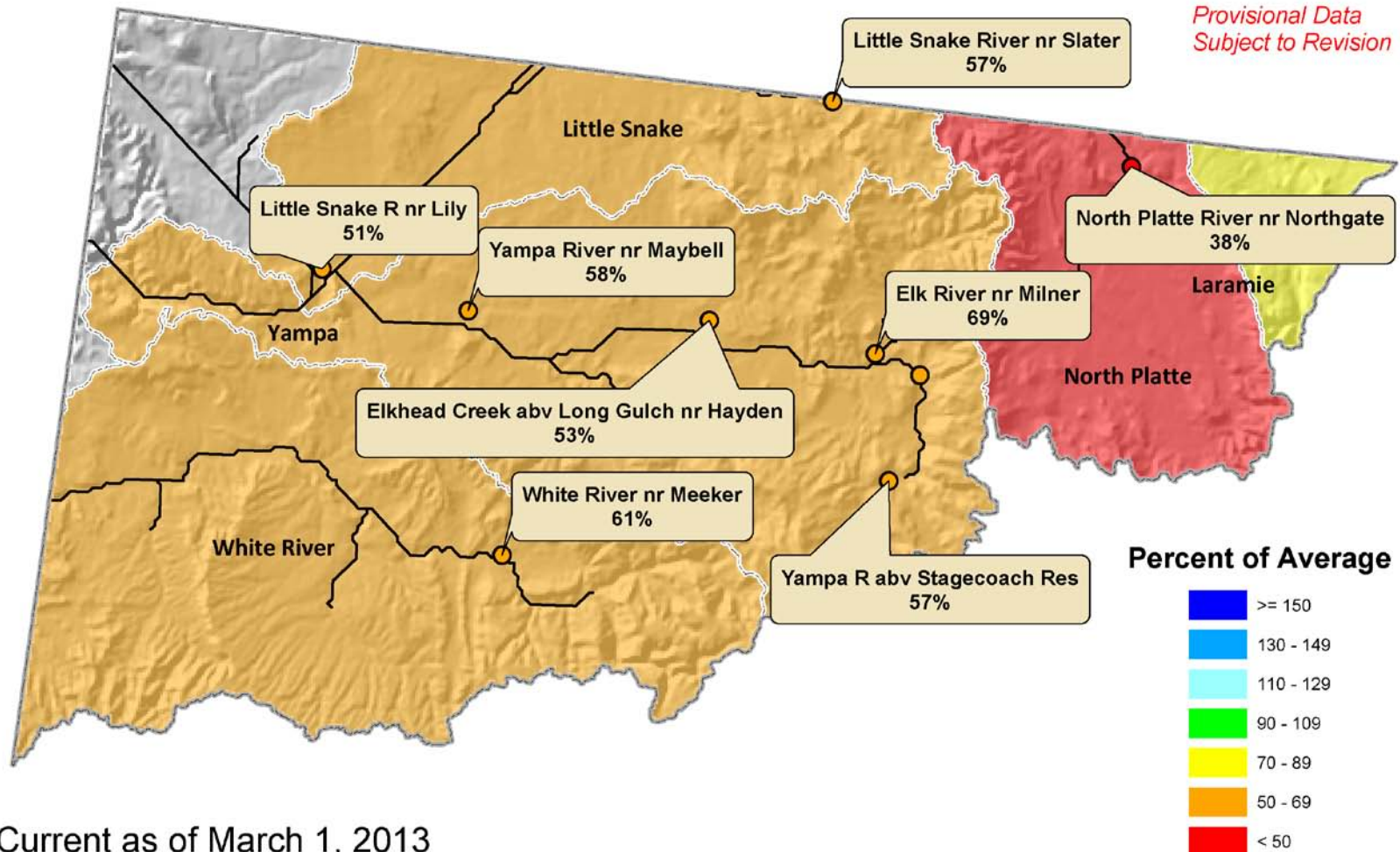


End of February 2013

# Yampa, White and North Platte River Basins Streamflow Map

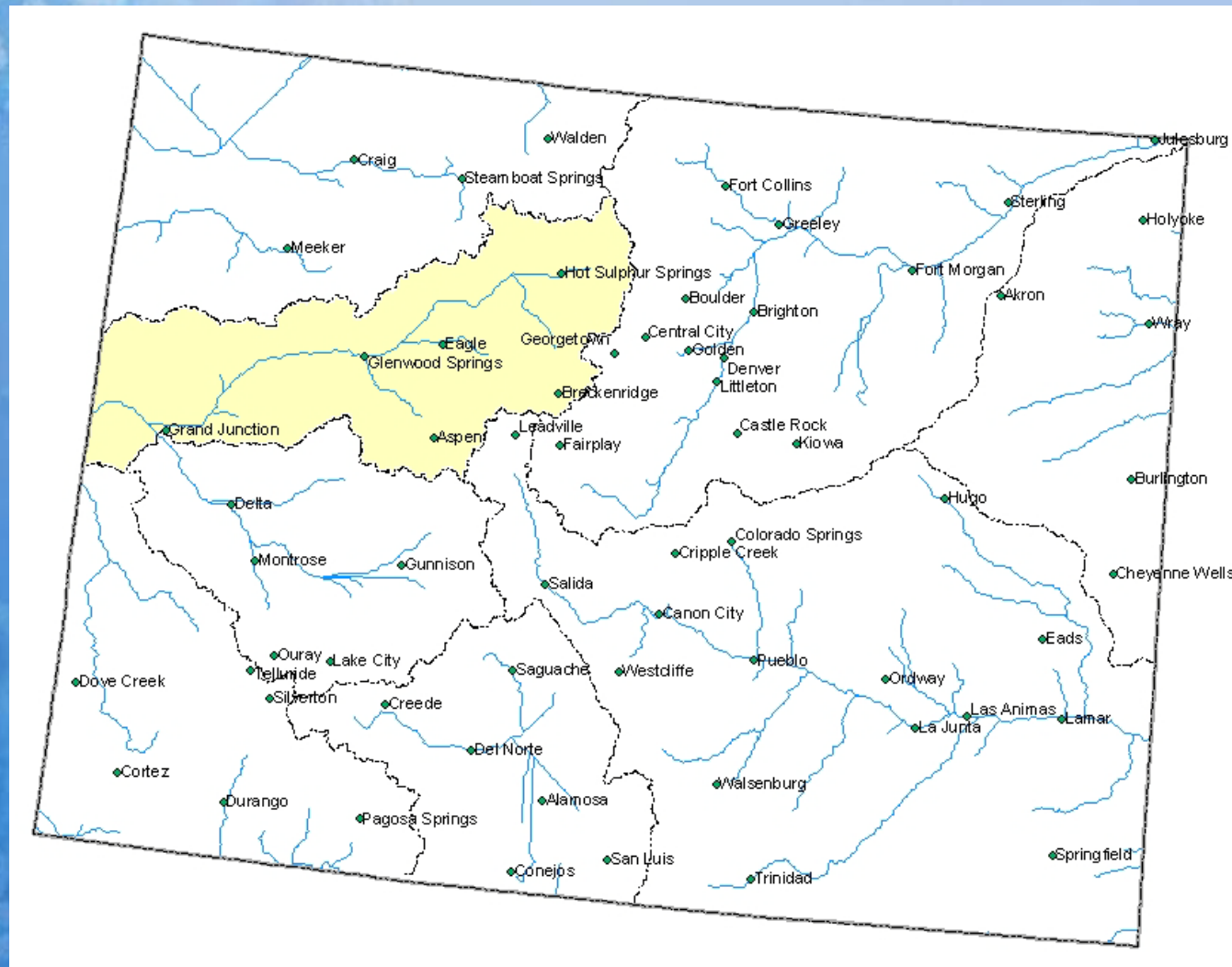


*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

# Colorado River Basin Summary

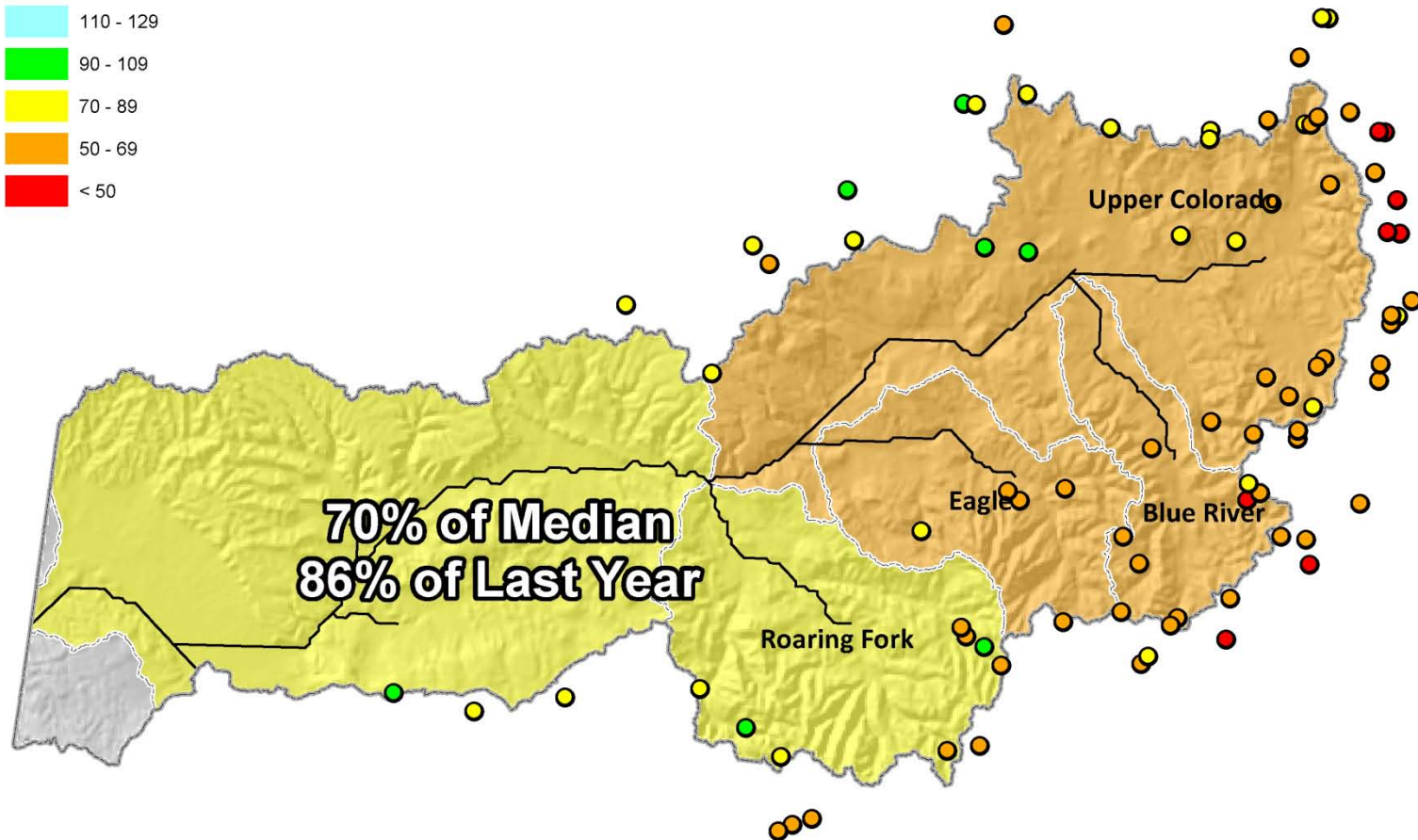


# Colorado River Basin Snowpack Map

## Percent of Median



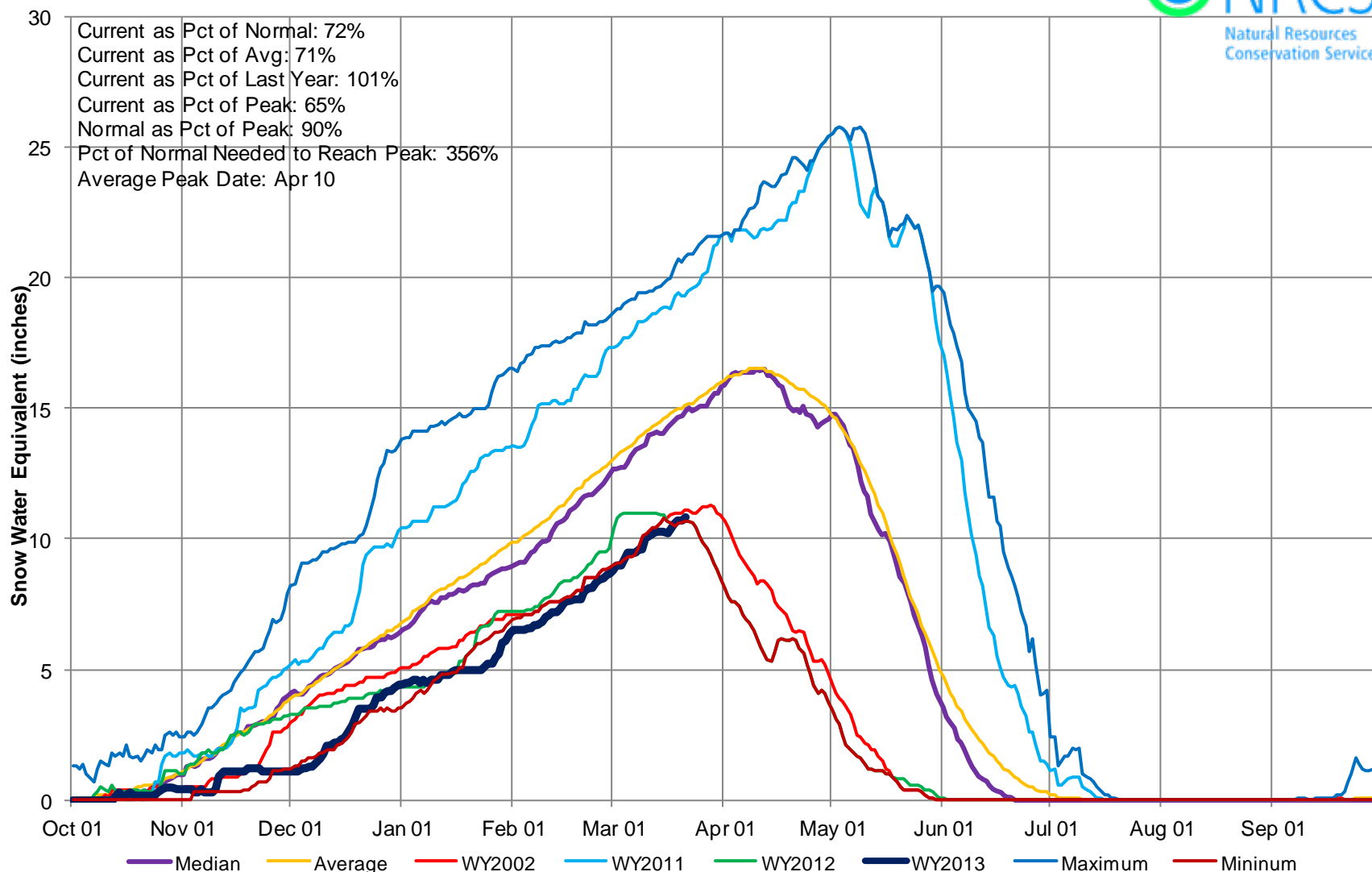
*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

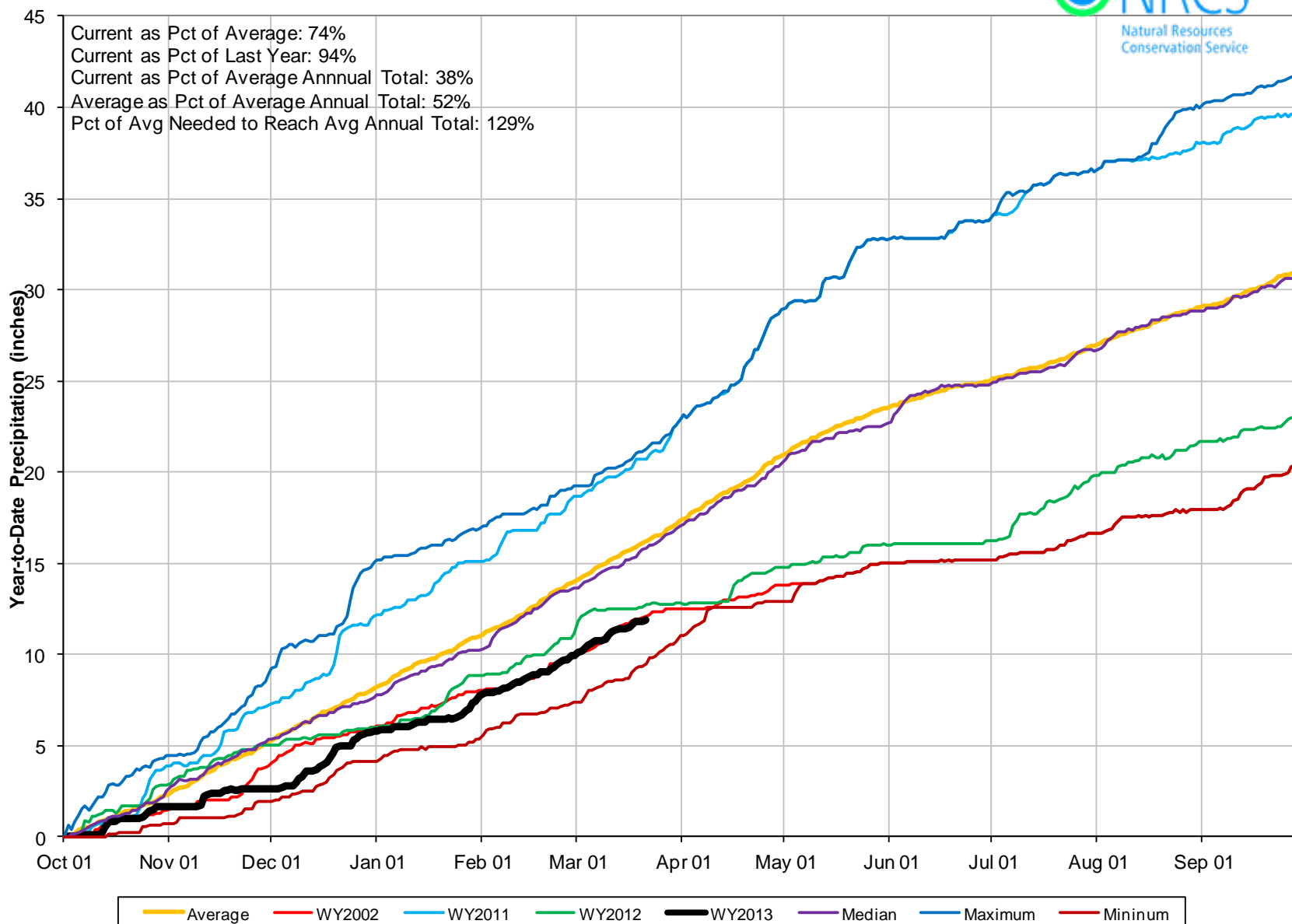
# Upper Colorado River Basin High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Mar 21, 2013



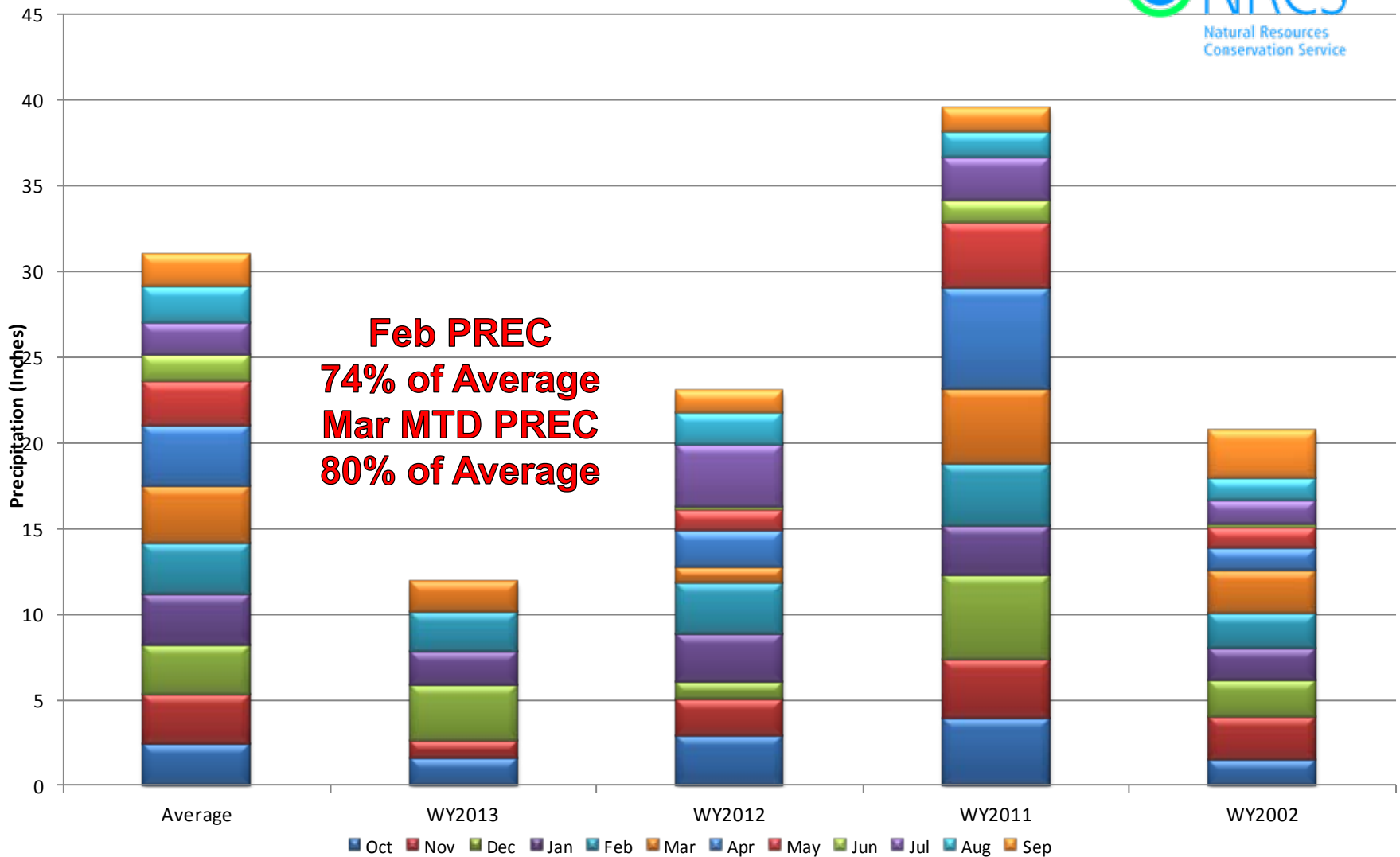
## Upper Colorado River Basin High/Low Year-to-Date Precipitation Summary

*Based on Provisional SNOTEL data as of Mar 21, 2013*



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

*Based on Provisional SNOTEL data as of Mar 21, 2013*



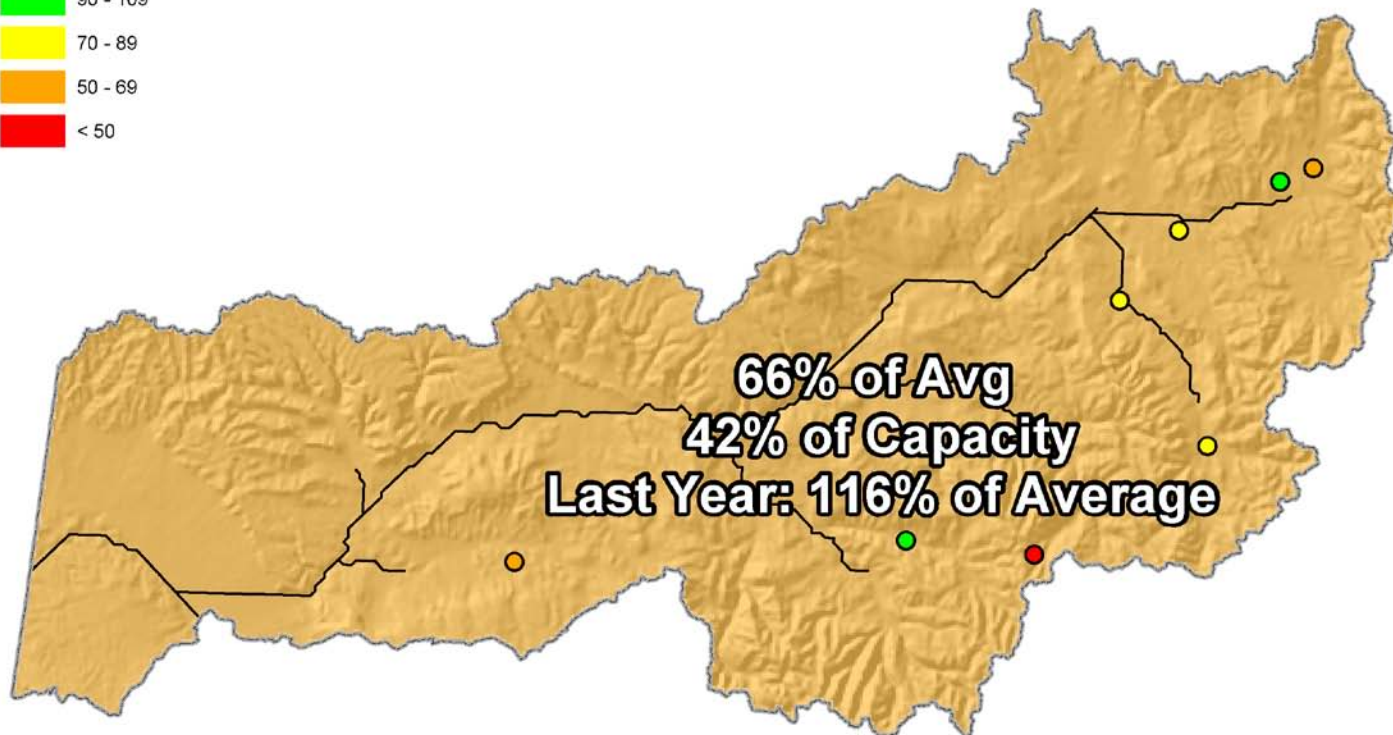
# Colorado River Basin Reservoir Storage Map



