

NRCS – Snow Survey & Water Supply Forecasting

Water Availability Task Force Meeting April 18th, 2013

Jim Marron

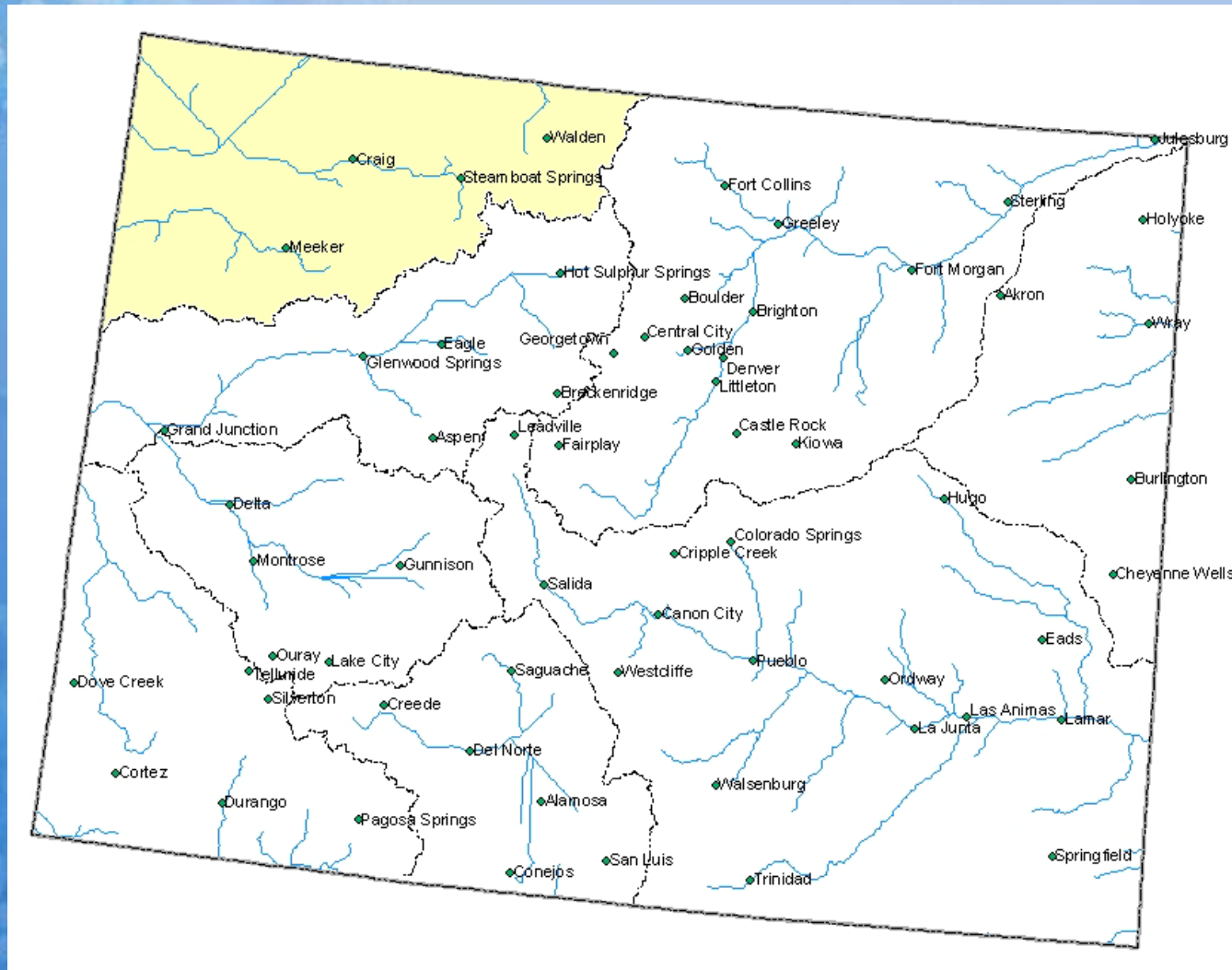
Soil Conservationist

503-414-3047

Jim.marron@usda.gov

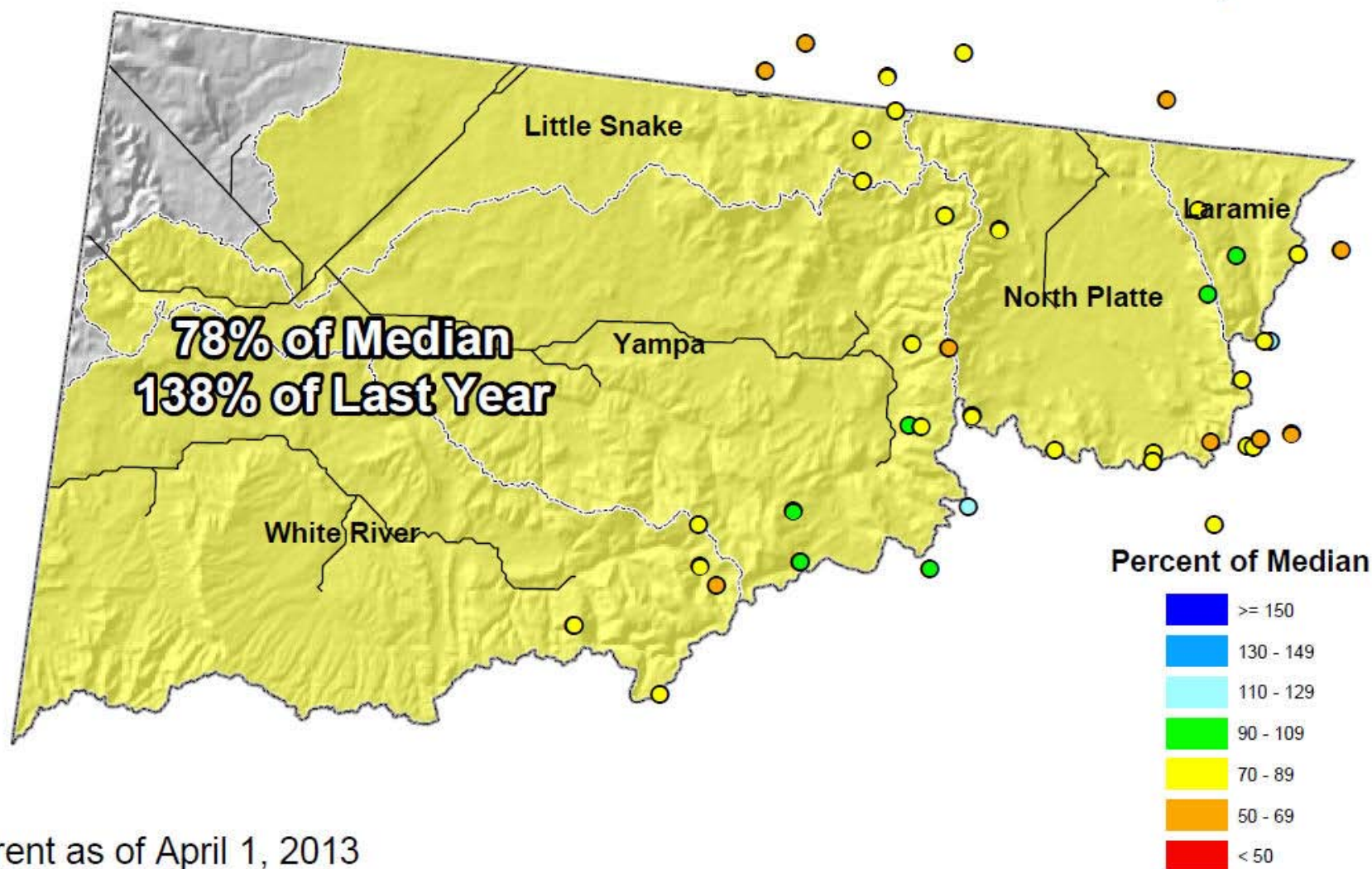
<http://www.co.nrcs.usda.gov/snow/>

Yampa, White & North Platte River Basins Summary



Yampa, White and North Platte River Basins Snowpack Map

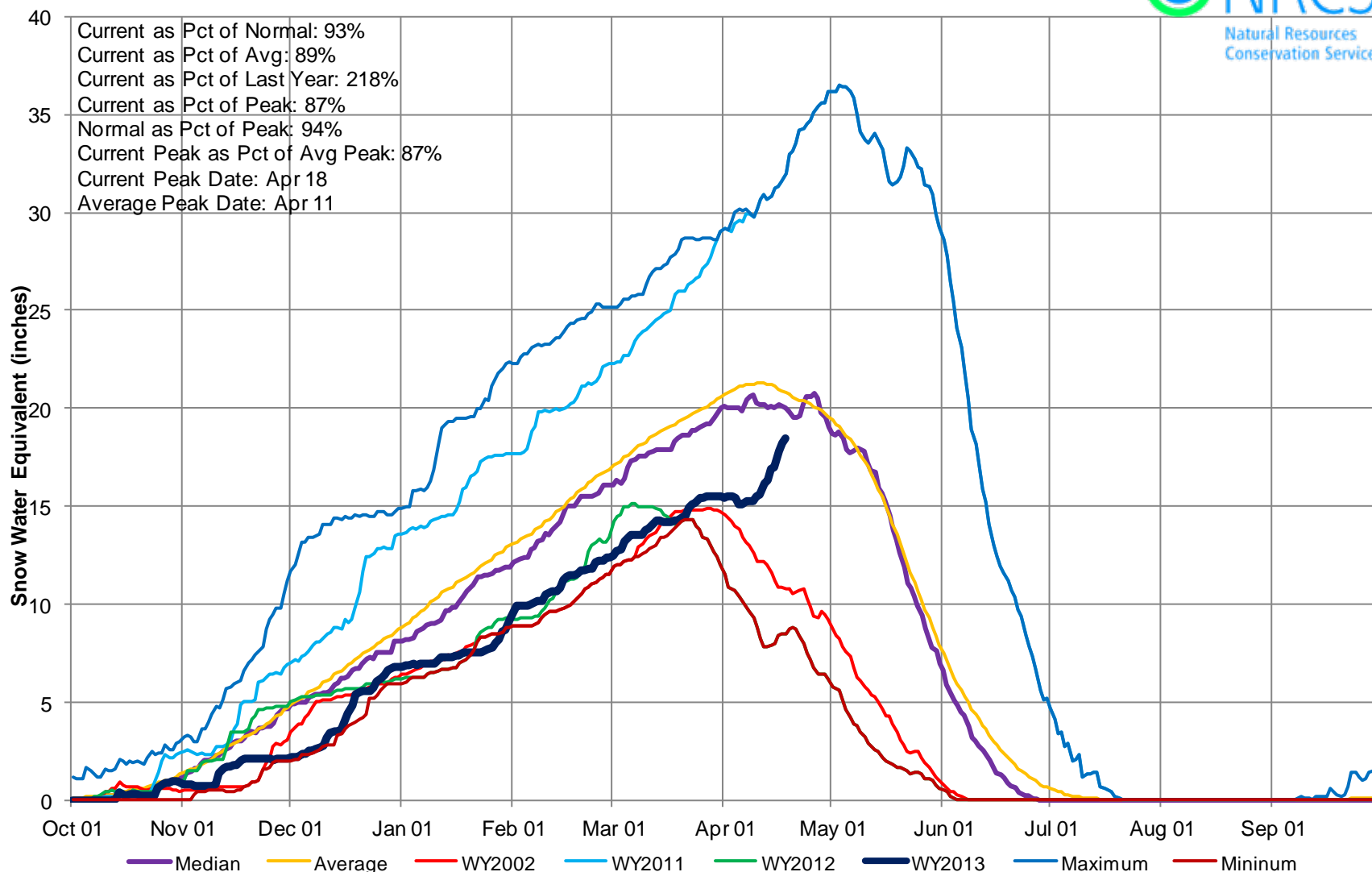
*Provisional Data
Subject to Revision*



Current as of April 1, 2013

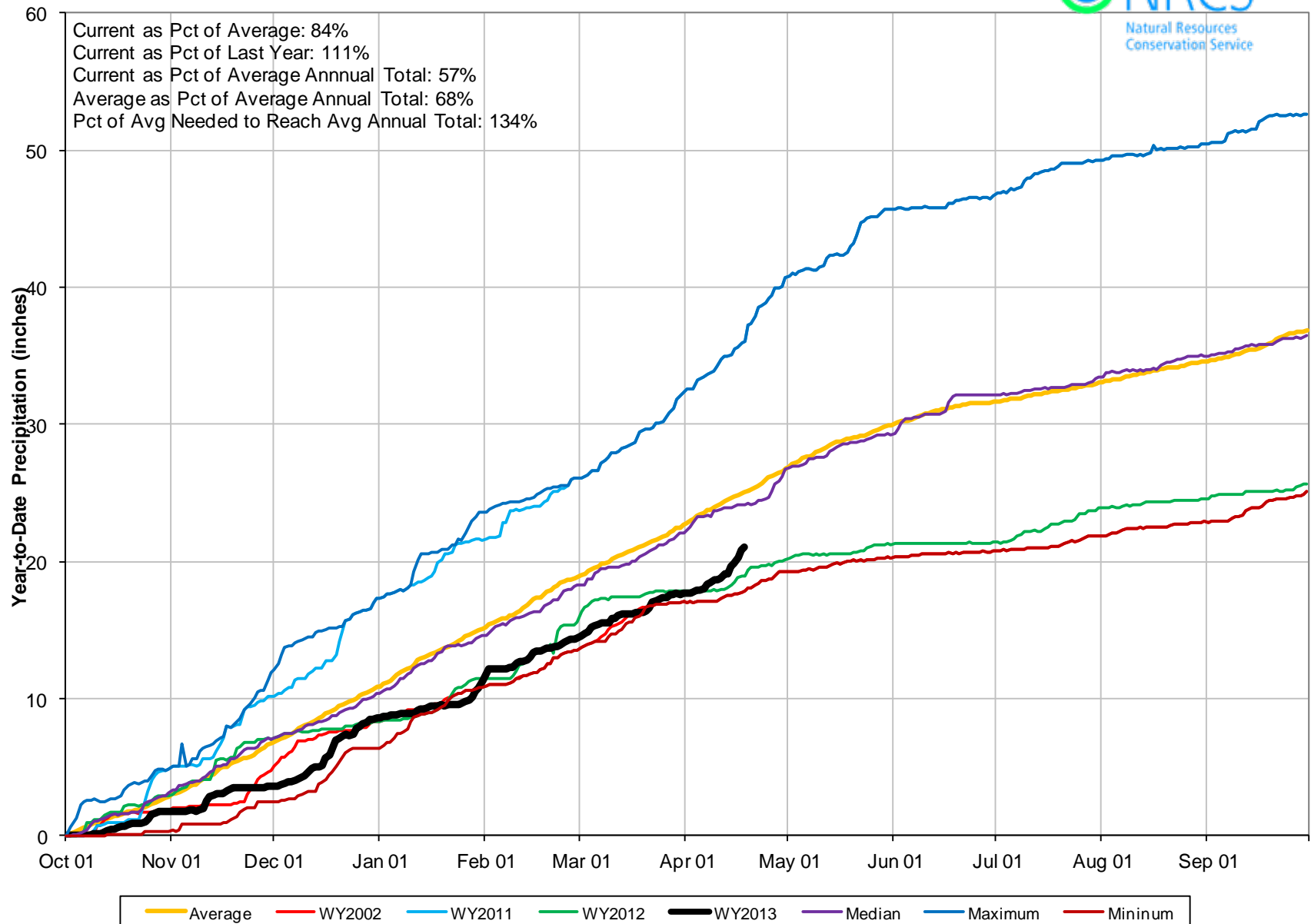
Yampa, White and North Platte River Basins High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



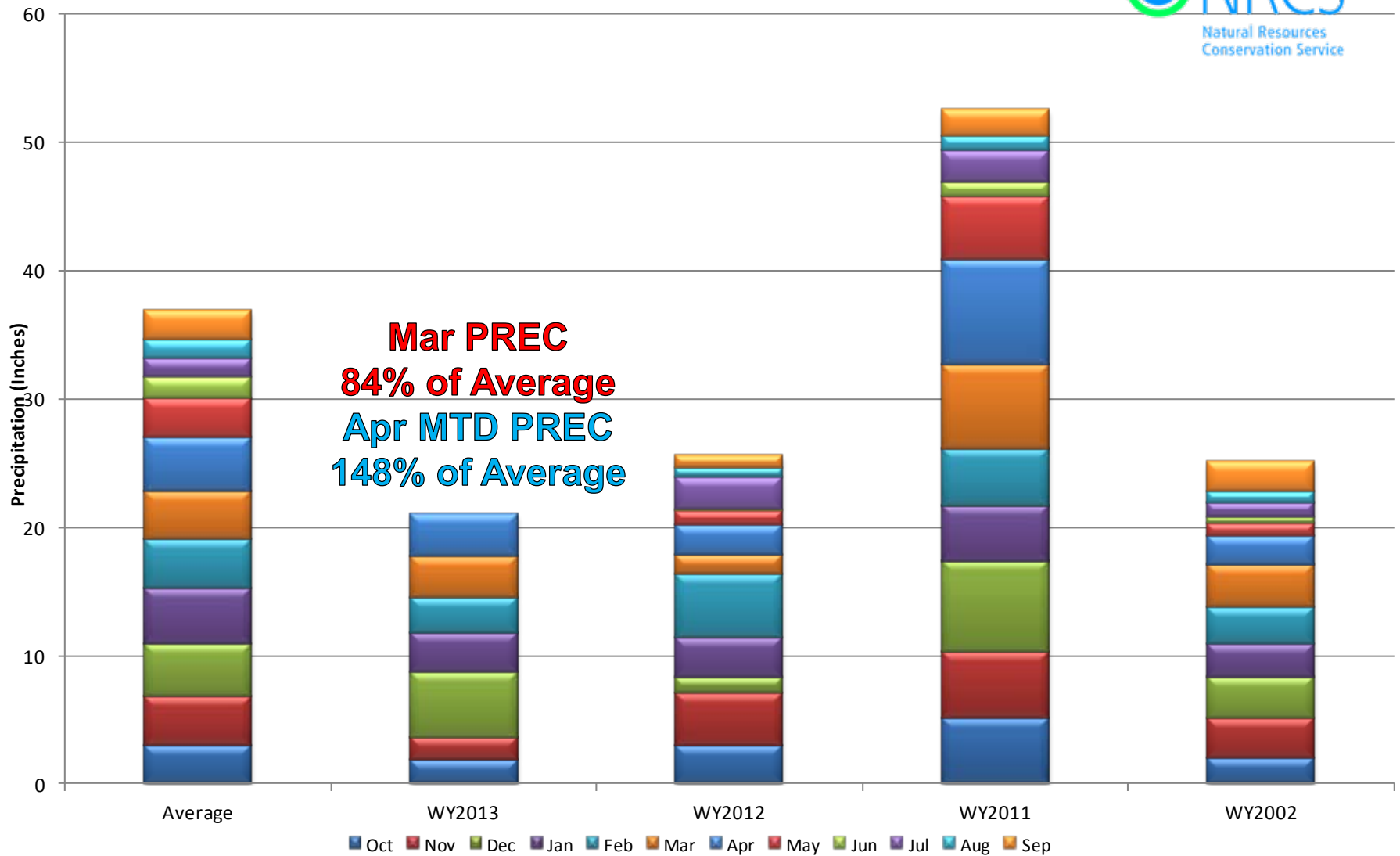
Yampa and White River Basins High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



Yampa and White River Basins High/Low Monthly Precipitation Summary

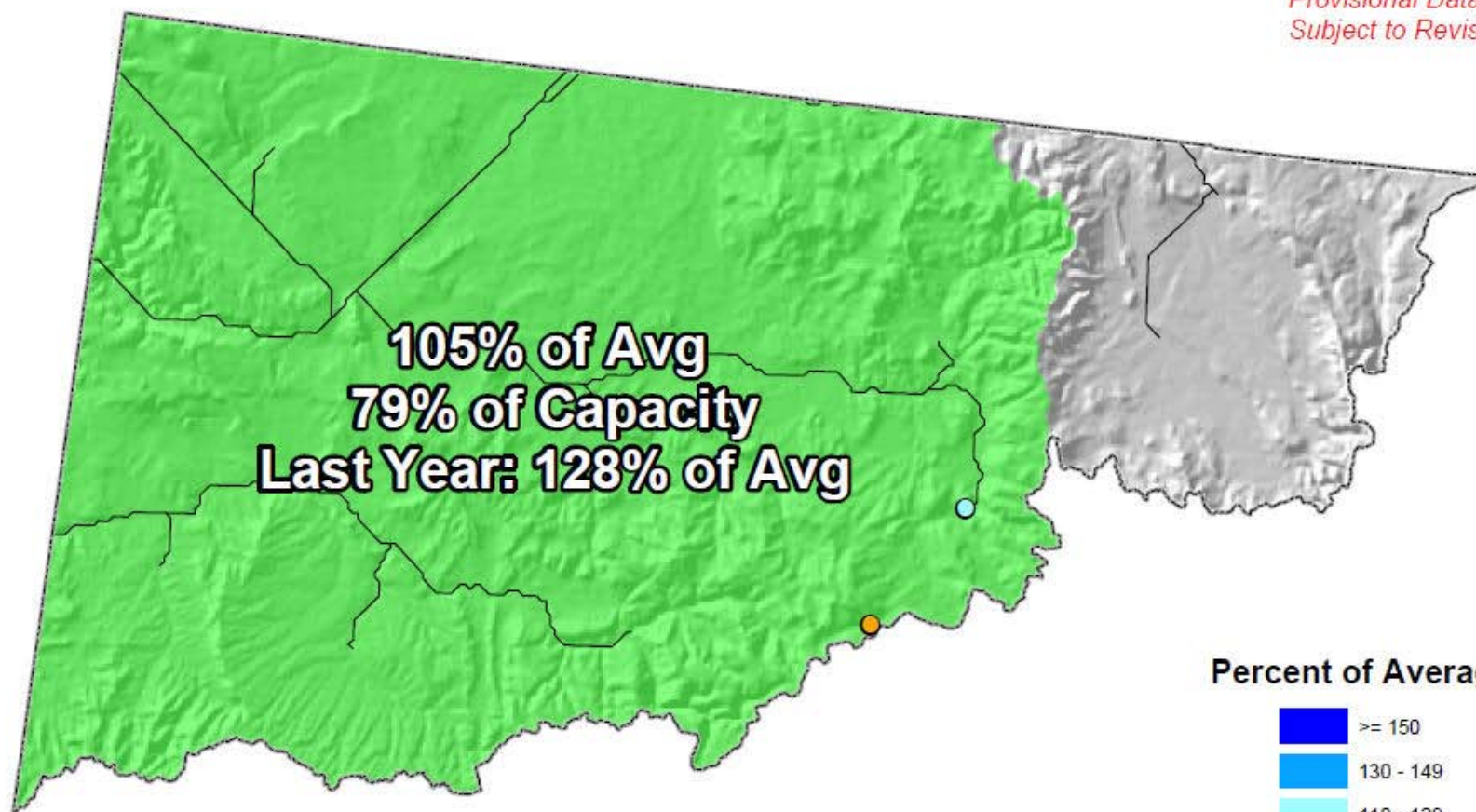
Based on Provisional SNOTEL data as of Apr 18, 2013



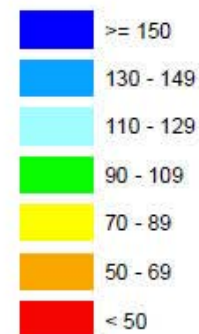
Yampa & White River Basins Reservoir Storage Map