## Percent of Average



*Provisional Data  
Subject to Revision*



End of February 2013

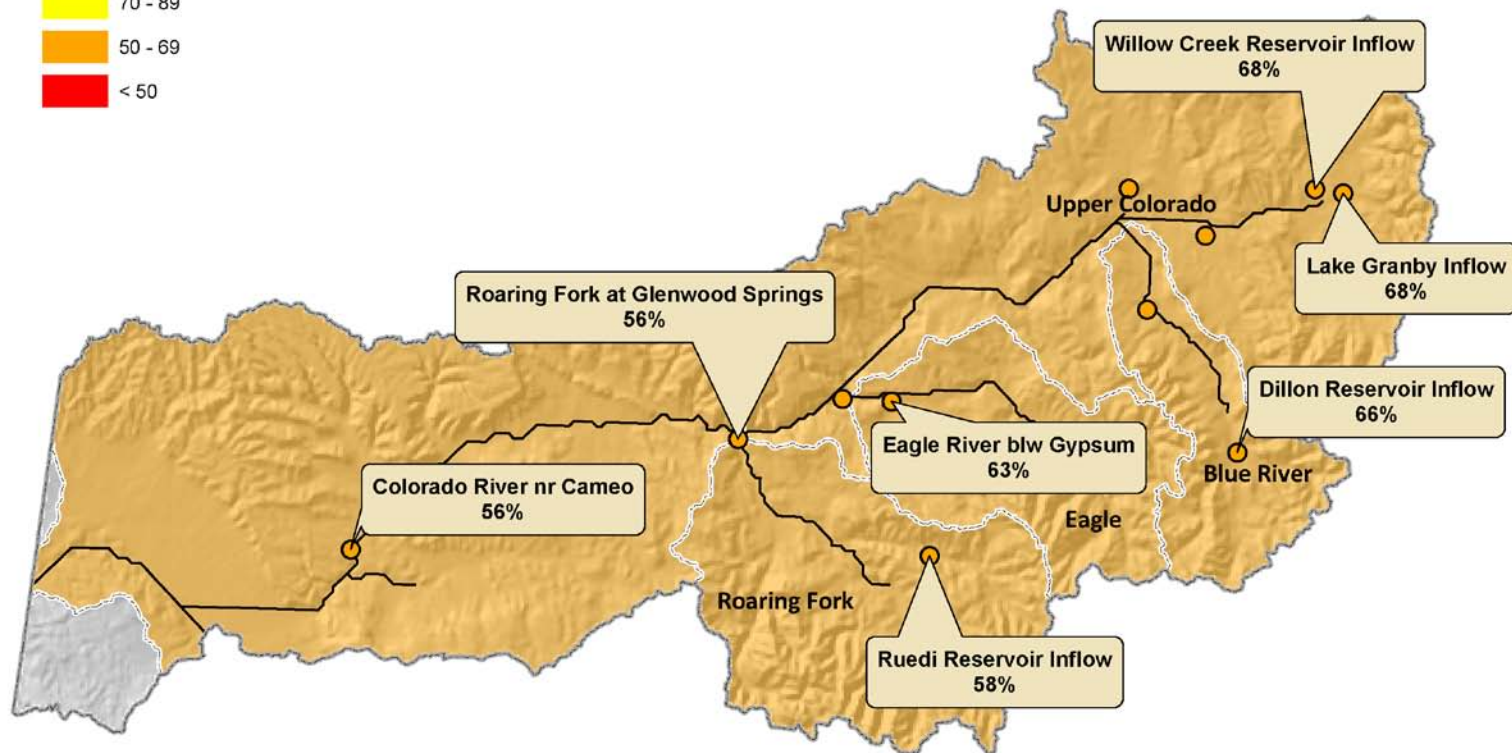
# Colorado River Basin Streamflow Forecast Map



## Percent of Average

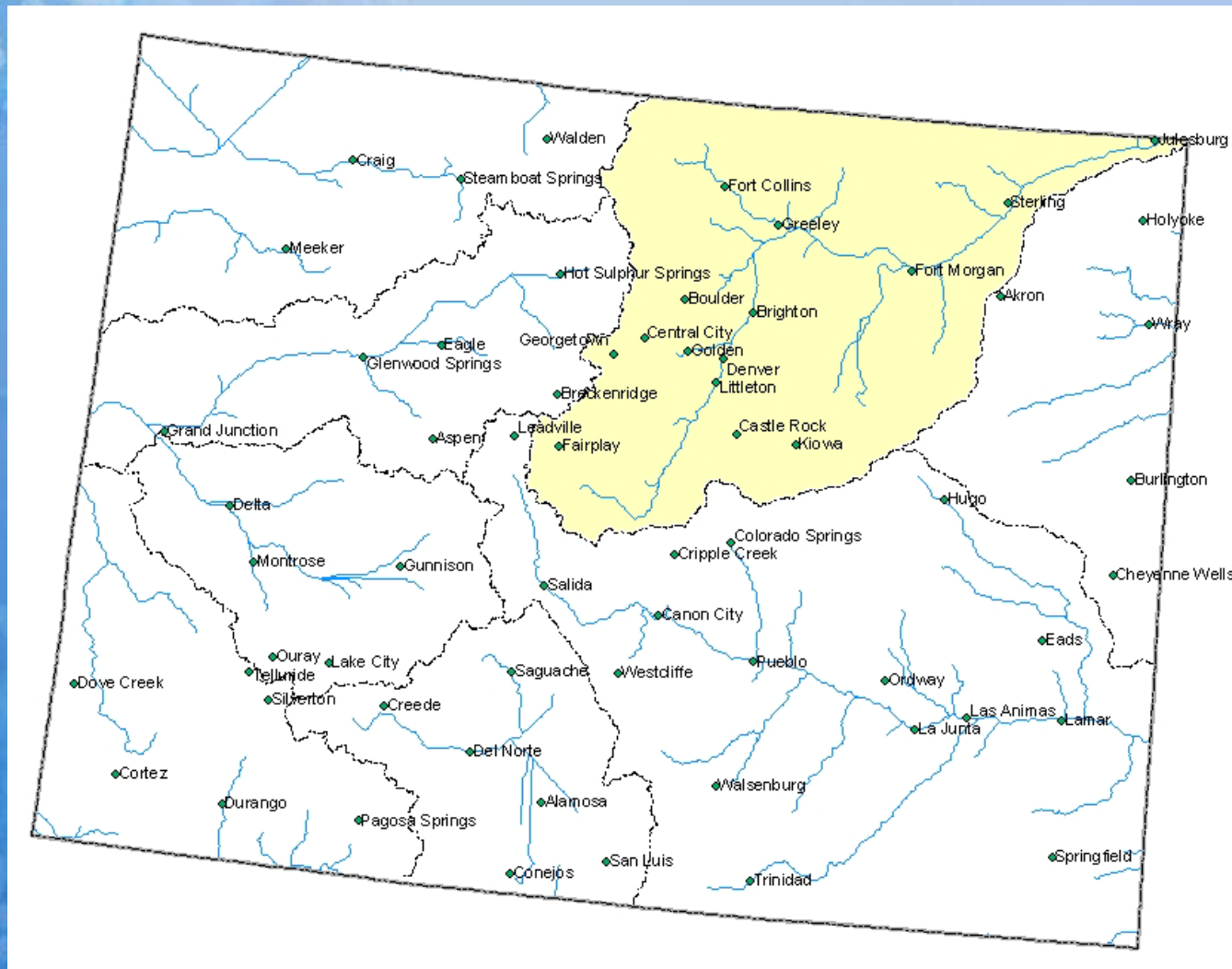


*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

# South Platte River Basin Summary

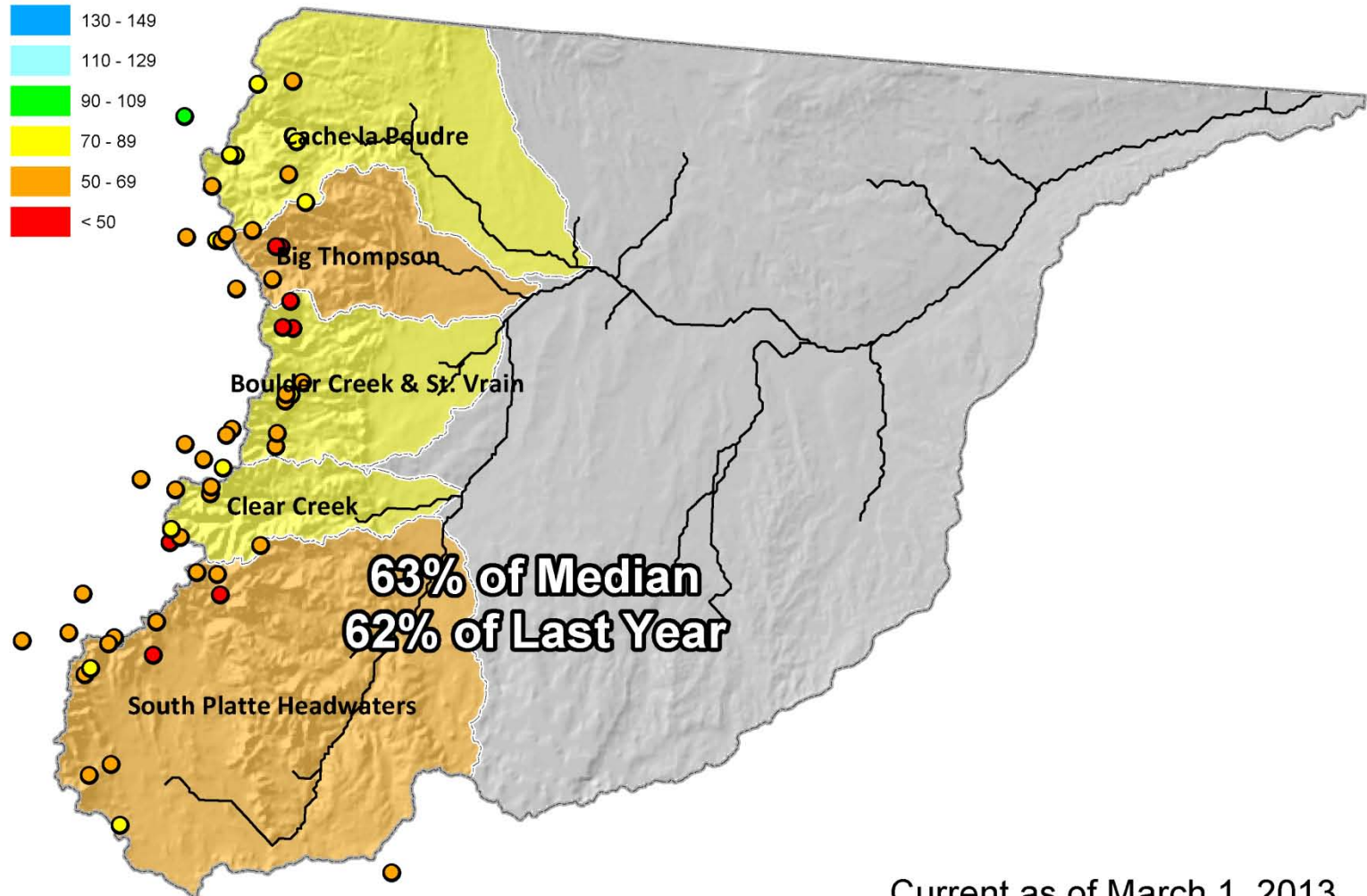


# South Platte River Basin Snowpack Map

## Percent of Median



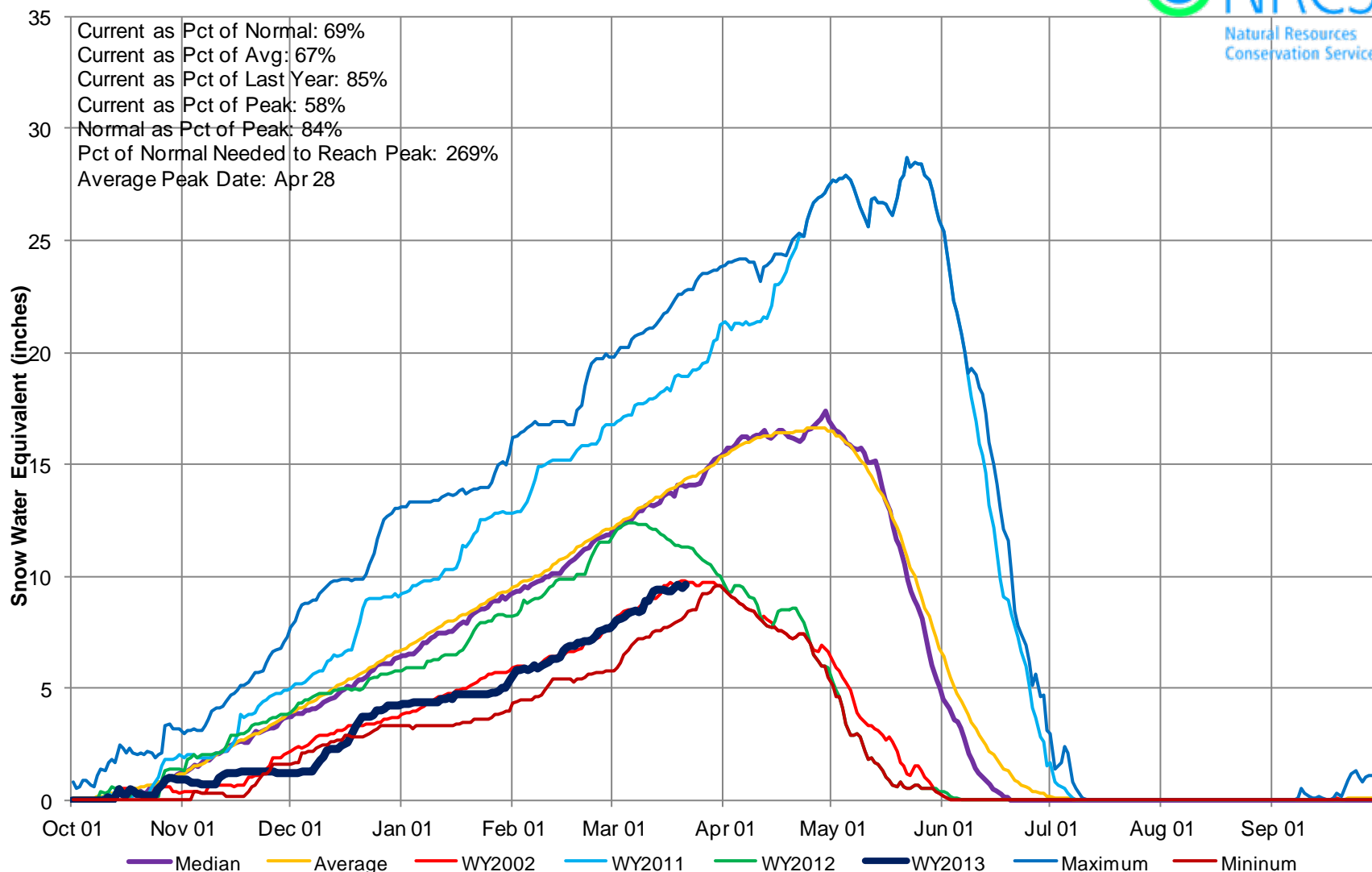
*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

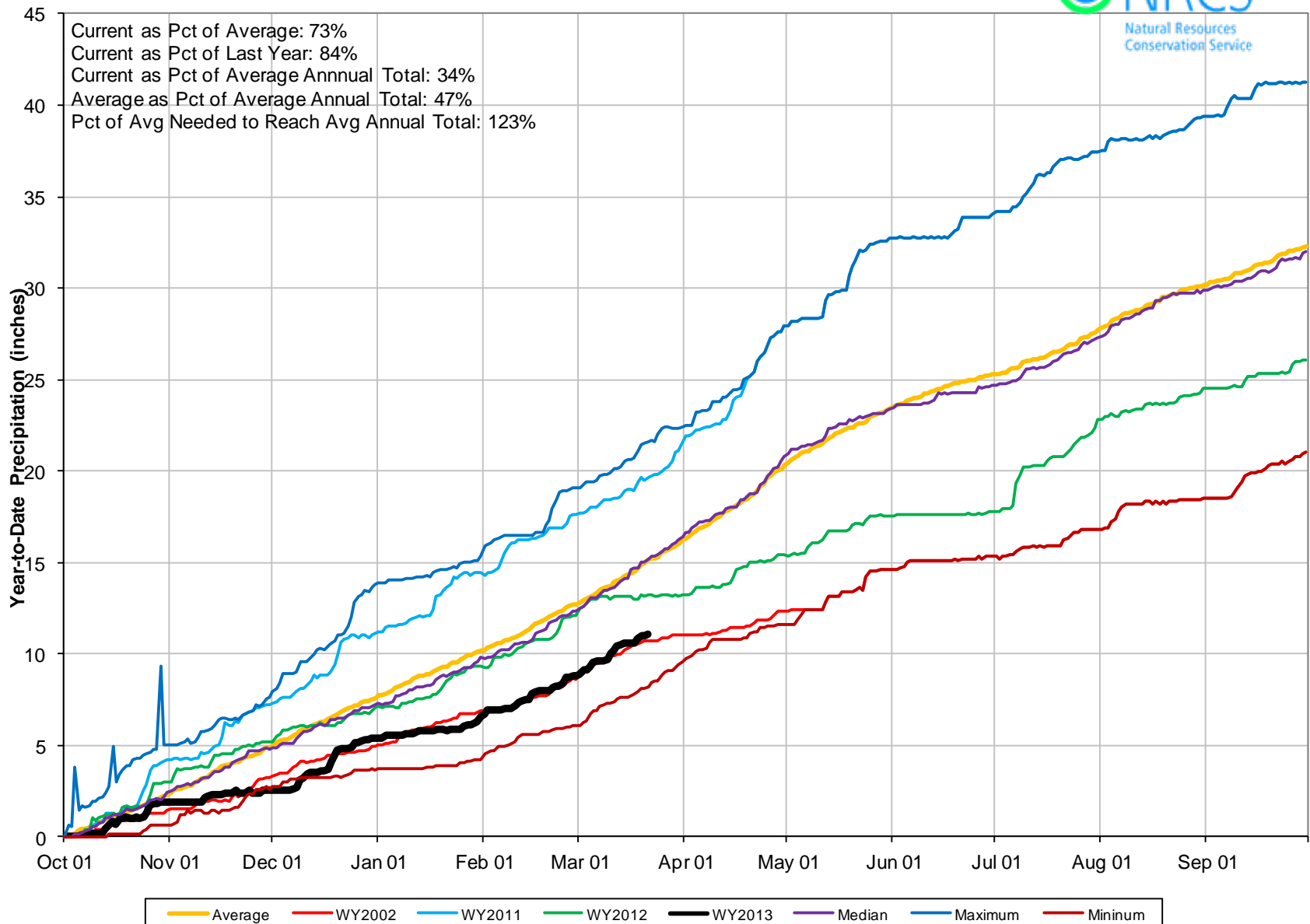
## South Platte River Basin High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Mar 21, 2013*



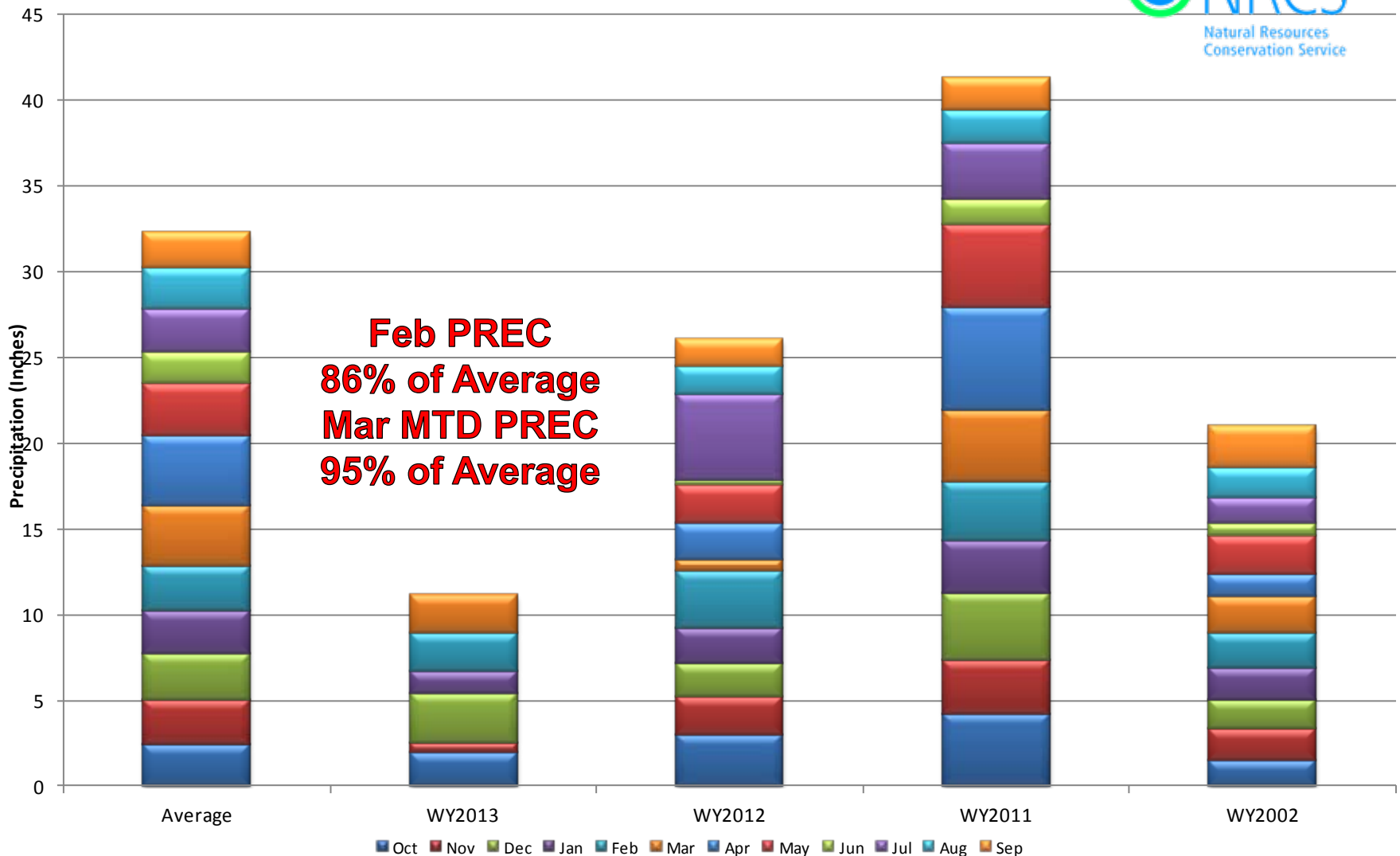
## South Platte River Basin High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Mar 21, 2013



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

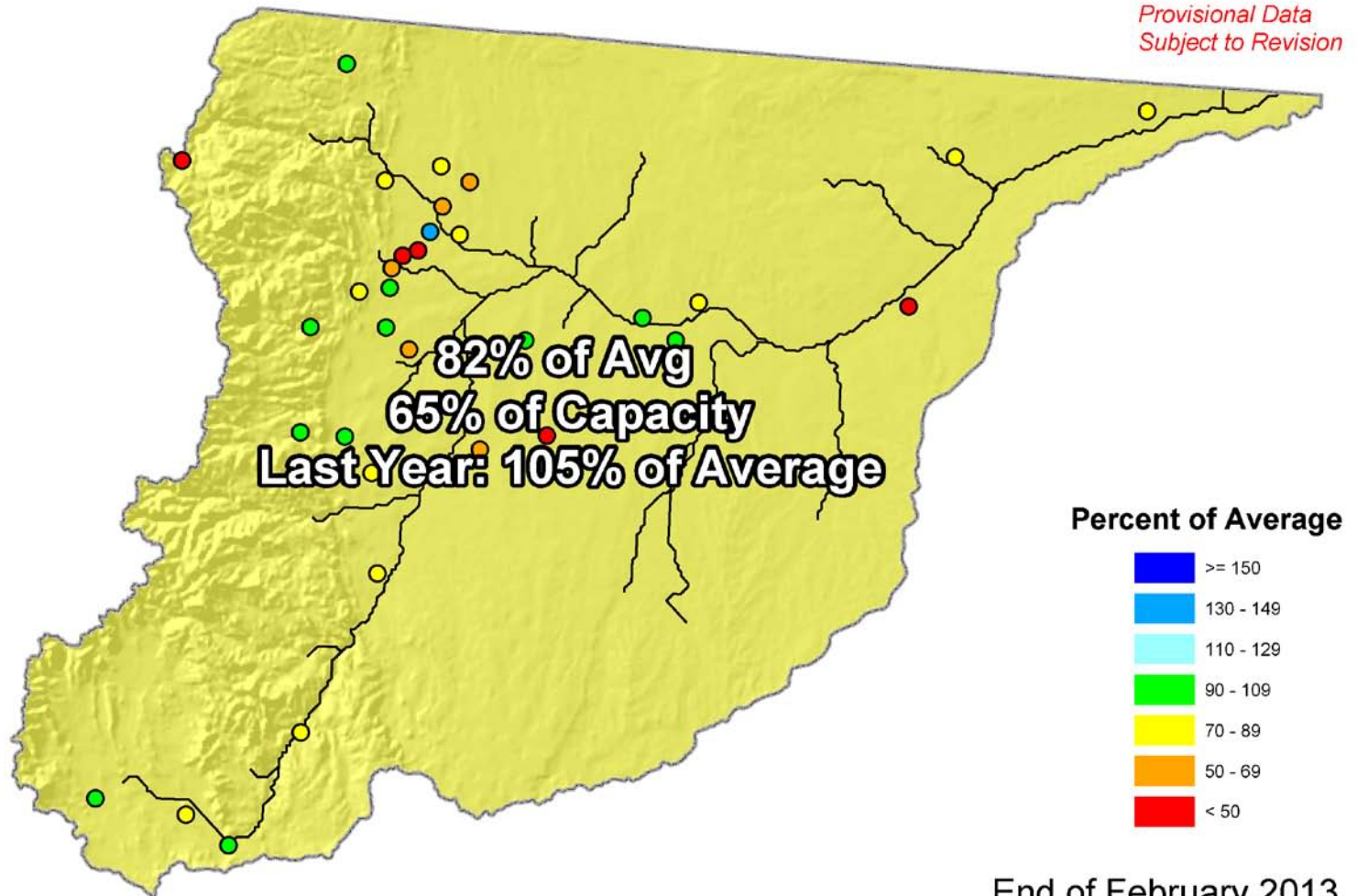
*Based on Provisional SNOTEL data as of Mar 21, 2013*



# South Platte River Basin Reservoir Storage Map



*Provisional Data  
Subject to Revision*

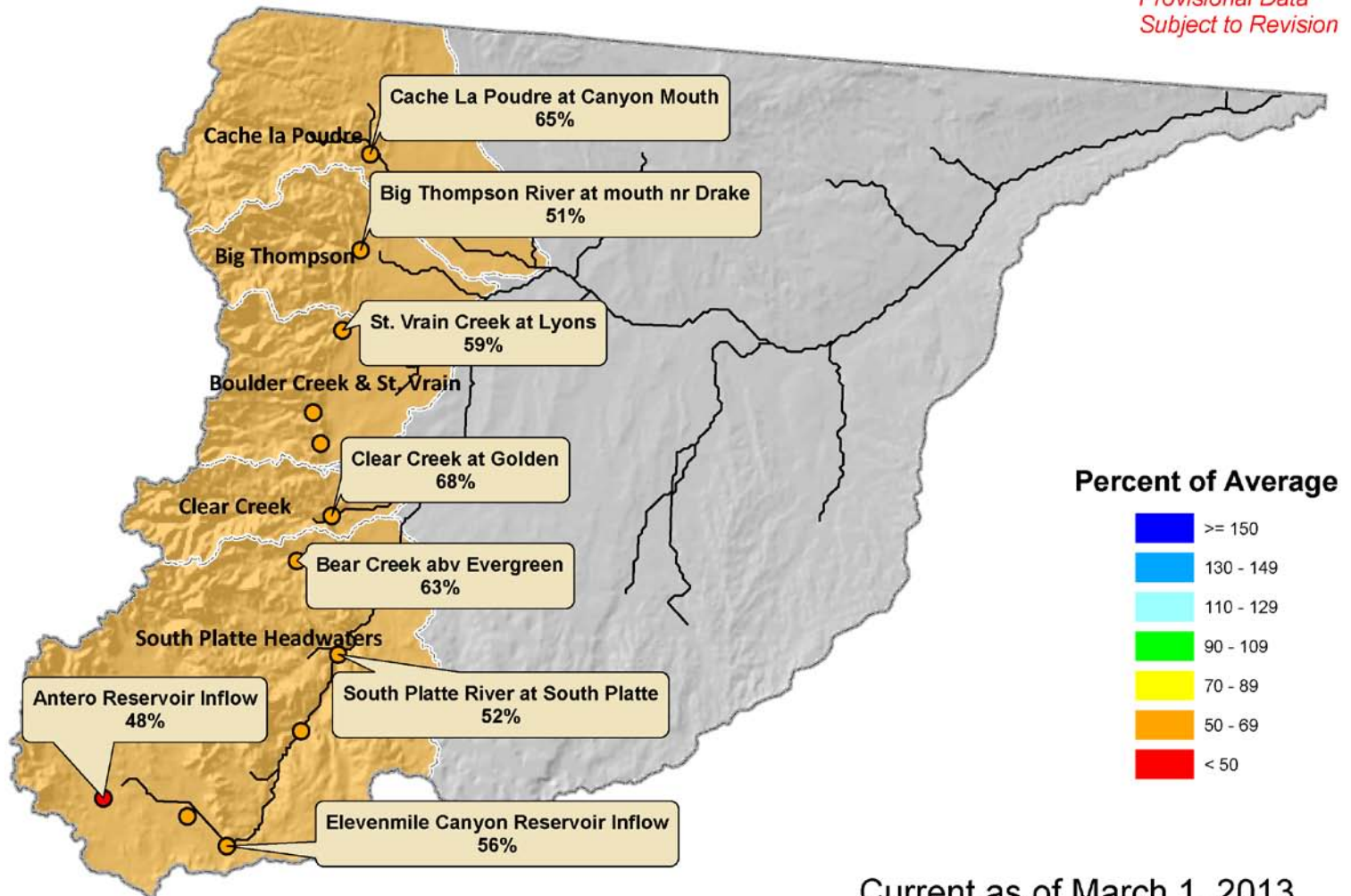


End of February 2013

# South Platte River Basin Streamflow Forecast Map

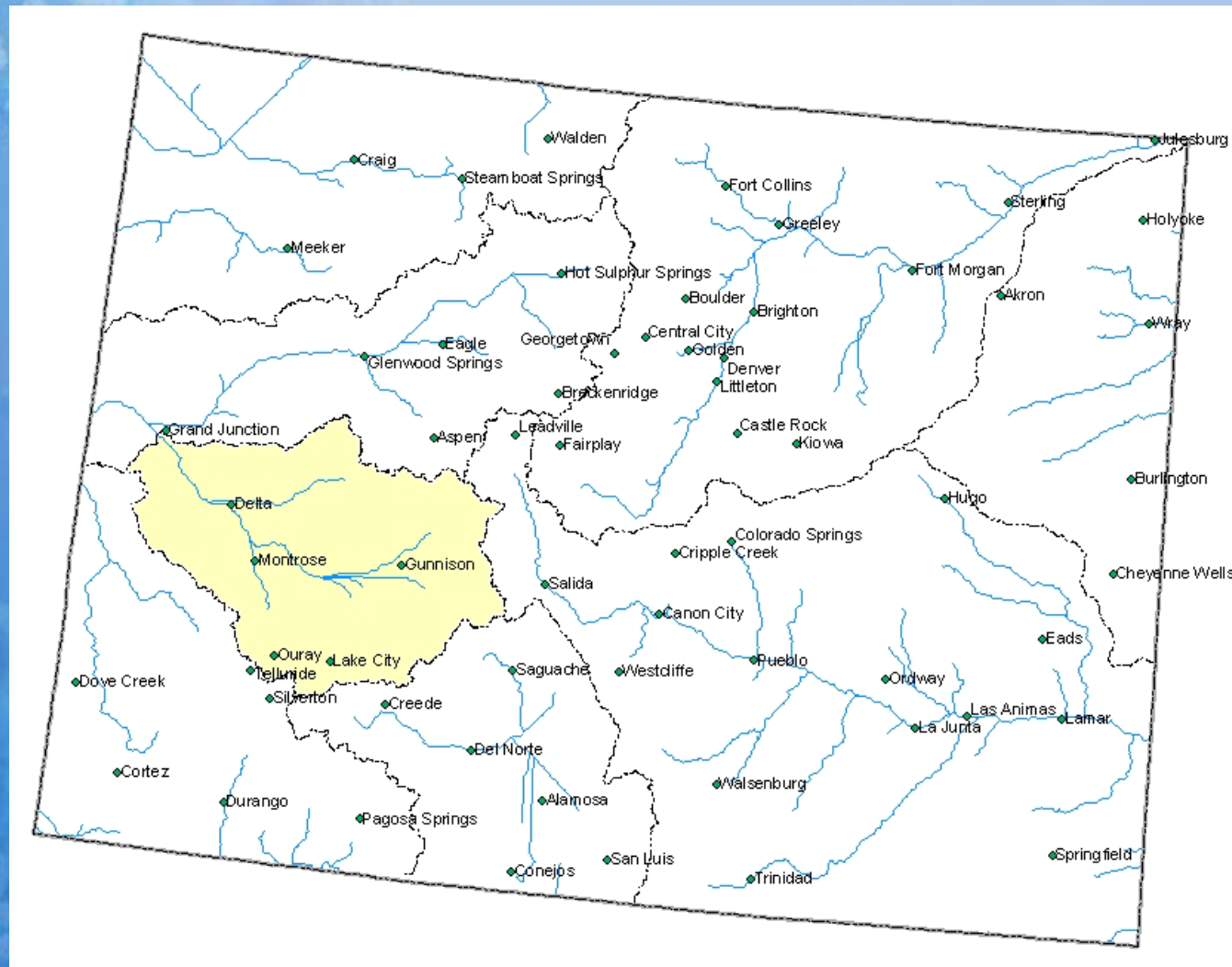


*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

# Gunnison River Basin Summary

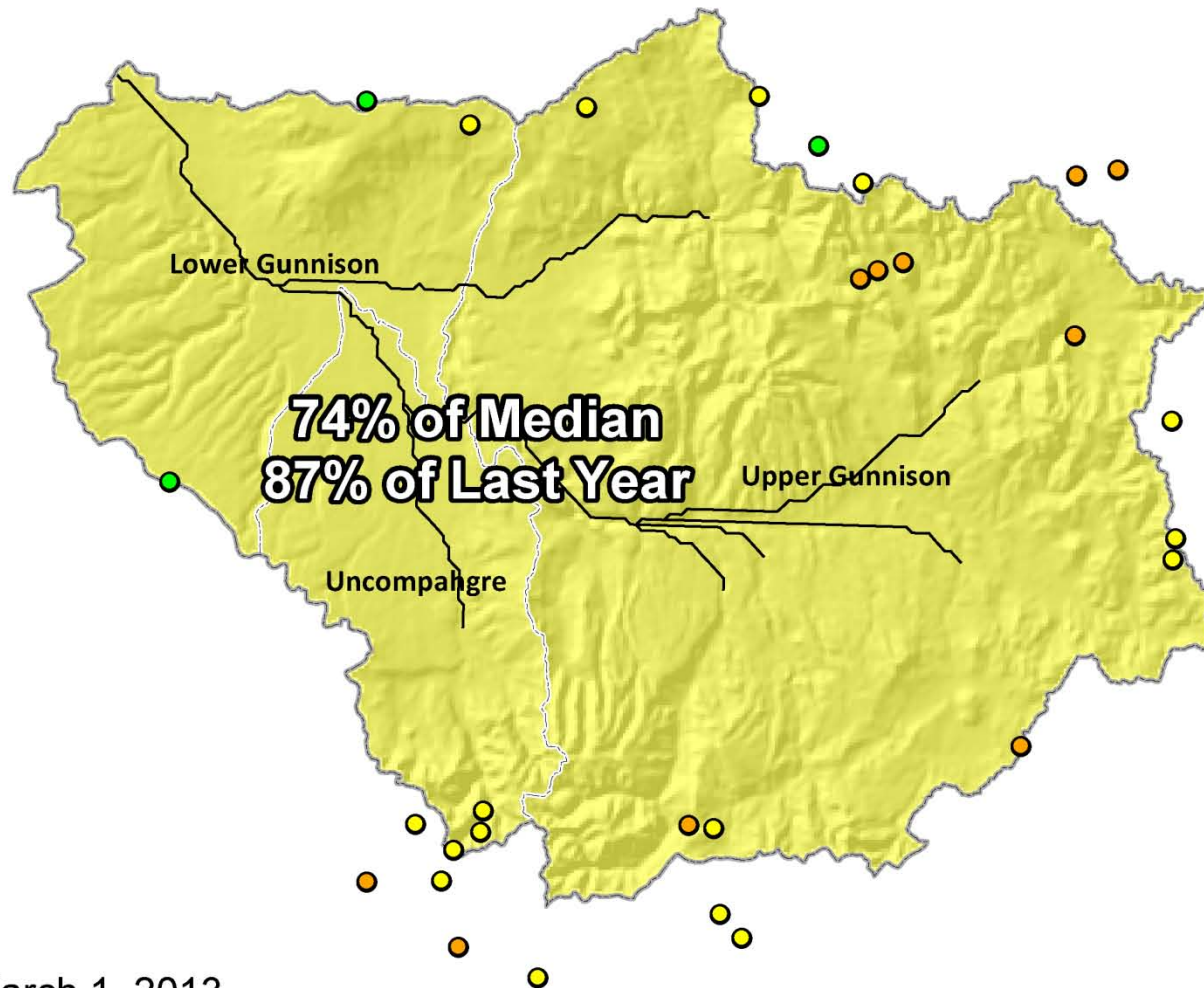


# Gunnison River Basin Snowpack Map

## Percent of Median



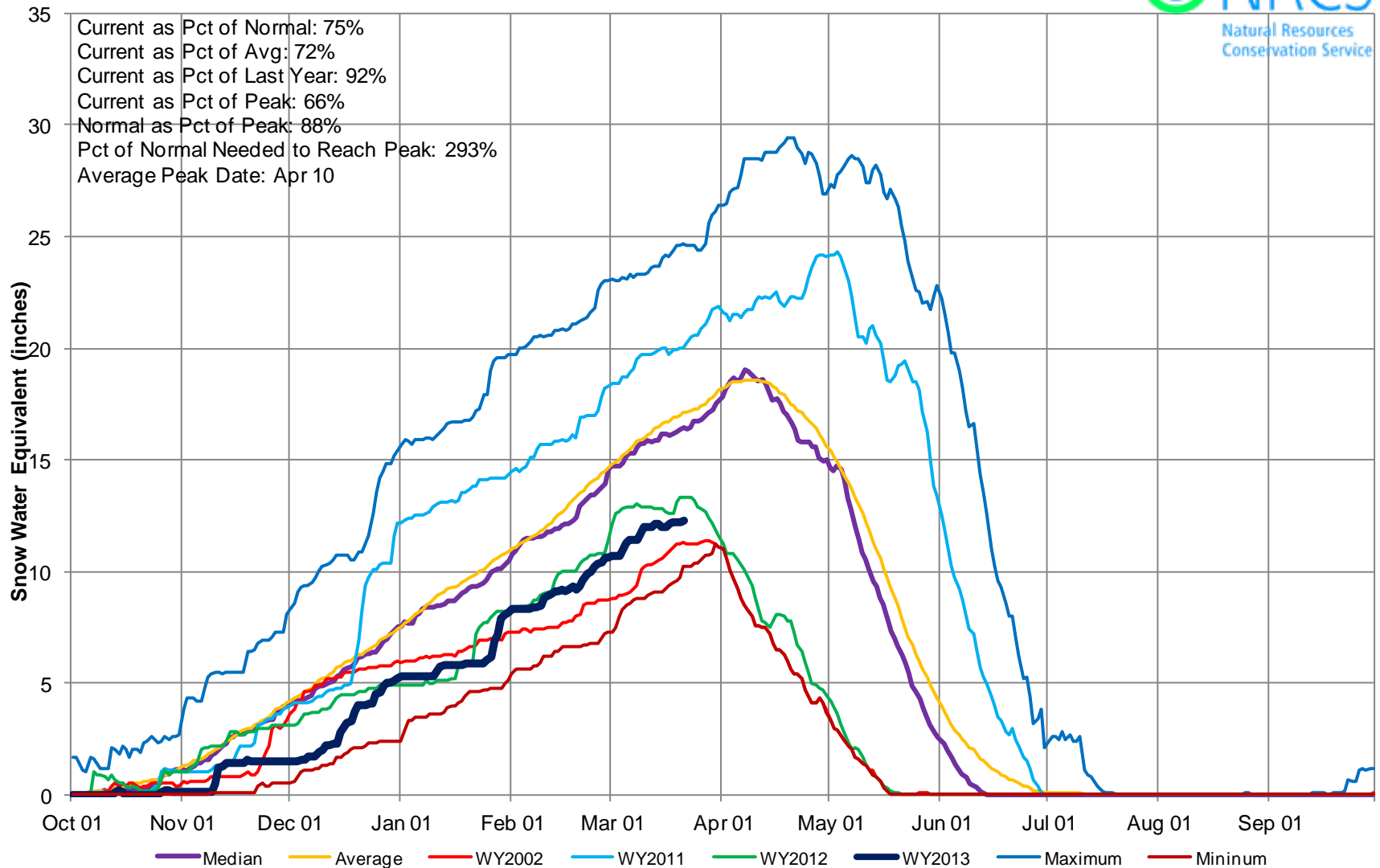
*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

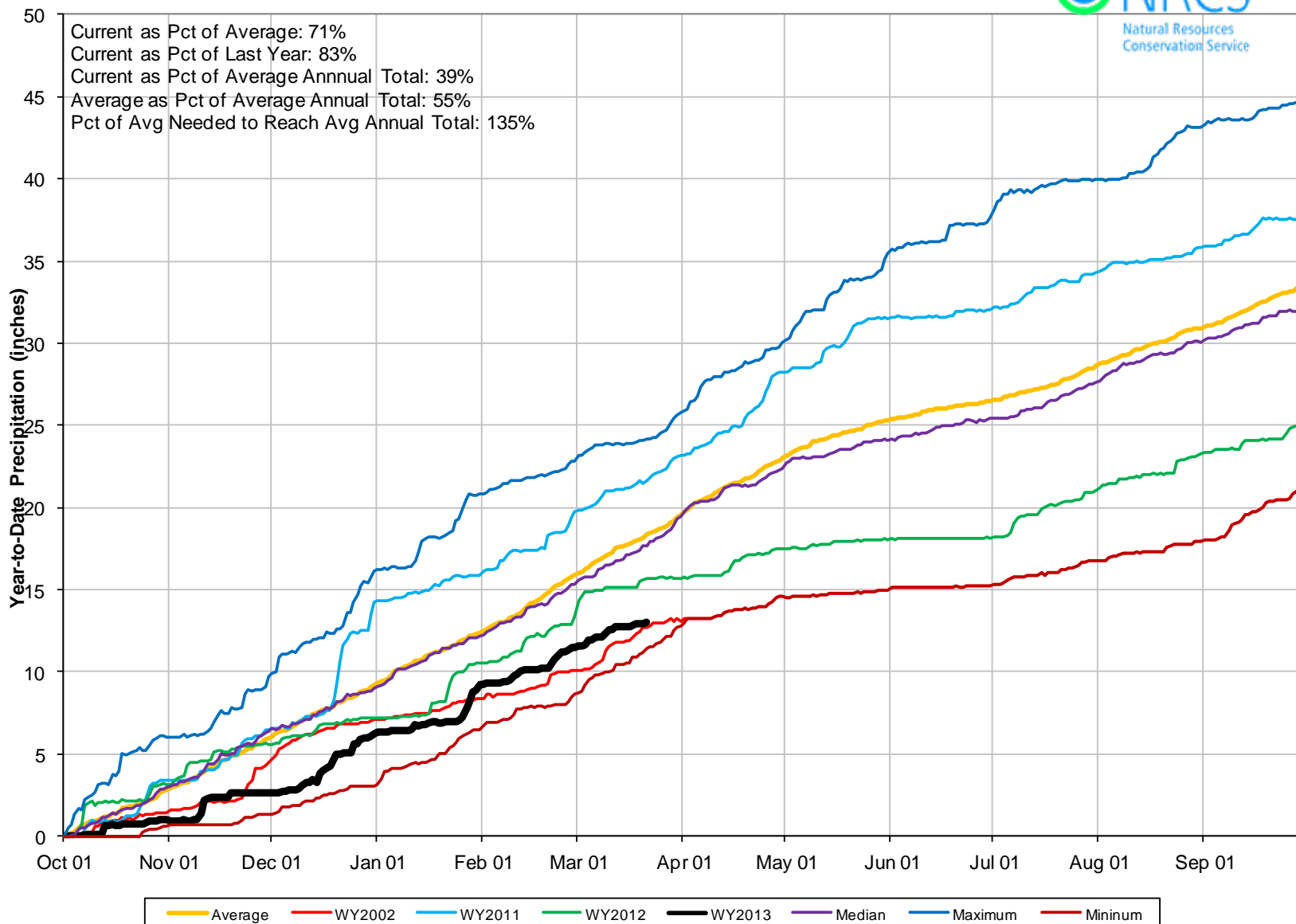
## Gunnison River Basin High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Mar 21, 2013*



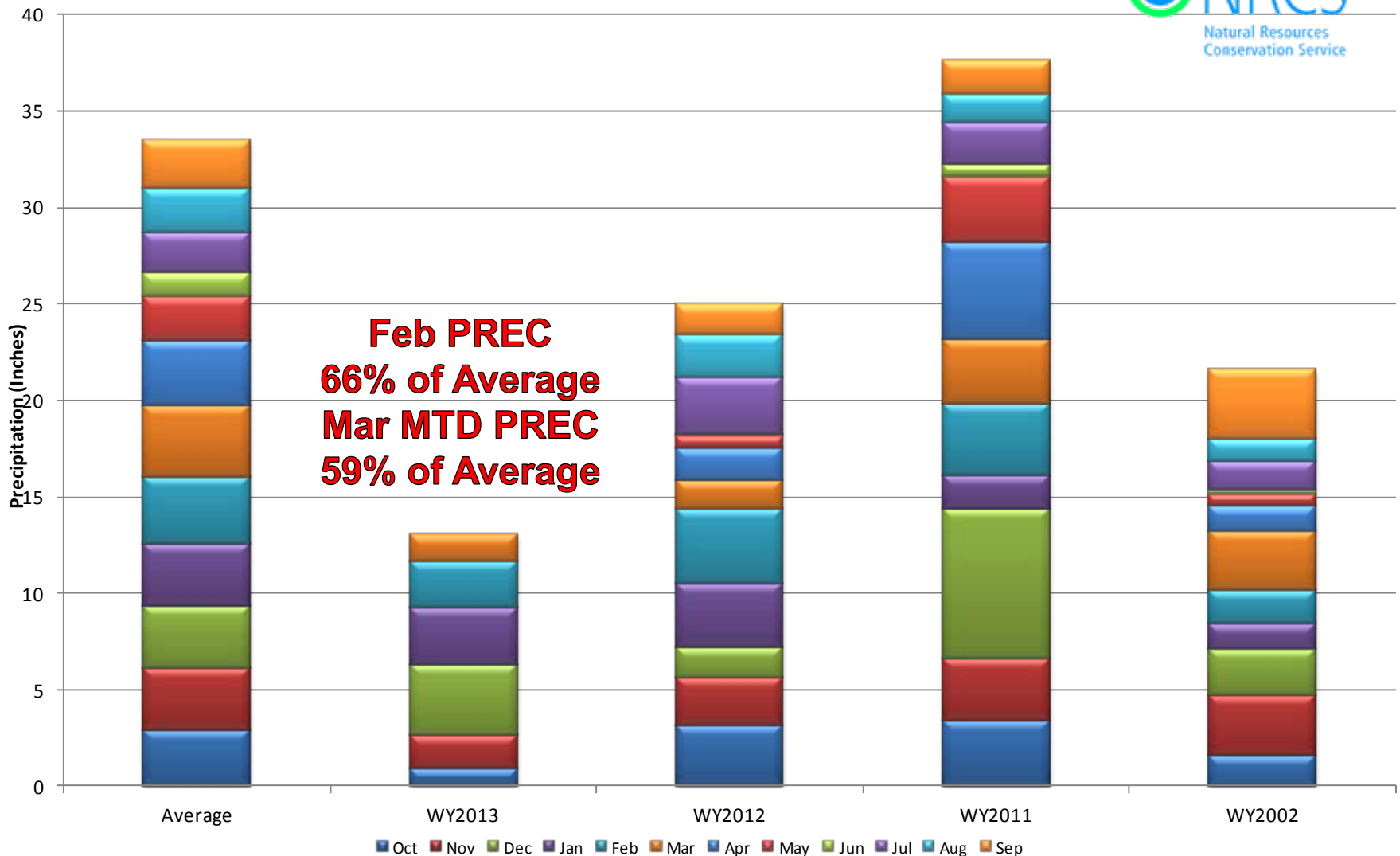
## Gunnison River Basin High/Low Year-to-Date Precipitation Summary

*Based on Provisional SNOTEL data as of Mar 21, 2013*



## Gunnison River Basin High/Low Monthly Precipitation Summary

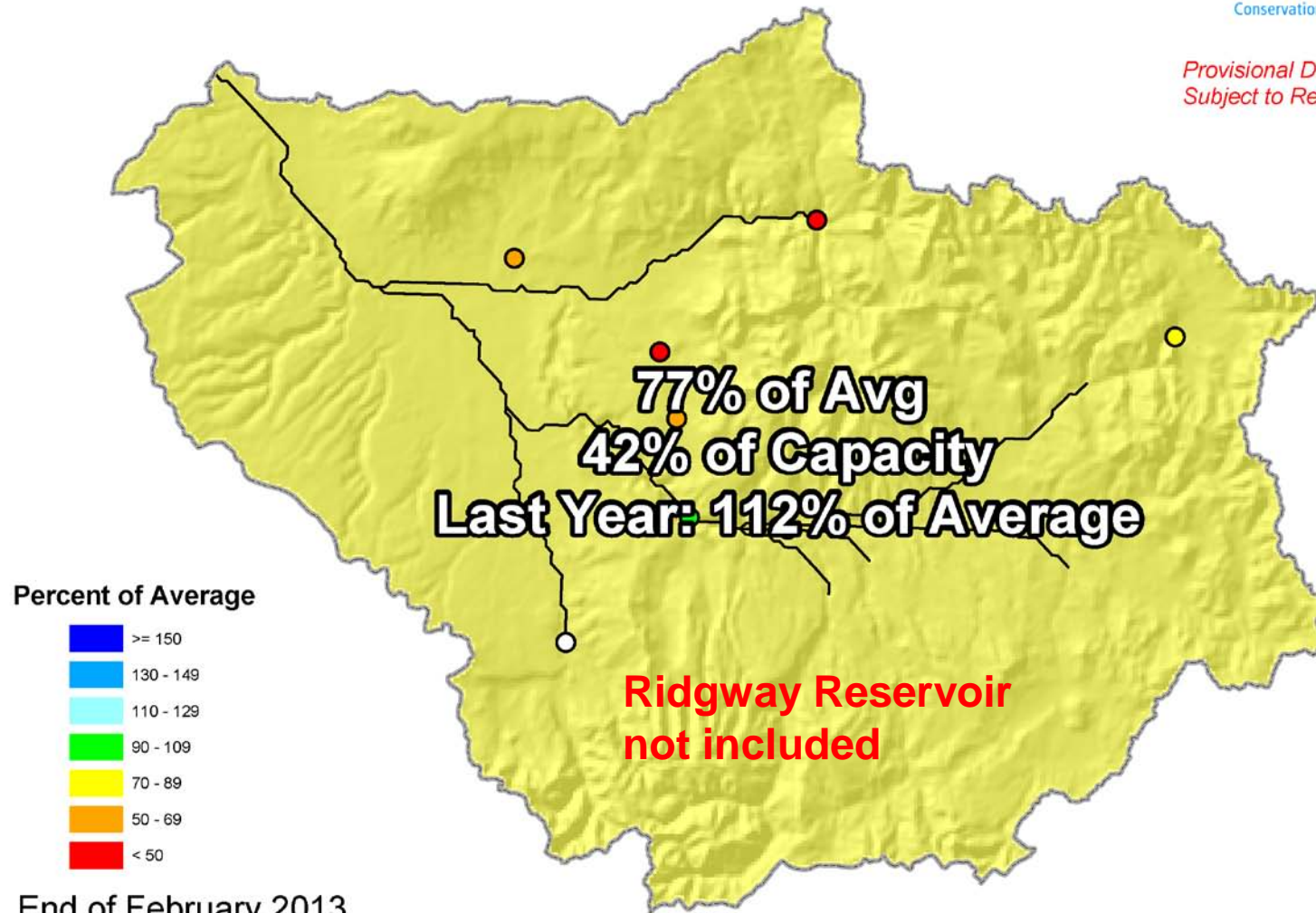
*Based on Provisional SNOTEL data as of Mar 21, 2013*