*Provisional Data
Subject to Revision*



Percent of Average

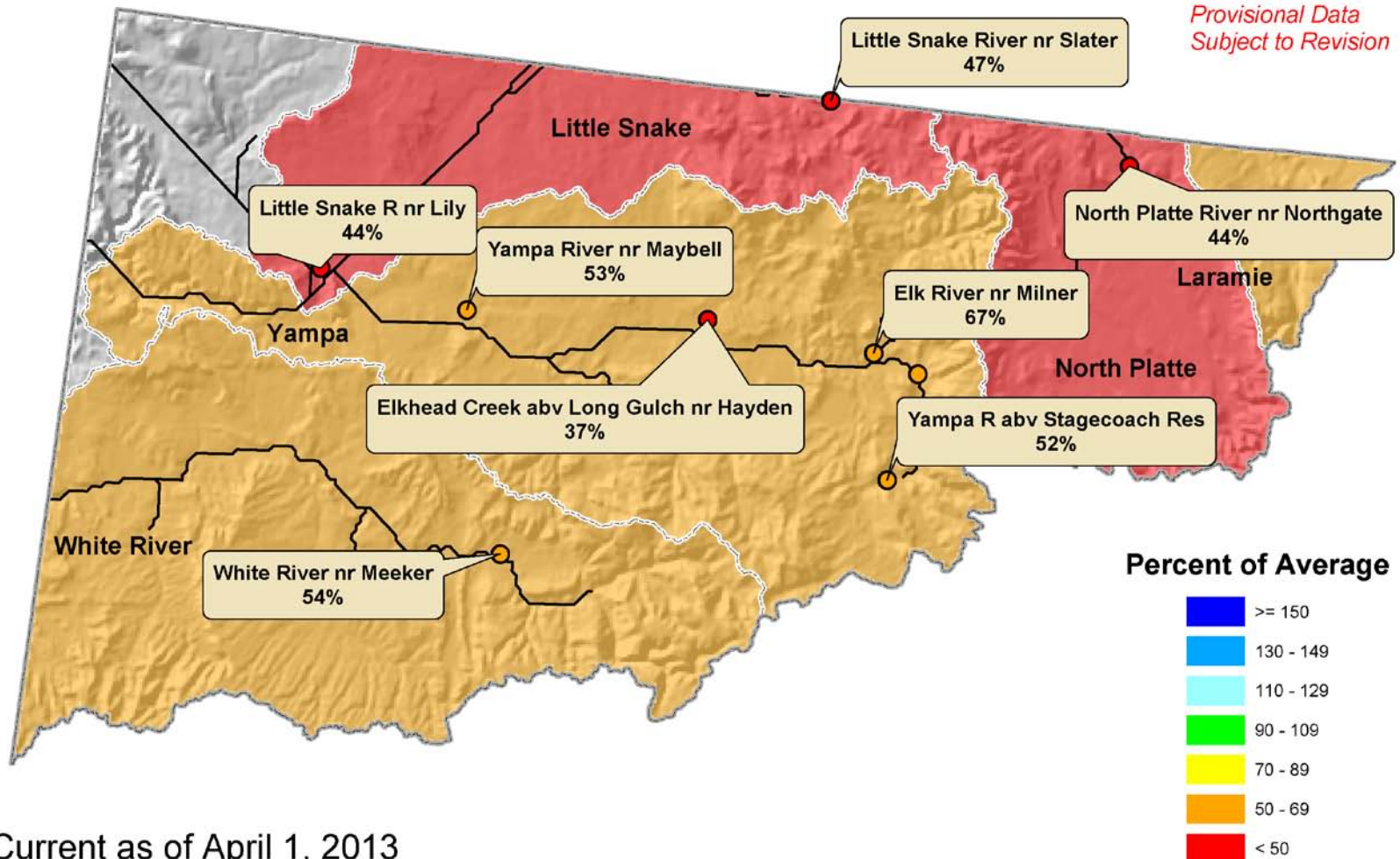


End of March 2013

Yampa, White and North Platte River Basins Streamflow Map

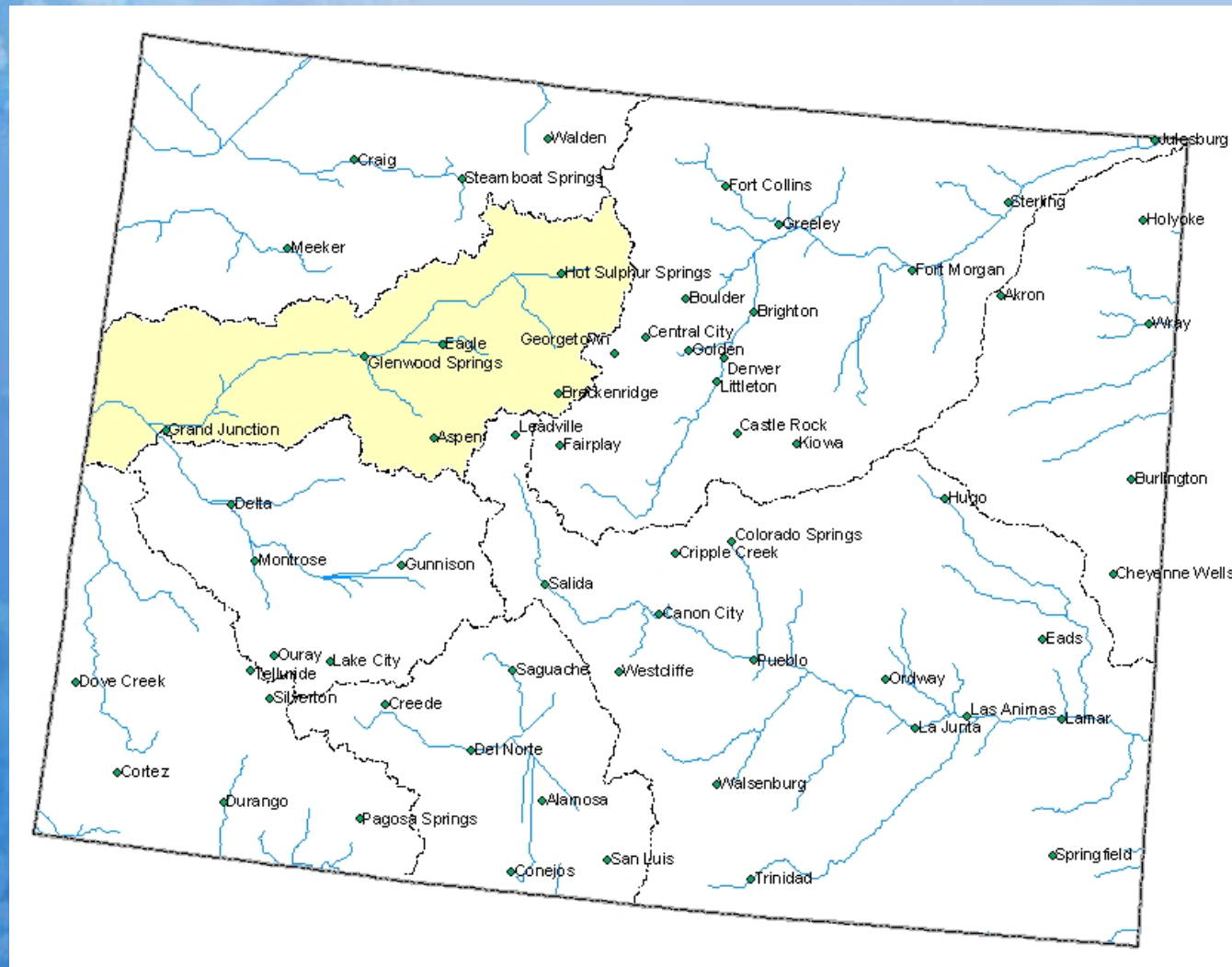


*Provisional Data
Subject to Revision*



Current as of April 1, 2013

Colorado River Basin Summary



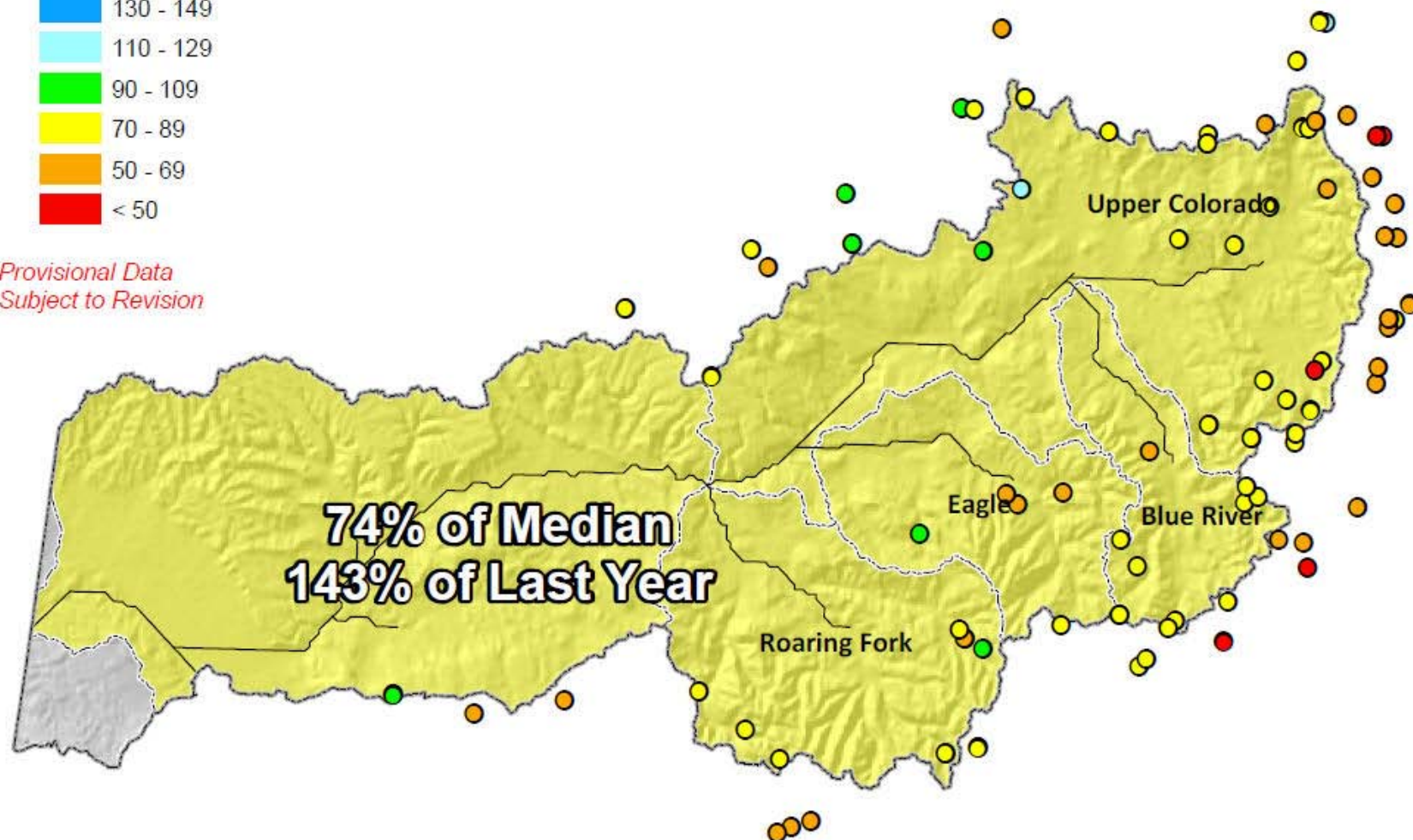
Colorado River Basin Snowpack Map



Percent of Median



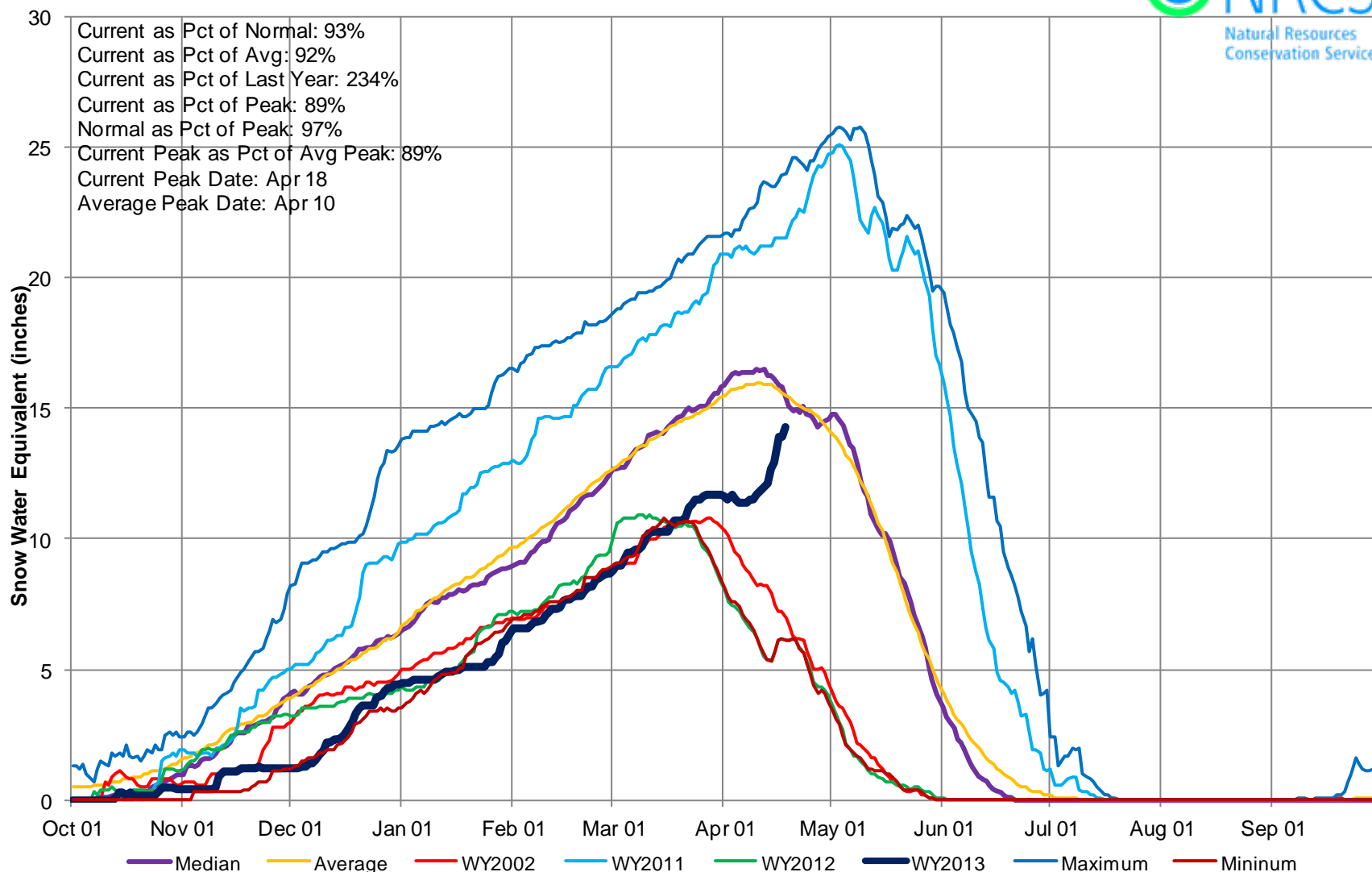
*Provisional Data
Subject to Revision*



Current as of April 1, 2013

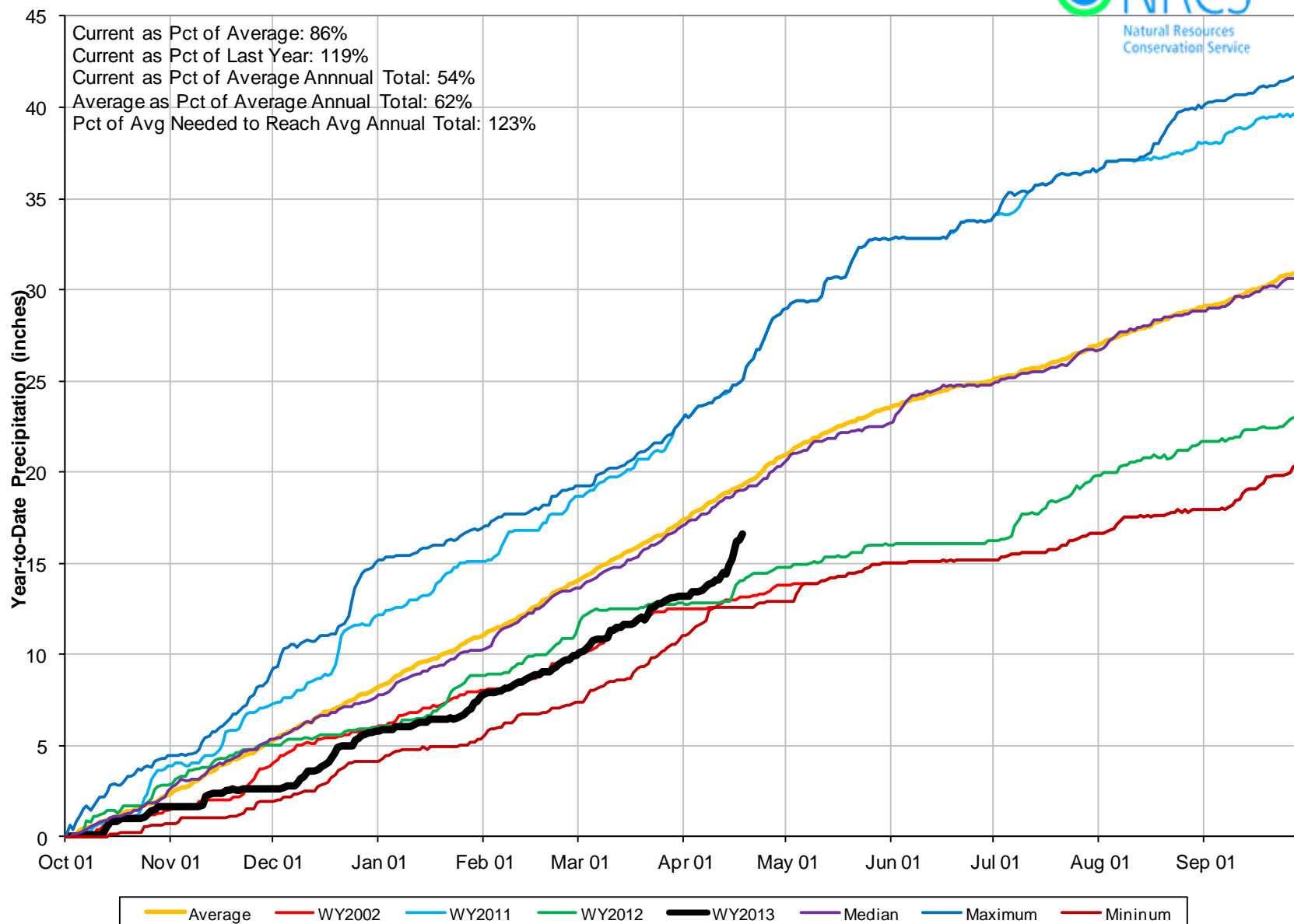
Upper Colorado River Basin High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



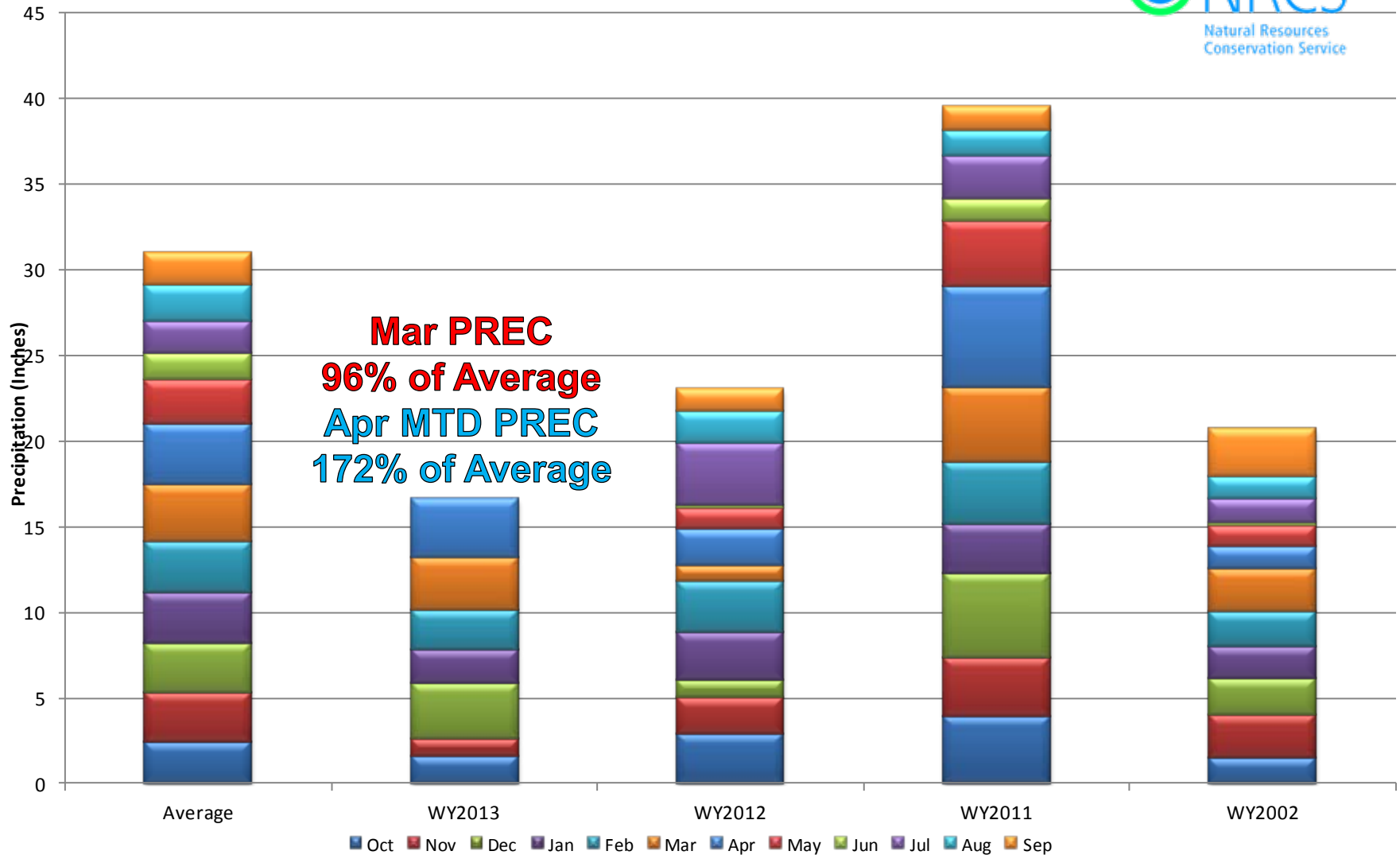
Upper Colorado River Basin High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



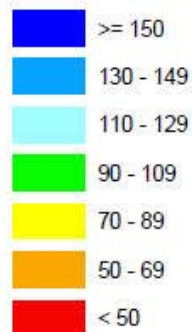
Upper Colorado River Basin High/Low Monthly Precipitation Summary

Based on Provisional SNOTEL data as of Apr 18, 2013

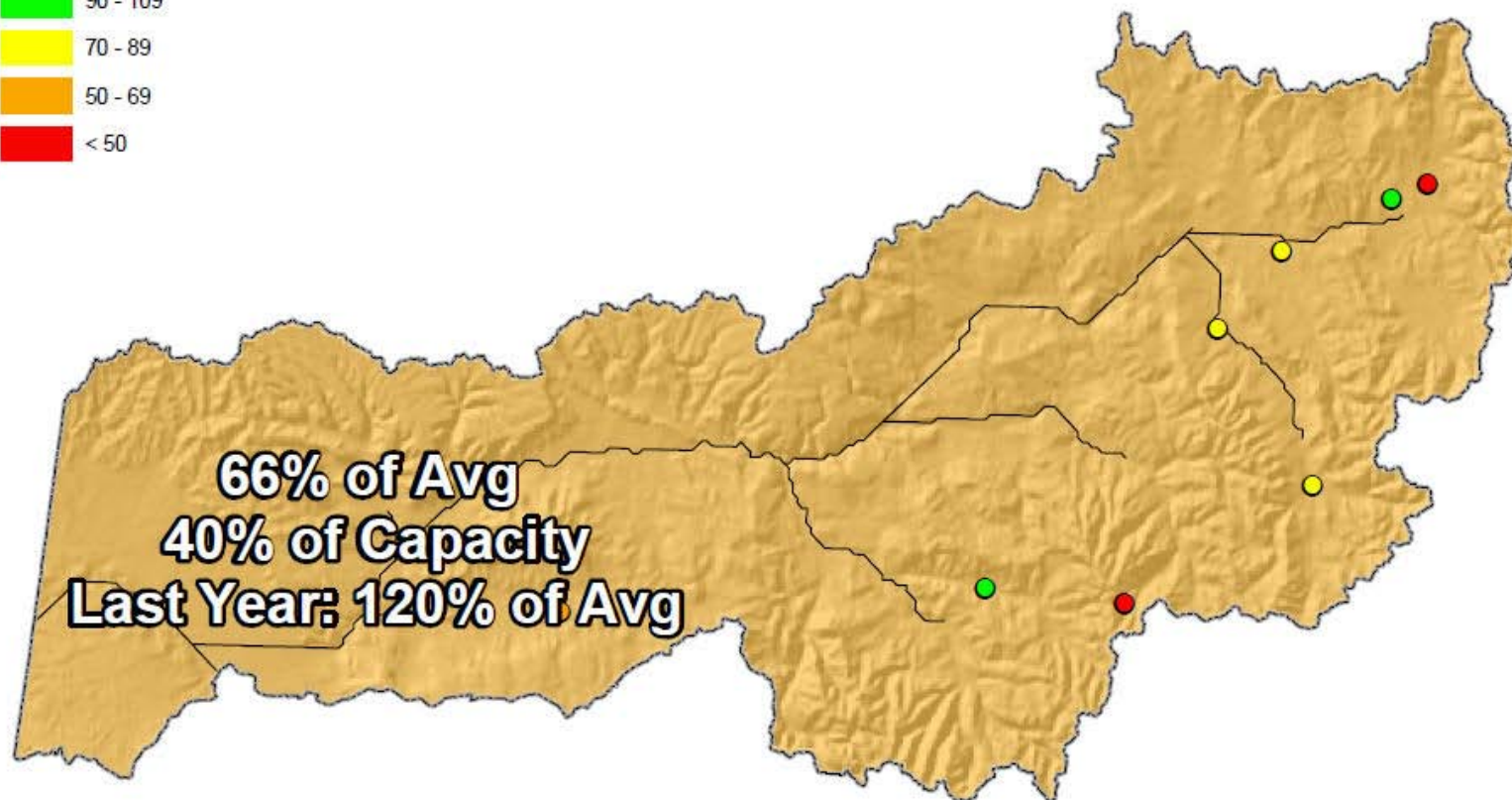


Colorado River Basin Reservoir Storage Map

Percent of Average



*Provisional Data
Subject to Revision*



End of March 2013

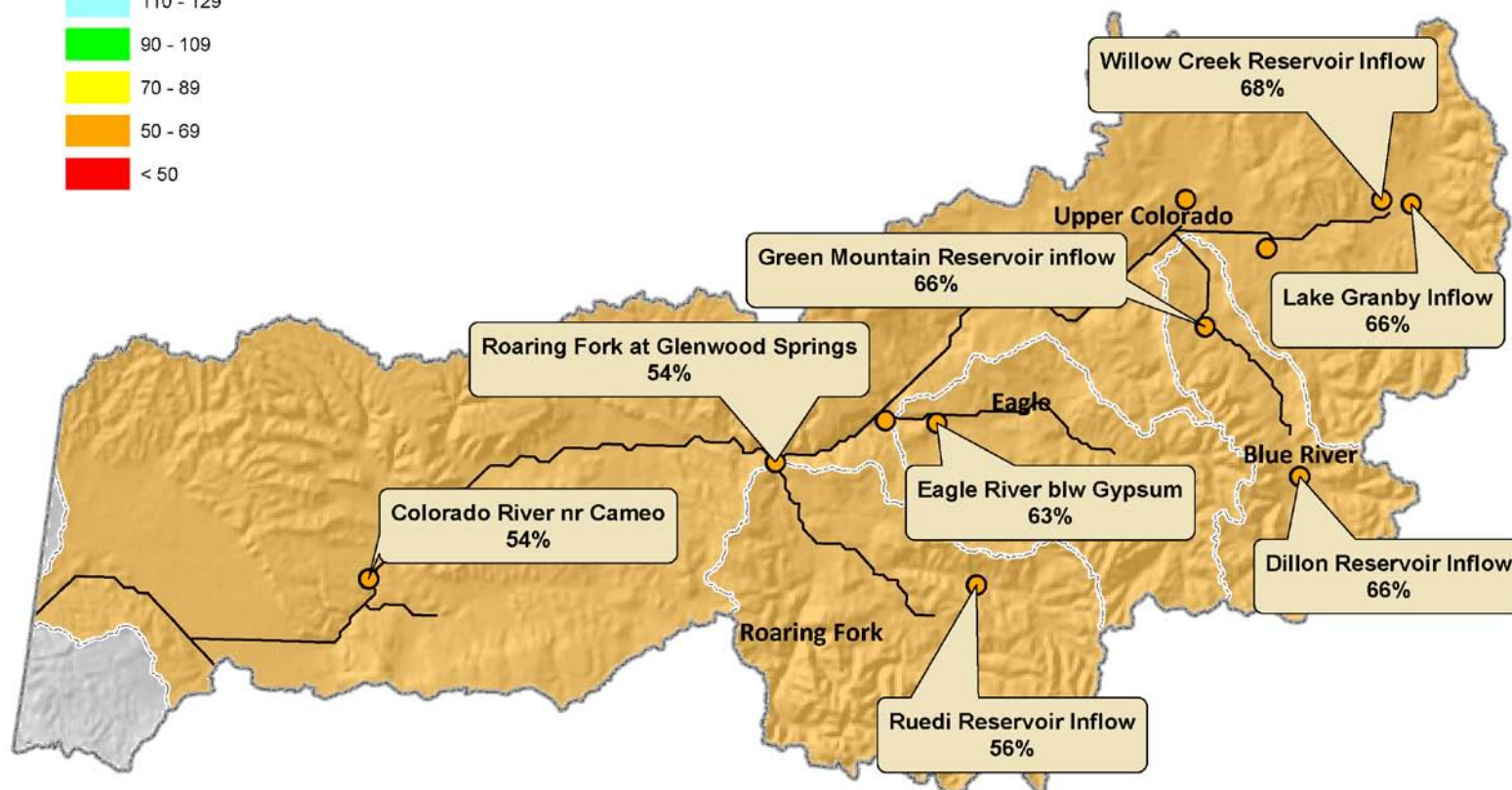
Colorado River Basin Streamflow Forecast Map