# Gunnison River Basin Reservoir Storage Map



*Provisional Data  
Subject to Revision*

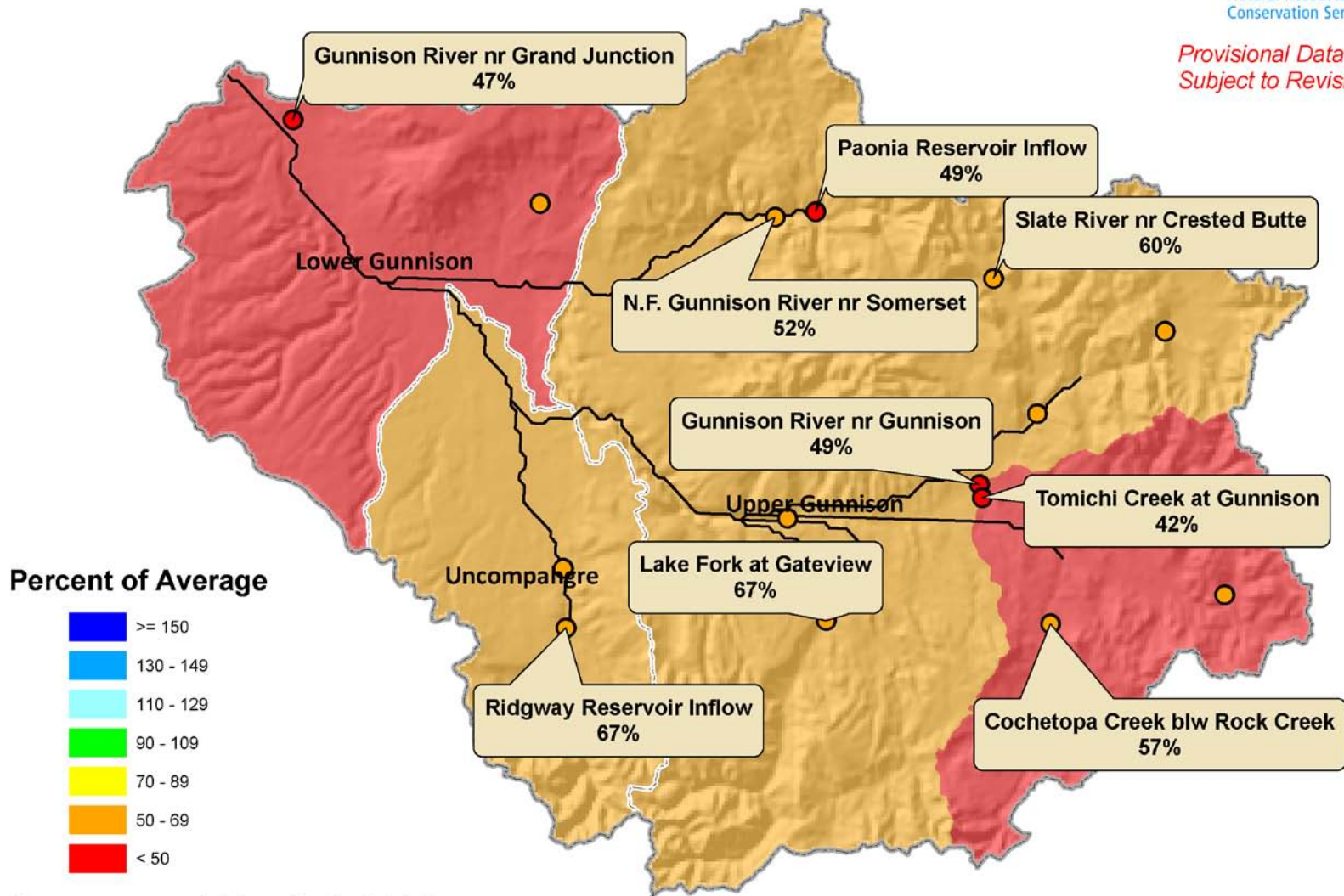


End of February 2013

# Gunnison River Basin Streamflow Forecast Map

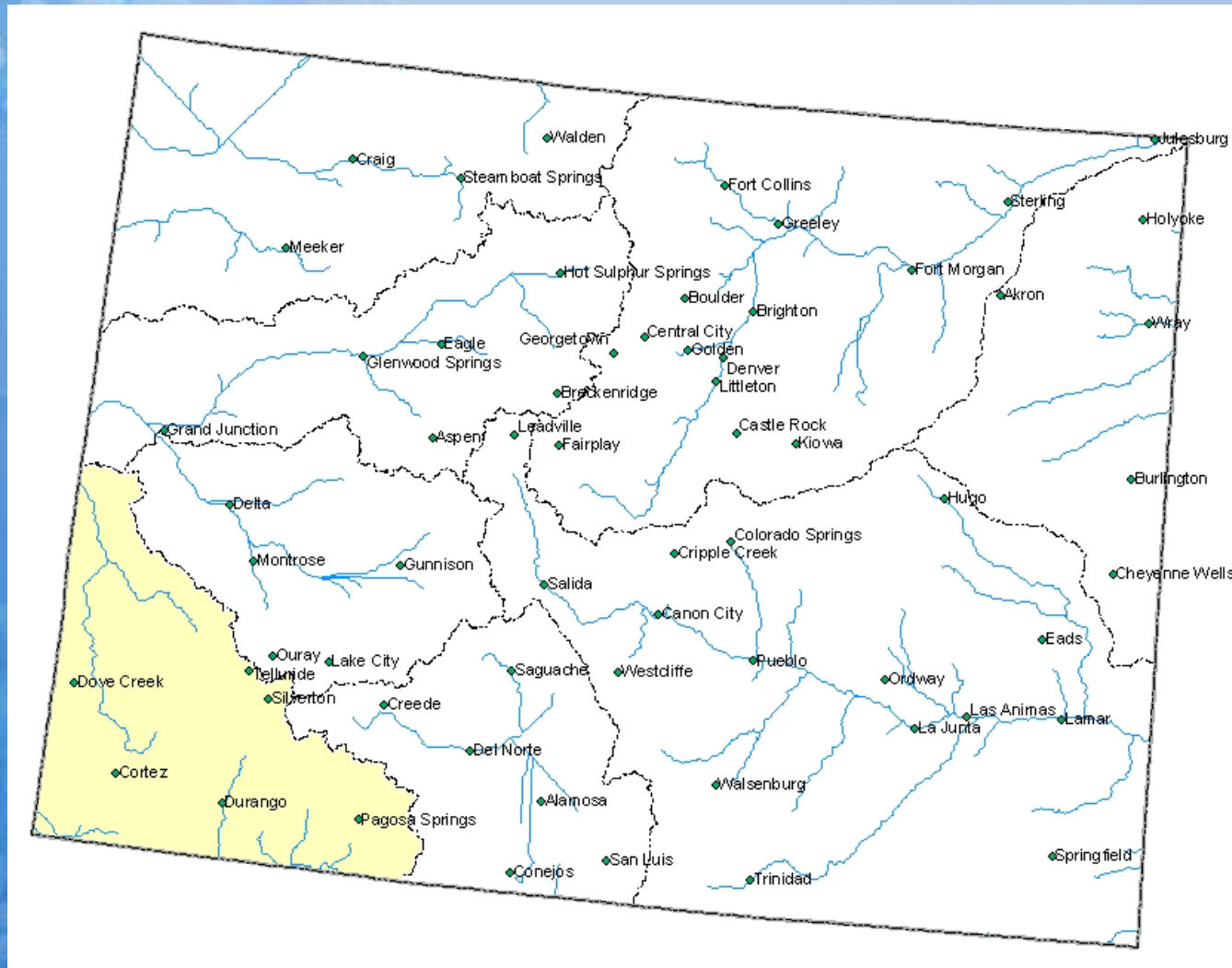


*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

# San Miguel, Dolores, Animas & San Juan River Basins Summary

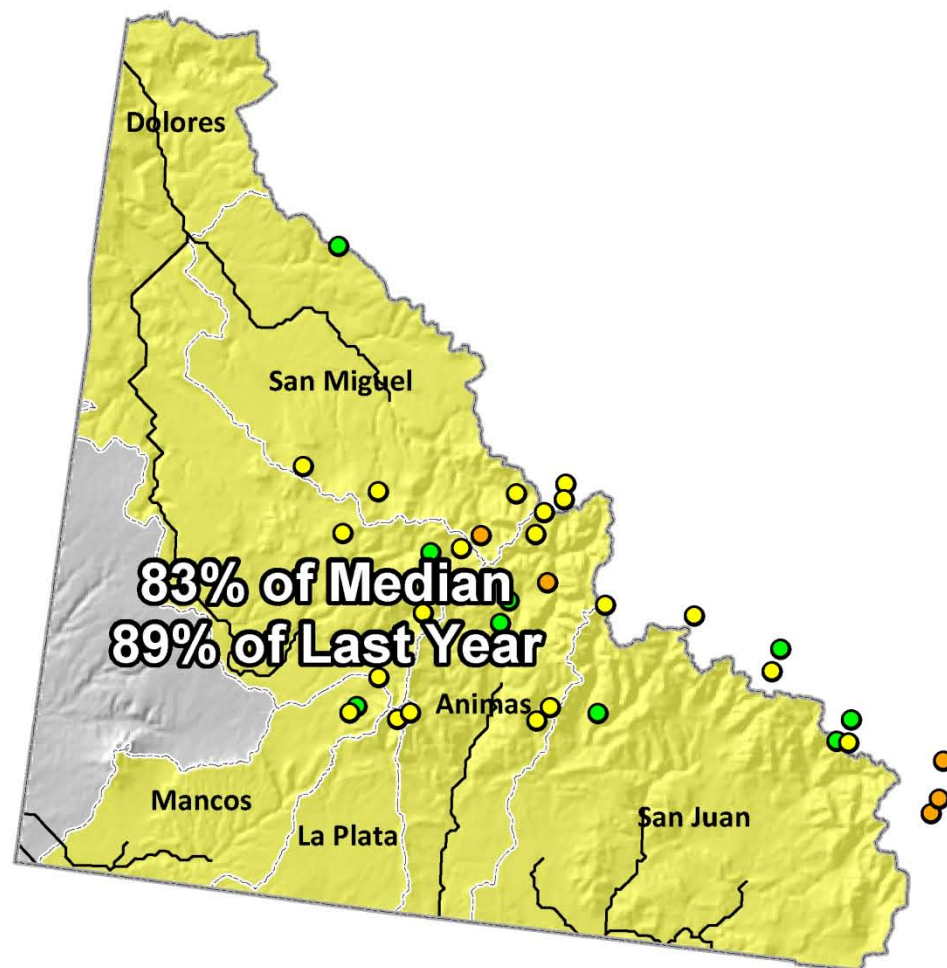


# San Miguel, Dolores, Animas and San Juan River Basins Snowpack Map

## Percent of Median



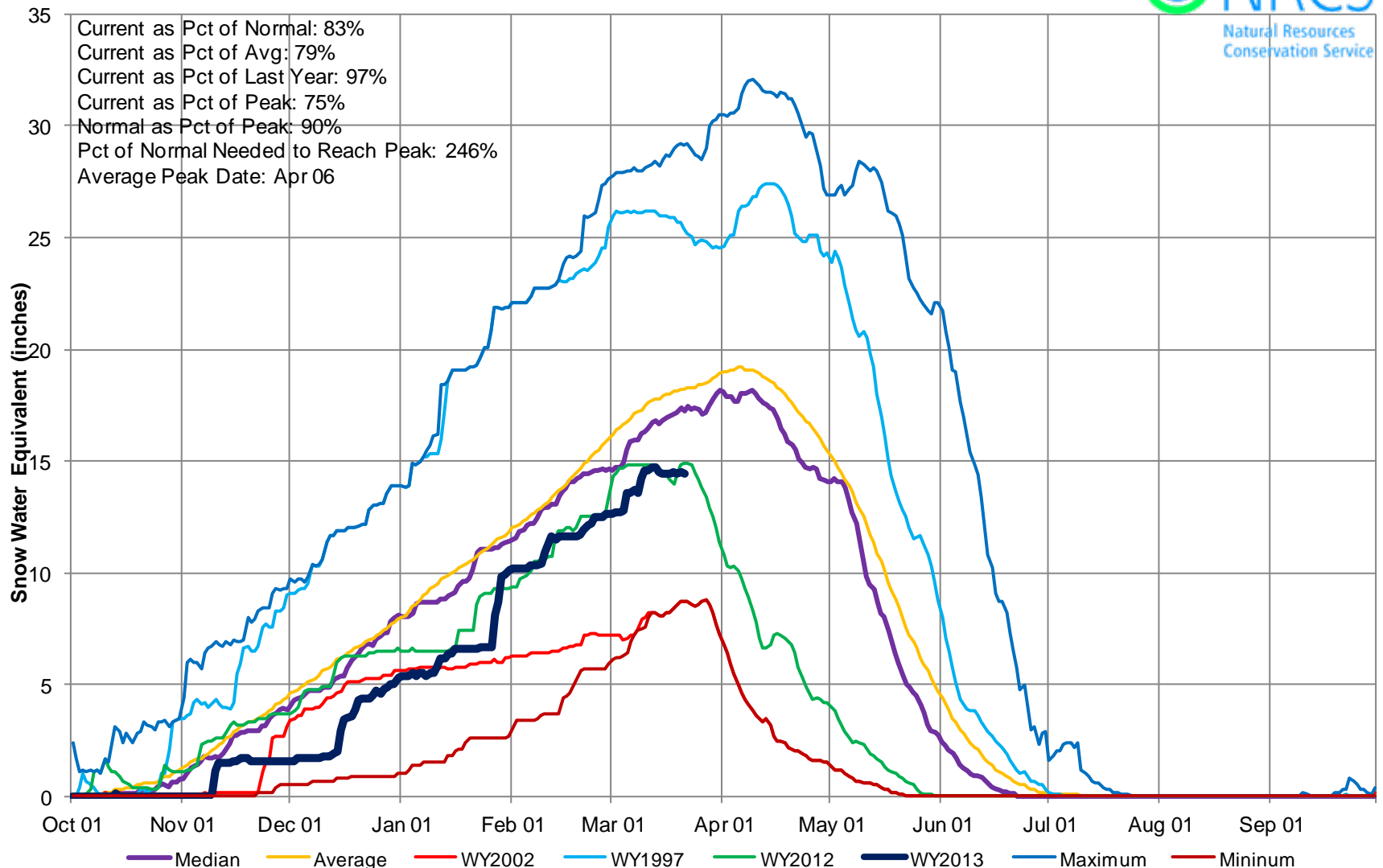
*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

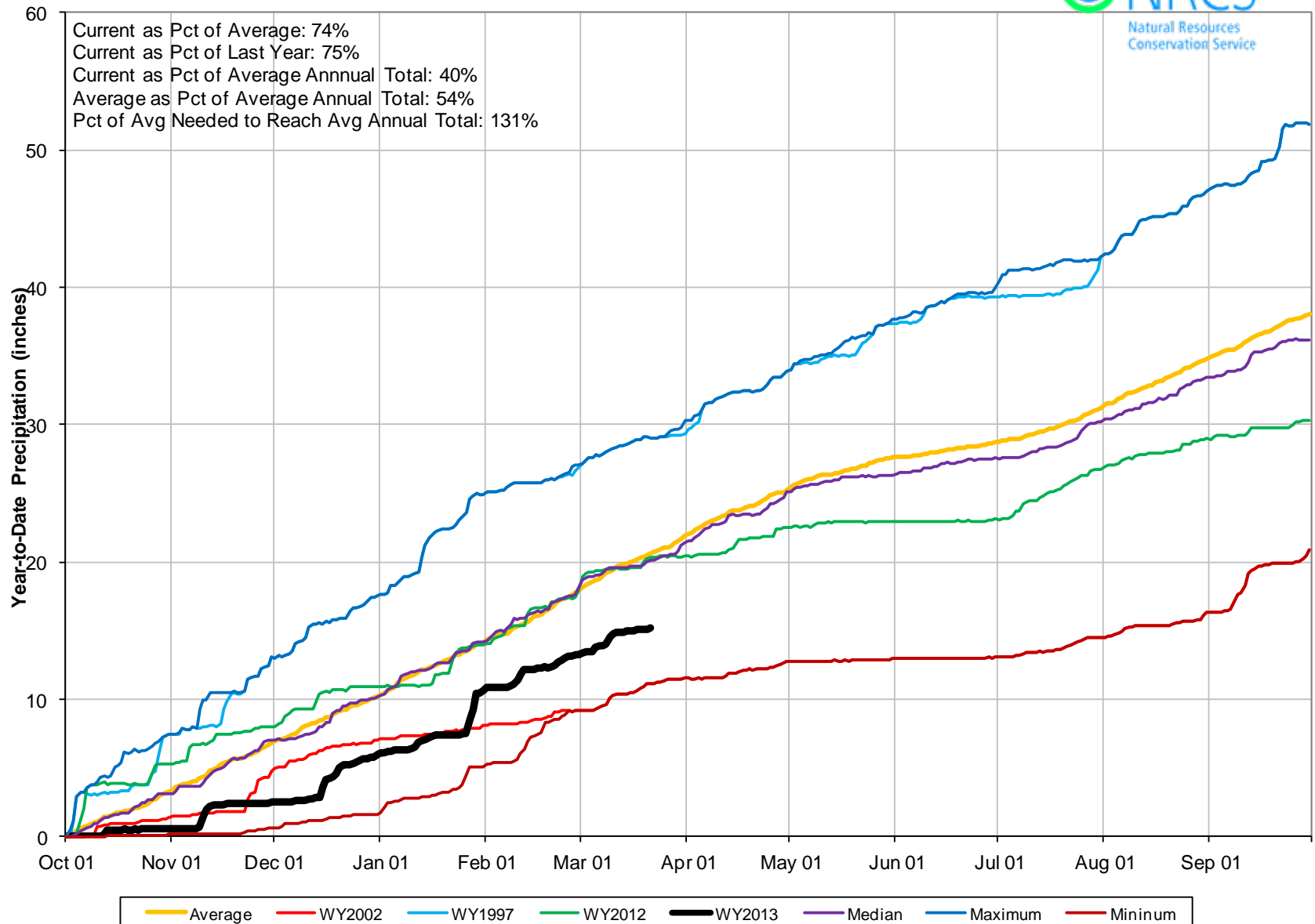
# San Miguel, Dolores, Animas & San Juan River Basins High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Mar 21, 2013



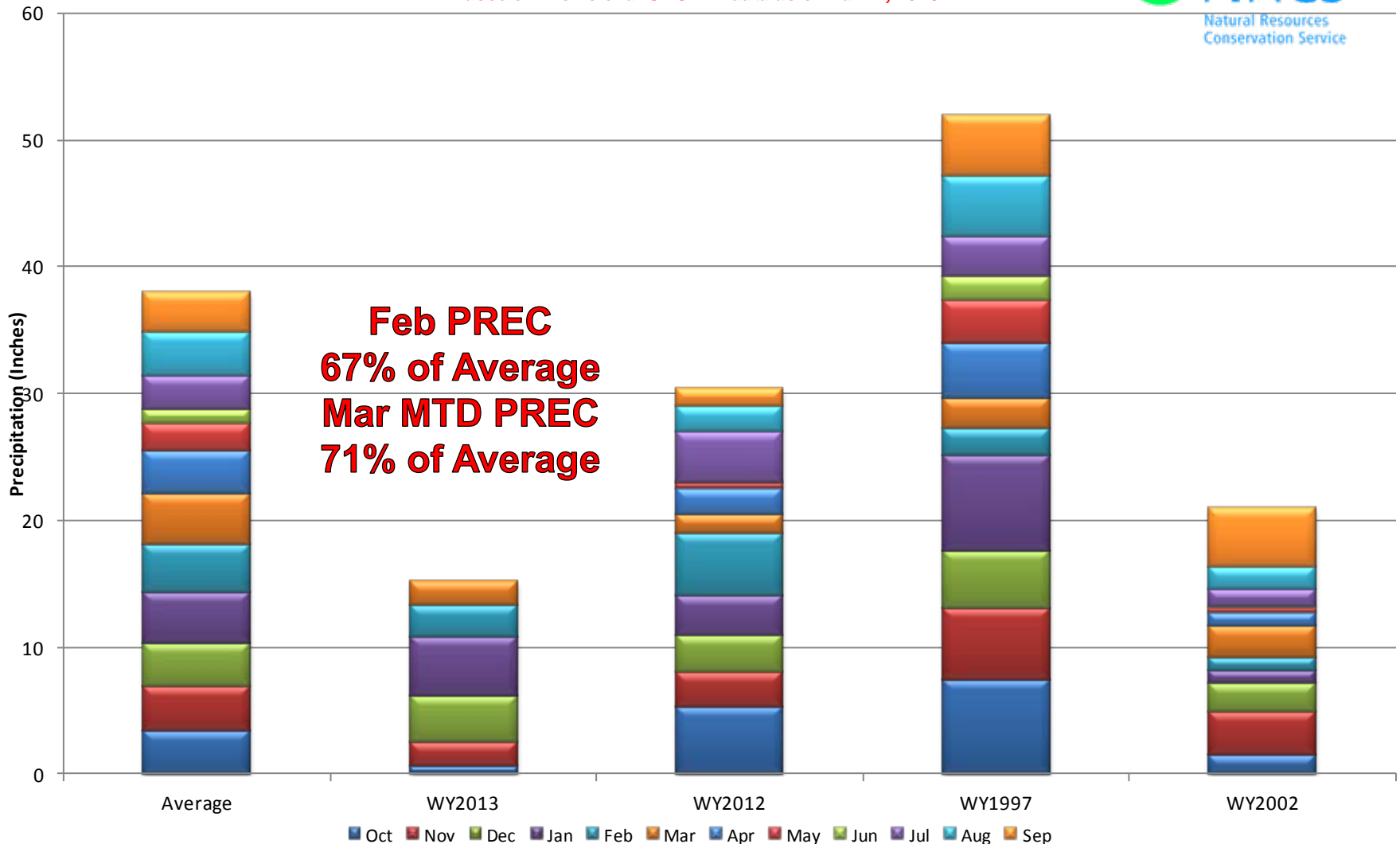
# San Miguel, Dolores, Animas & San Juan River Basins High/Low Year-to-Date Precipitation Summary

*Based on Provisional SNOTEL data as of Mar 21, 2013*



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

*Based on Provisional SNOTEL data as of Mar 21, 2013*



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



## Percent of Average



*Provisional Data  
Subject to Revision*

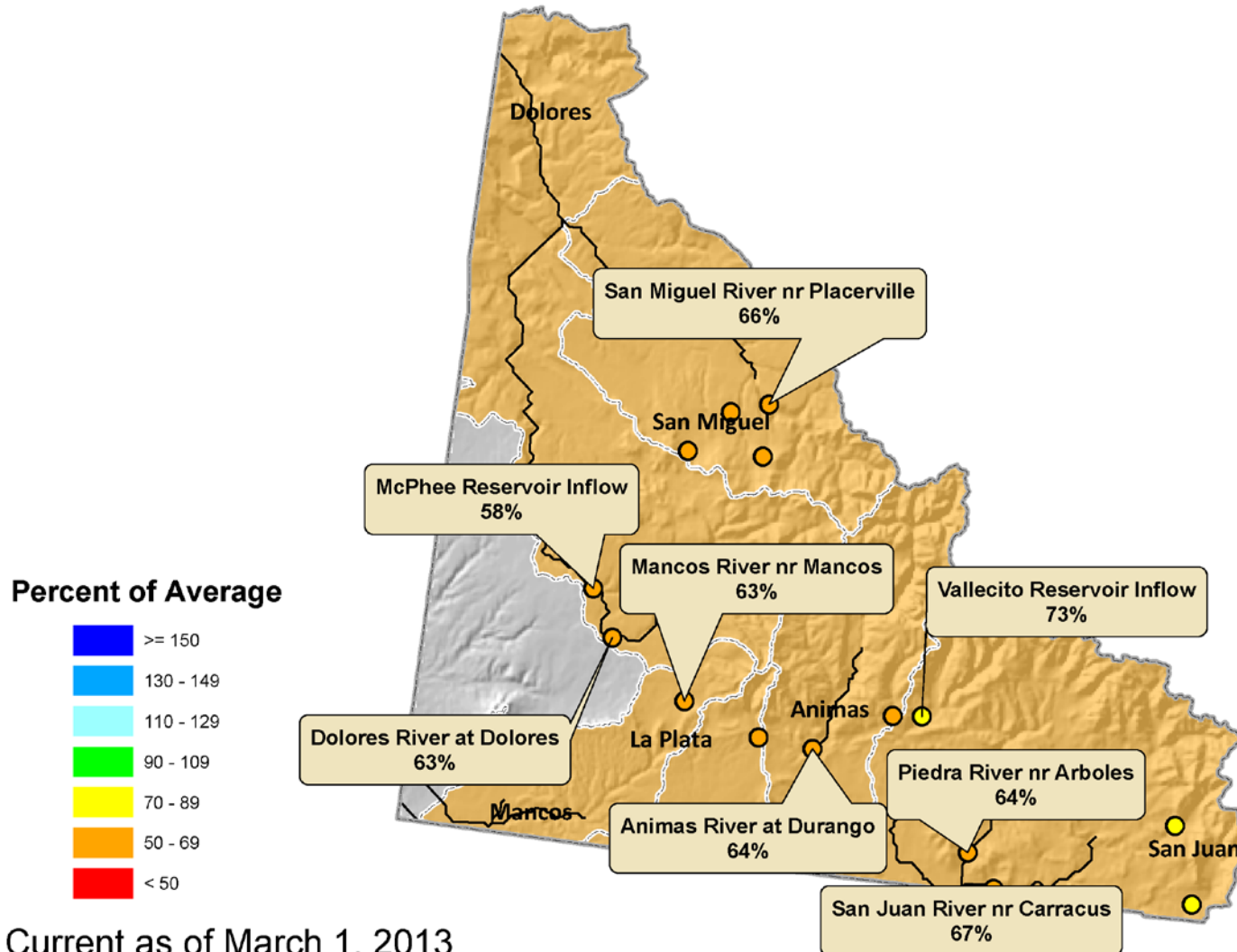
**67% of Avg  
43% of Capacity  
Last Year: 104% of Average**

End of February 2013

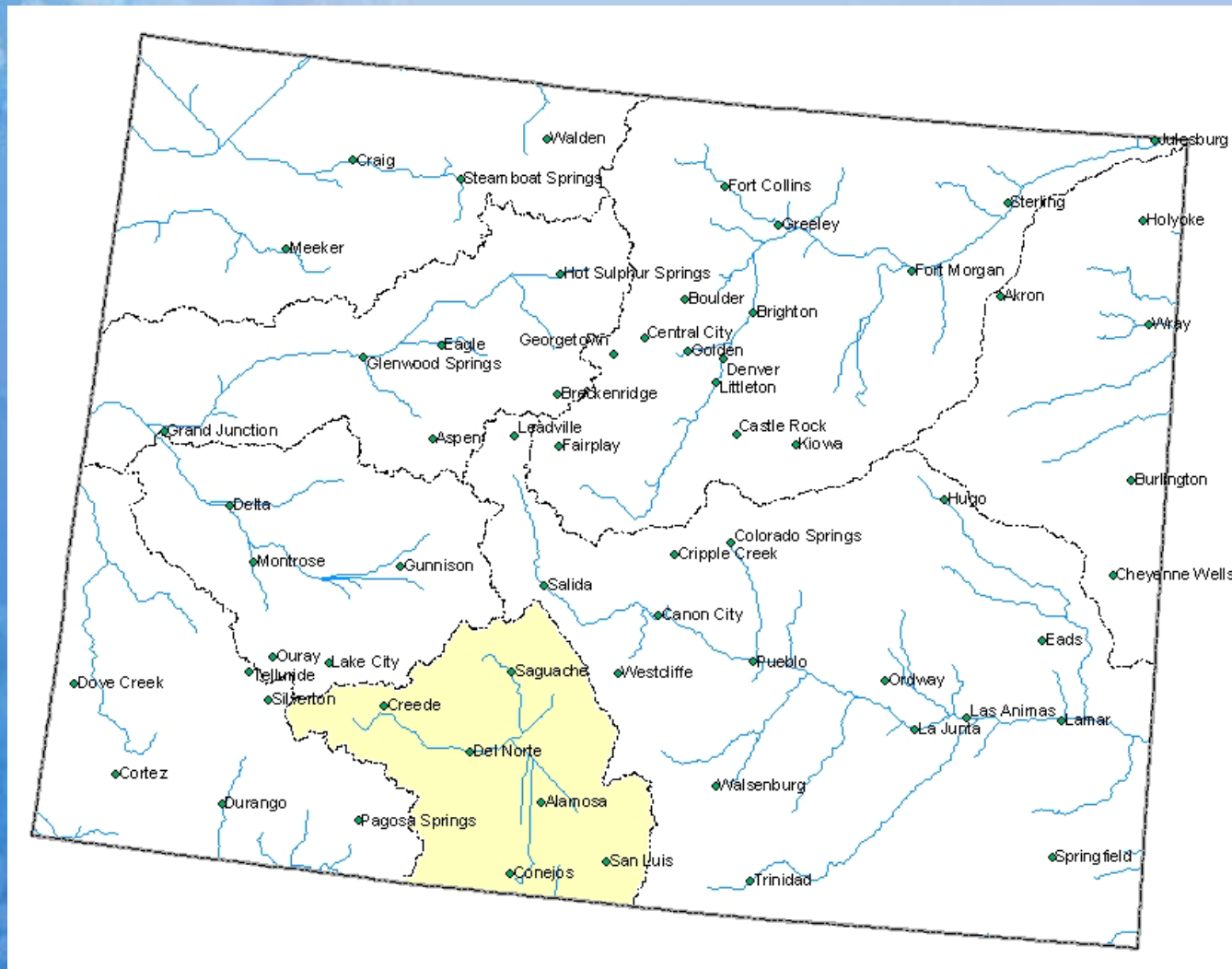
# San Miguel, Dolores, Animas and San Juan River Basins Streamflow Forecast Map



*Provisional Data  
Subject to Revision*



# Upper Rio Grande Basin Summary

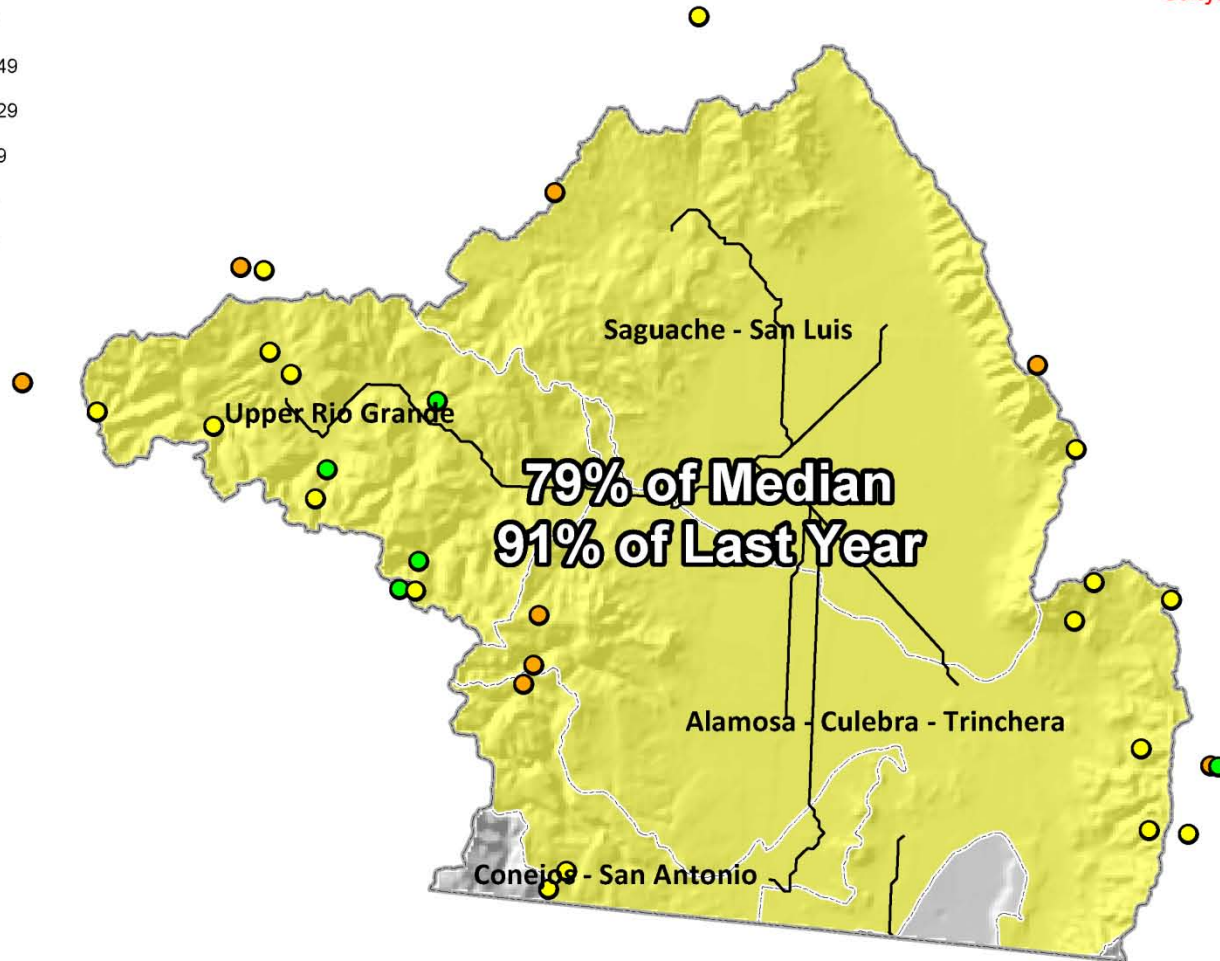


# Upper Rio Grande Basin Snowpack Map

## Percent of Median



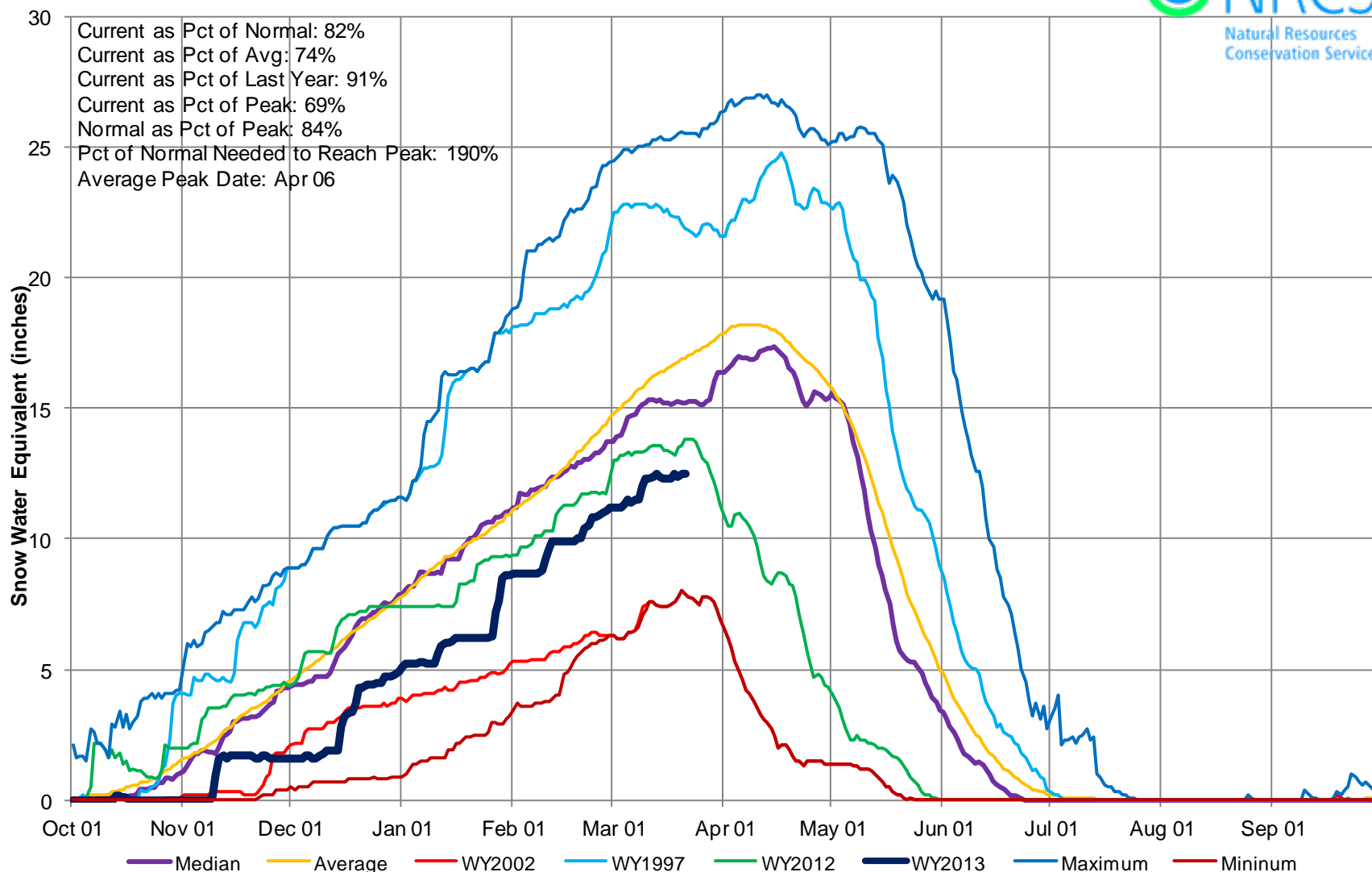
*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

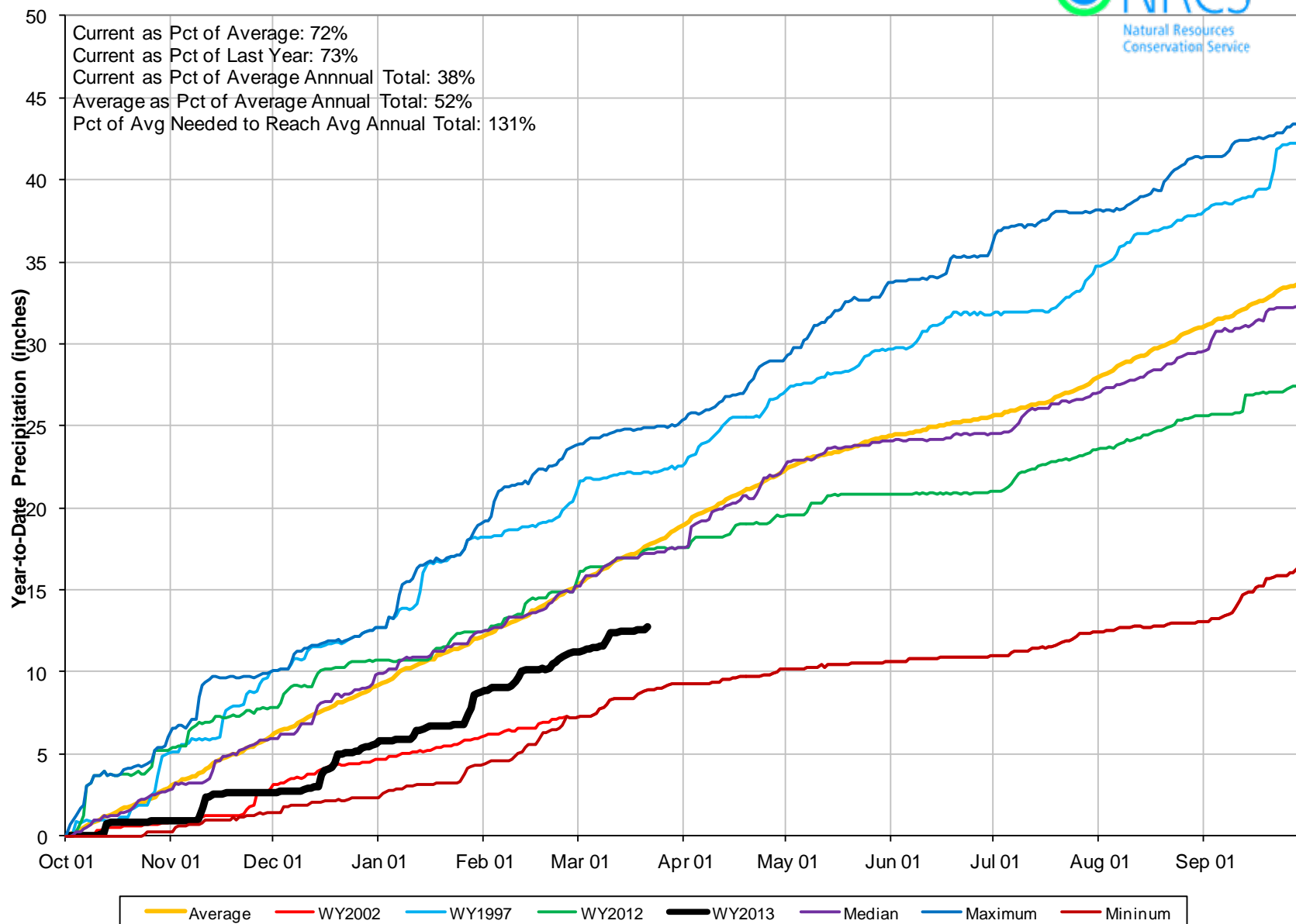
# Upper Rio Grande Basin High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Mar 21, 2013

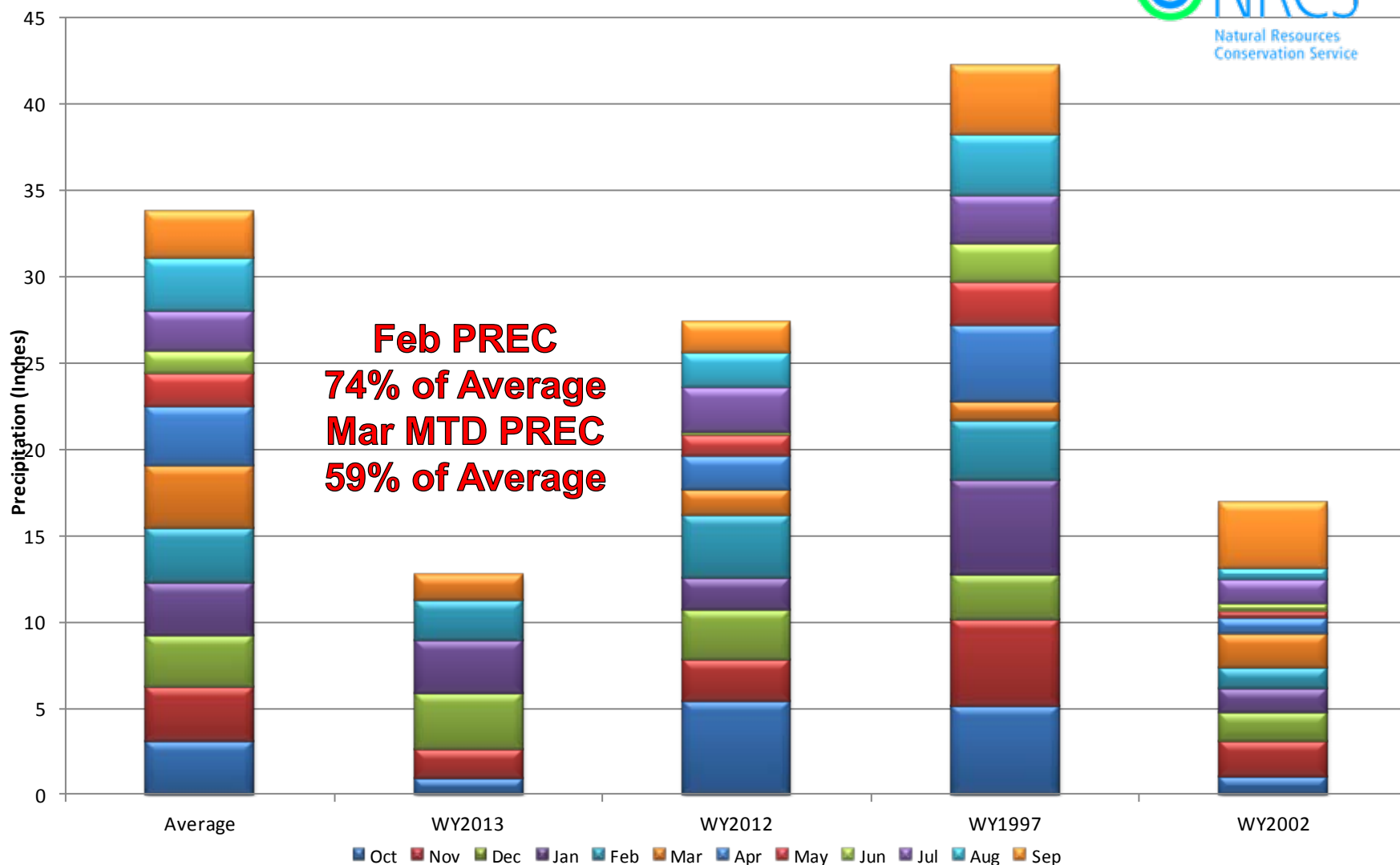


## Upper Rio Grande Basin High/Low Year-to-Date Precipitation Summary

*Based on Provisional SNOTEL data as of Mar 21, 2013*



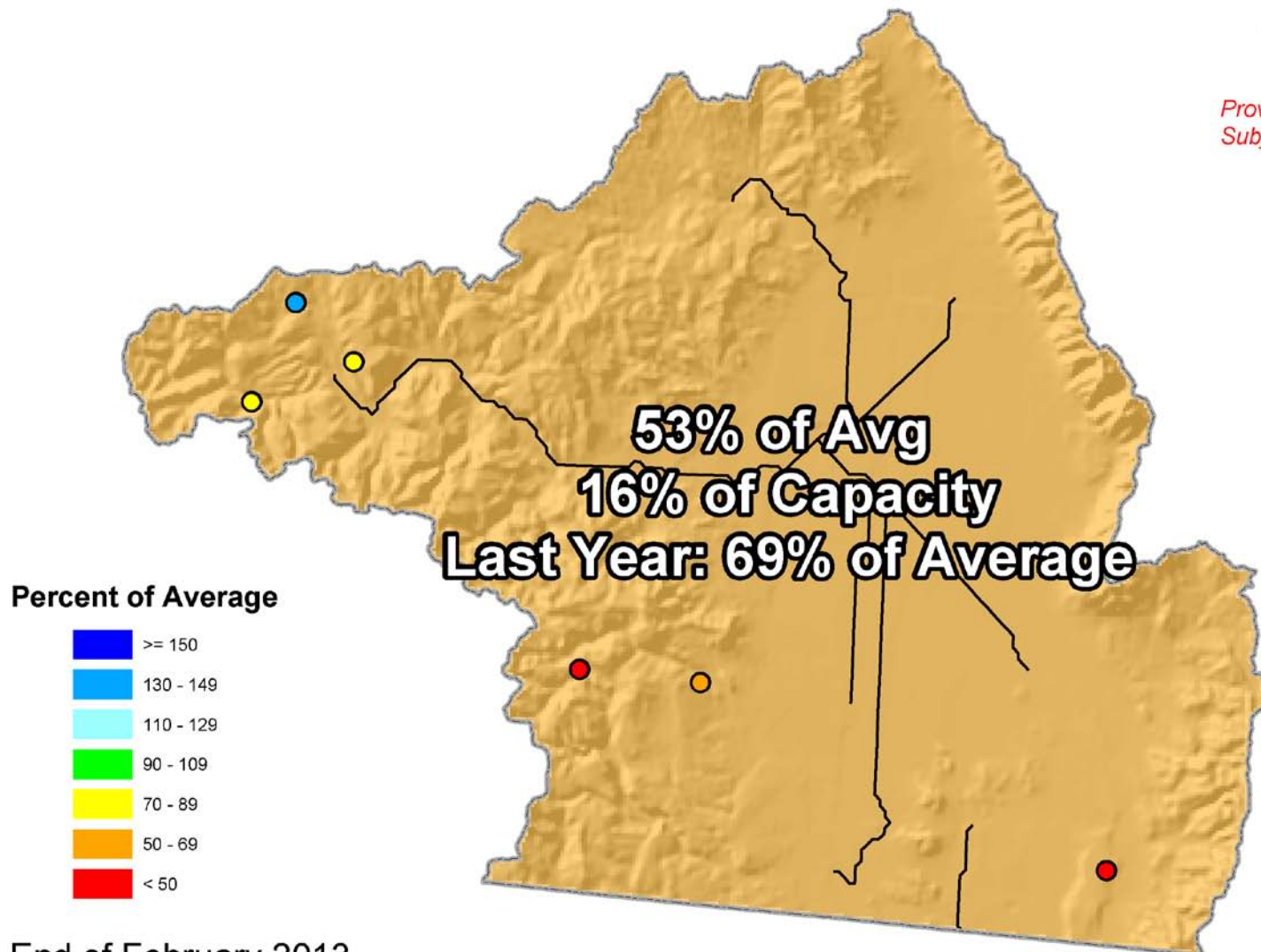
**Based on Provisional SNOTEL data as of Mar 21, 2013**