Natural Resources
Conservation Service

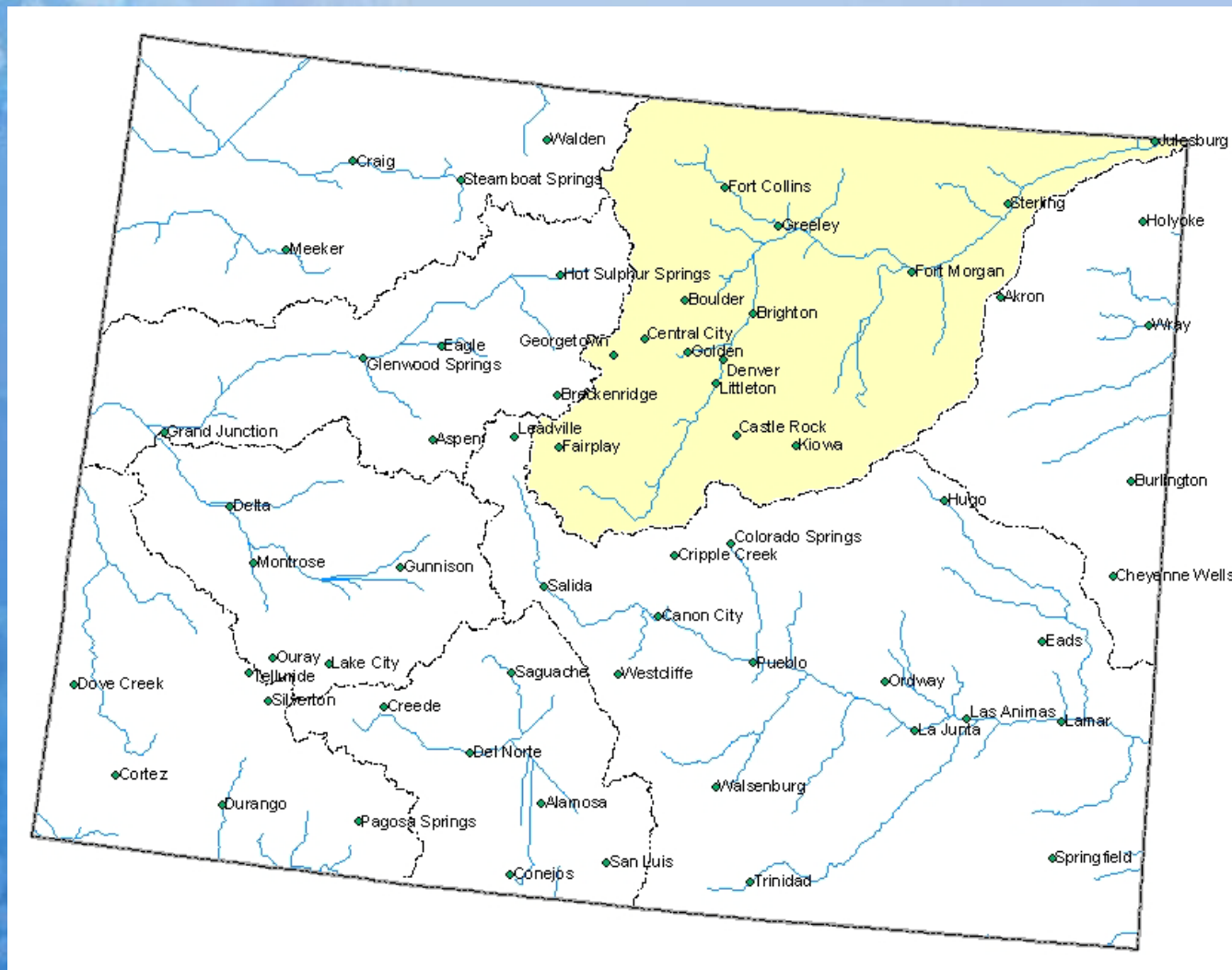
*Provisional Data
Subject to Revision*

Percent of Average



Current as of April 1, 2013

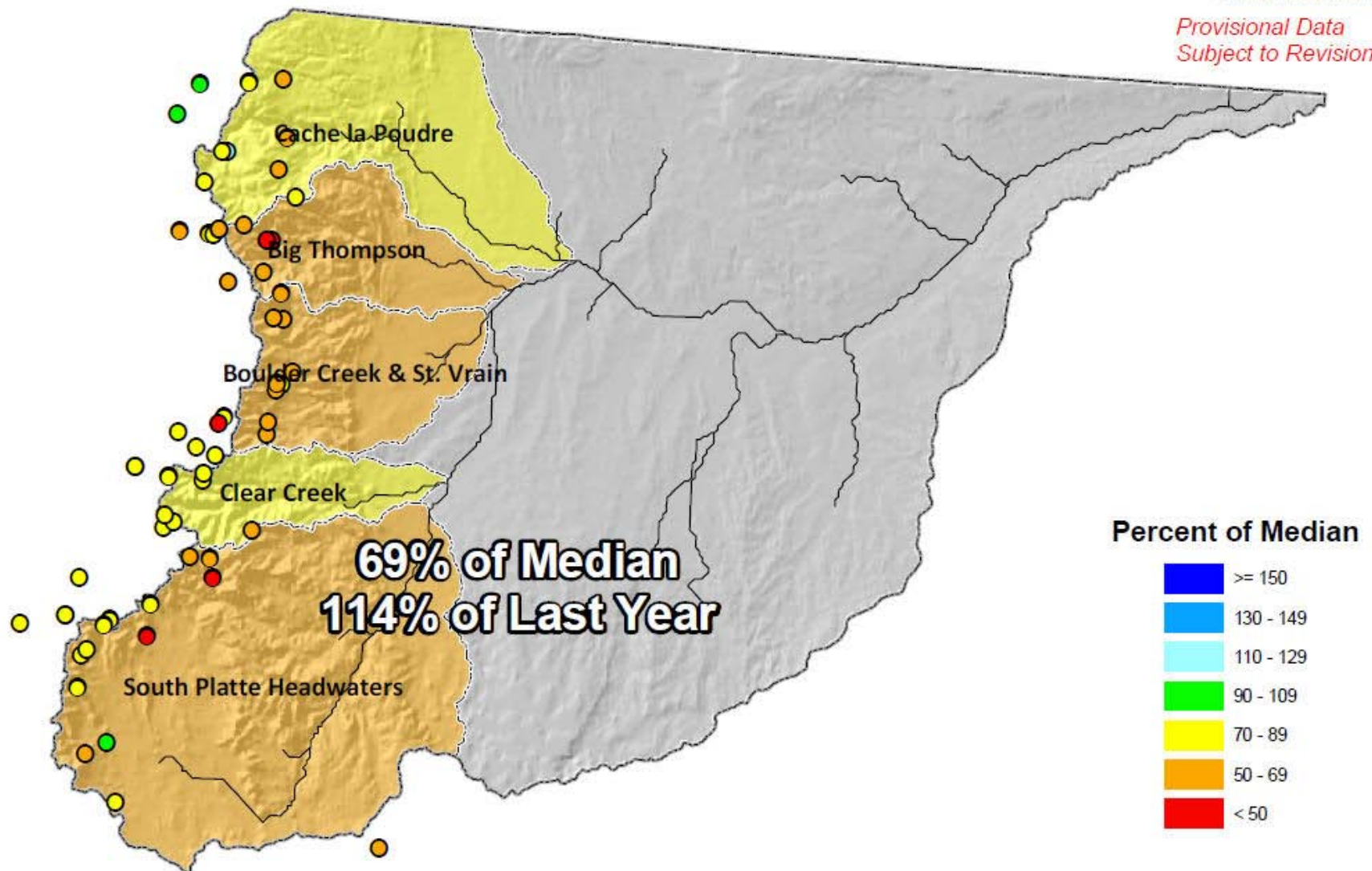
South Platte River Basin Summary



South Platte River Basin Snowpack Map



*Provisional Data
Subject to Revision*



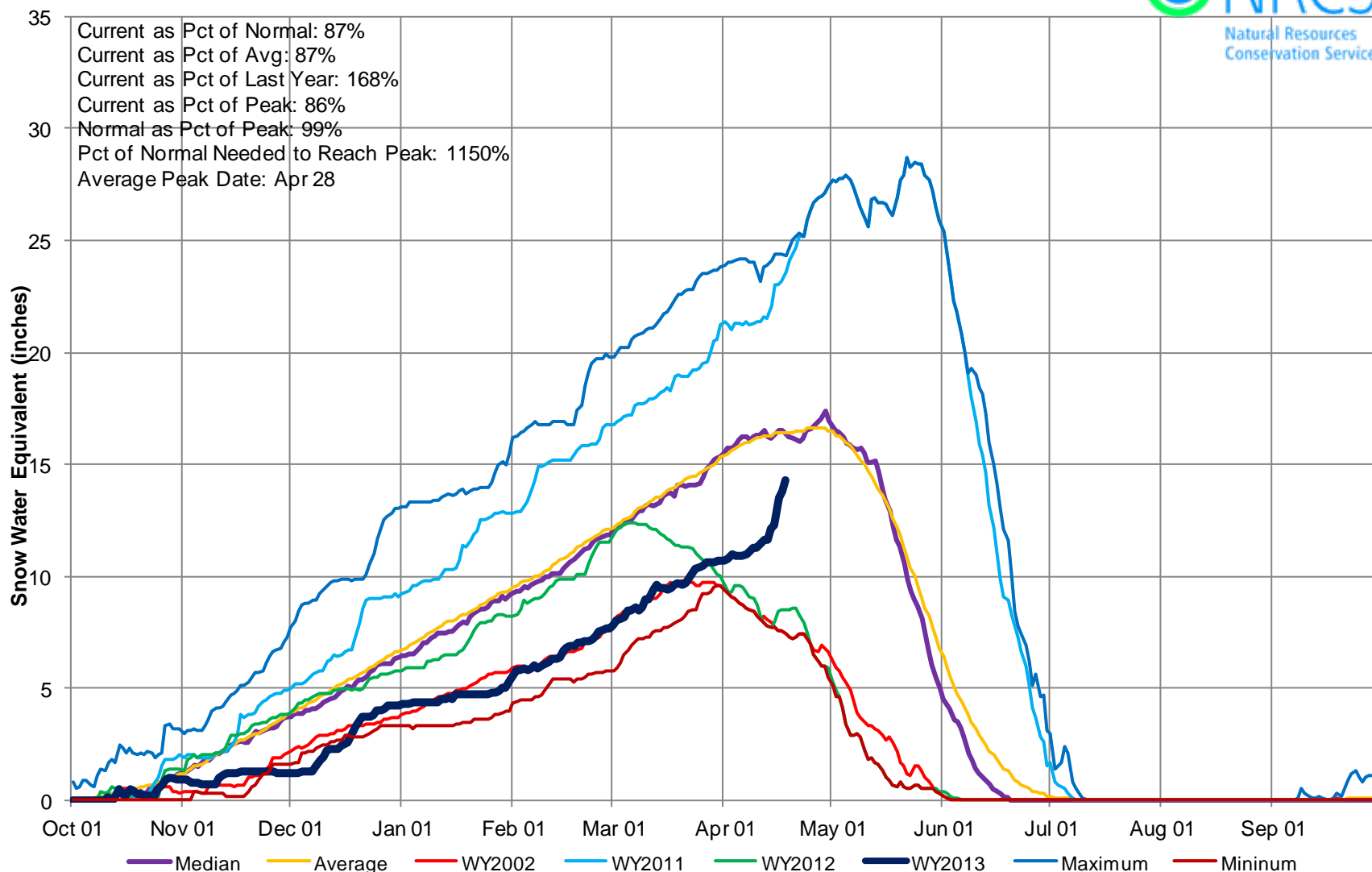
Percent of Median



Current as of April 1, 2013

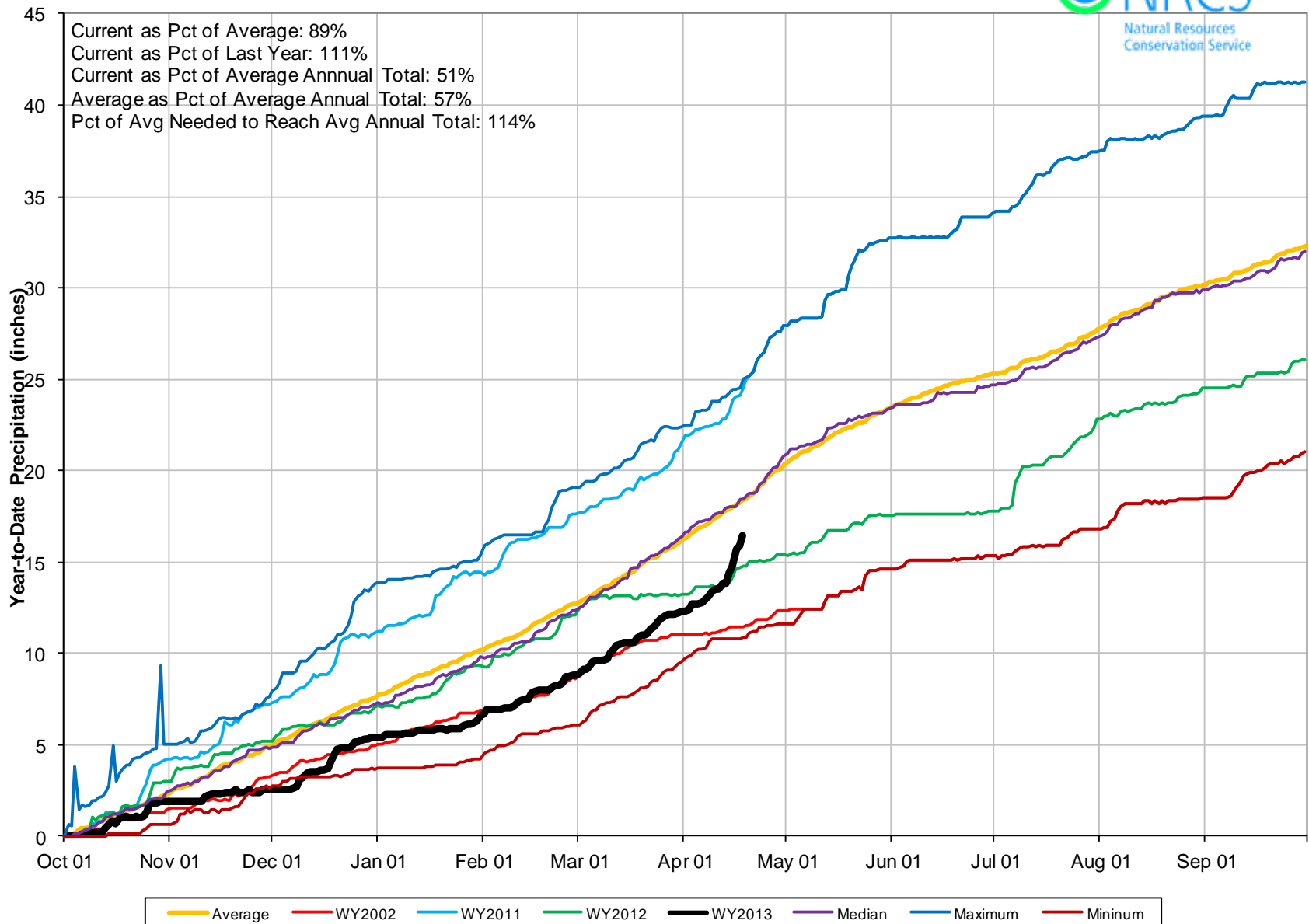
South Platte River Basin High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



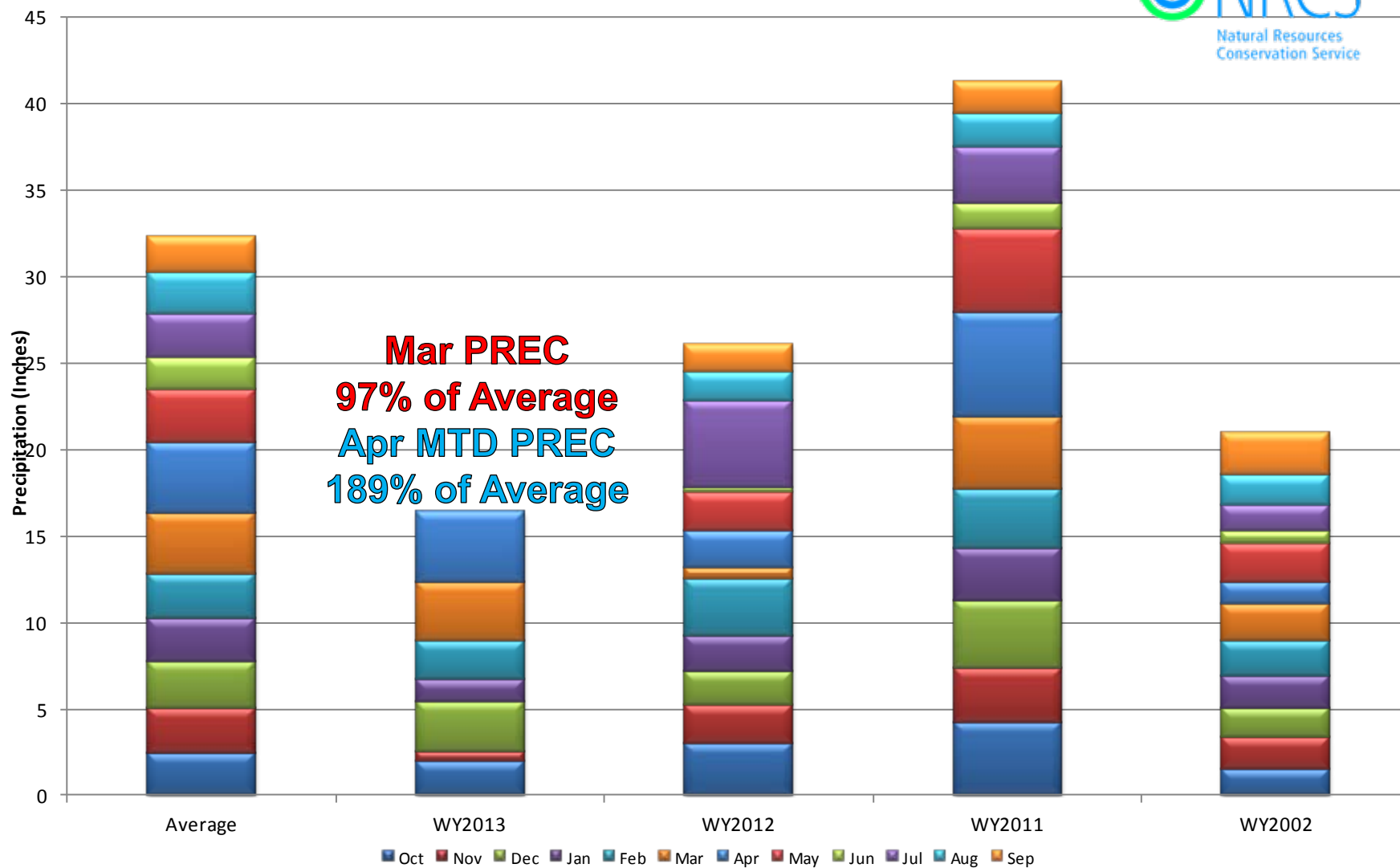
South Platte River Basin High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



South Platte River Basin High/Low Monthly Precipitation Summary

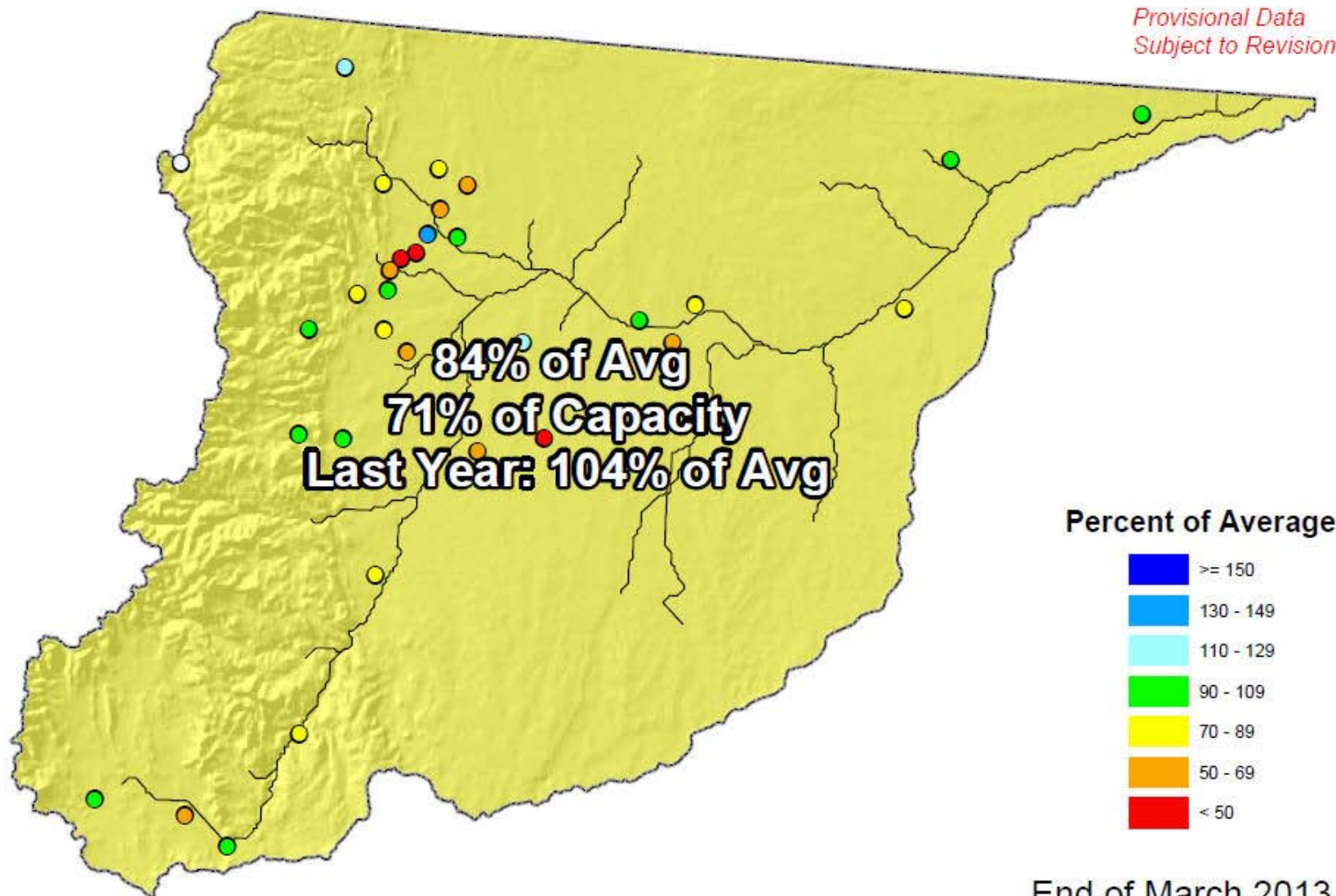
Based on Provisional SNOTEL data as of Apr 18, 2013



South Platte River Basin Reservoir Storage Map



*Provisional Data
Subject to Revision*

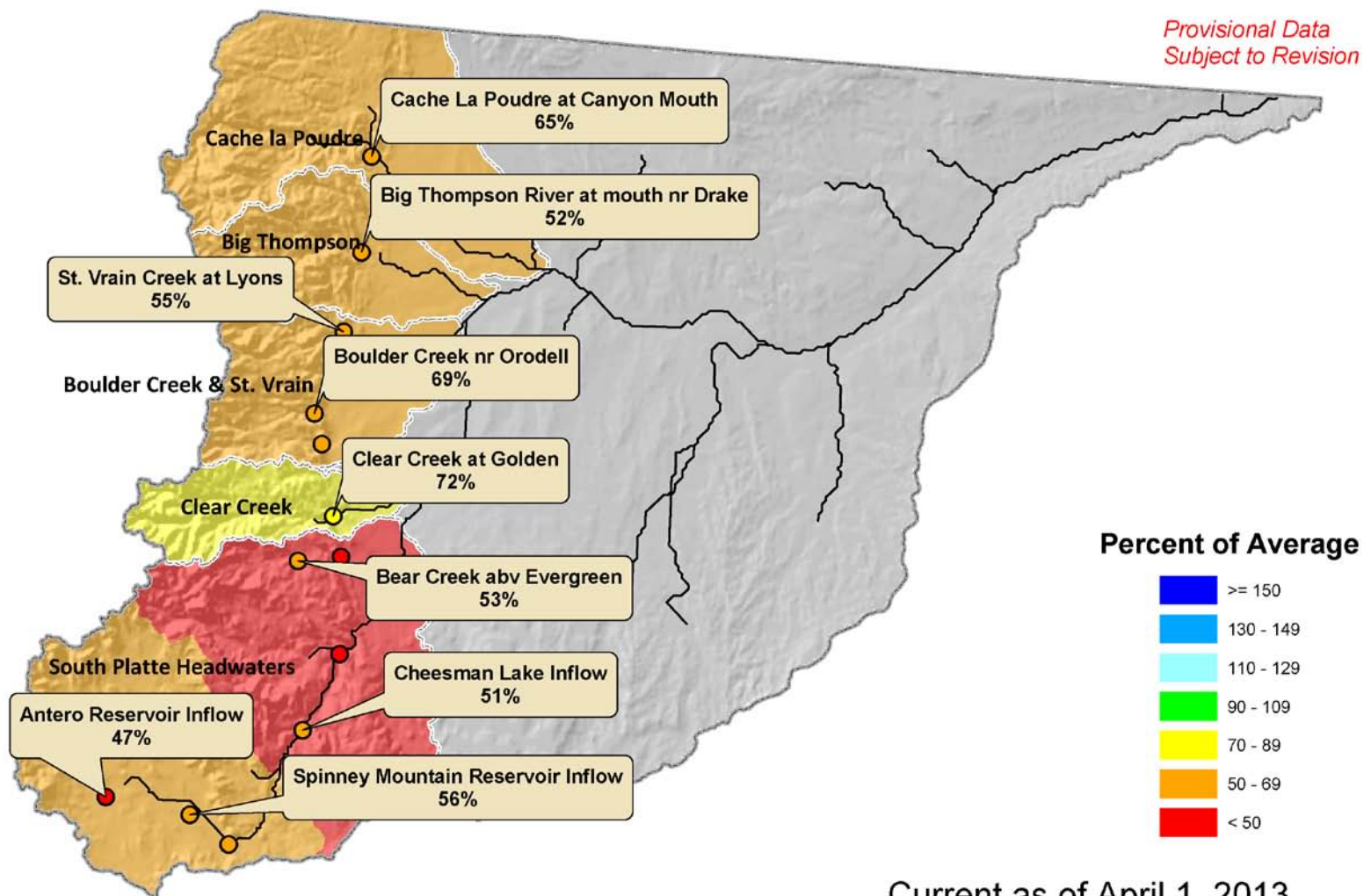


End of March 2013

South Platte River Basin Streamflow Forecast Map

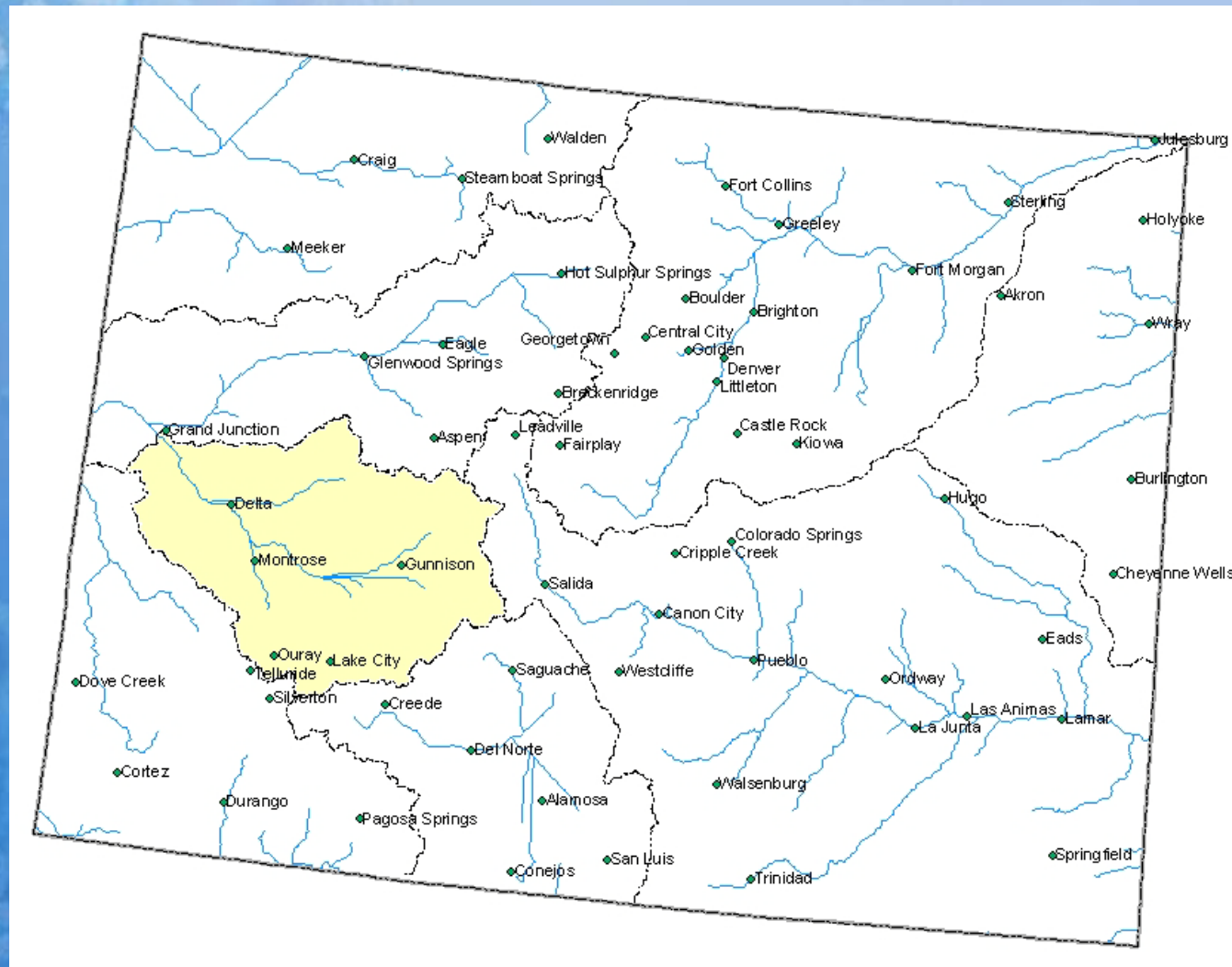


*Provisional Data
Subject to Revision*



Current as of April 1, 2013

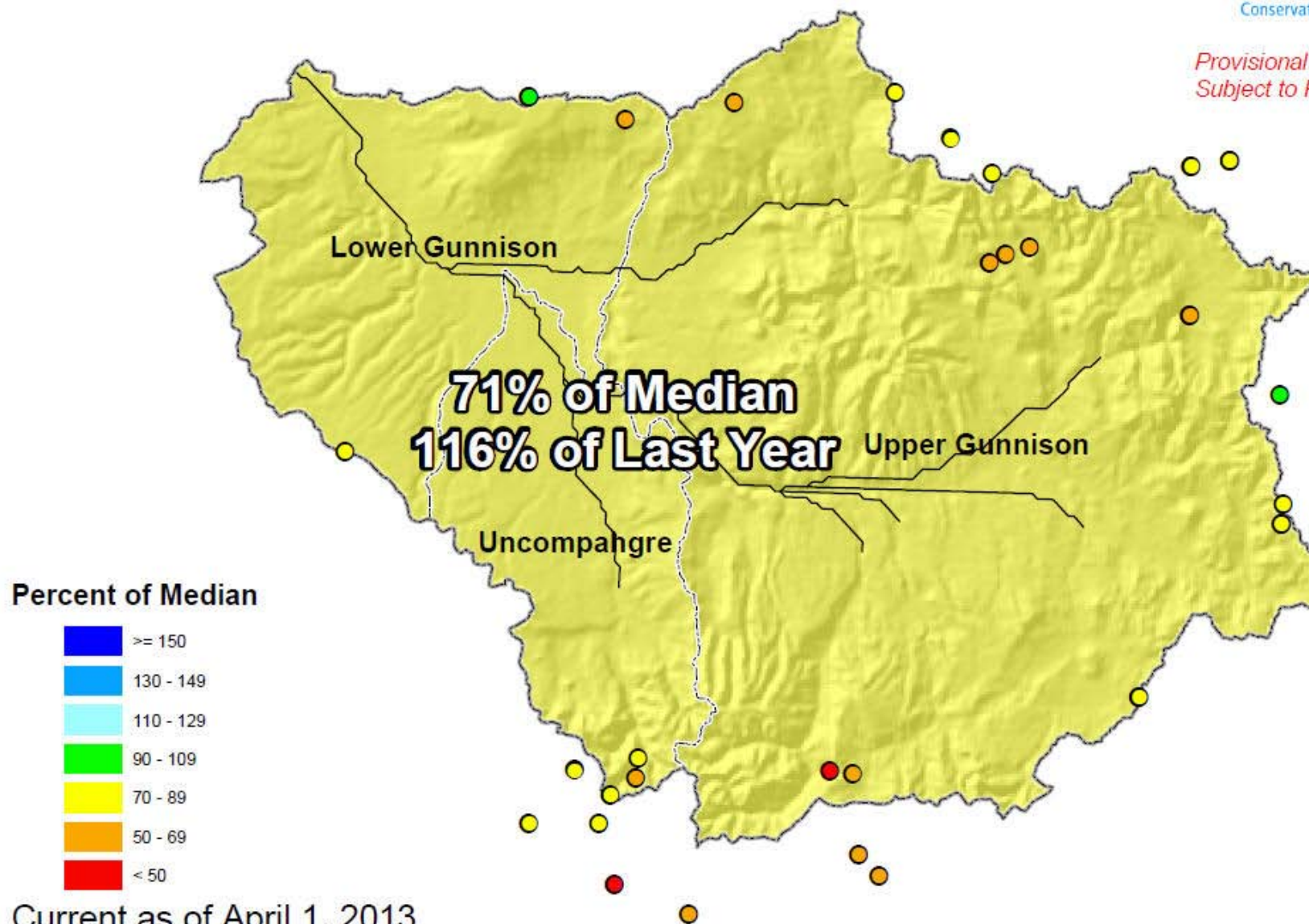
Gunnison River Basin Summary



Gunnison River Basin Snowpack Map

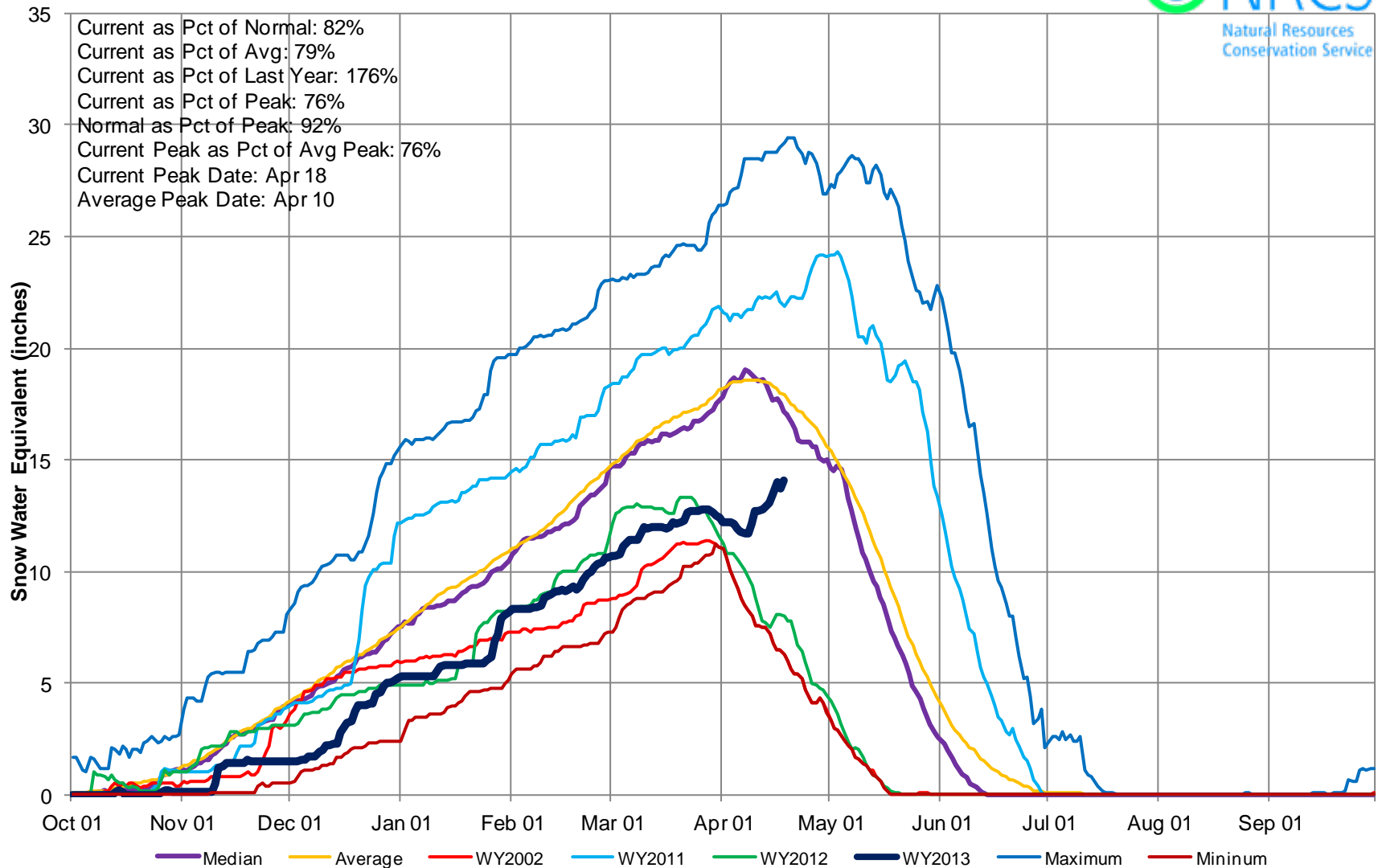


*Provisional Data
Subject to Revision*



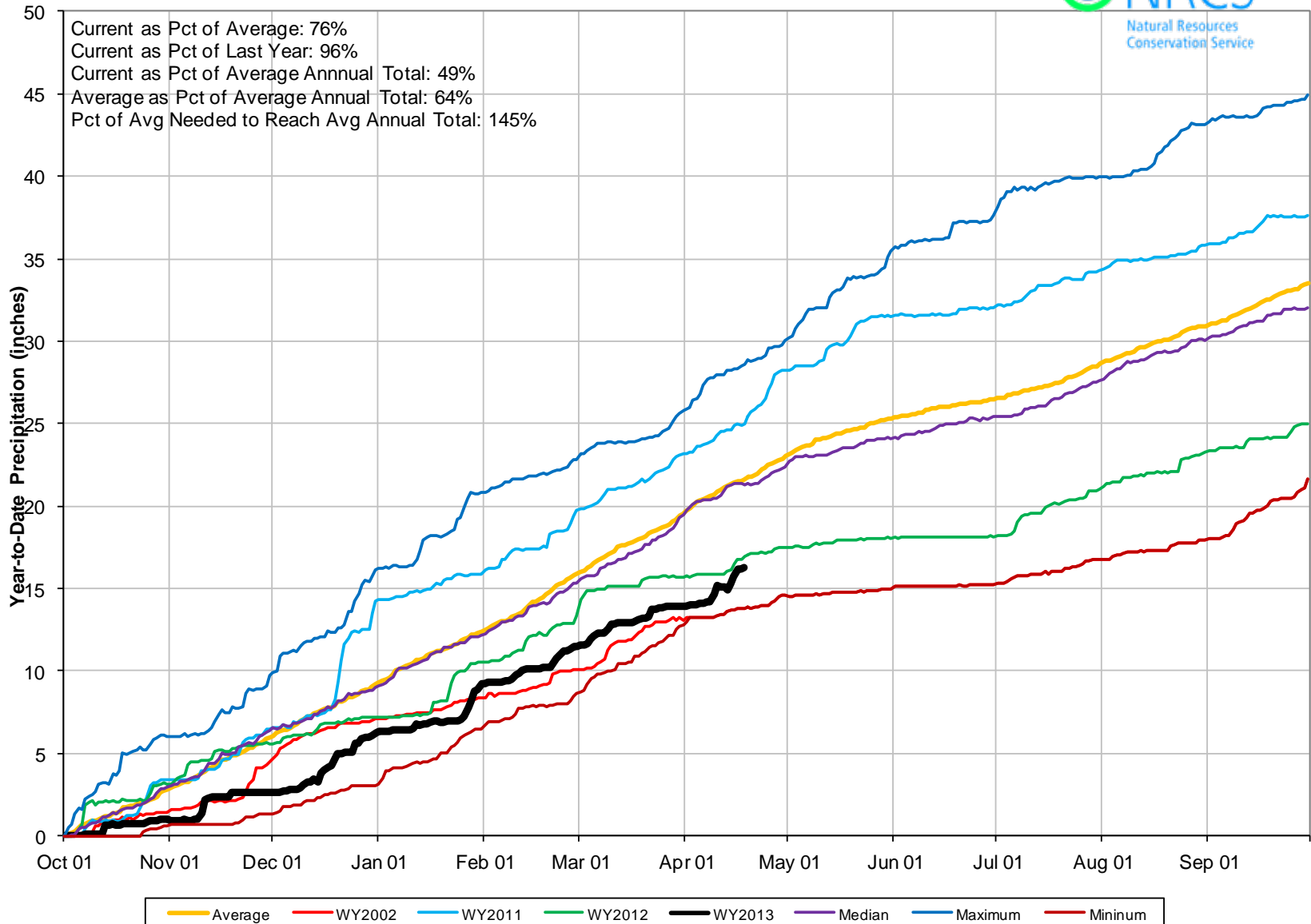
Gunnison River Basin High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