# Upper Rio Grande Basin Reservoir Storage Map



*Provisional Data  
Subject to Revision*

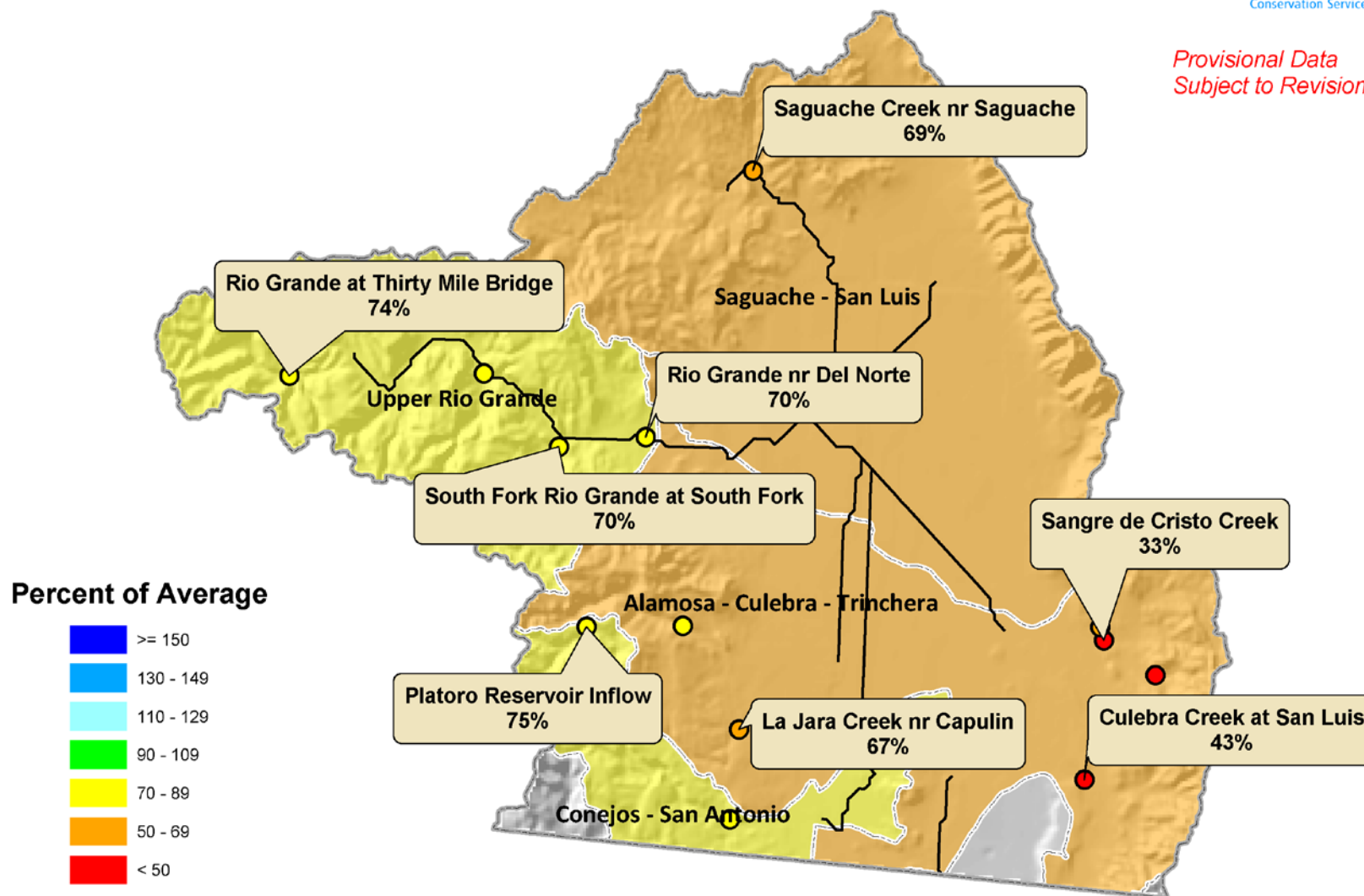


End of February 2013

# Upper Rio Grande Basin Streamflow Forecast Map



*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

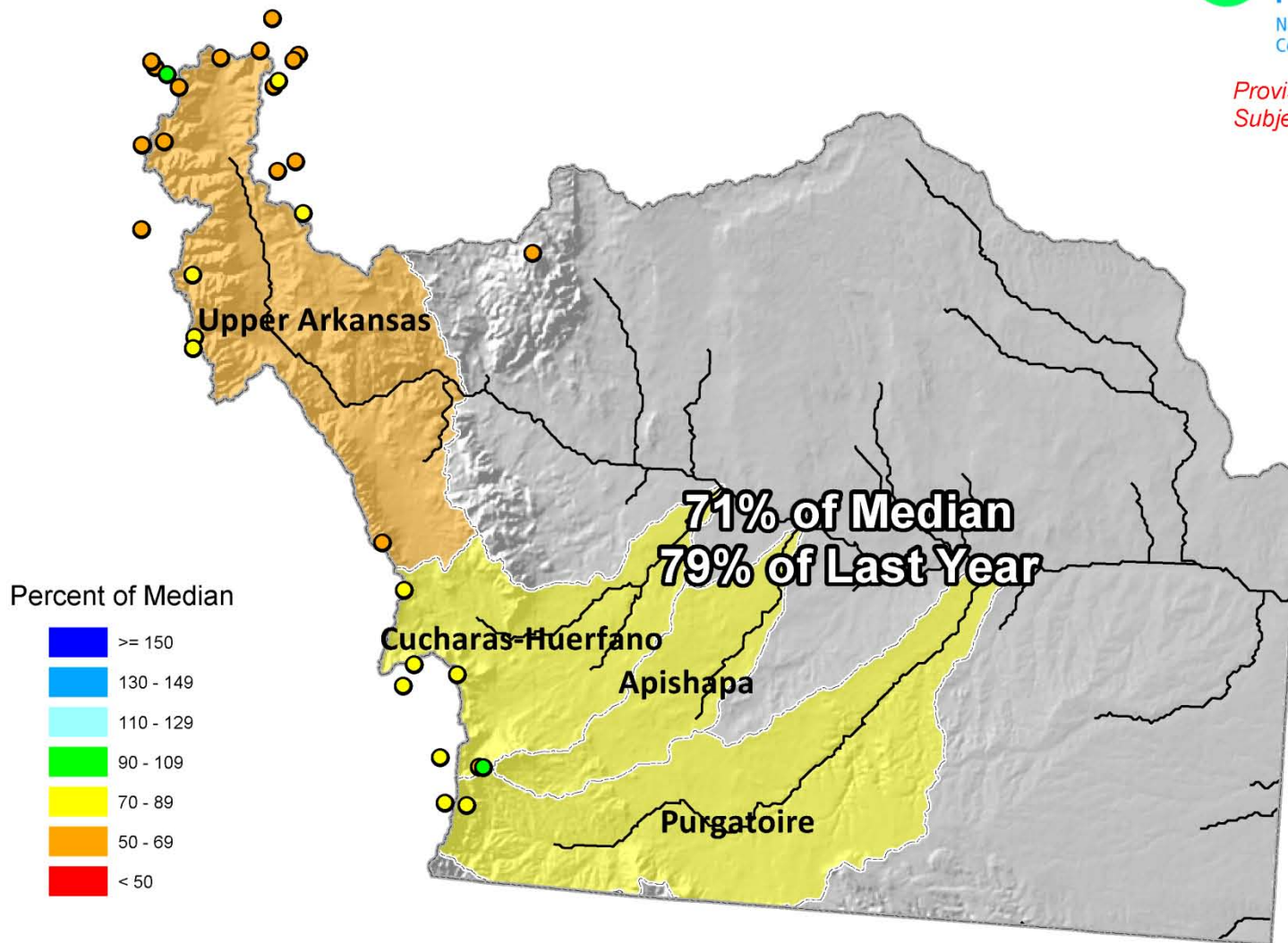
# Arkansas River Basin Summary



# Arkansas River Basin Snowpack Map



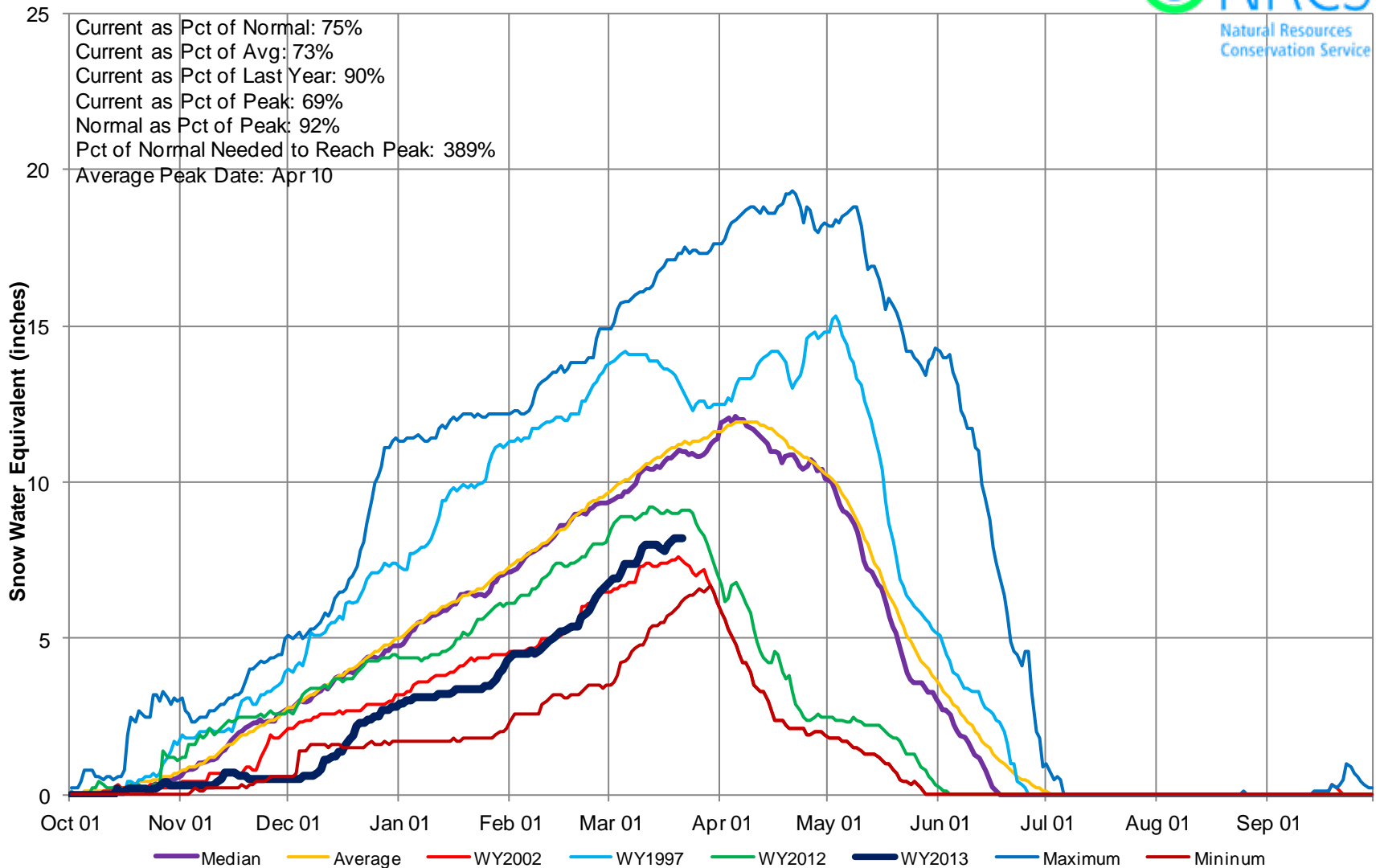
*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

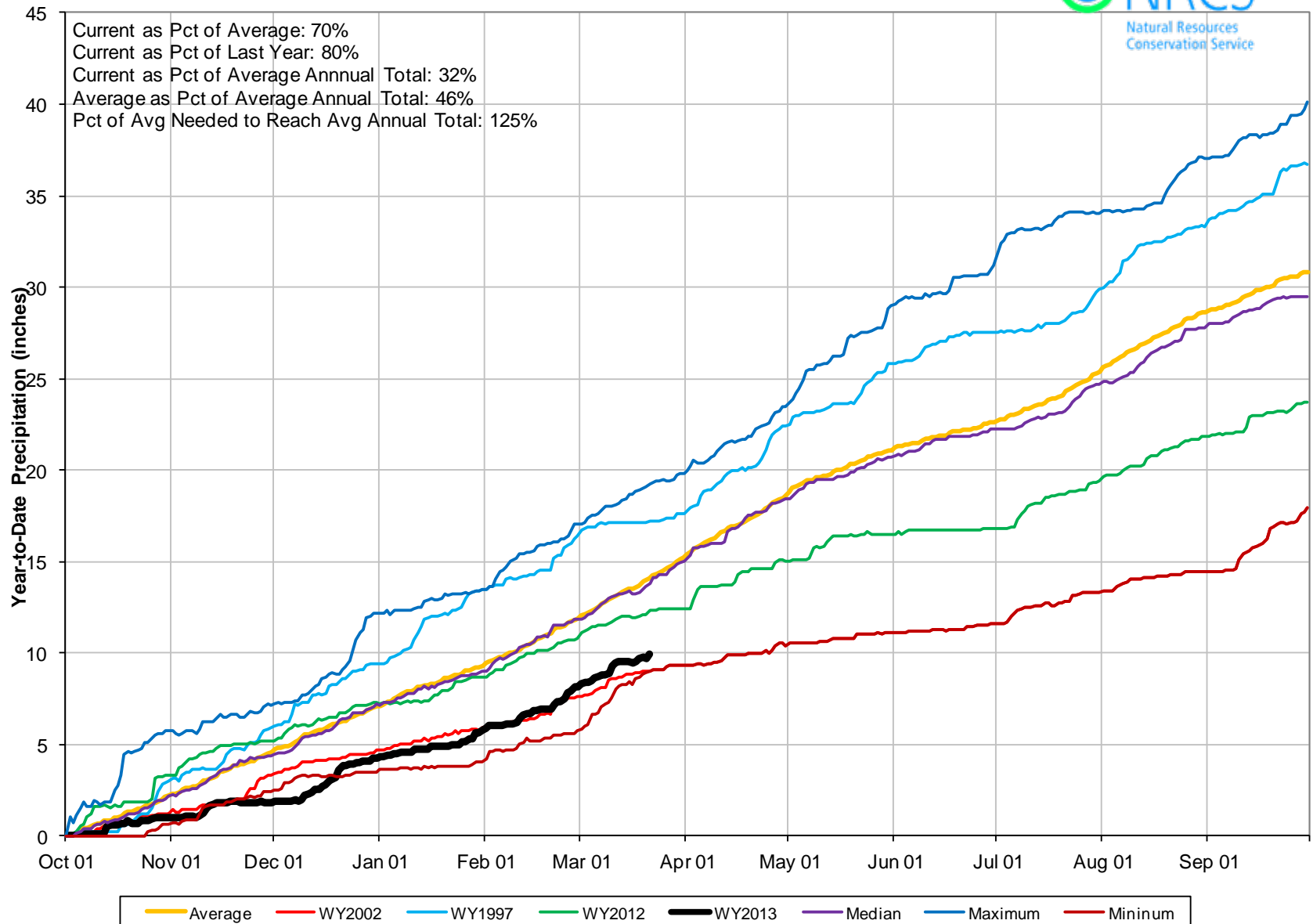
## Arkansas River Basin High/Low Snowpack Summary

*Based on Provisional SNOTEL data as of Mar 21, 2013*



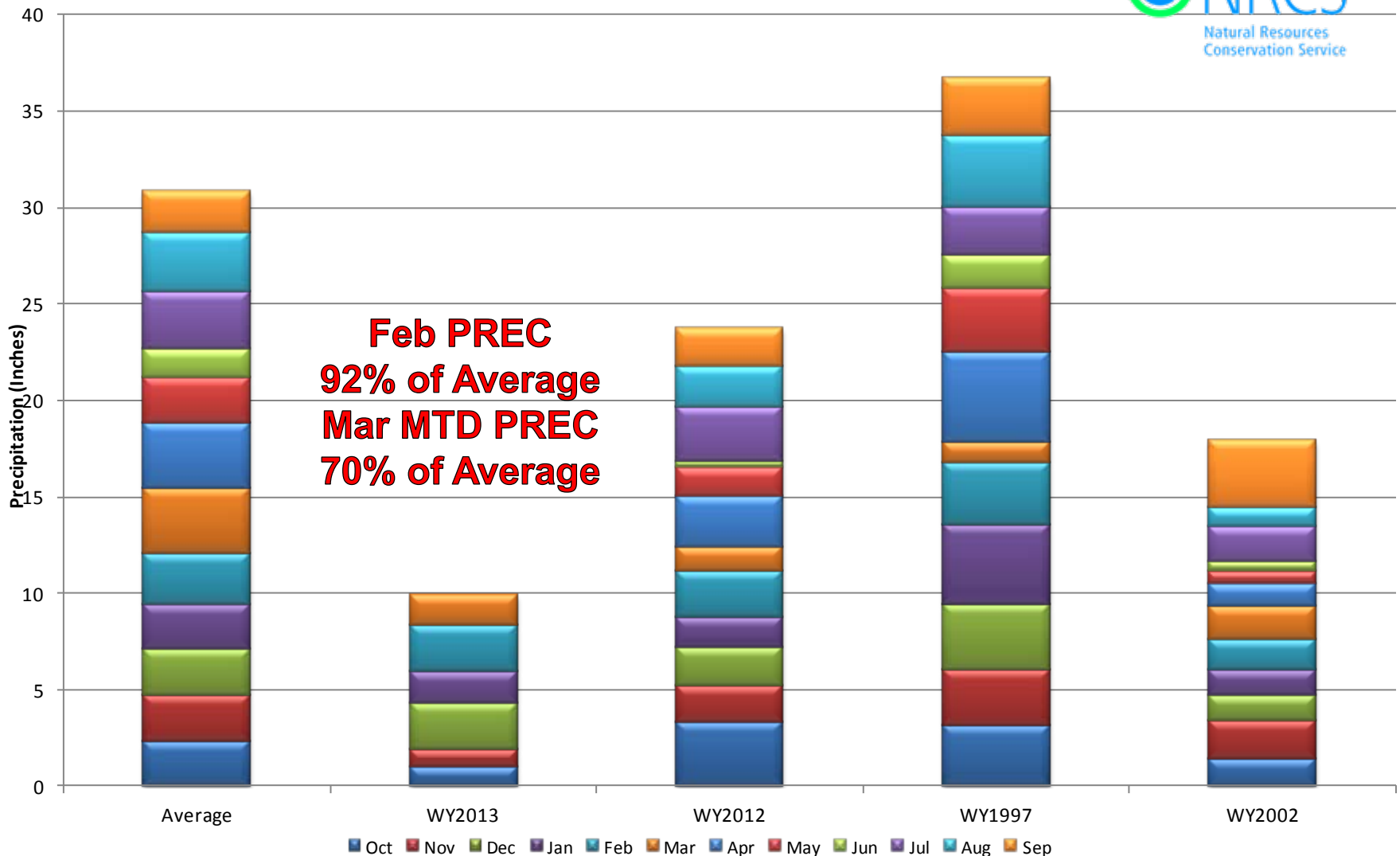
# Arkansas River Basin High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Mar 21, 2013



# Arkansas River Basin High/Low Monthly Precipitation Summary

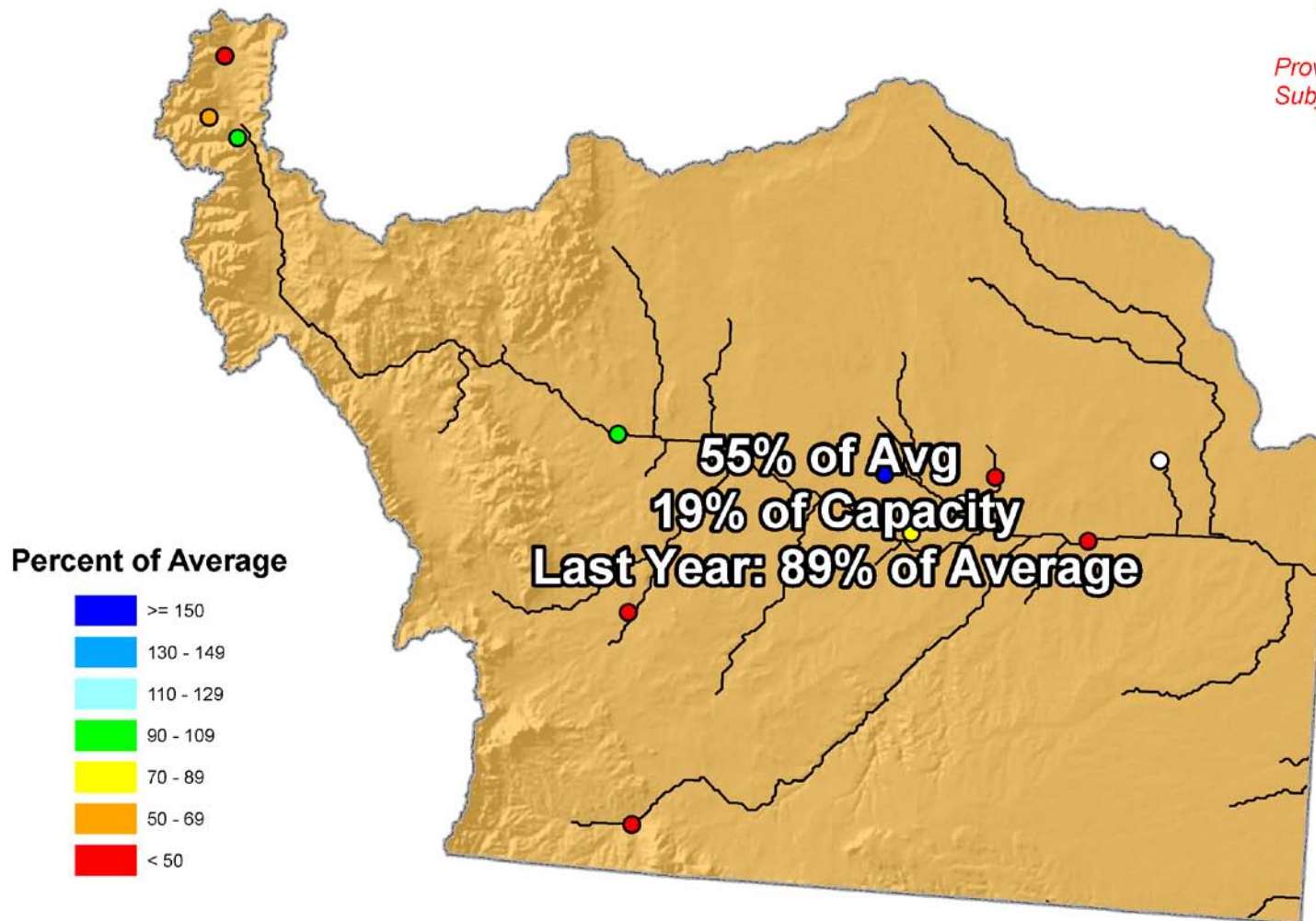
*Based on Provisional SNOTEL data as of Mar 21, 2013*



# Arkansas River Basin Reservoir Storage Map



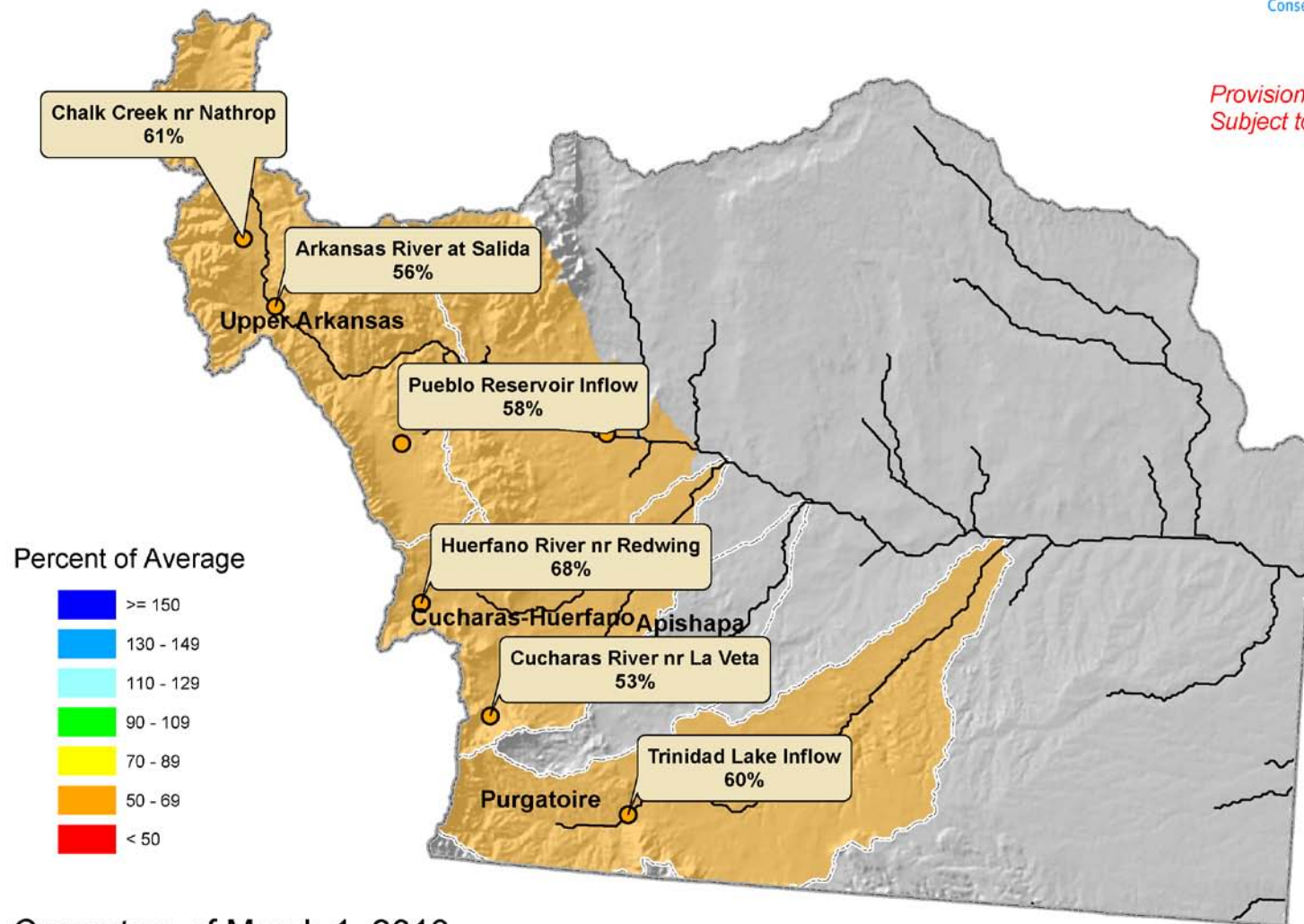
*Provisional Data  
Subject to Revision*



End of February 2013

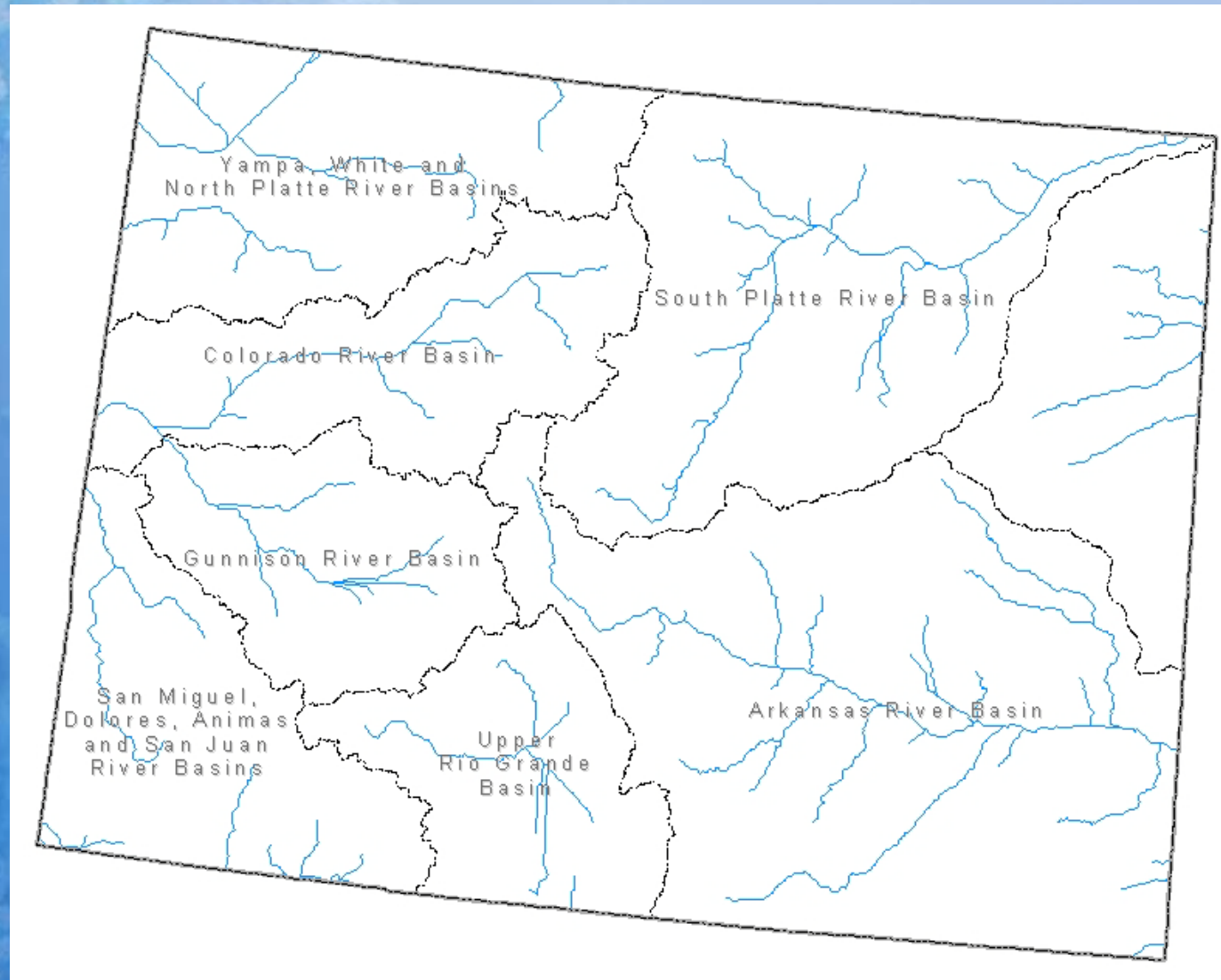
# Arkansas River Basin Streamflow Forecast Map