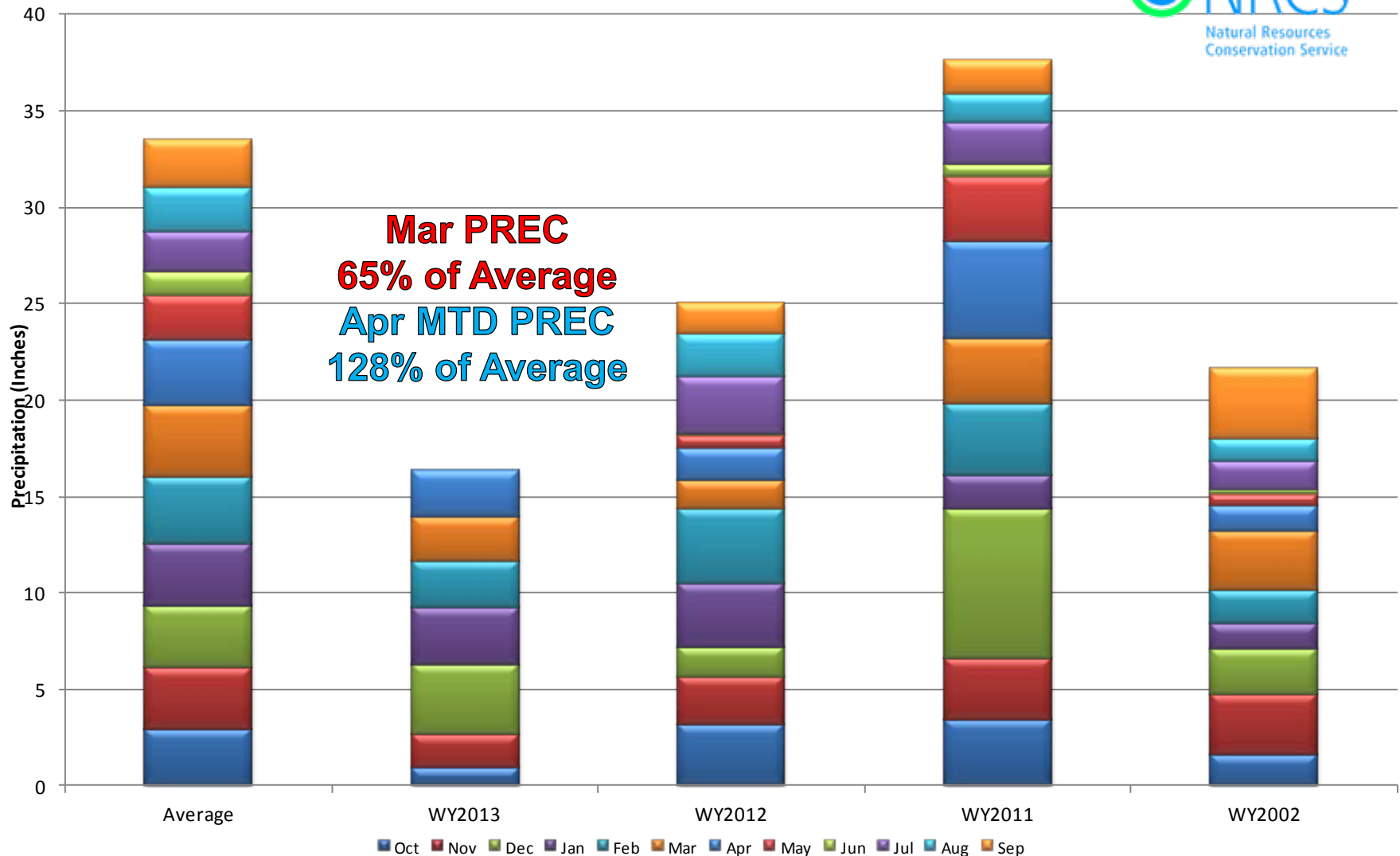
Gunnison River Basin High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



Gunnison River Basin High/Low Monthly Precipitation Summary

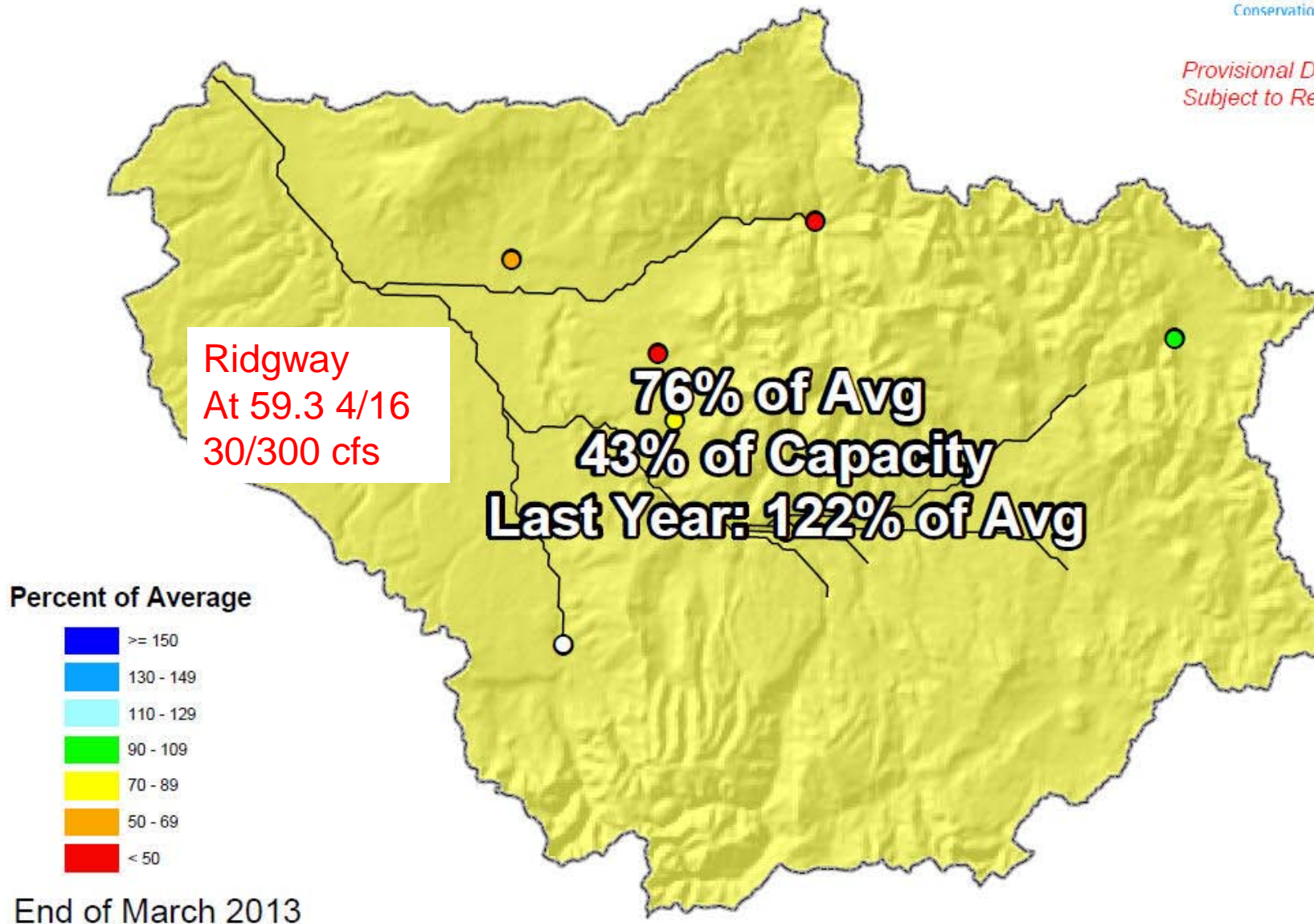
Based on Provisional SNOTEL data as of Apr 18, 2013



Gunnison River Basin Reservoir Storage Map



*Provisional Data
Subject to Revision*

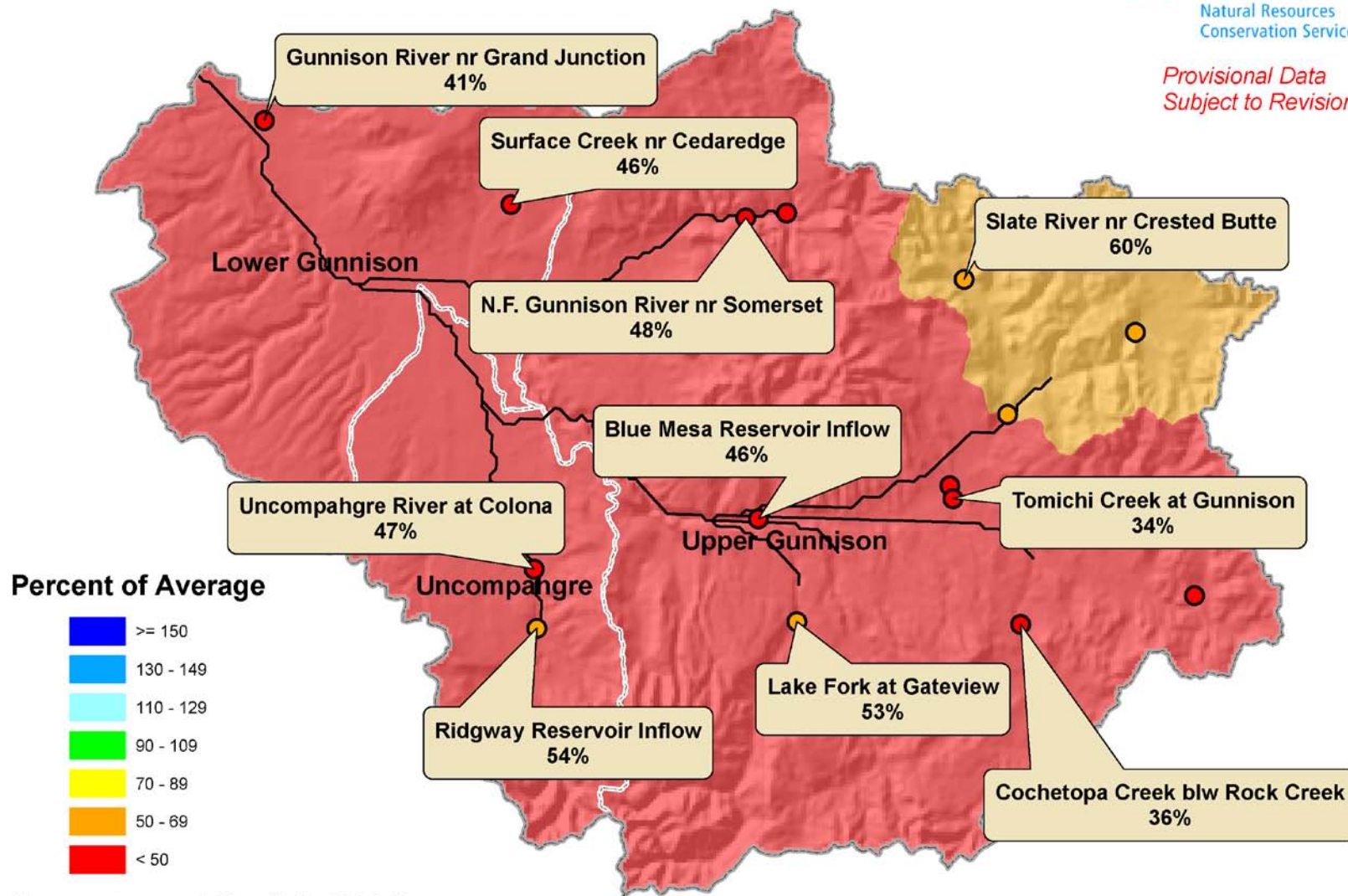


End of March 2013

Gunnison River Basin Streamflow Forecast Map



*Provisional Data
Subject to Revision*



Current as of April 1, 2013

The map displays the following cities and locations:

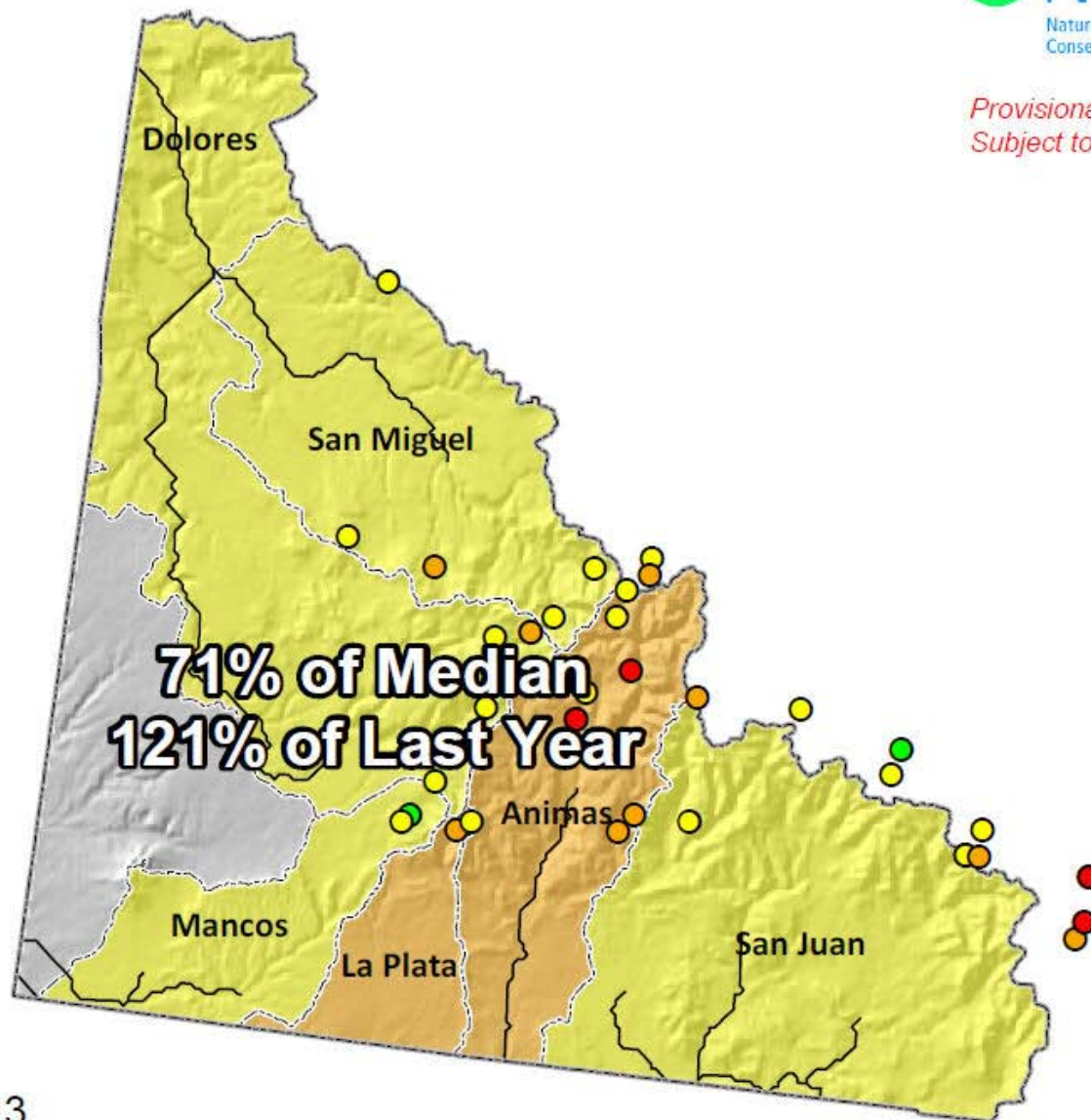
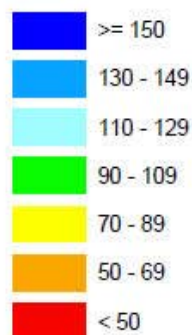
- Walden
- Craig
- Steamboat Springs
- Fort Collins
- Greeley
- Sterling
- Holyoke
- Meeker
- Hot Sulphur Springs
- Boulder
- Brighton
- Fort Morgan
- Akron
- Wray
- Eagle
- Glenwood Springs
- Georgetown
- Central City
- Golden
- Denver
- Littleton
- Brackenridge
- Castle Rock
- Kiowa
- Burlington
- Grand Junction
- Aspen
- Leadville
- Fairplay
- Colorado Springs
- Cripple Creek
- Hugo
- Cheyenne Wells
- Delta
- Montrose
- Gunnison
- Salida
- Canon City
- Eads
- Dove Creek
- Ouray
- Lake City
- Telluride
- Silverton
- Creede
- Saguache
- Westcliffe
- Pueblo
- Ordway
- Las Animas
- Lamar
- Cortez
- Durango
- Pagosa Springs
- Del Norte
- Alamosa
- Walsenburg
- La Junta
- San Luis
- Conejos
- Trinidad
- Springfield

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



*Provisional Data
Subject to Revision*

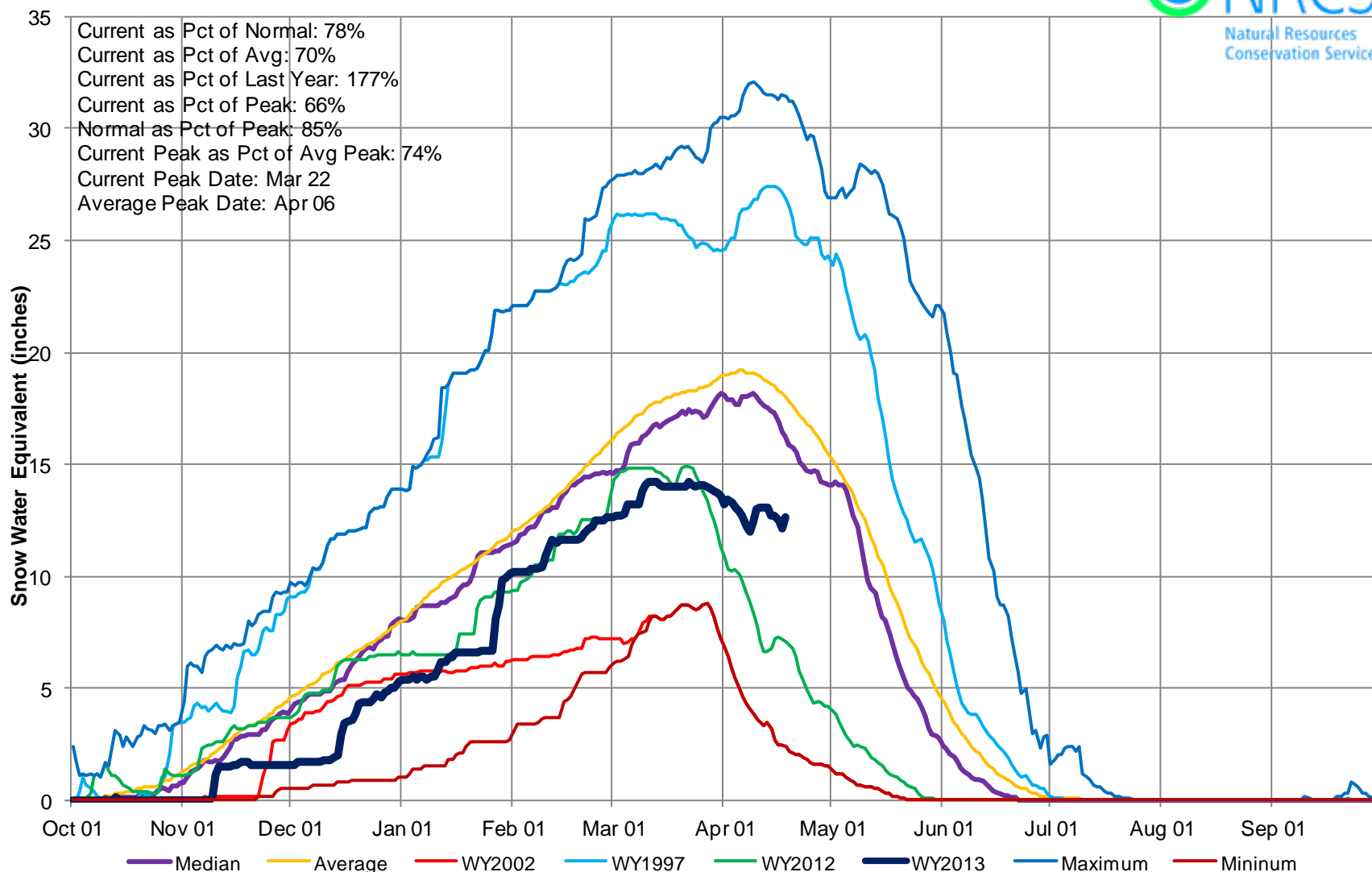
Percent of Median



Current as of April 1, 2013

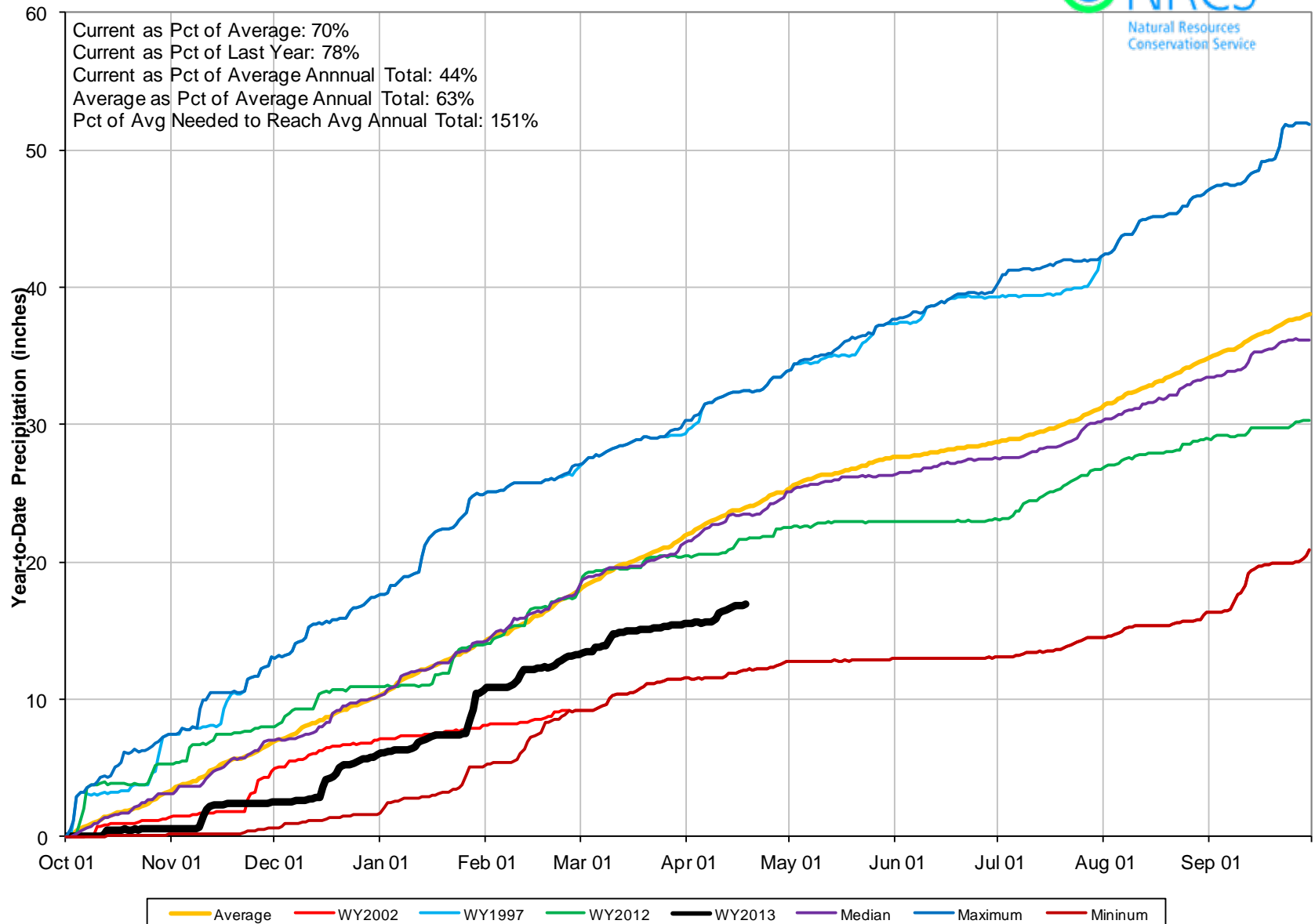
San Miguel, Dolores, Animas & San Juan River Basins High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Apr 18, 2013

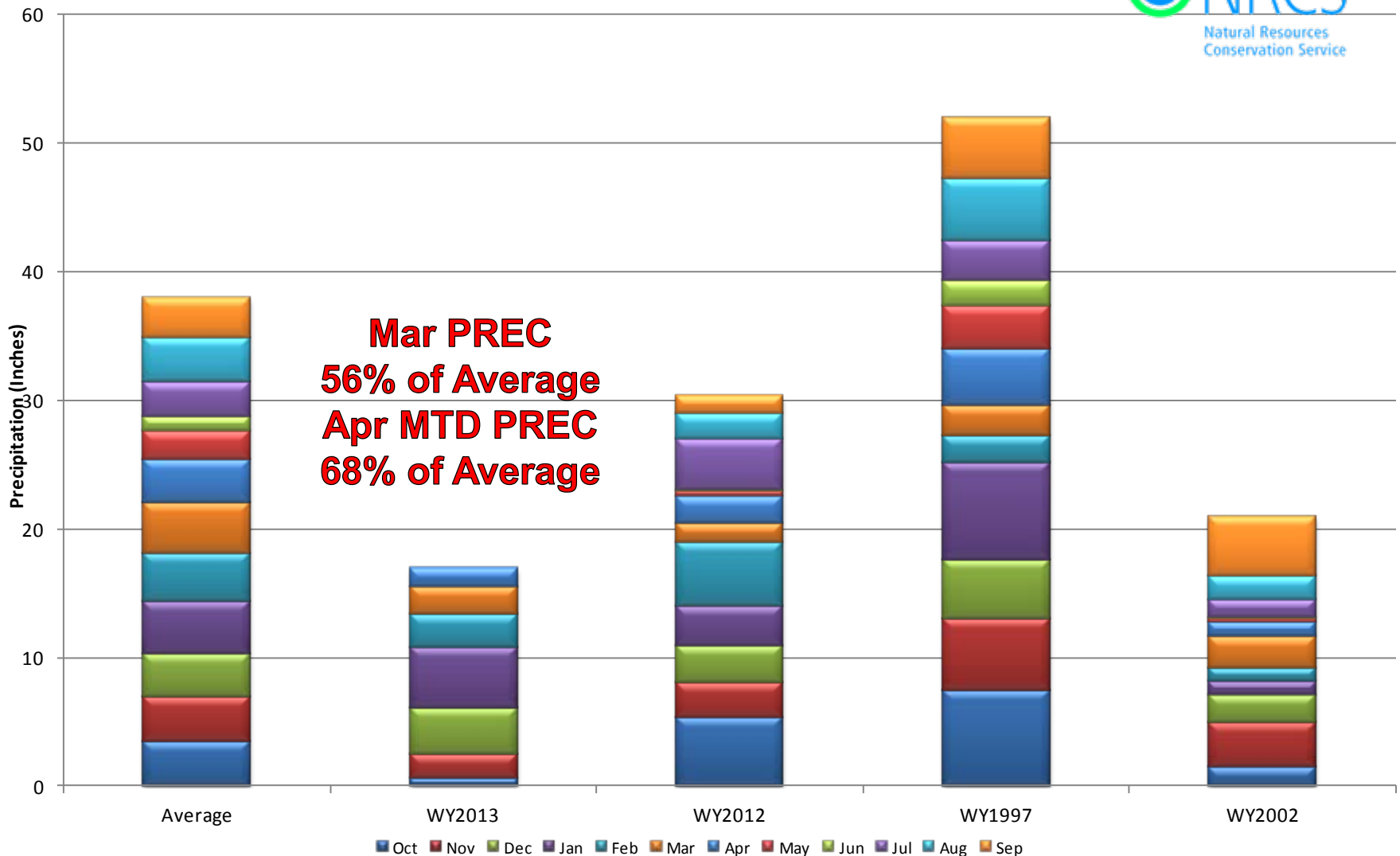


San Miguel, Dolores, Animas & San Juan River Basins High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



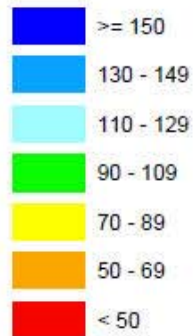
San Miguel, Dolores, Animas & San Juan River Basins High/Low Monthly Precipitation Summary



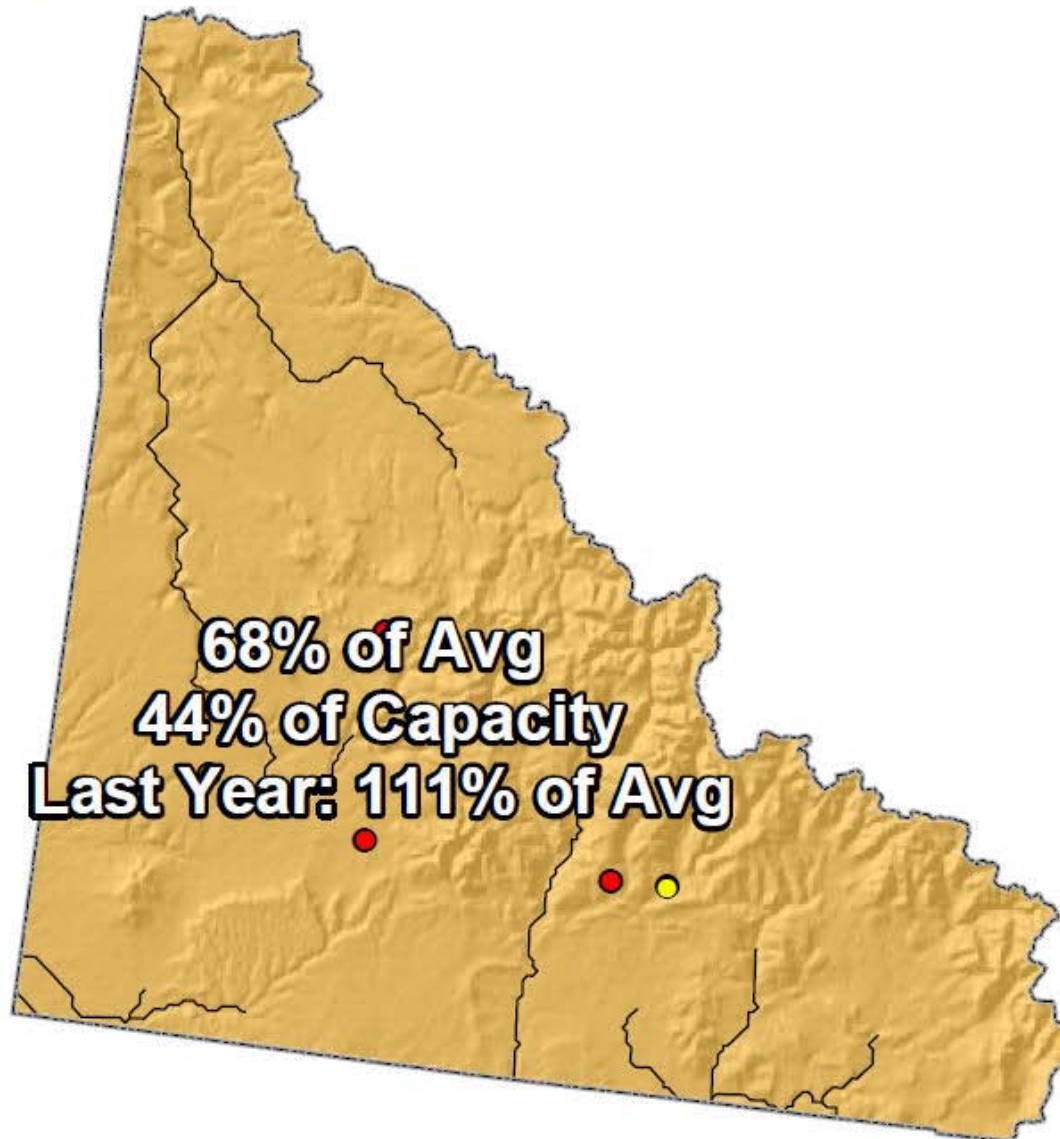
San Miguel, Dolores, Animas and San Juan River Basins Reservoir Storage Map



Percent of Average



*Provisional Data
Subject to Revision*



End of March 2013

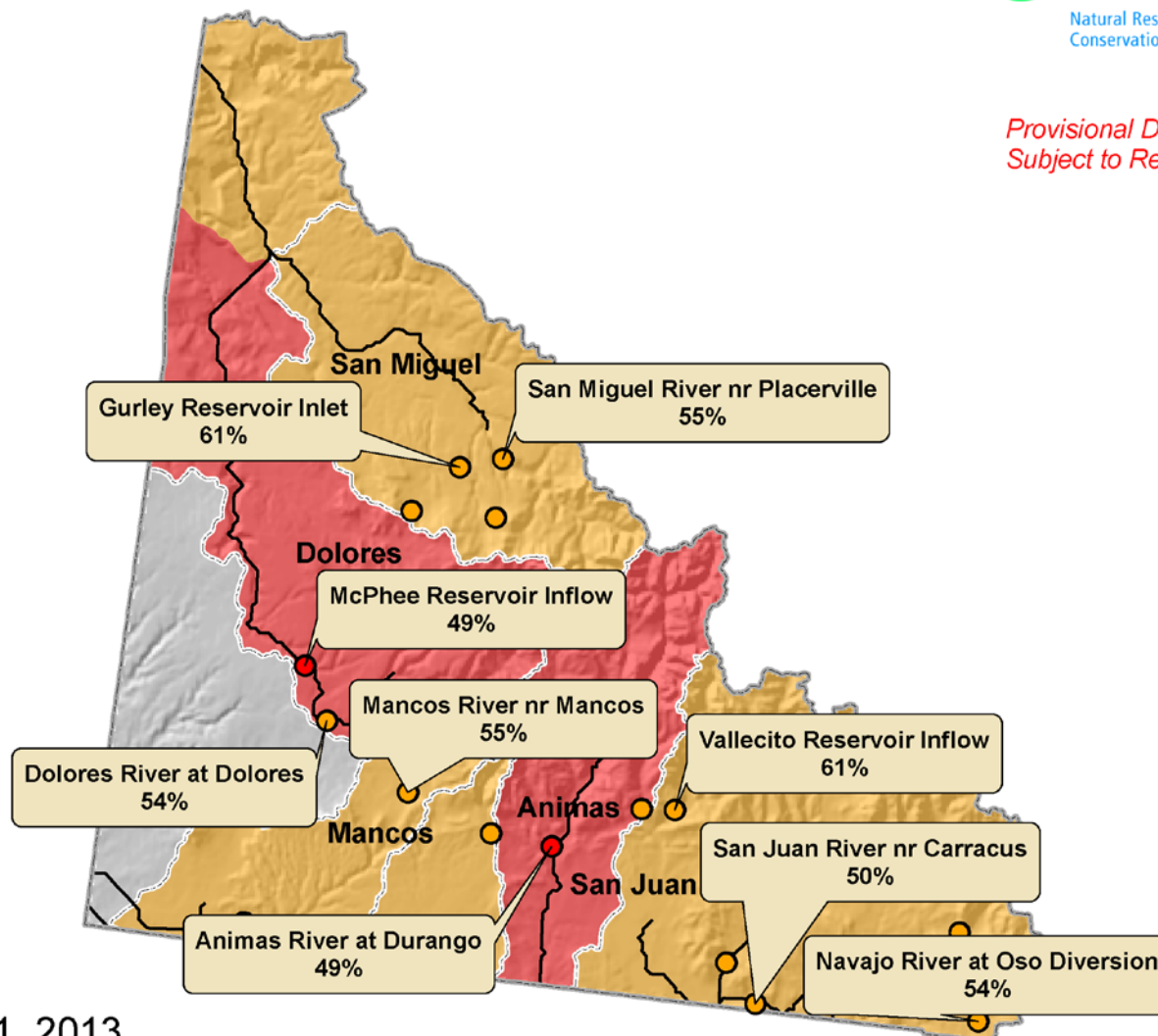
San Miguel, Dolores, Animas and San Juan River Basins Streamflow Forecast Map



Percent of Average



*Provisional Data
Subject to Revision*



Current as of April 1, 2013

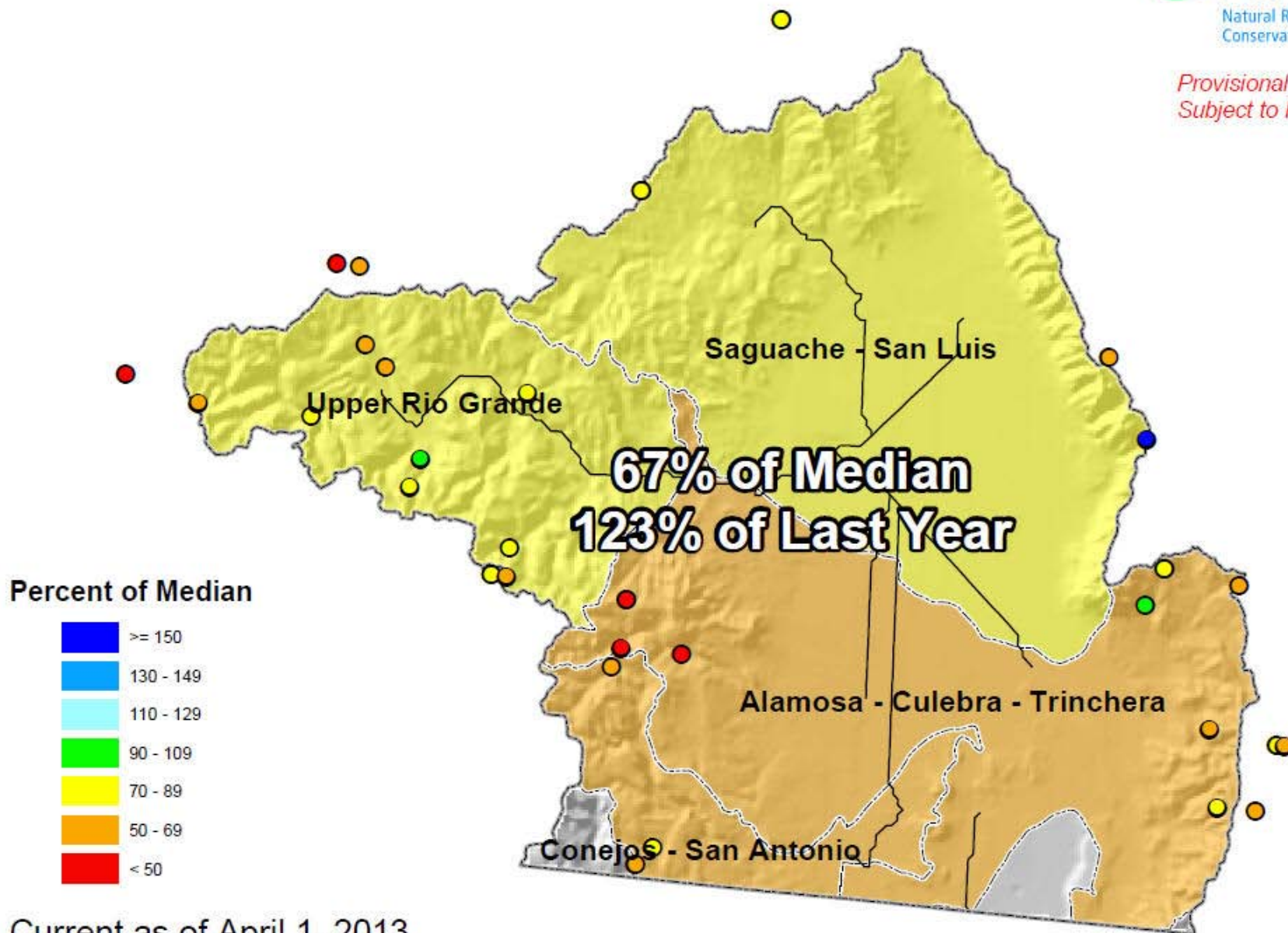
Upper Rio Grande Basin Summary



Upper Rio Grande Basin Snowpack Map



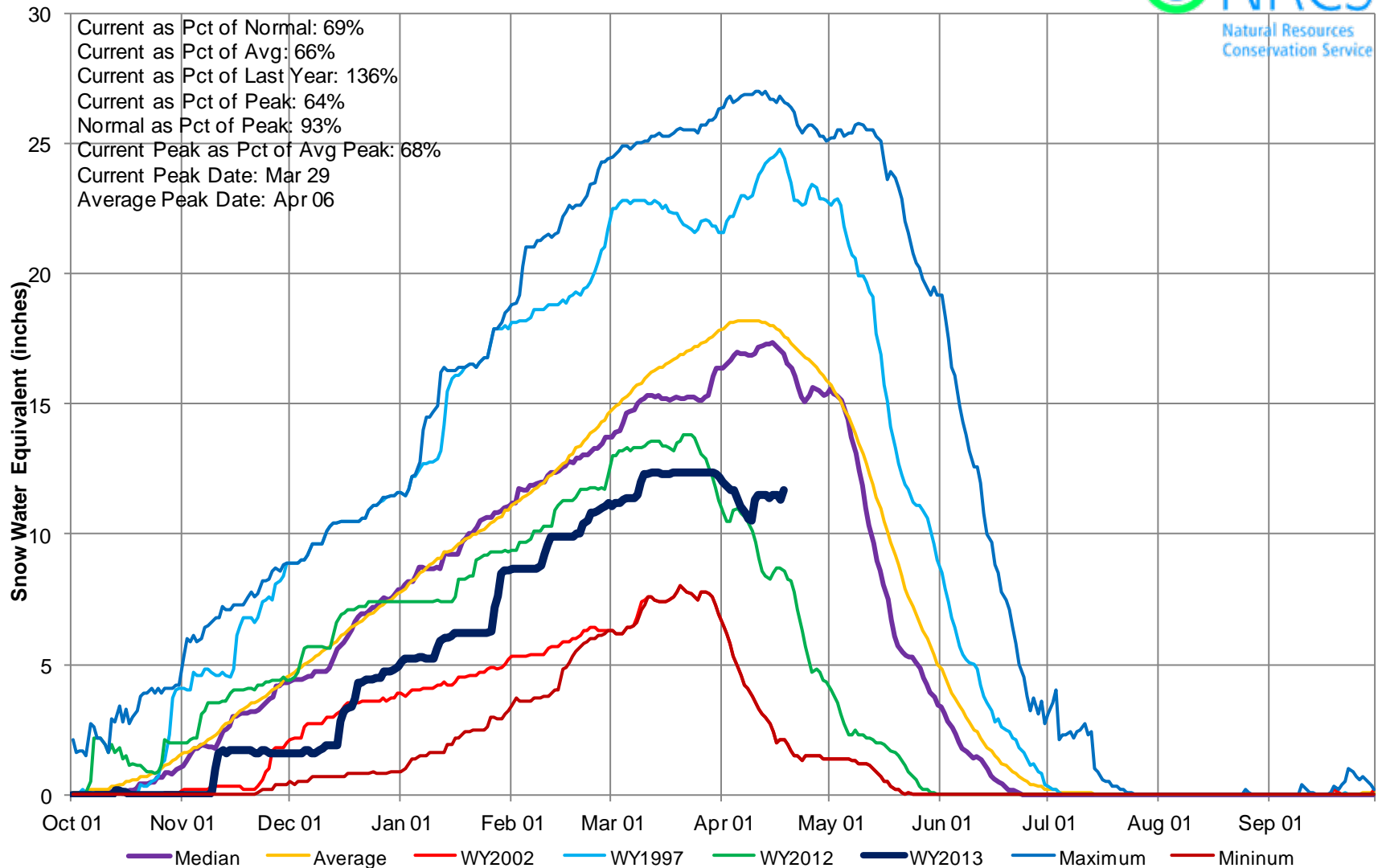
*Provisional Data
Subject to Revision*



Current as of April 1, 2013

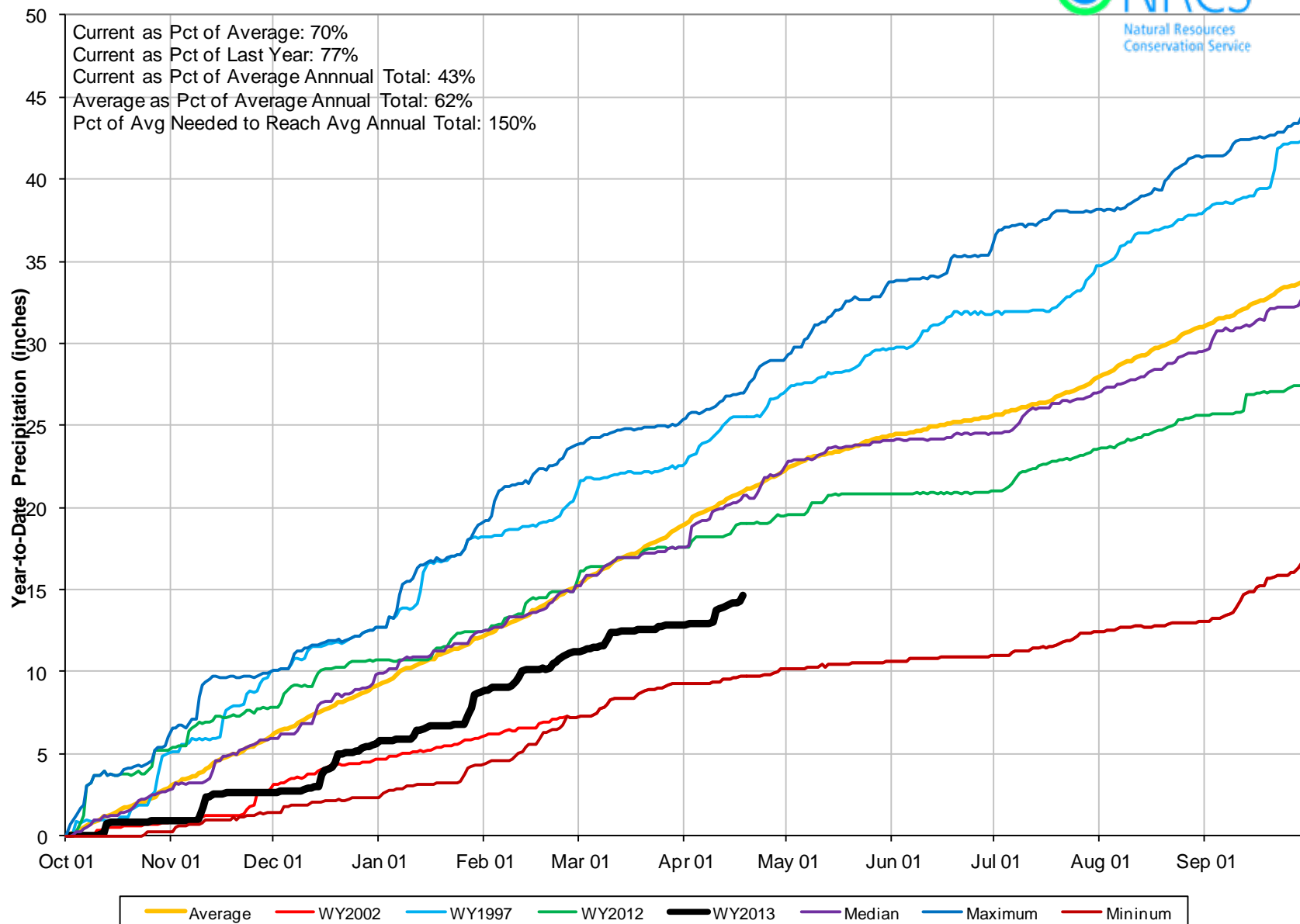
Upper Rio Grande Basin High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Apr 18, 2013

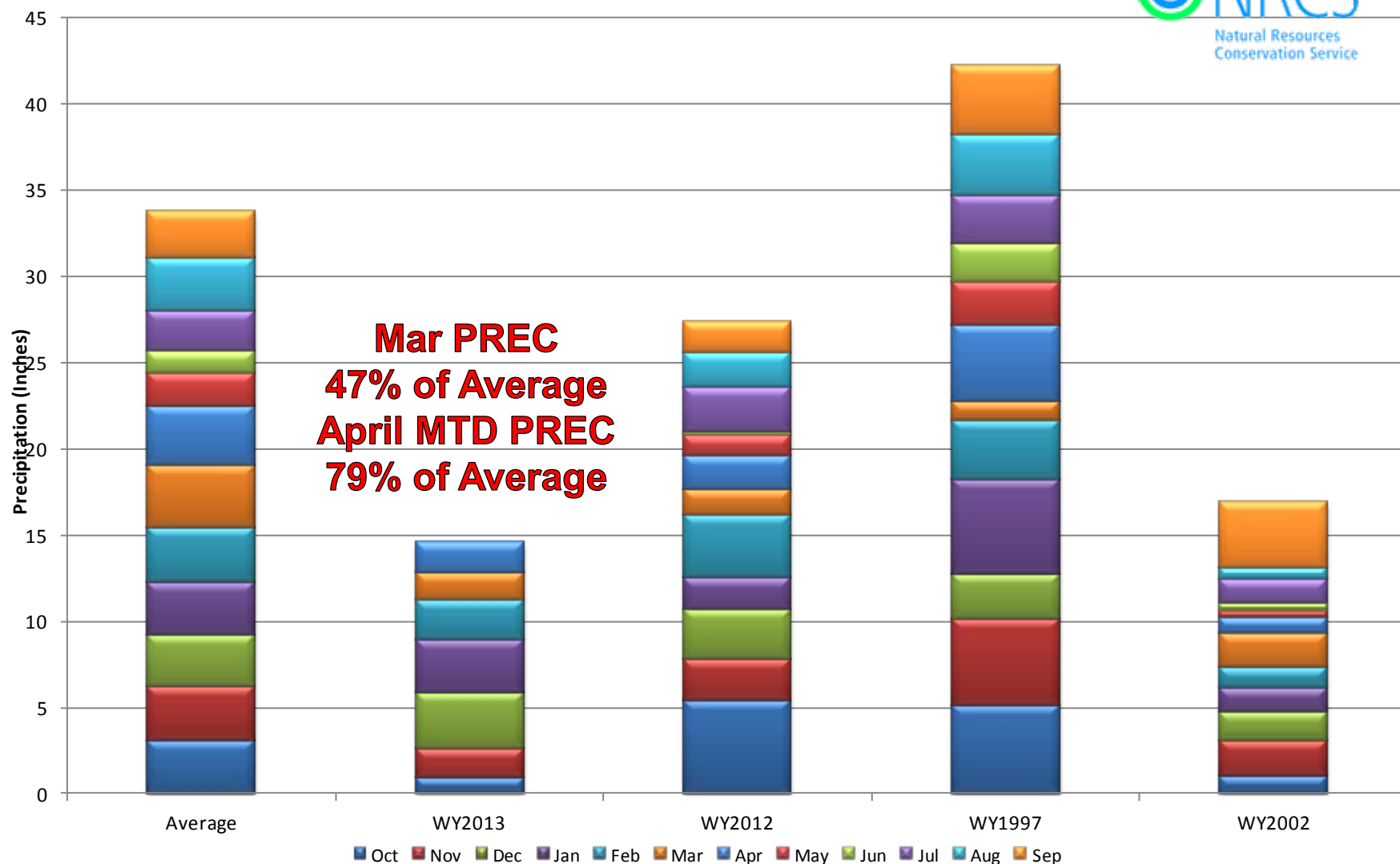


Upper Rio Grande Basin High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Apr 18, 2013

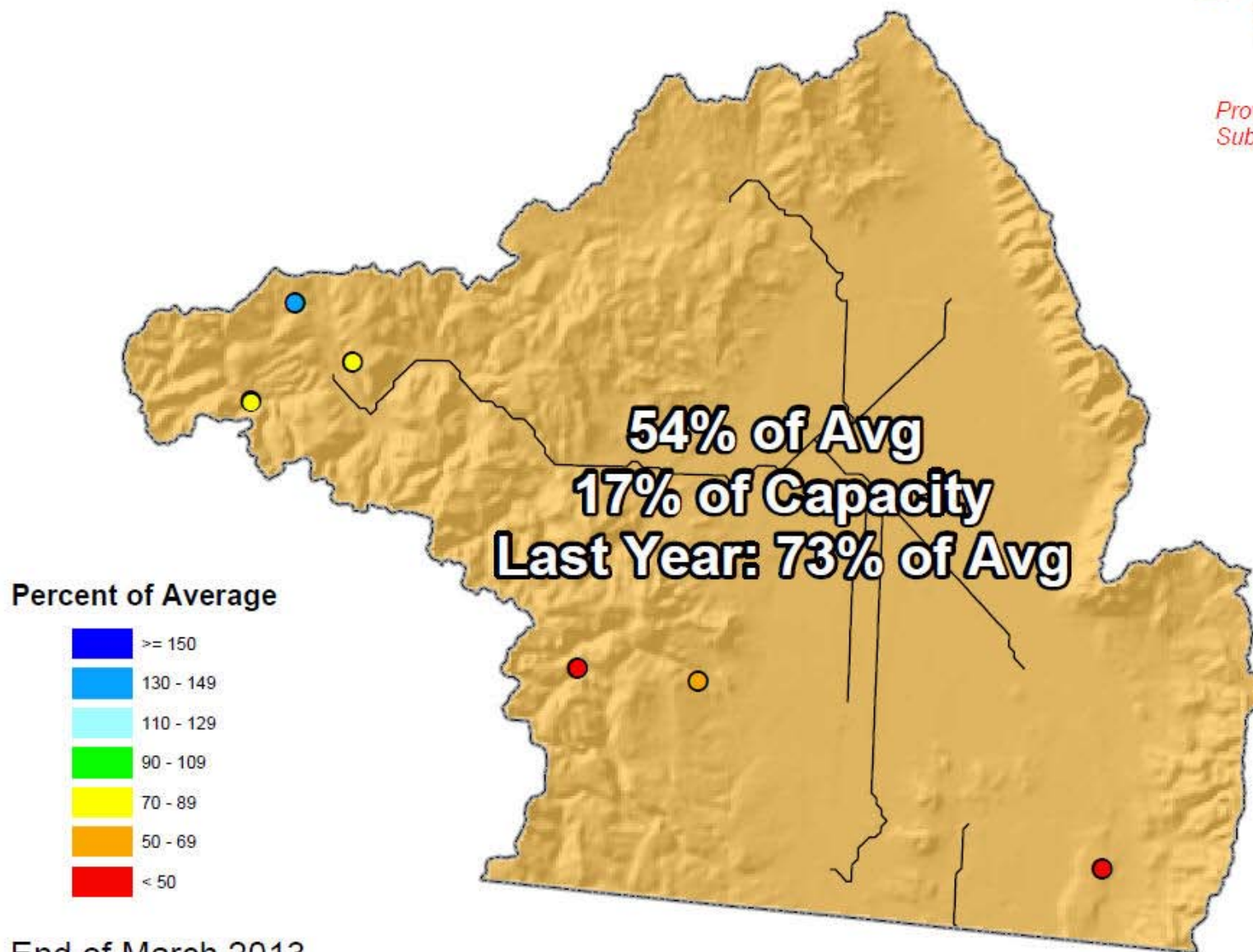


Based on Provisional SNOTEL data as of Apr 18, 2013



Upper Rio Grande Basin Reservoir Storage Map

*Provisional Data
Subject to Revision*



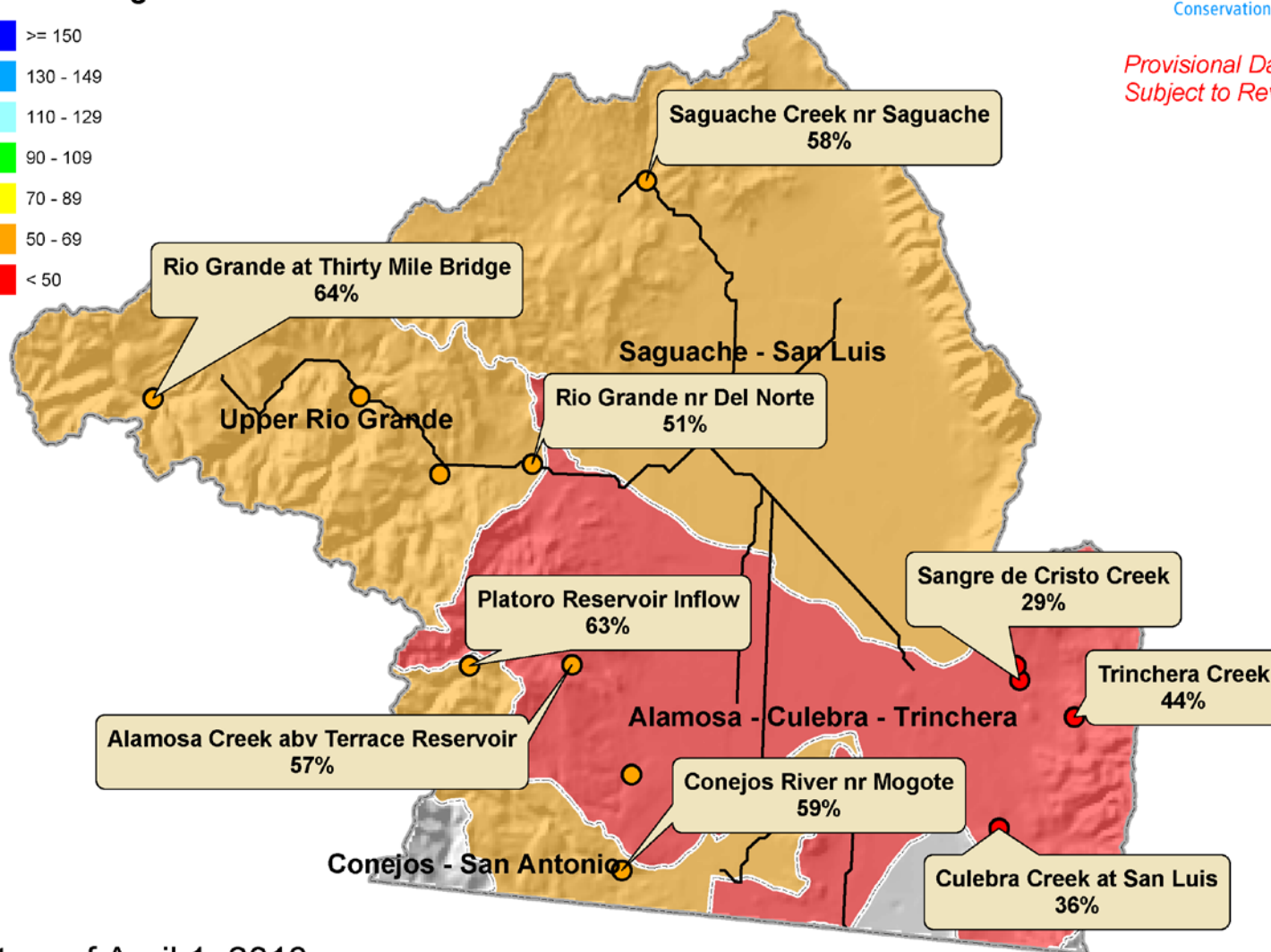
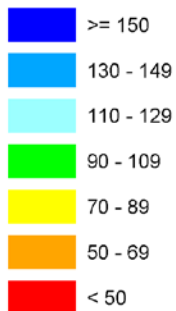
End of March 2013