*Provisional Data  
Subject to Revision*



Current as of March 1, 2013

# Colorado Statewide Summary

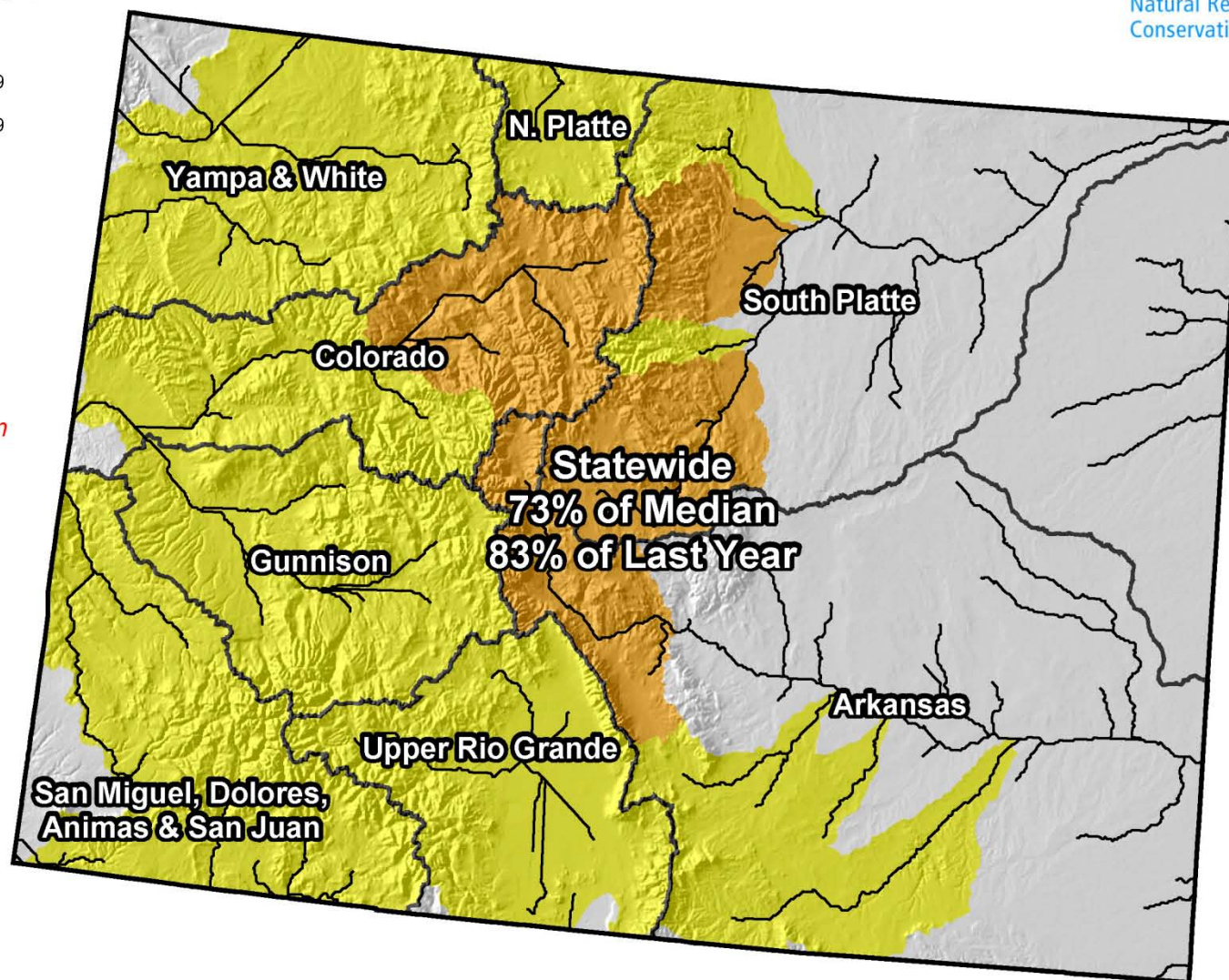


# Colorado Snowpack Map

## Percent of Median



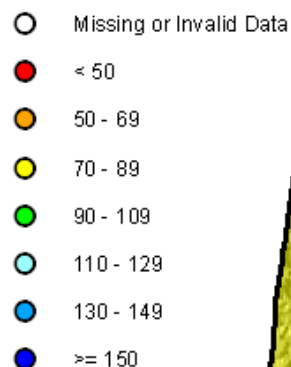
*Provisional Data  
Subject to Revision*



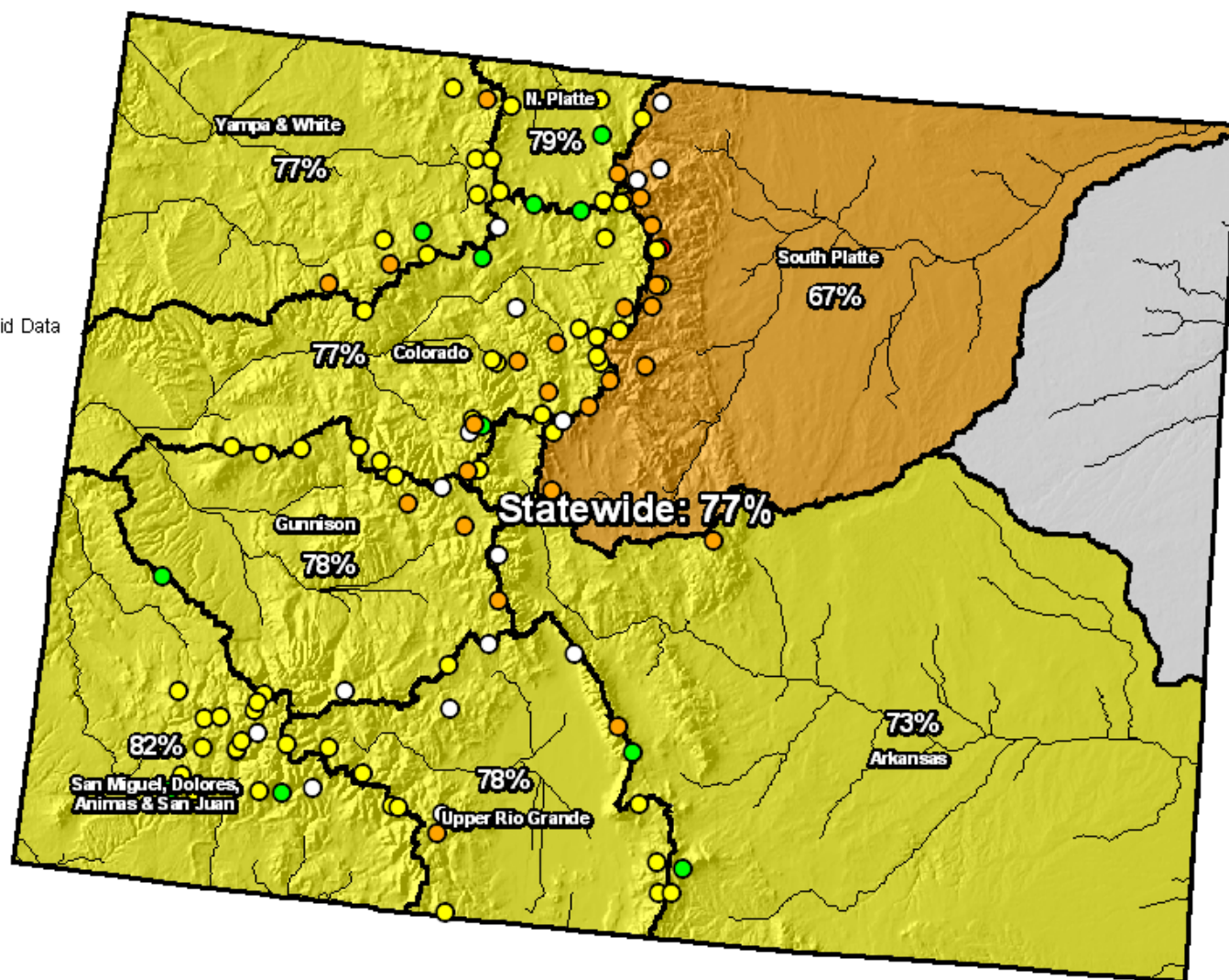
Current as of March 1, 2013

# Colorado SNOTEL Snowpack Update Map with Site Data

Percent of Average



*Provisional Data  
Subject to Revision*

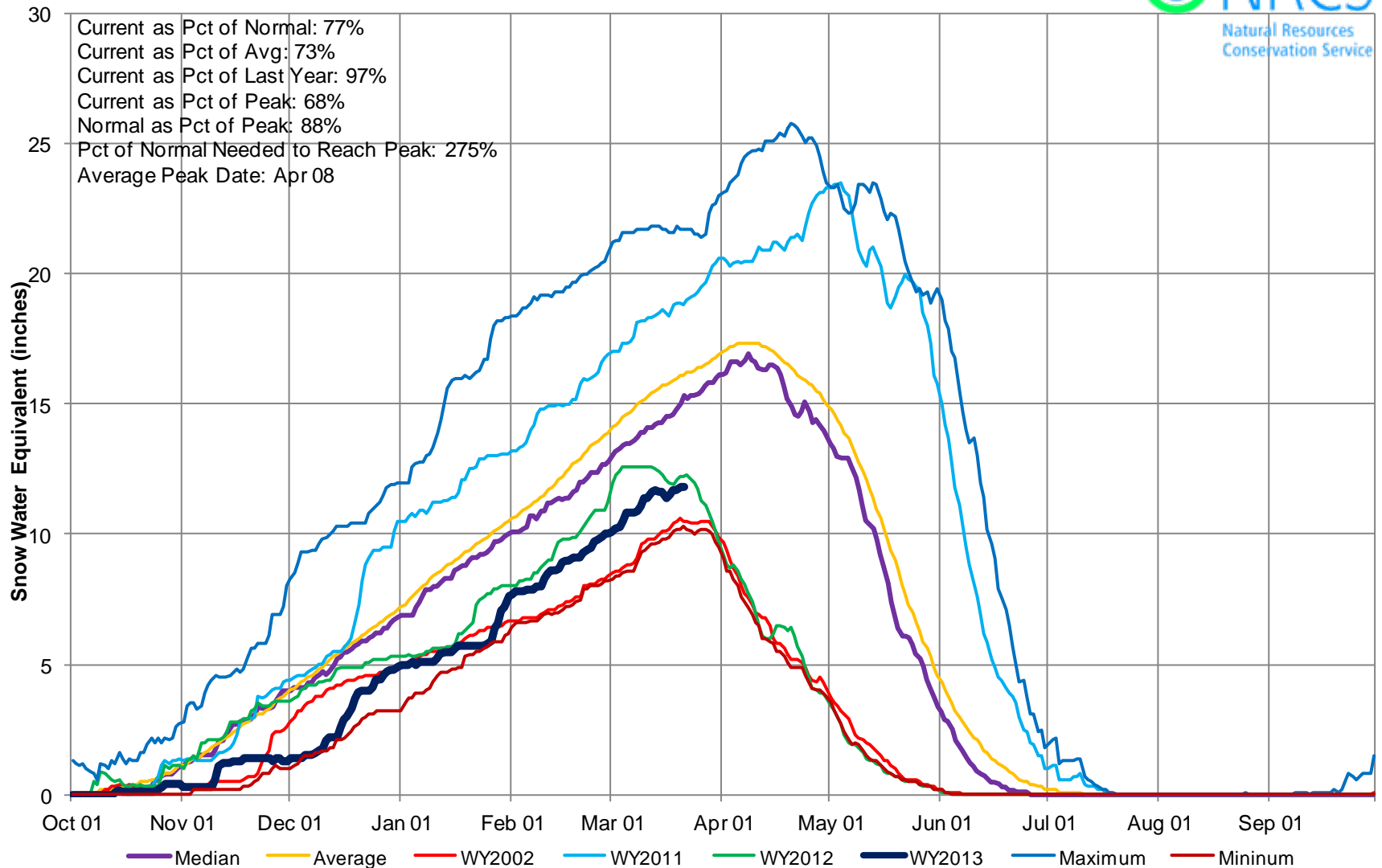


Current as of Mar 20, 2013

\*Data may not provide a valid measure of conditions

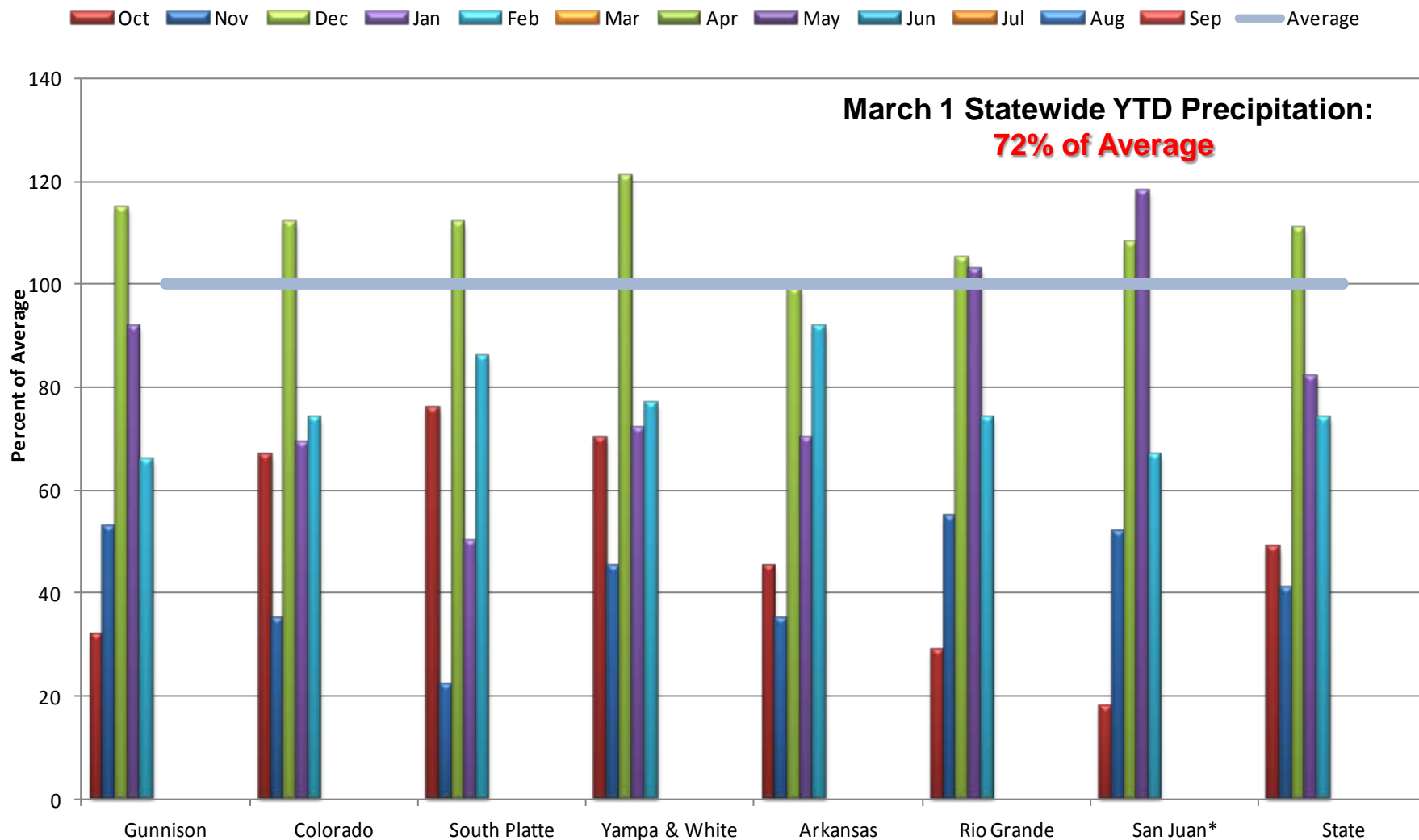
## Colorado State-Wide High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Mar 21, 2013



# Colorado Monthly Precipitation Summary for WY2013

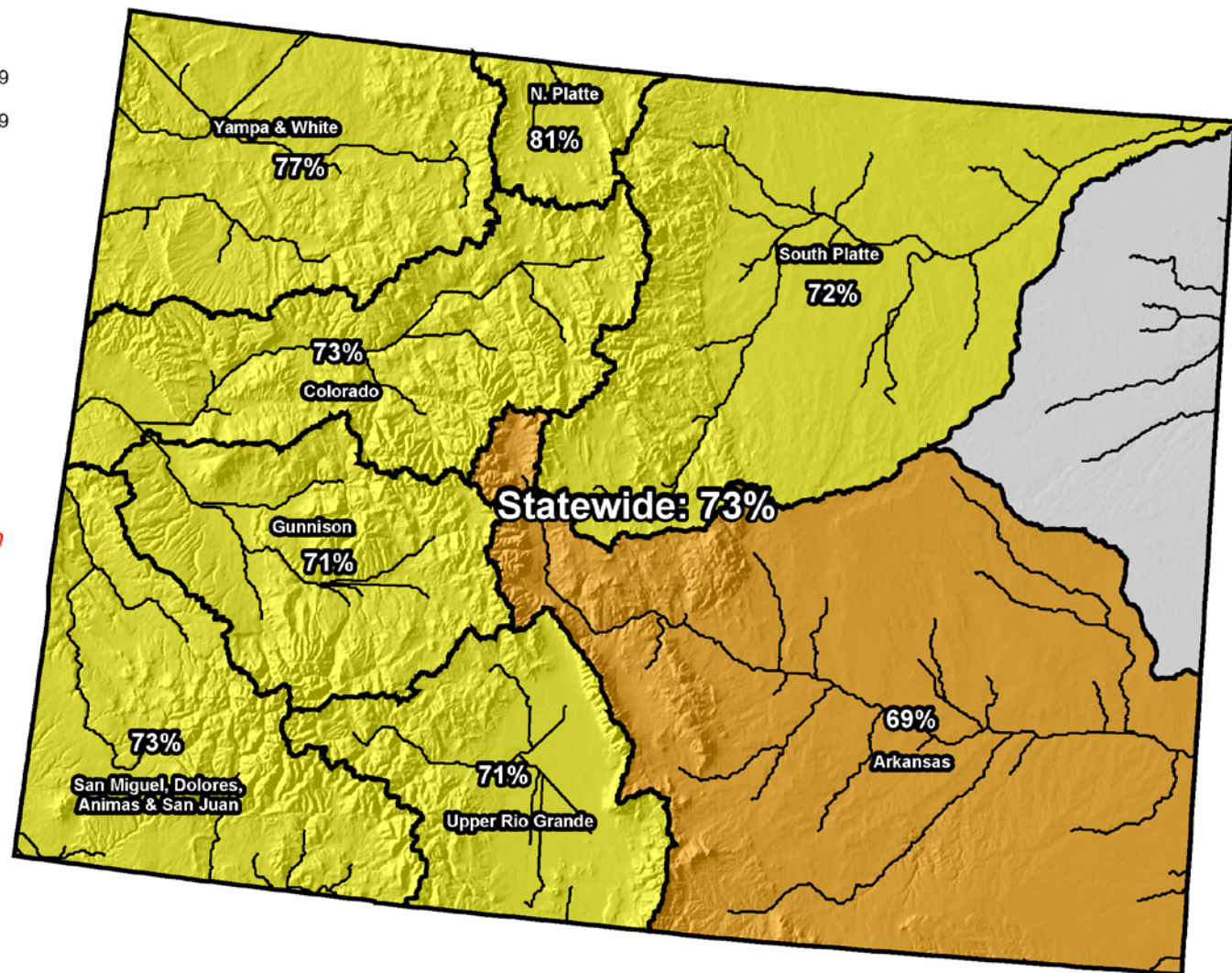
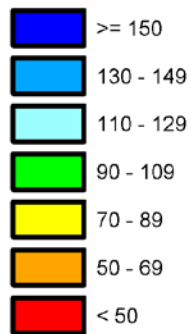
USDA Natural Resources Conservation Service



\*Includes Animas, Dolores, San Miguel Basins

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

Percent of Average



*Provisional Data  
Subject to Revision*

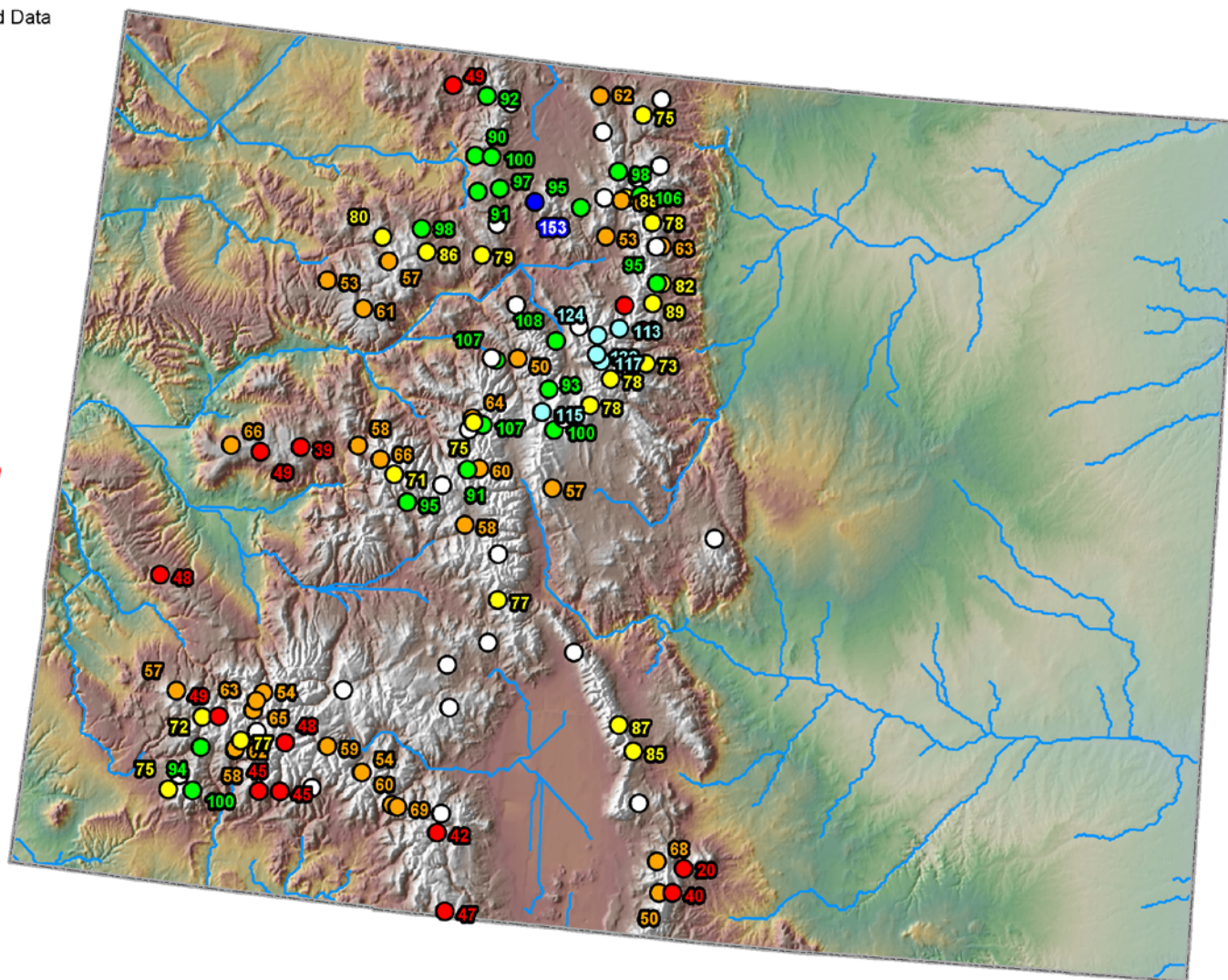
Current as of Mar 20, 2013

# Colorado SNOTEL Month-to-Date Precipitation

Percent of Average

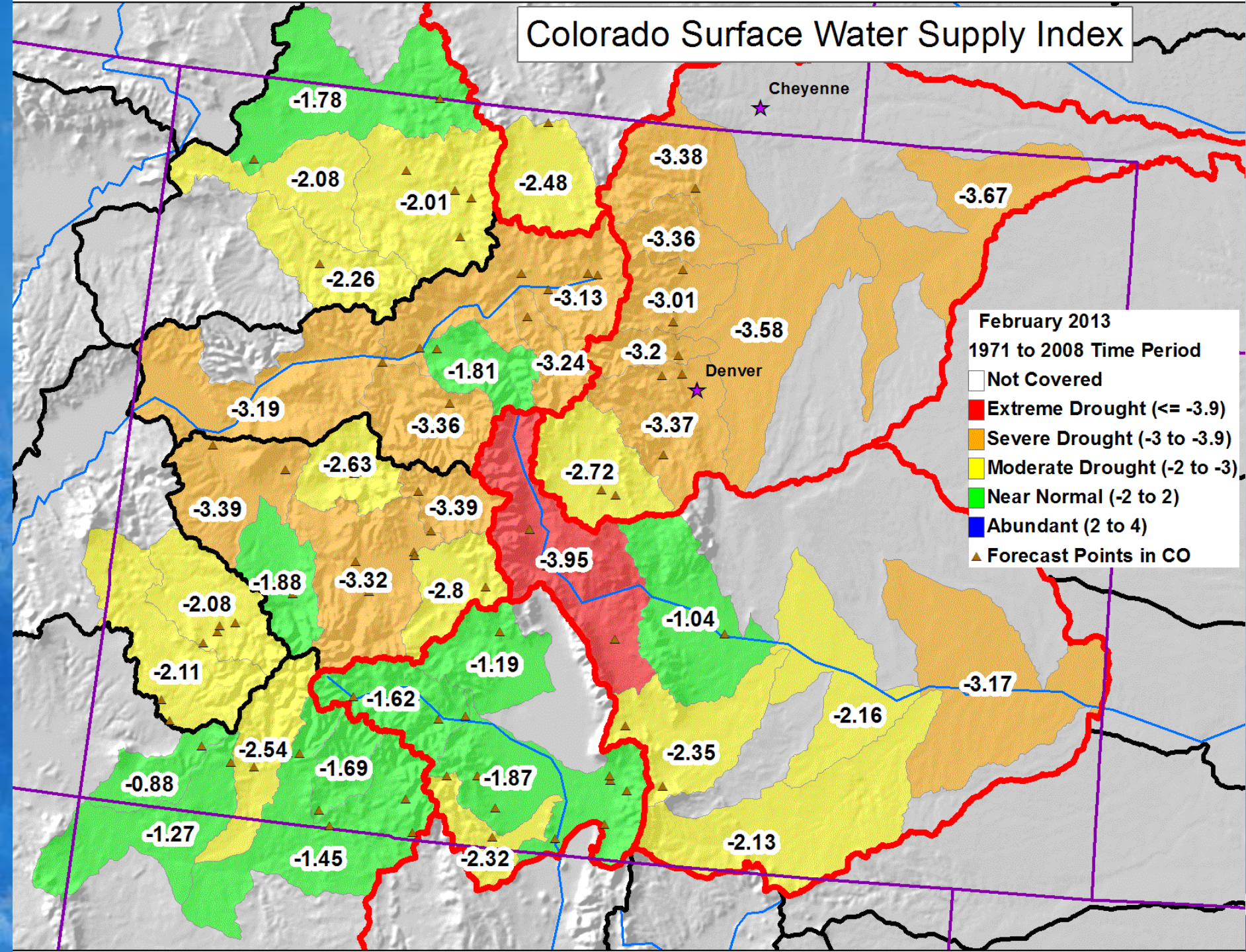
- Missing or Invalid Data
- < 50
- 50 - 69
- 70 - 89
- 90 - 109
- 110 - 129
- 130 - 149
- ≥ 150

*Provisional Data  
Subject to Revision*



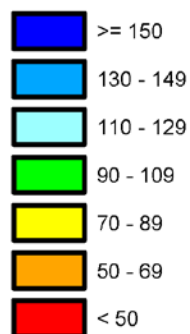
Current as of Mar 20, 2013

# Colorado Surface Water Supply Index

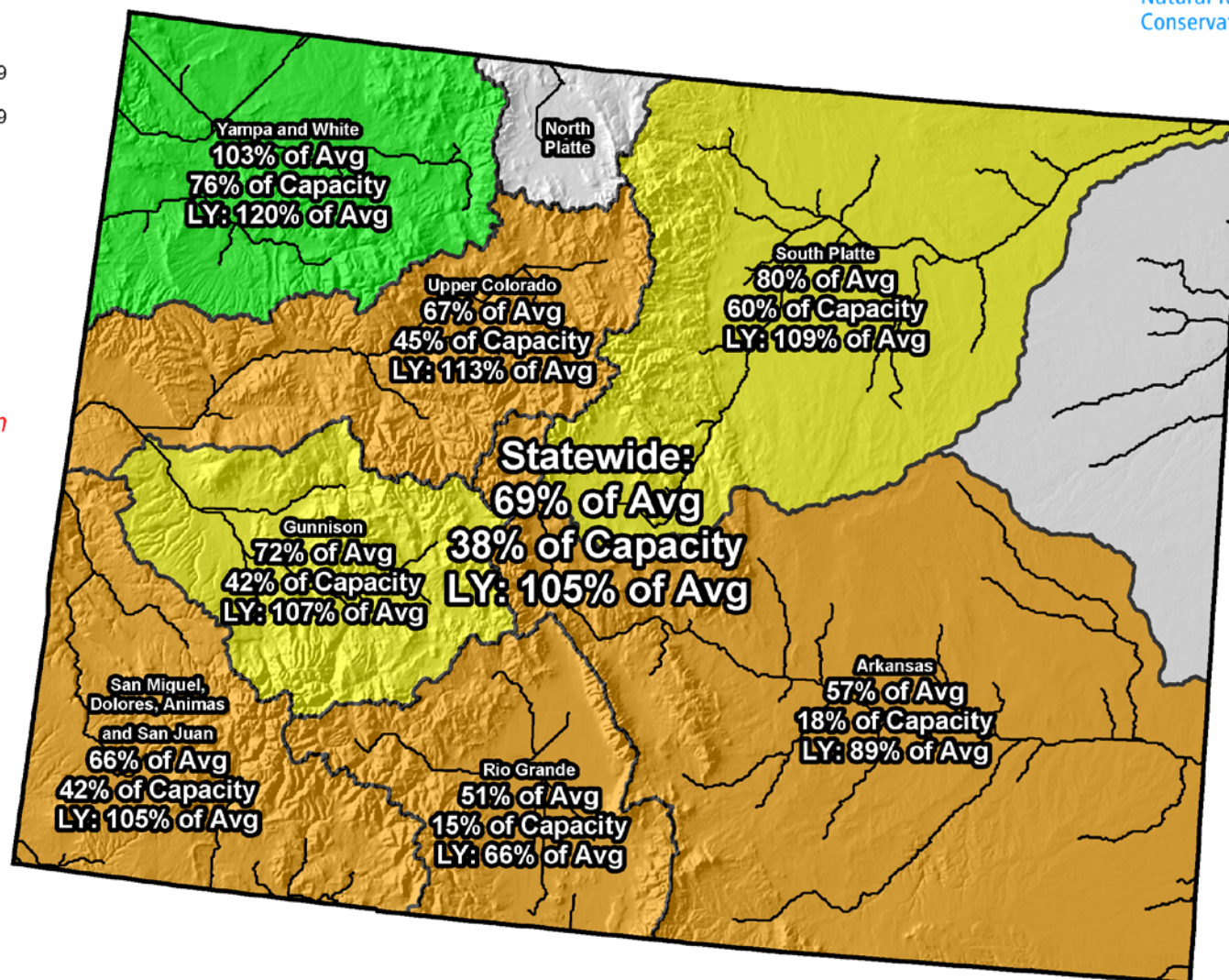


# Colorado Reservoir Storage Map

## Percent of Average



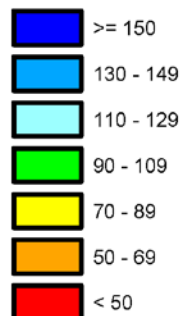
*Provisional Data  
Subject to Revision*



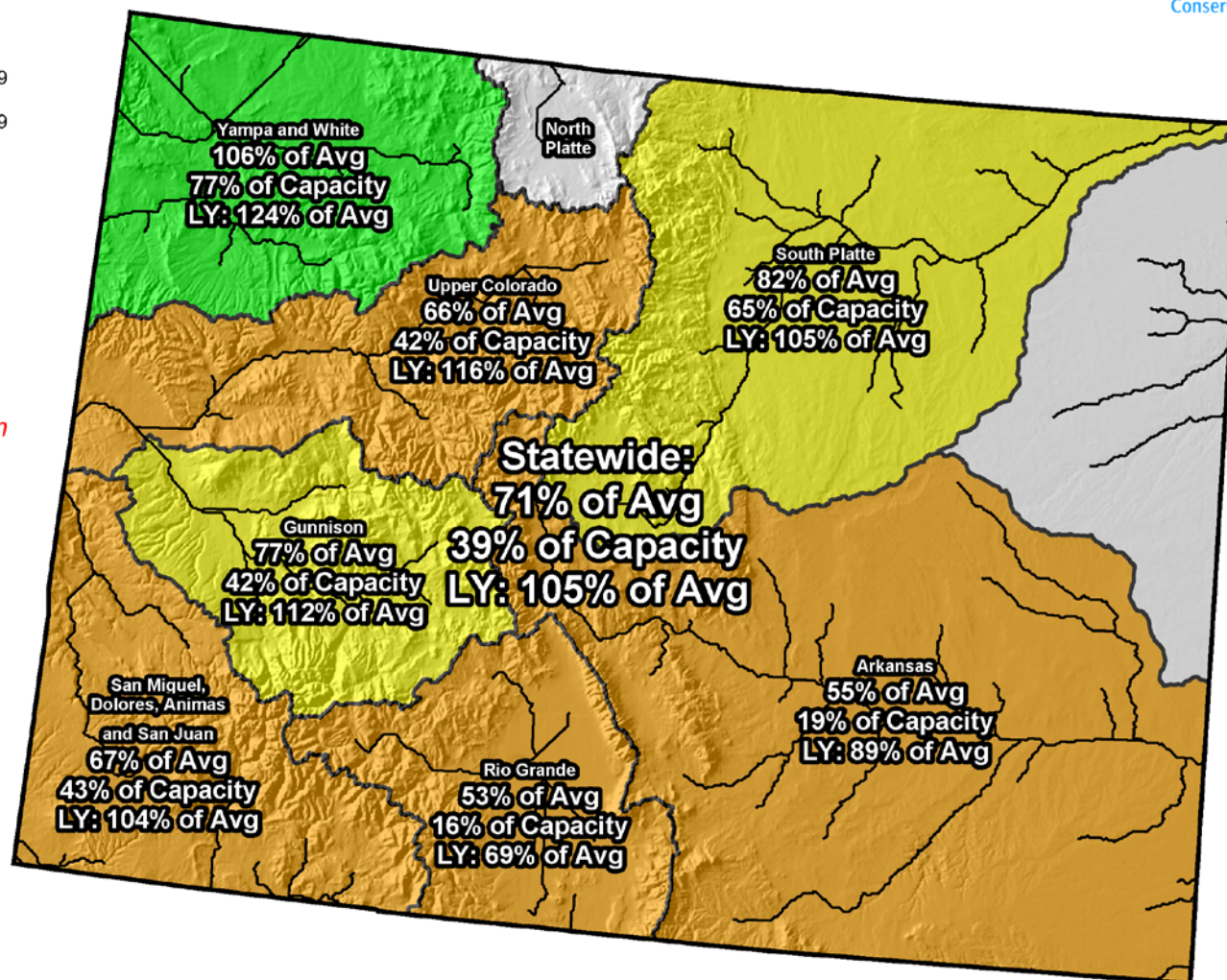
End of January 2013

# Colorado Reservoir Storage Map

## Percent of Average



*Provisional Data  
Subject to Revision*



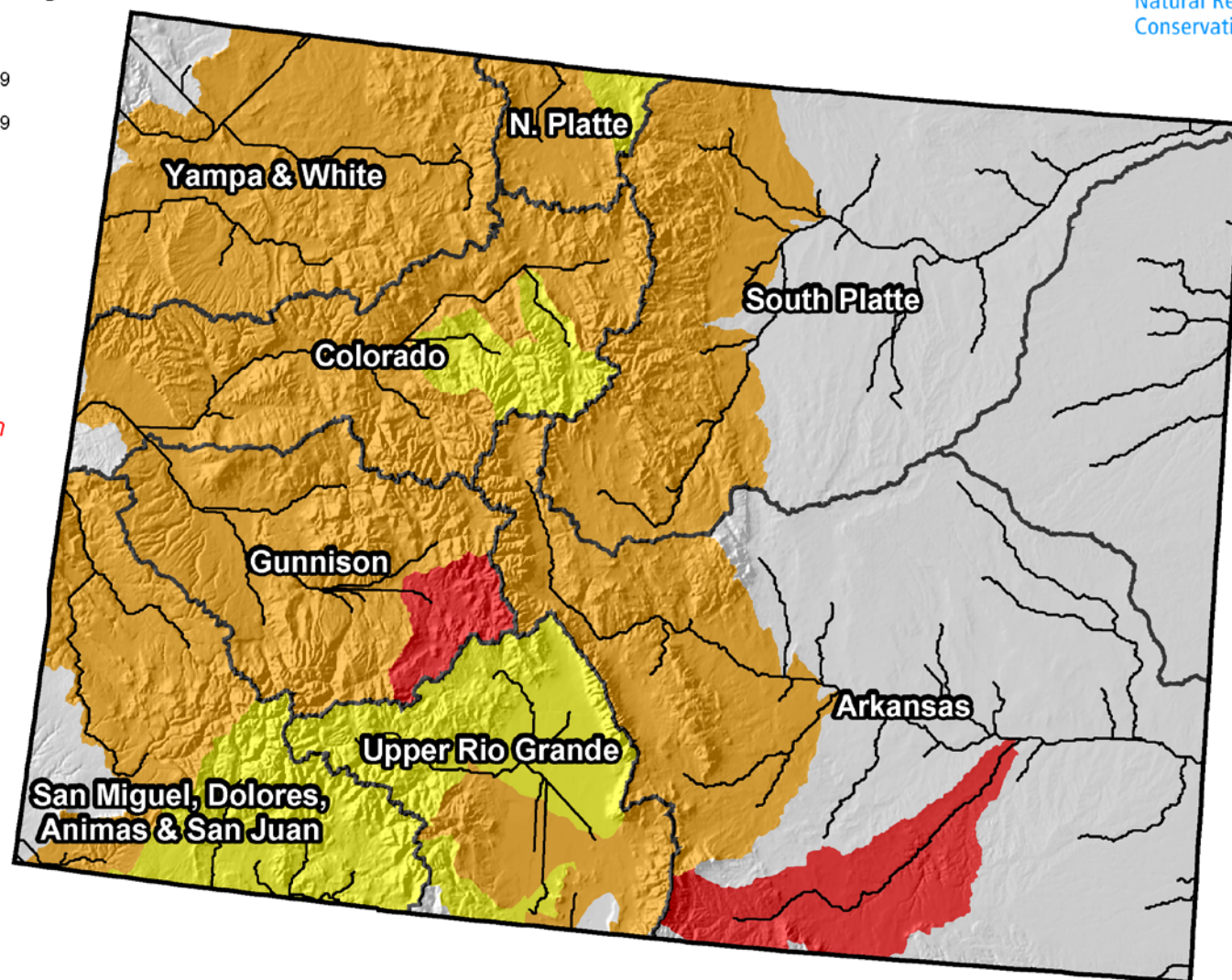
End of February 2013

# Colorado Streamflow Forecast Map

## Percent of Average



*Provisional Data  
Subject to Revision*



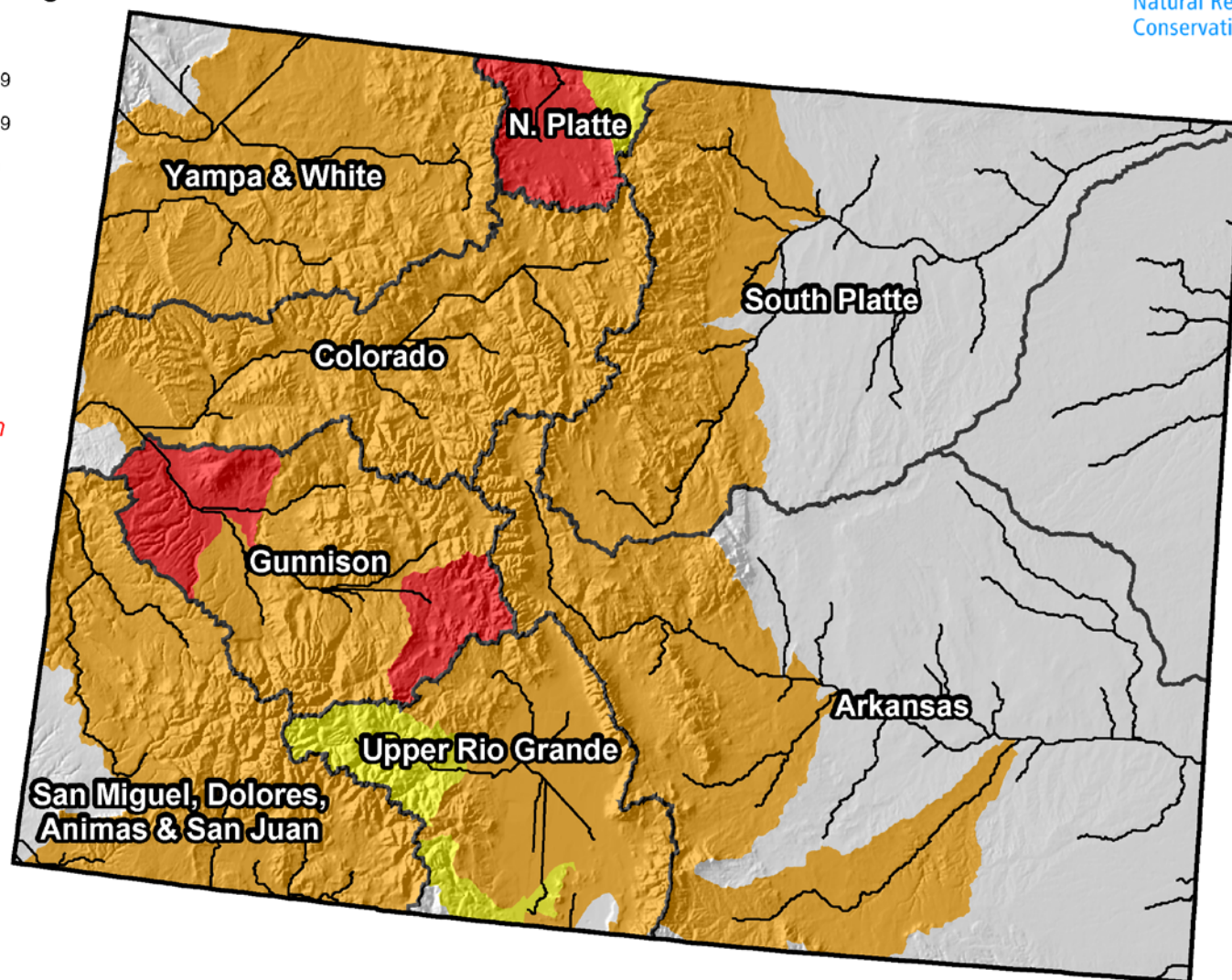
Current as of February 1, 2013

# Colorado Streamflow Forecast Map

## Percent of Average

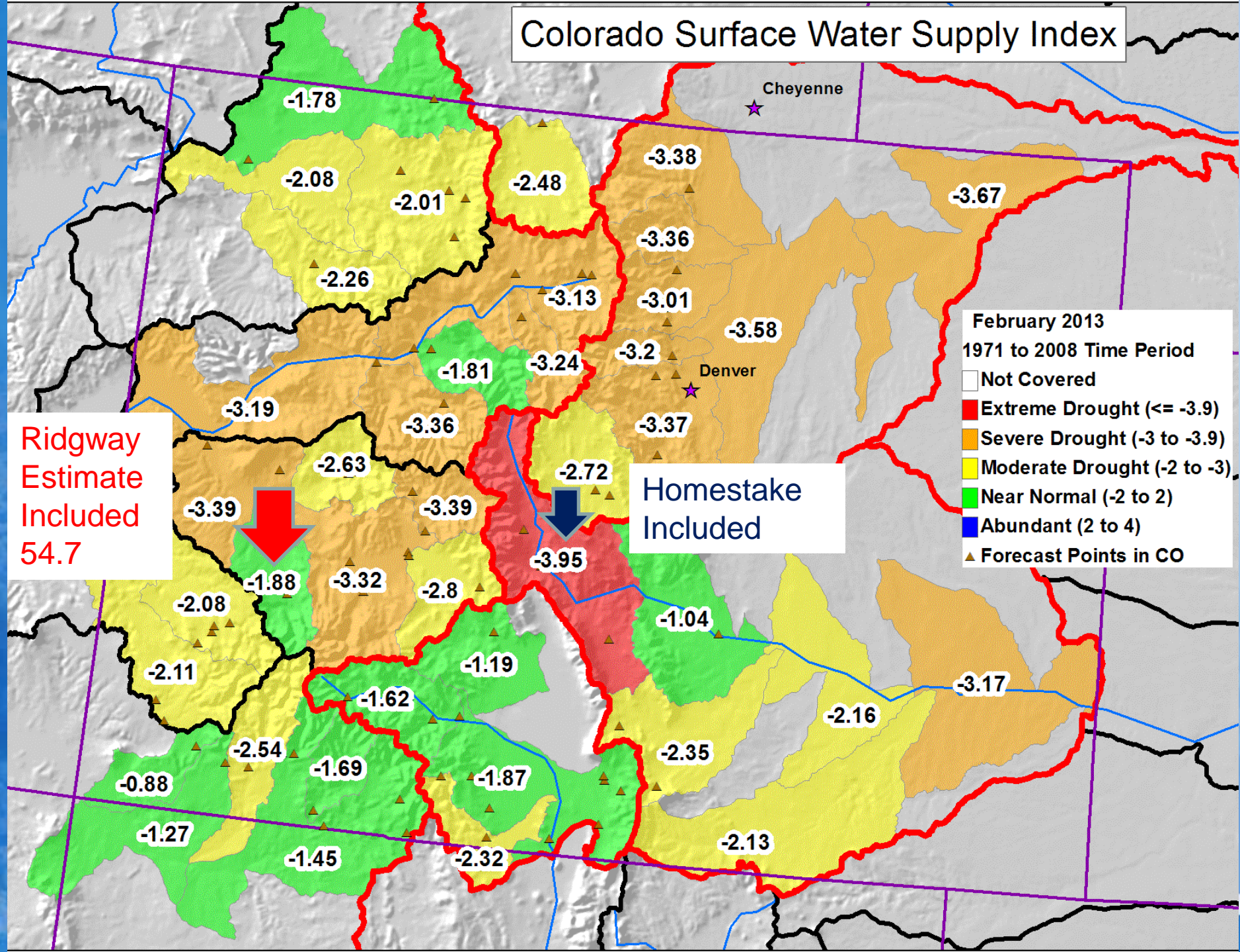


*Provisional Data  
Subject to Revision*

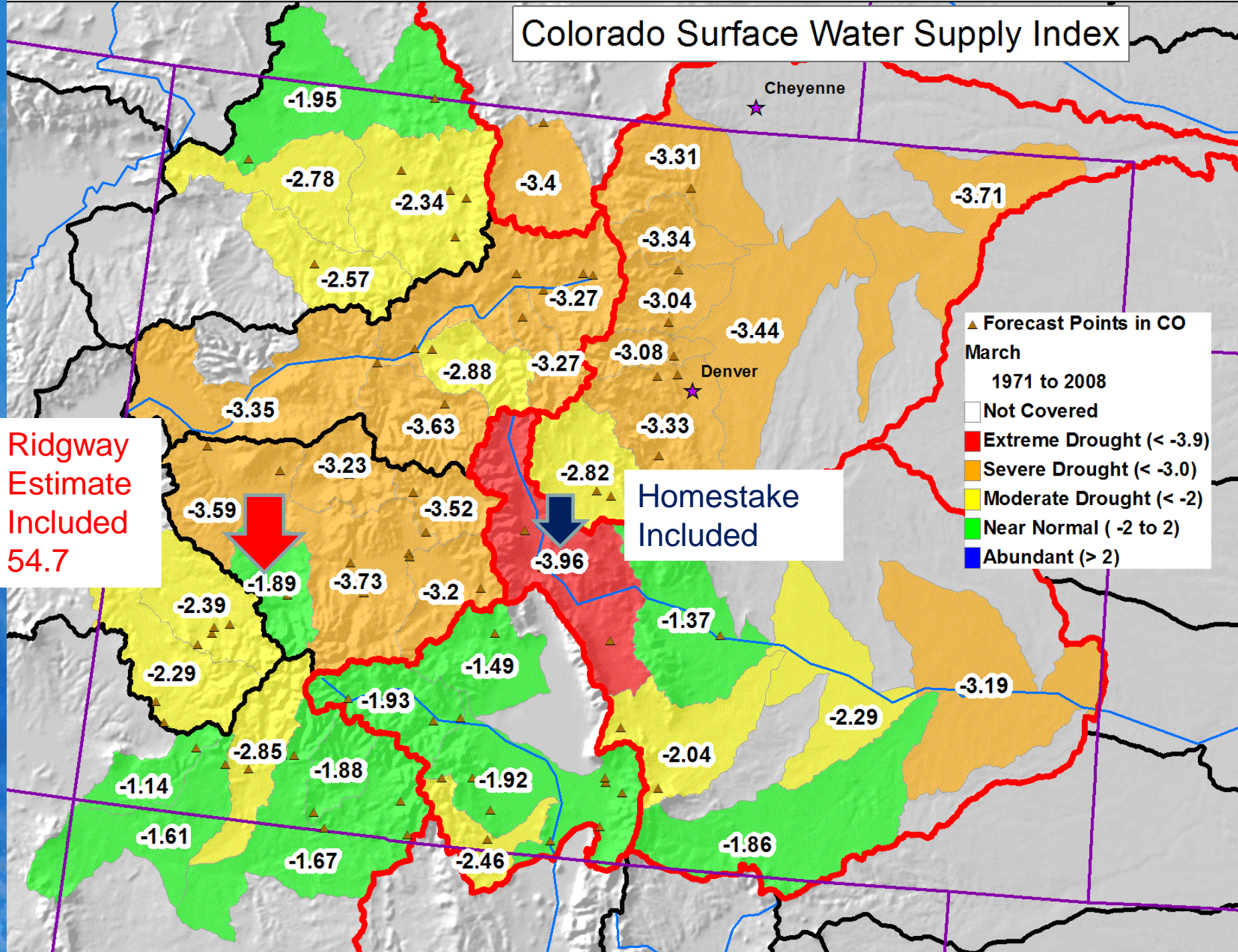


Current as of March 1, 2013

# Colorado Surface Water Supply Index



# Colorado Surface Water Supply Index



# Notes on the March SWSI

- SWSI inputs switch in January from reservoir storage and observed streamflow to reservoir storage and streamflow forecasts.
  - “More of a future component”
- Many of the HUC’s in the Near Normal category are negative and on the boundary of the next lower classification.
- The Arkansas Headwaters HUC that is negative 3.95 is reporting reservoir storage at the lowest end of the historical probability distribution (Homestake).
- March SWSI values have not changed much from February’s. Most HUC’s are more negative.

# WY2013 Summary

- OCT: Began WY with below normal mountain precipitation and SWE.
- NOV: Overall Nov ended up being drier, compared to normal, than Oct.
- DEC: SNOW! Finally. Storms in mid to late Dec boosted snowpack but it was not enough to reach normal conditions.
- JAN: Overall very little snow or prec. End of January storm increased snowpack mostly in the Southwest basins.
- FEB: Prec below average for the month in all basins. What snow we did receive was just enough to keep percentages from further declining.
- MAR: Storms have helped maintained snowpack but not boosted it. Below normal prec and swe so far...