Upper Rio Grande Basin Streamflow Forecast Map



*Provisional Data
Subject to Revision*

Percent of Average



Current as of April 1, 2013

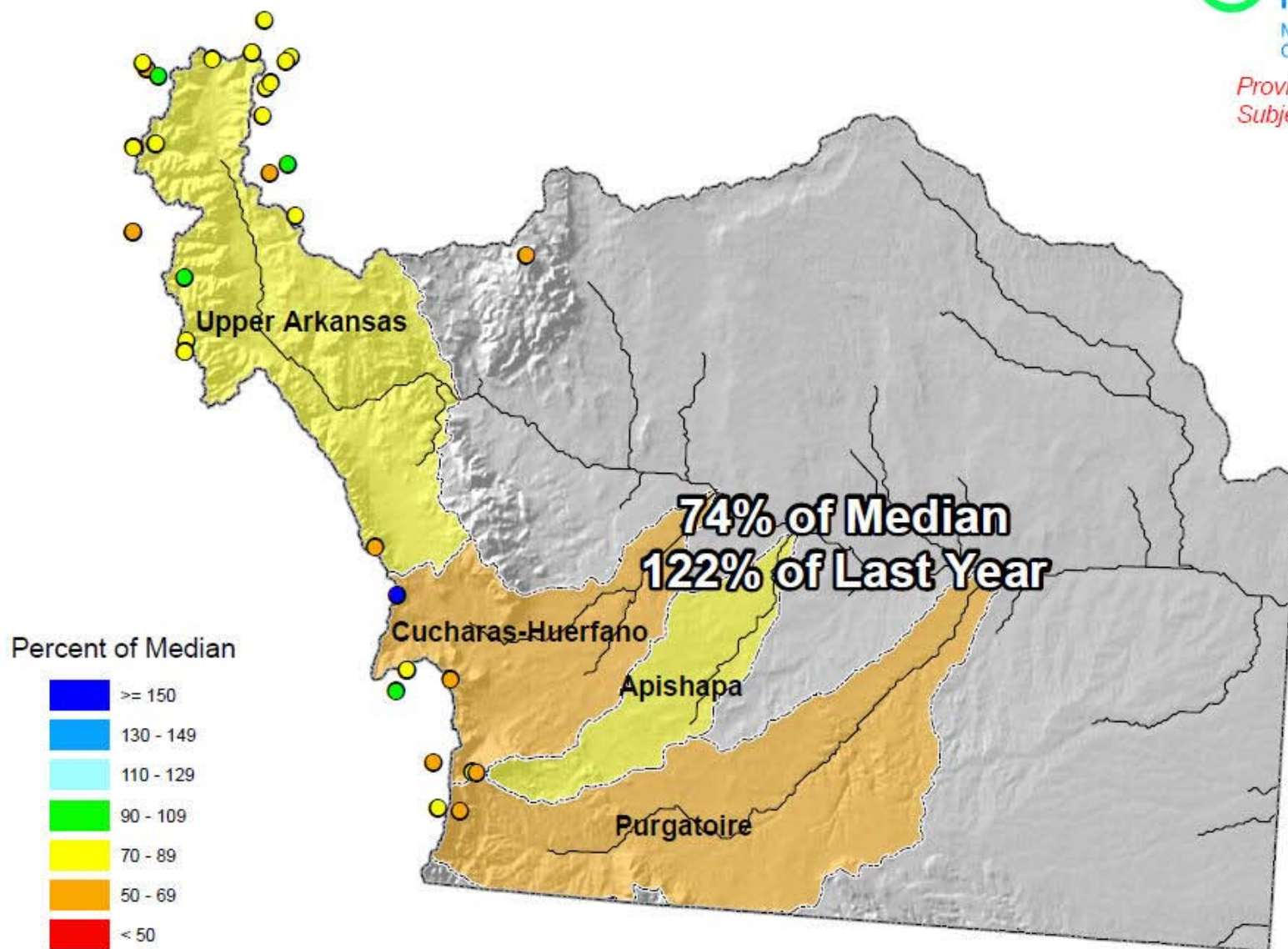
Arkansas River Basin Summary



Arkansas River Basin Snowpack Map



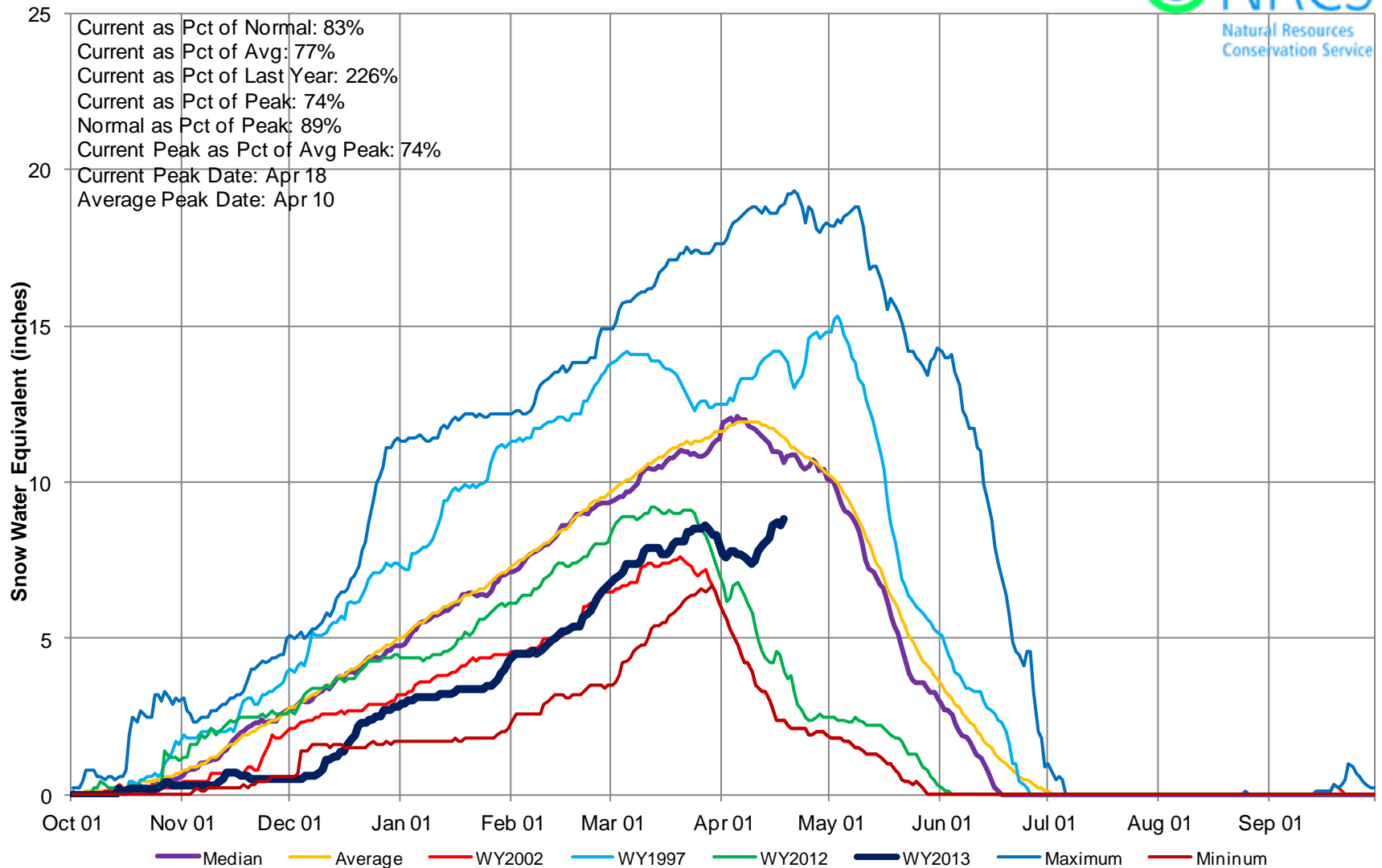
*Provisional Data
Subject to Revision*



Current as of April 1, 2013

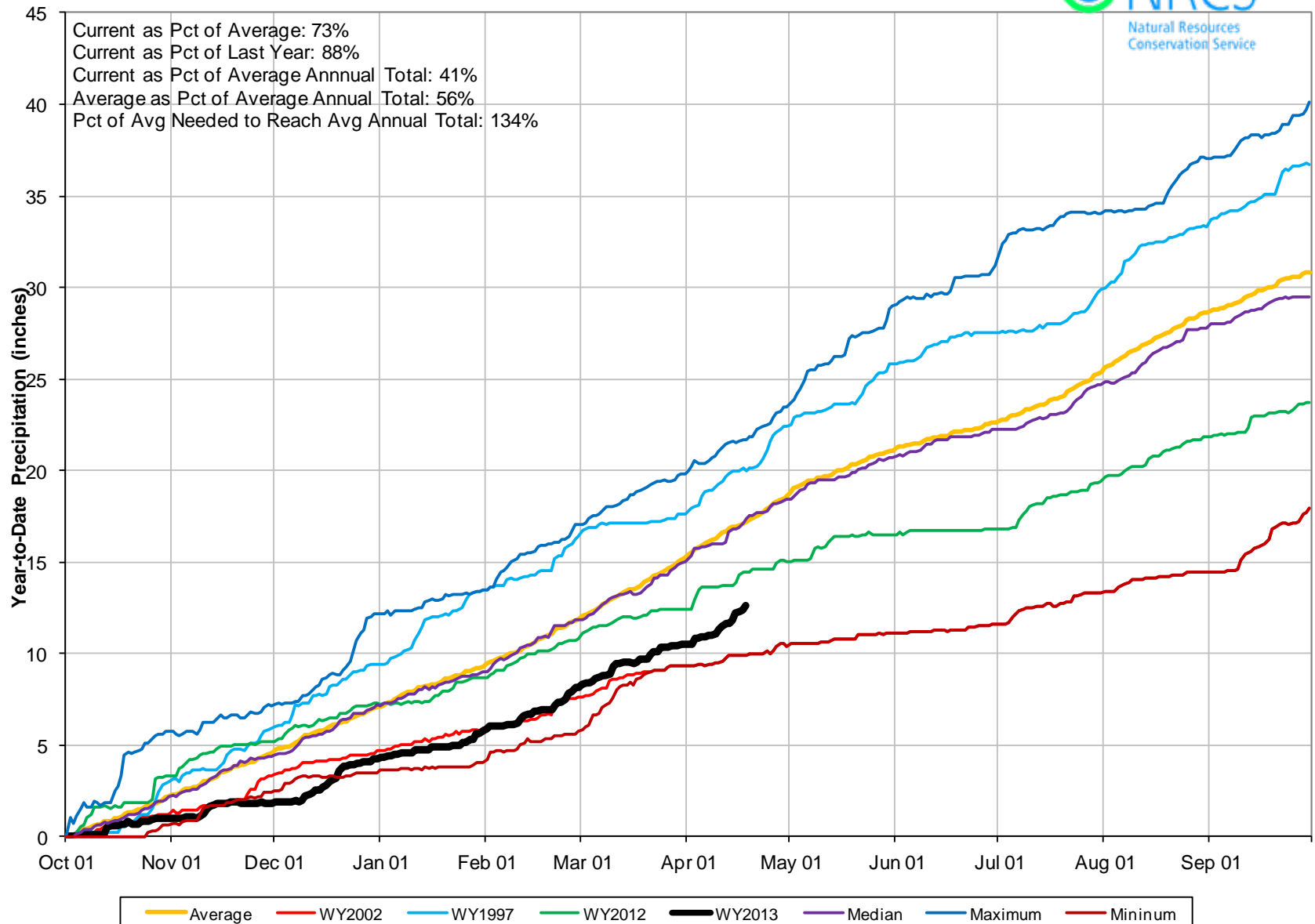
Arkansas River Basin High/Low Snowpack Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



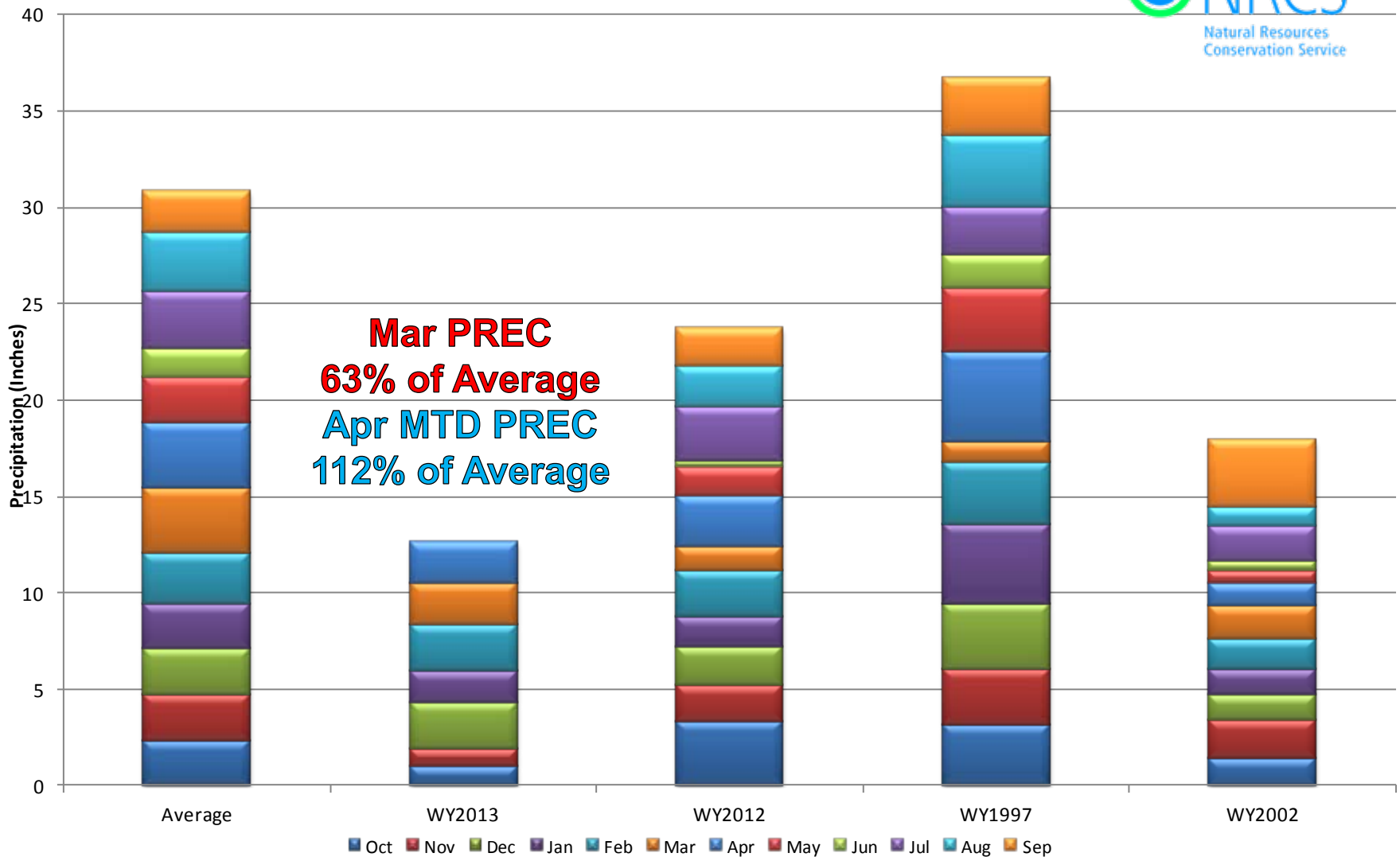
Arkansas River Basin High/Low Year-to-Date Precipitation Summary

Based on Provisional SNOTEL data as of Apr 18, 2013



Arkansas River Basin High/Low Monthly Precipitation Summary

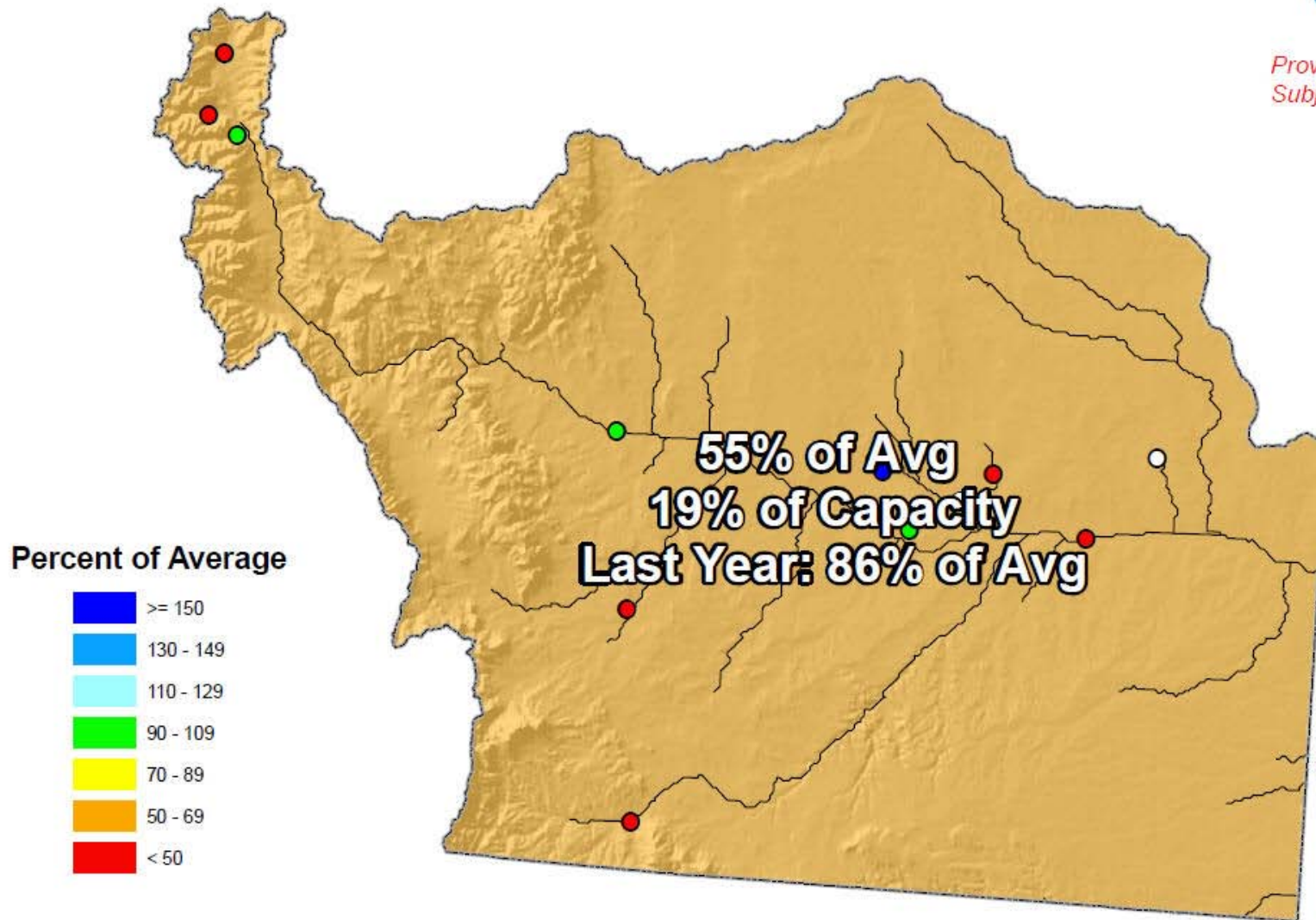
Based on Provisional SNOTEL data as of Apr 18, 2013



Arkansas River Basin Reservoir Storage Map



*Provisional Data
Subject to Revision*

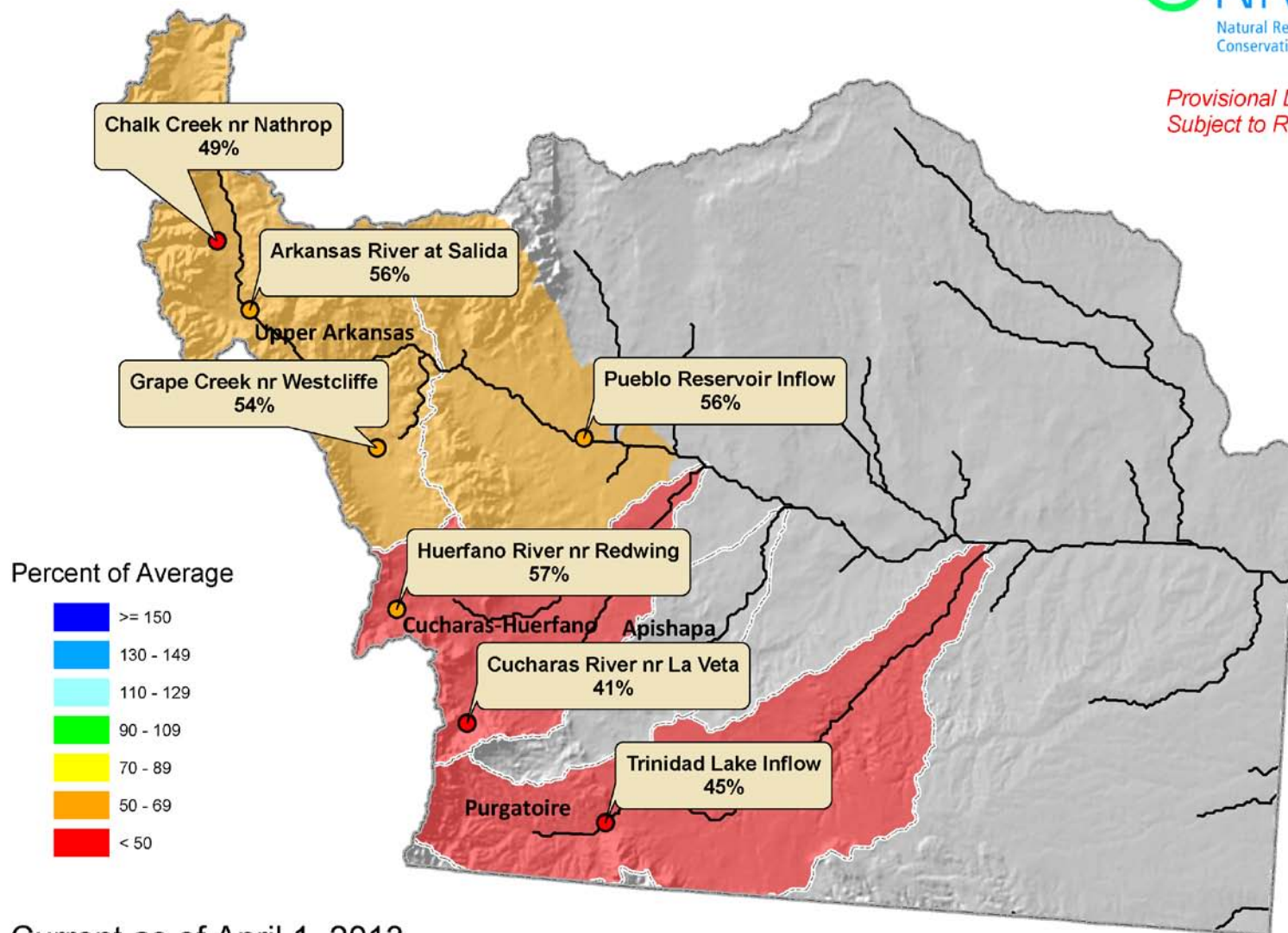


End of March 2013

Arkansas River Basin Streamflow Forecast Map

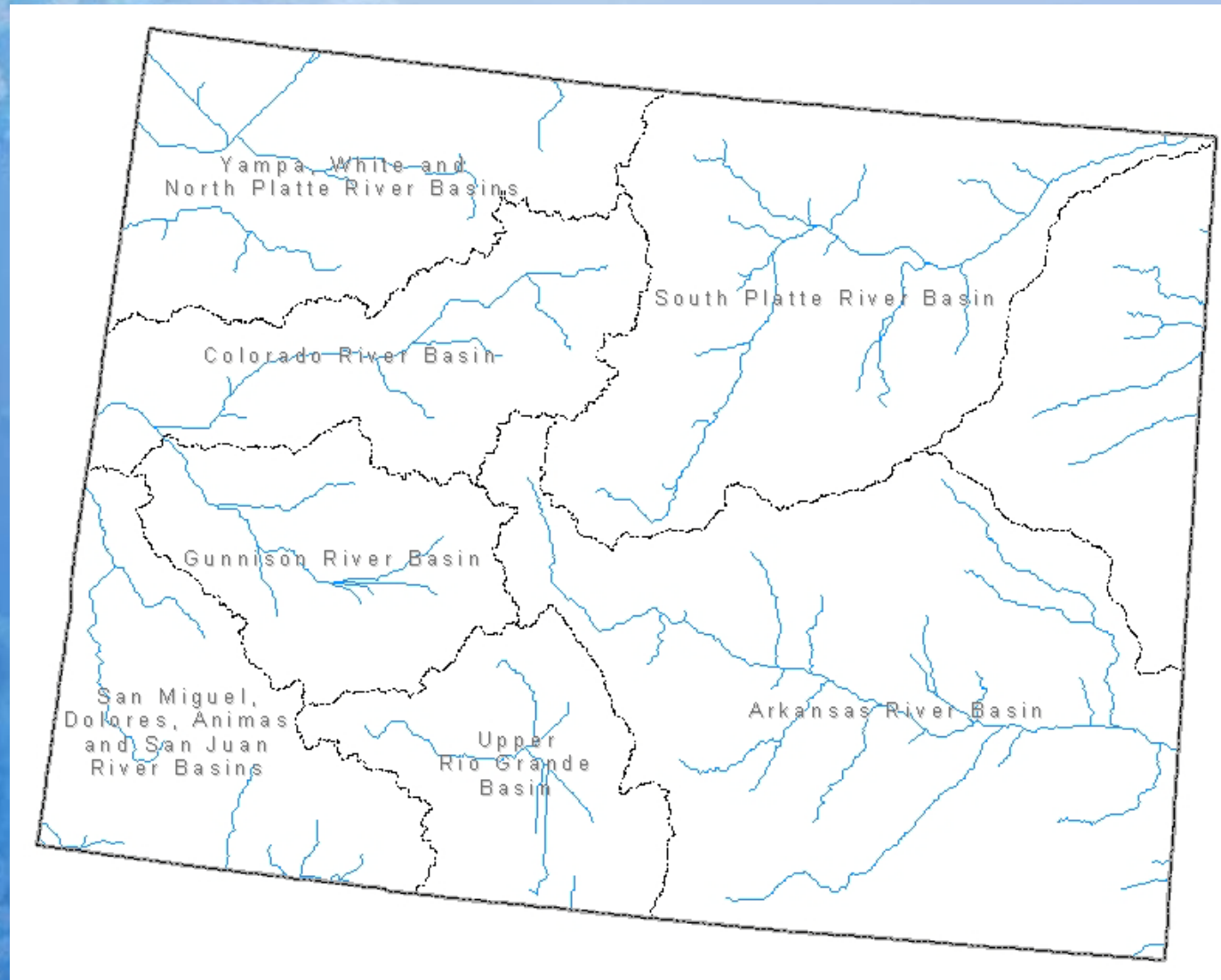


*Provisional Data
Subject to Revision*



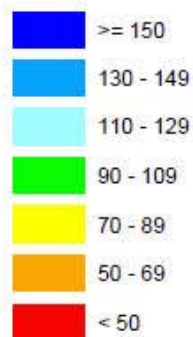
Current as of April 1, 2013

Colorado Statewide Summary

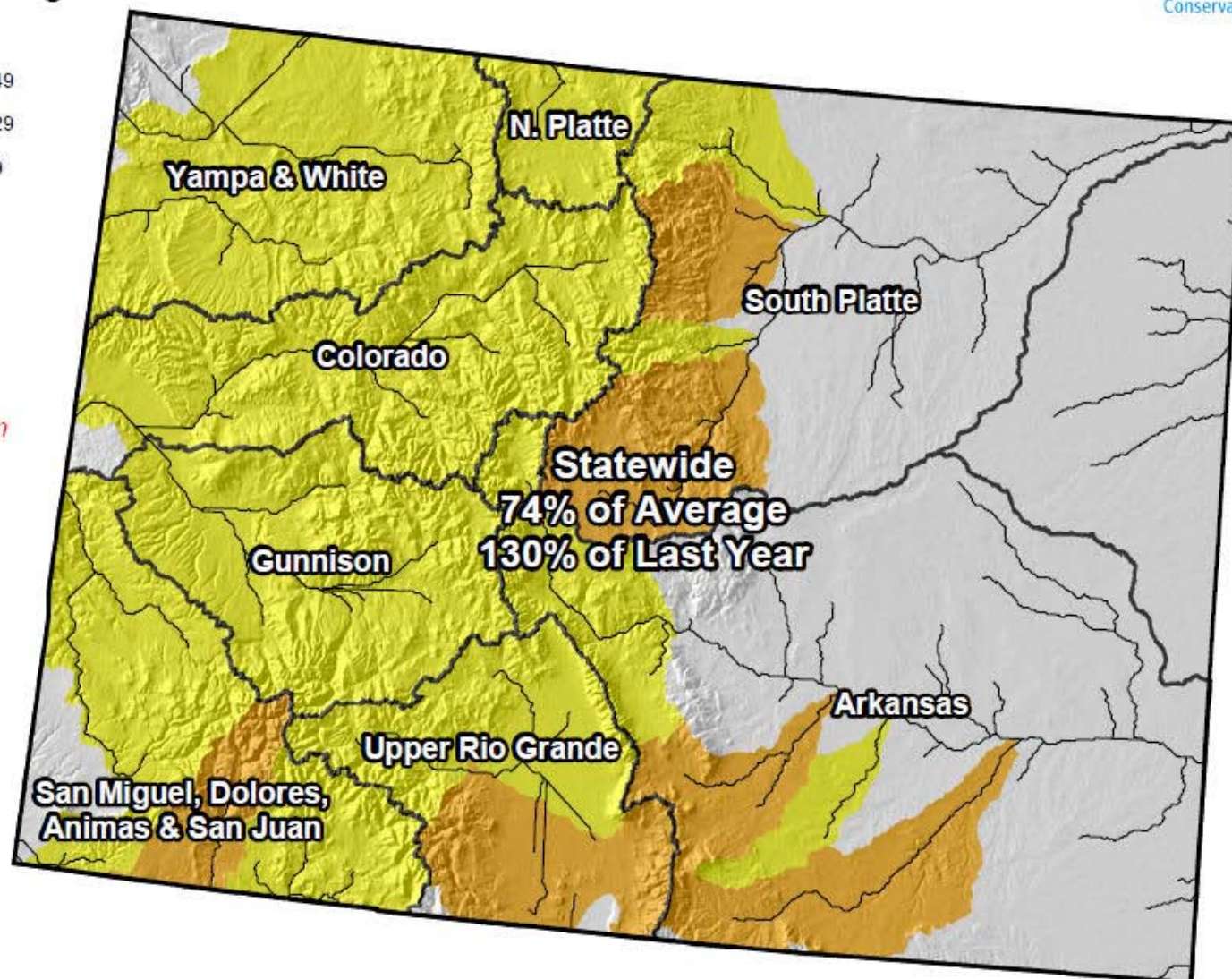


Colorado Snowpack Map

Percent of Average



*Provisional Data
Subject to Revision*



Current as of April 1, 2013

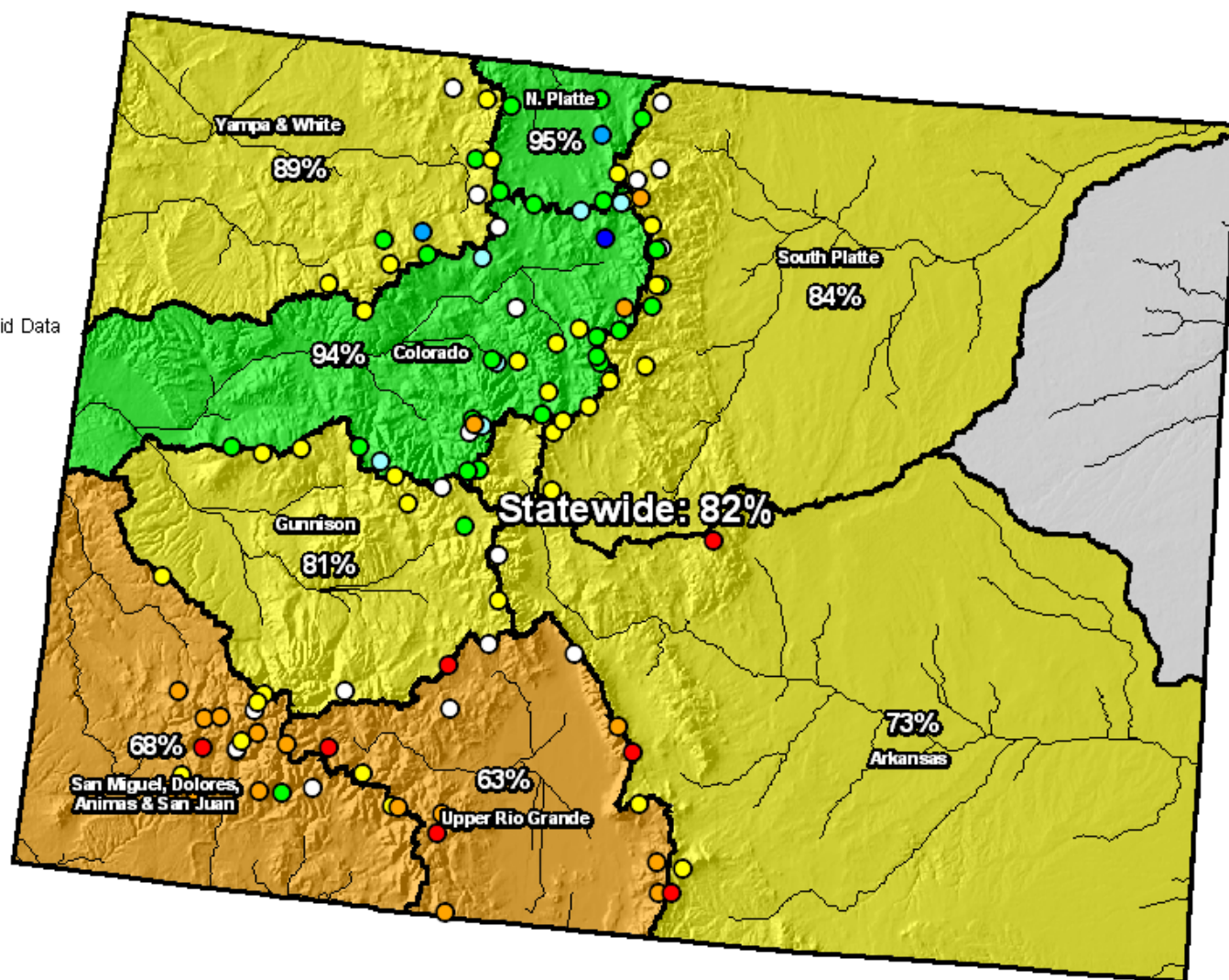
Colorado SNOTEL Snowpack Update Map with Site Data

Percent of Average



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

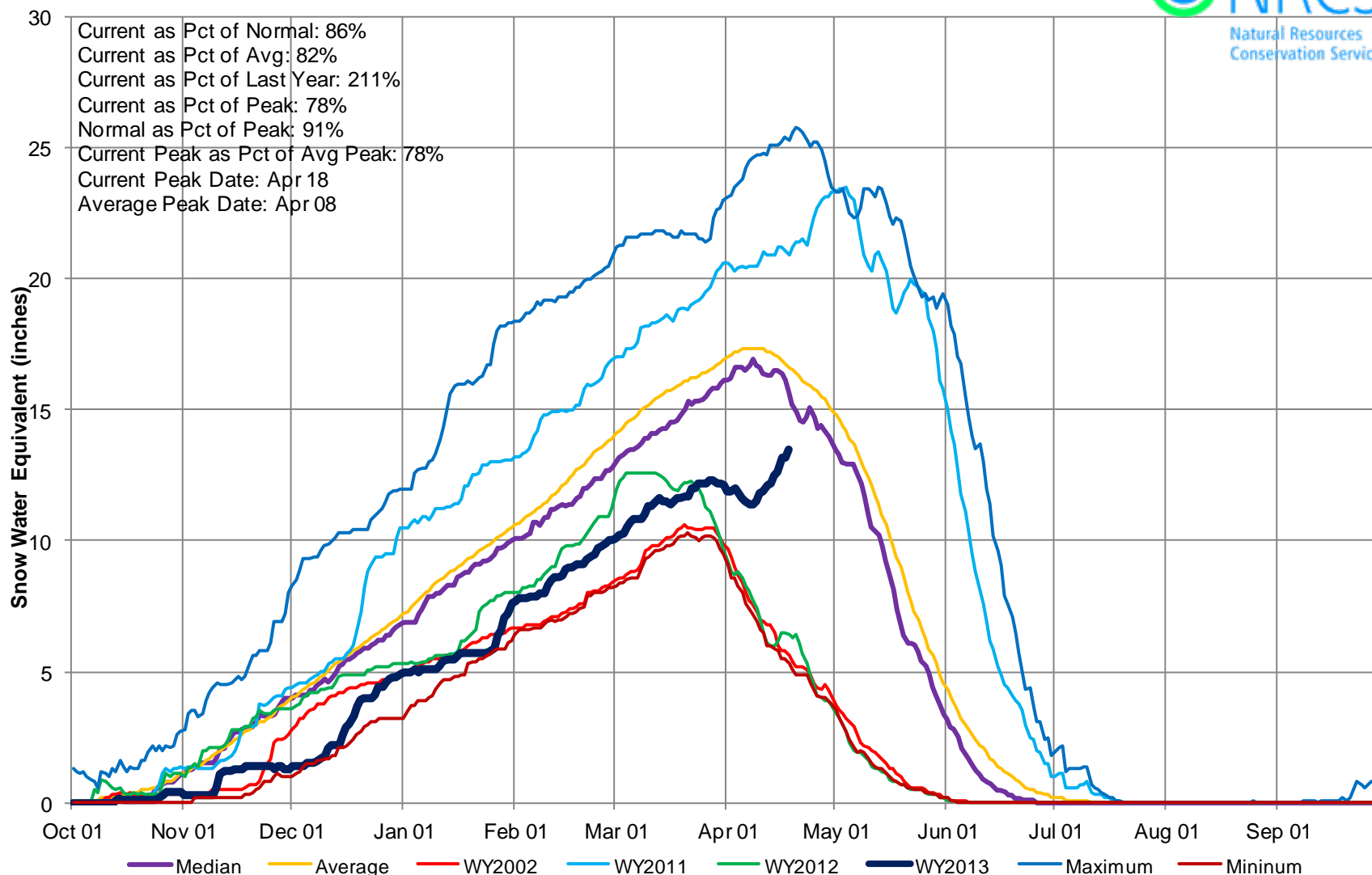
*Provisional Data
Subject to Revision*



Current as of Apr 17, 2013

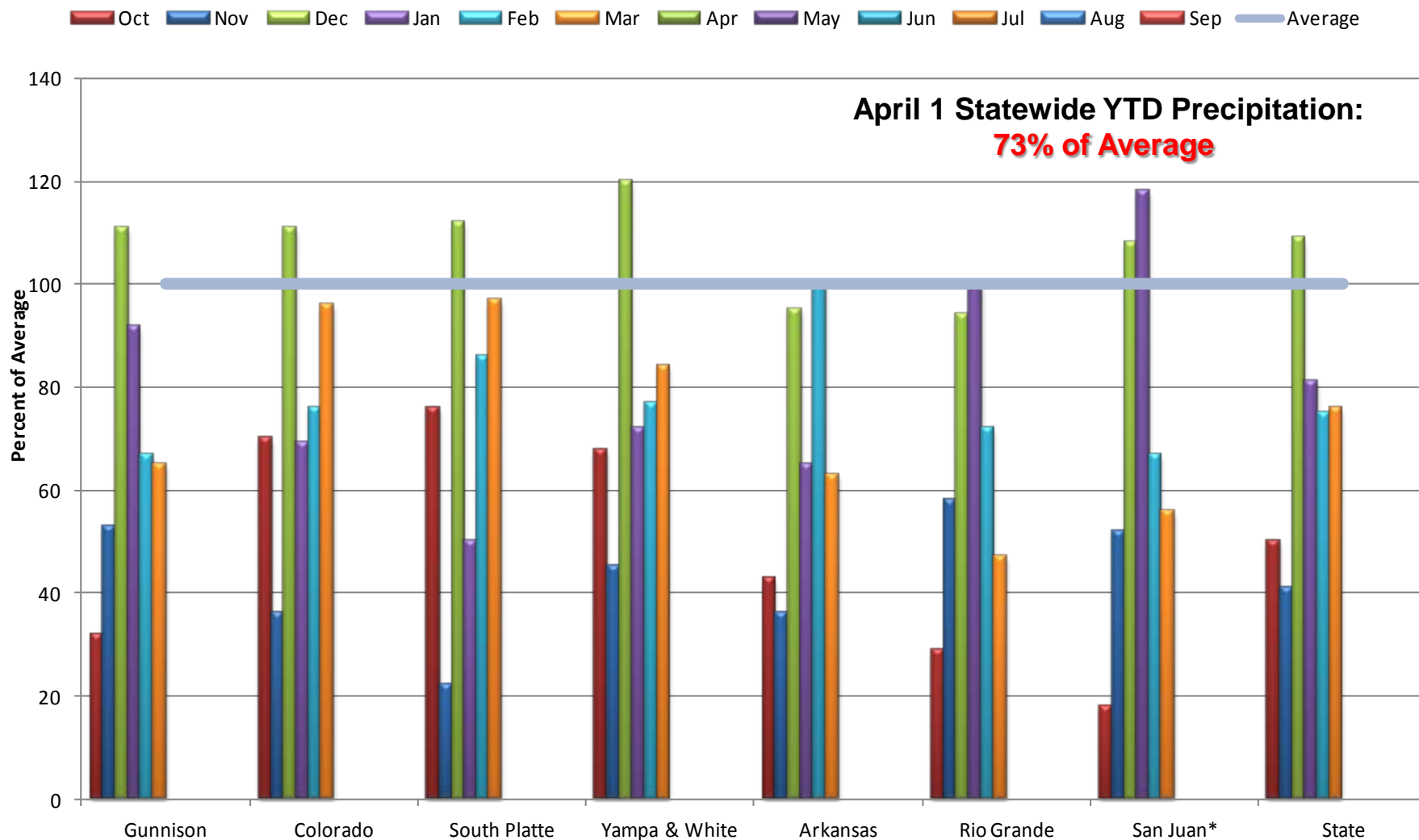
*Data may not provide a valid measure of conditions

Based on Provisional SNOTEL data as of Apr 18, 2013



Colorado Monthly Precipitation Summary for WY2013

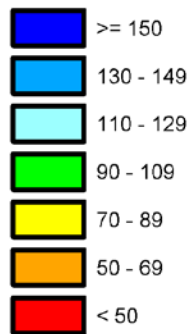
USDA Natural Resources Conservation Service



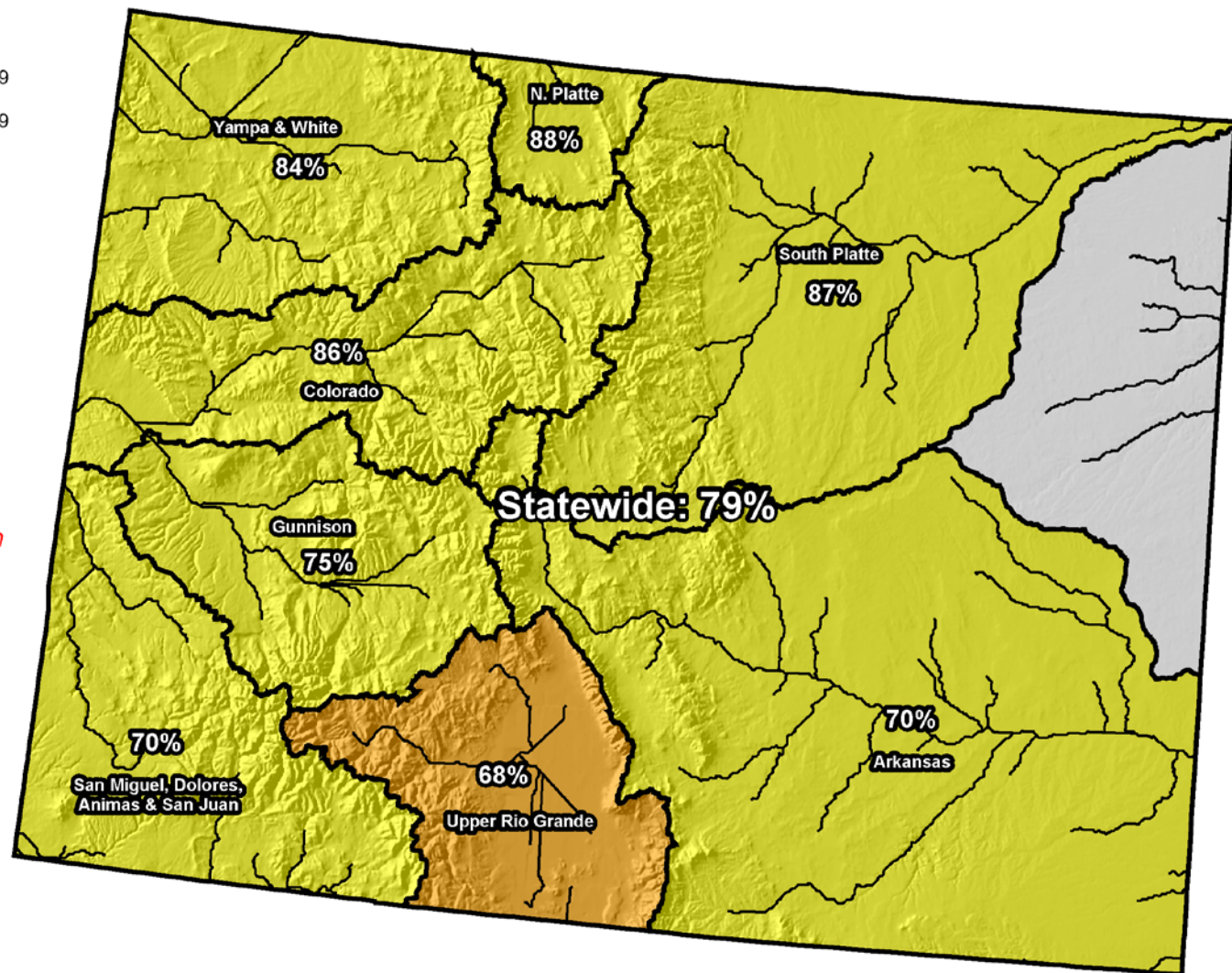
*Includes Animas, Dolores, San Miguel Basins

Colorado SNOTEL Water Year-to-Date Precipitation Update Map

Percent of Average



*Provisional Data
Subject to Revision*



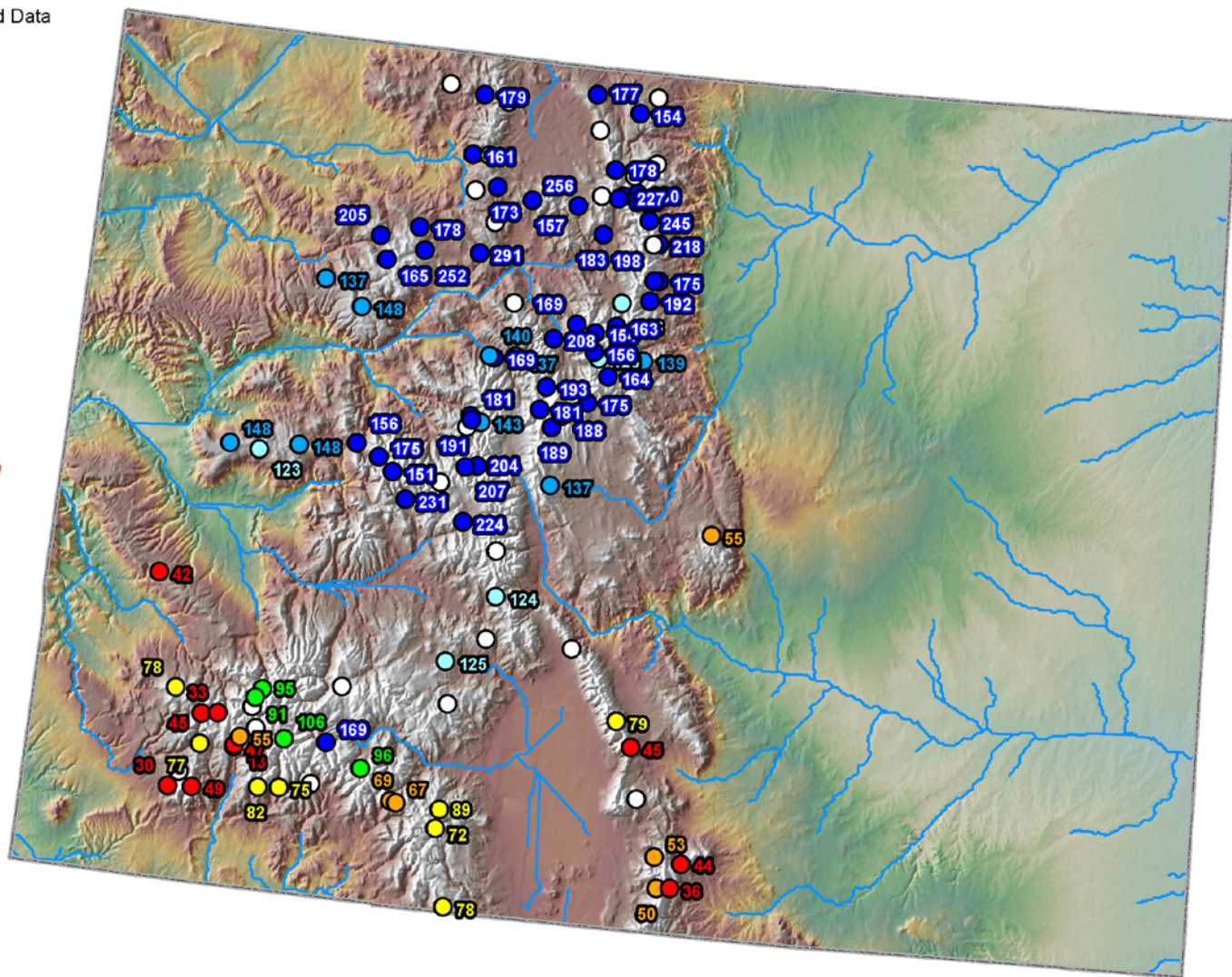
Current as of Apr 17, 2013

Colorado SNOTEL Month-to-Date Precipitation

Percent of Average

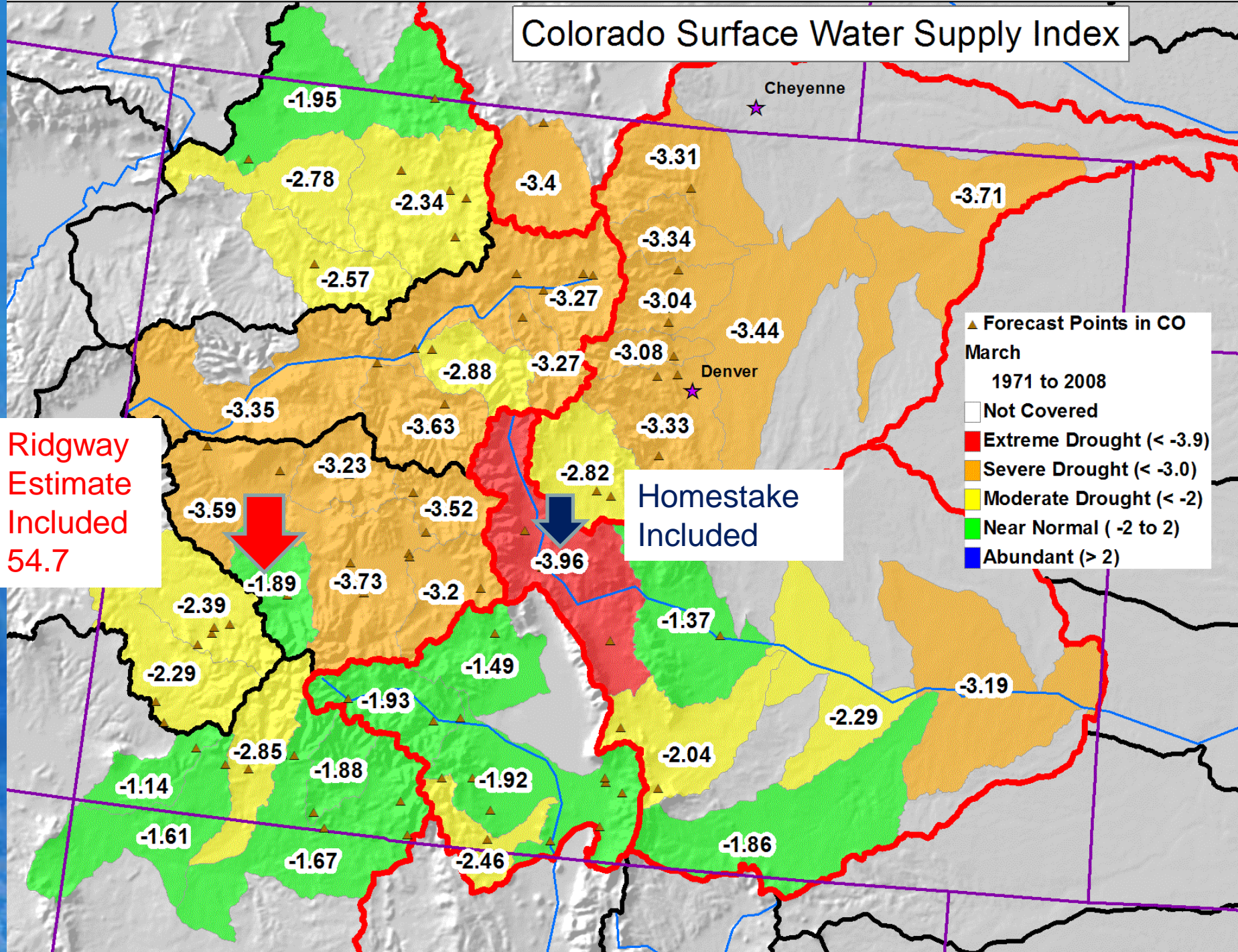
- Missing or Invalid Data
- < 50
- 50 - 69
- 70 - 89
- 90 - 109
- 110 - 129
- 130 - 149
- ≥ 150

*Provisional Data
Subject to Revision*



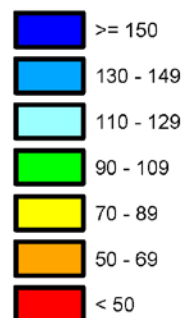
Current as of Apr 17, 2013

Colorado Surface Water Supply Index

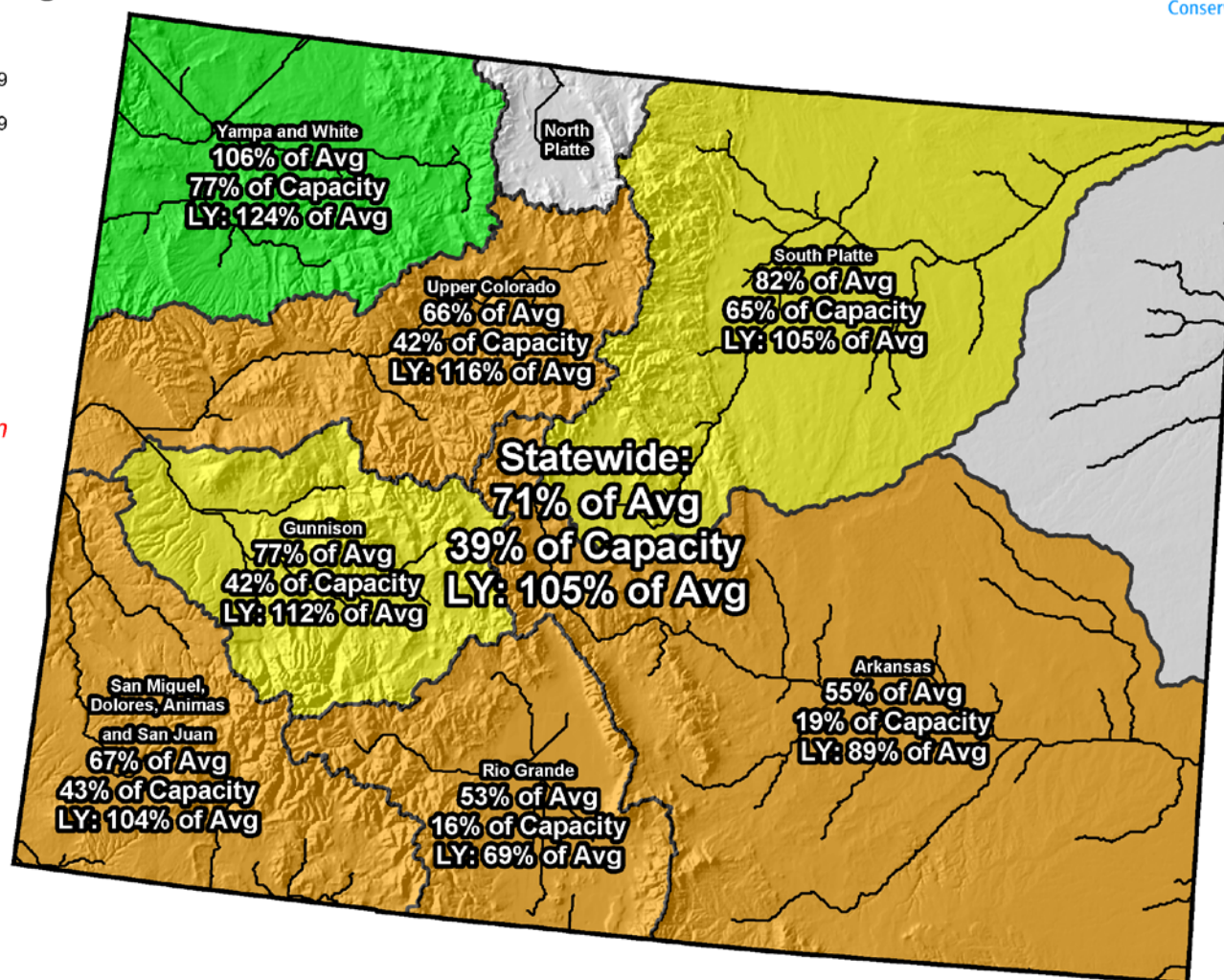


Colorado Reservoir Storage Map

Percent of Average



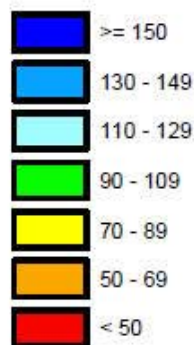
*Provisional Data
Subject to Revision*



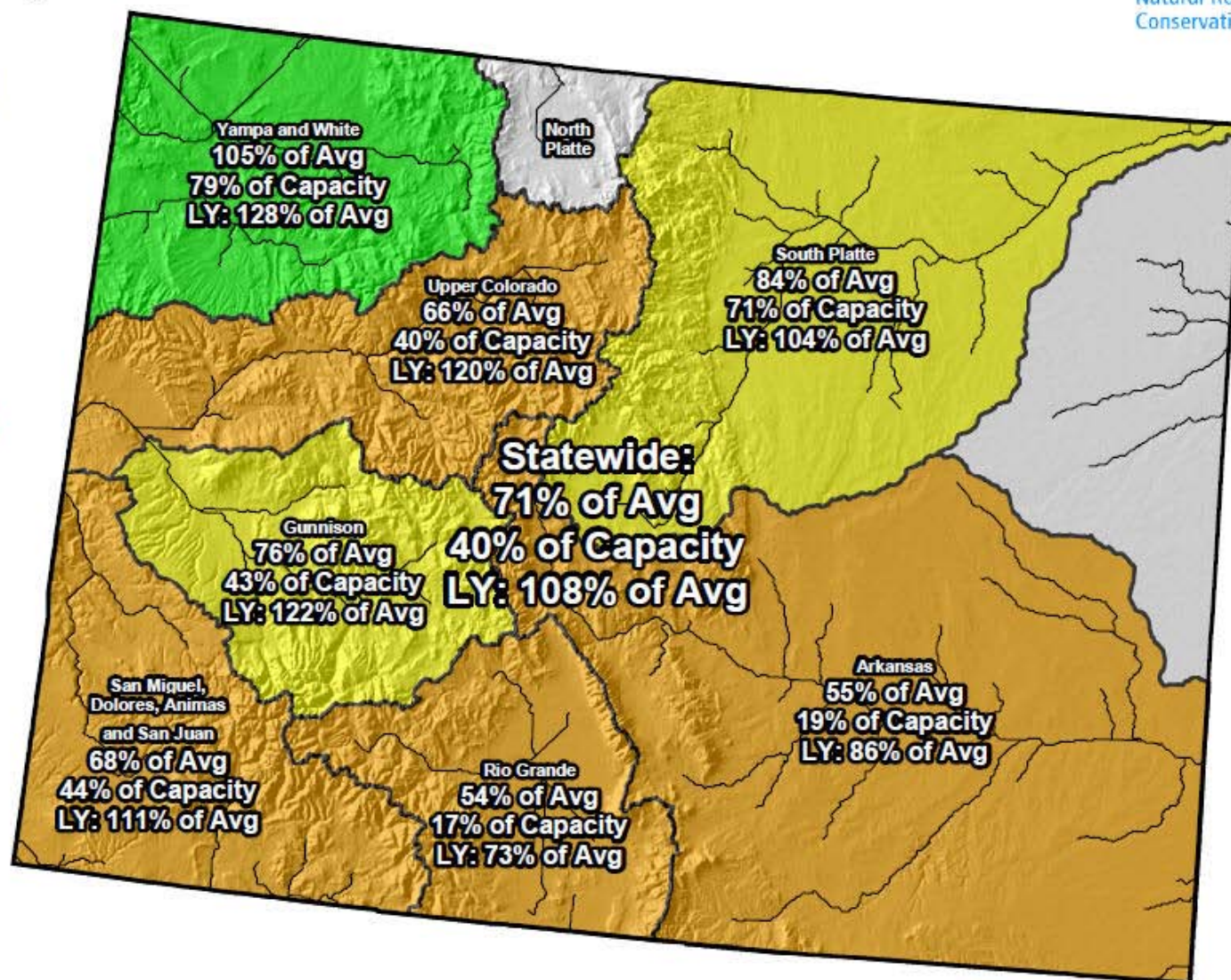
End of February 2013

Colorado Reservoir Storage Map

Percent of Average



*Provisional Data
Subject to Revision*



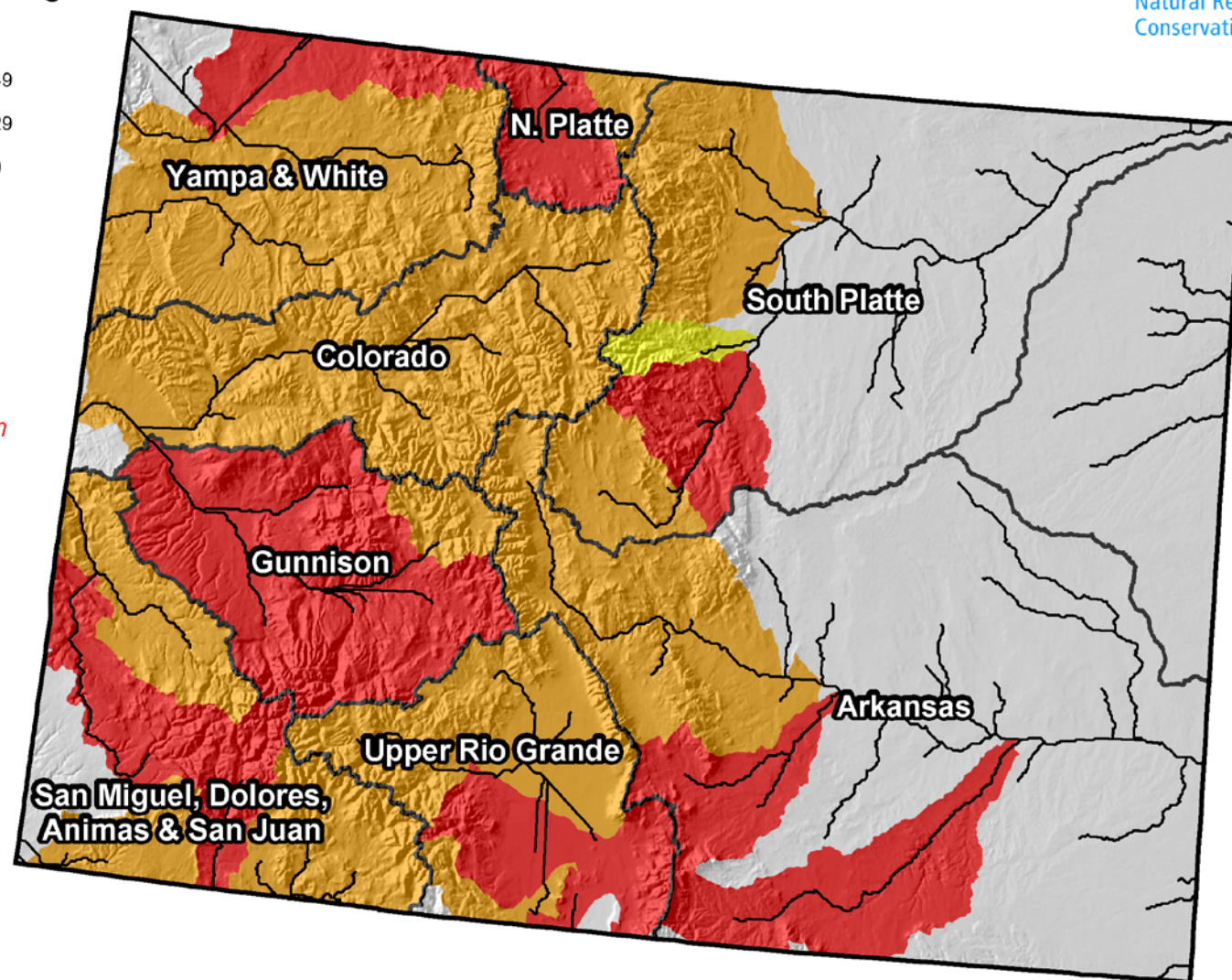
End of March 2013

Colorado Streamflow Forecast Map

Percent of Average

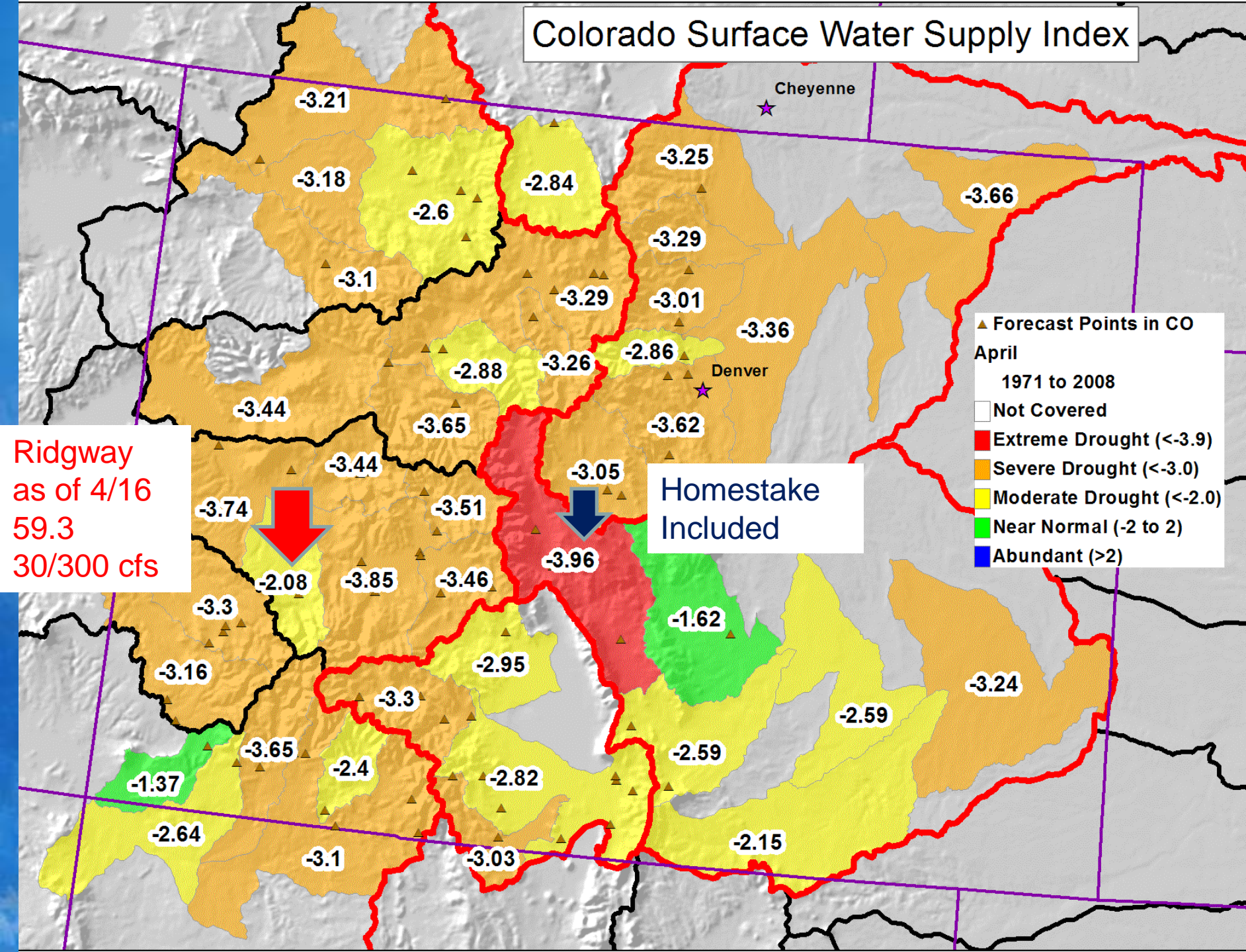


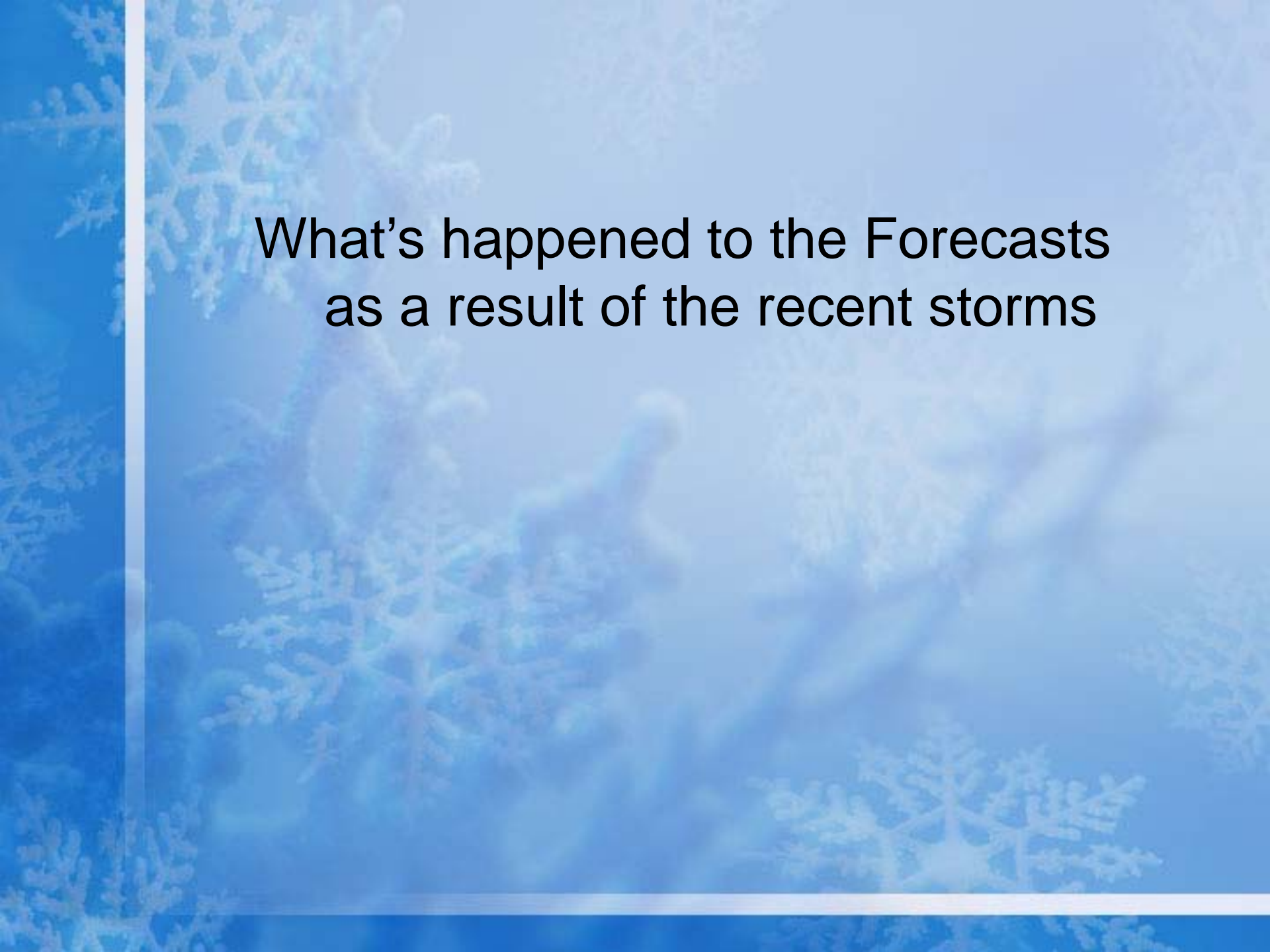
*Provisional Data
Subject to Revision*



Current as of April 1, 2013

Colorado Surface Water Supply Index

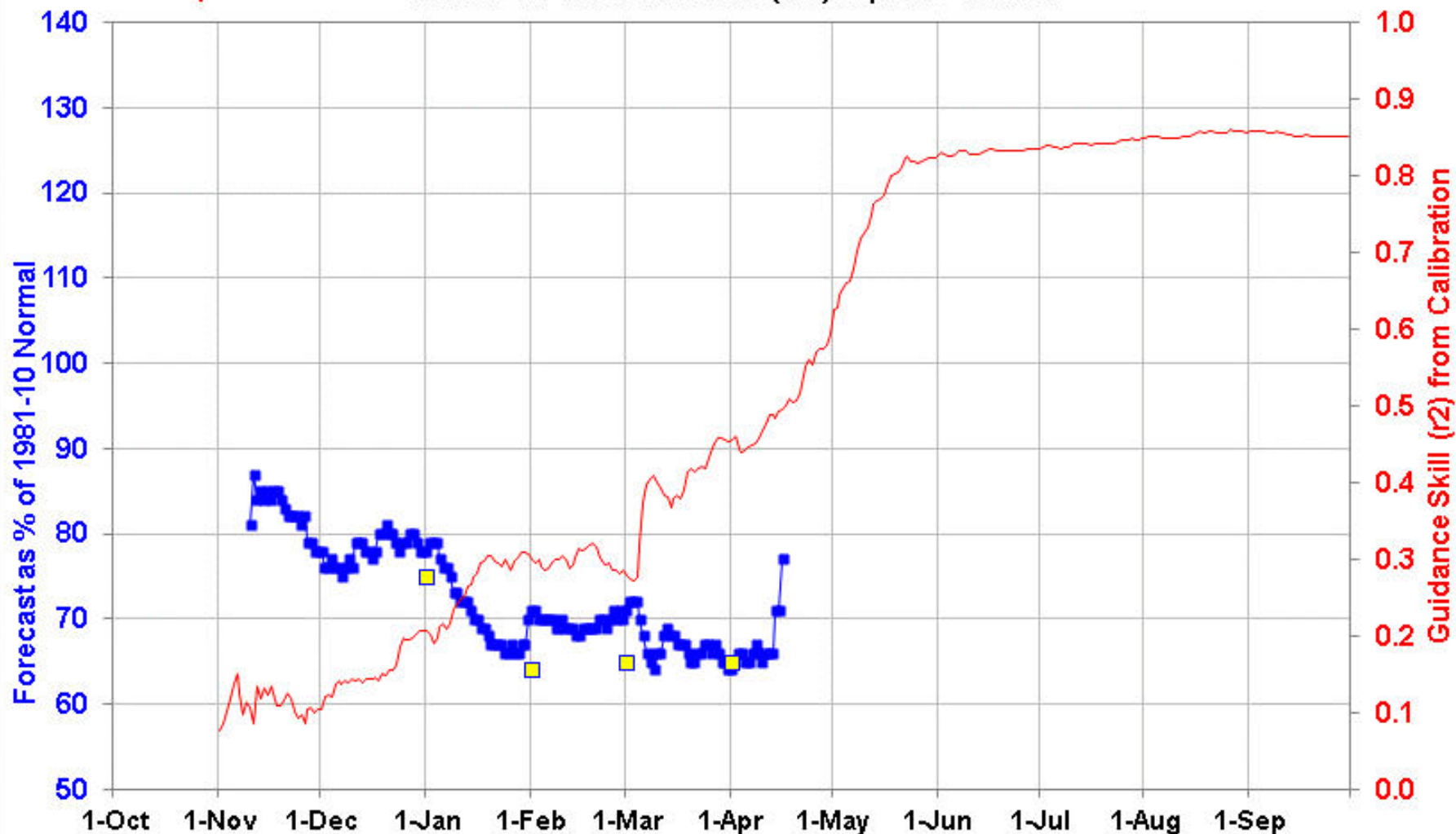




What's happened to the Forecasts
as a result of the recent storms

Created 6:49 Apr 16 2013

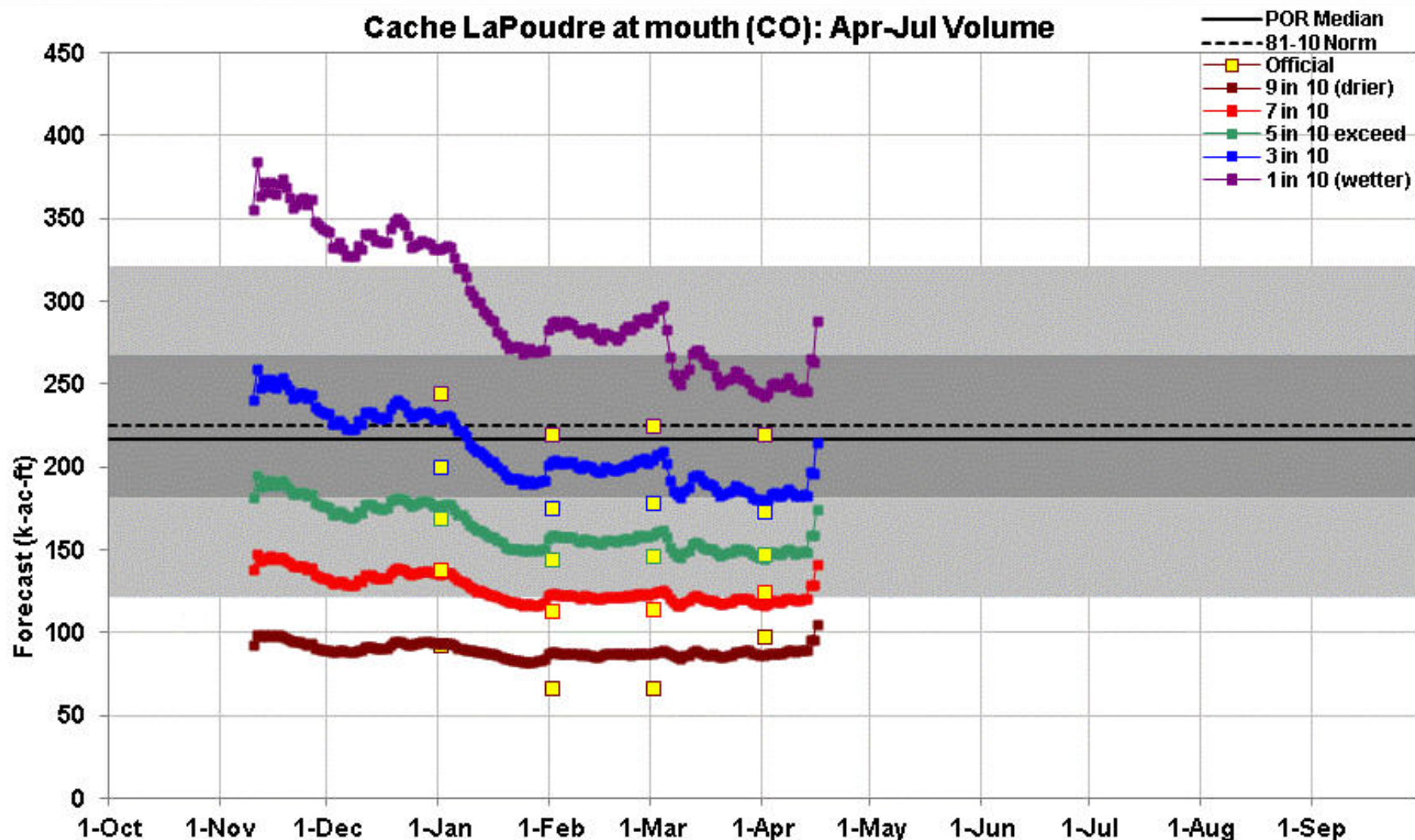
Cache LaPoudre at mouth (CO): Apr-Jul Volume



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 Niño 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 www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html



Cache LaPoudre at mouth (CO): Apr-Jul Volume



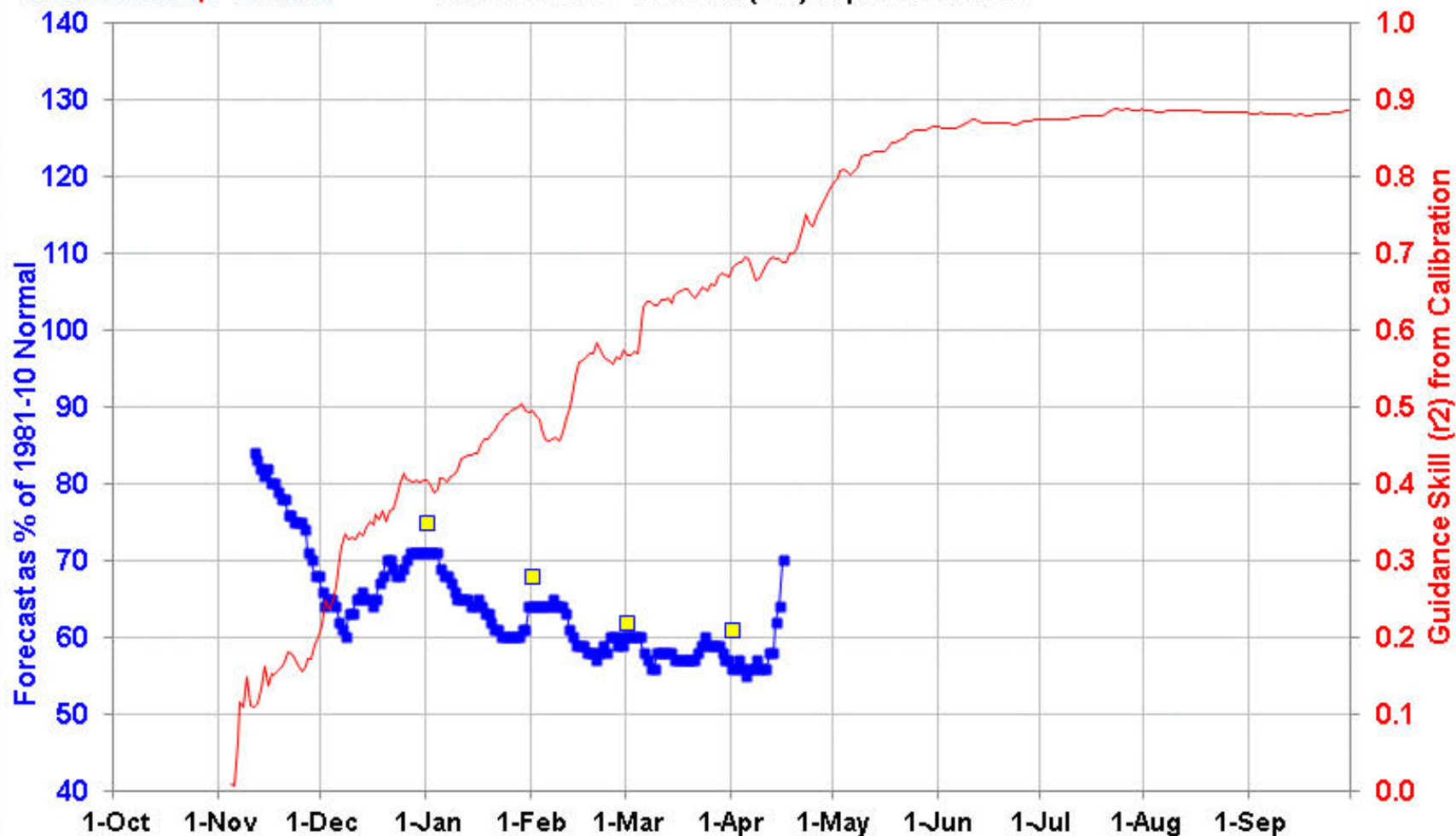
Created 6:49 Apr 16 2013



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. **Yellow squares** are the official outlooks. **Gray background** is the historical period of record variability. 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 www.wcc.nrcs.usda.gov/wst/daily_forecasts.html

Created 6:56 Apr 16 2013

Colorado R nr Dotsero (CO): Apr-Jul Volume

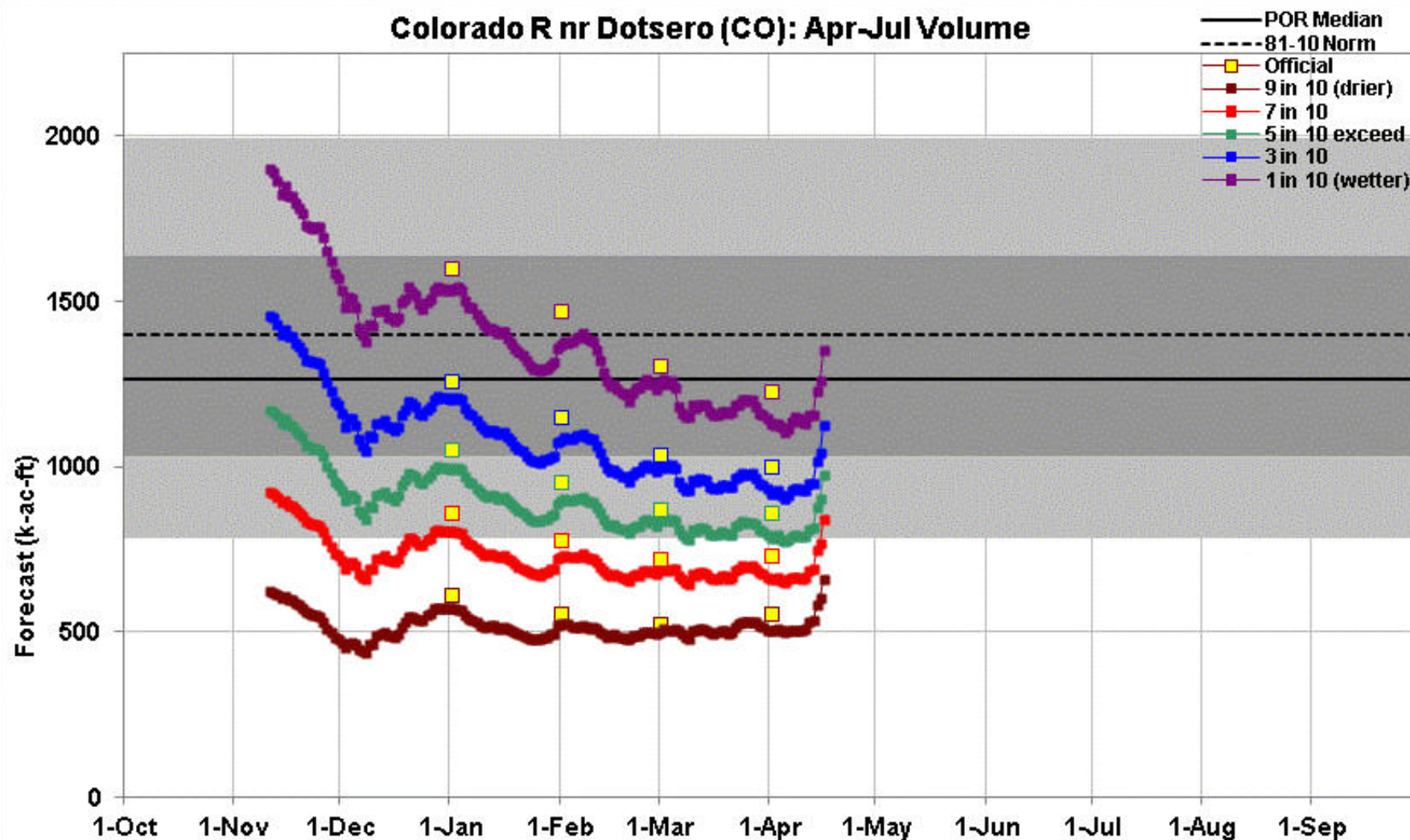


■ Guidance fcast % norm
■ Official fcast % norm
— Guidance Skill (r^2)

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Colorado R nr Dotsero (CO): Apr-Jul Volume



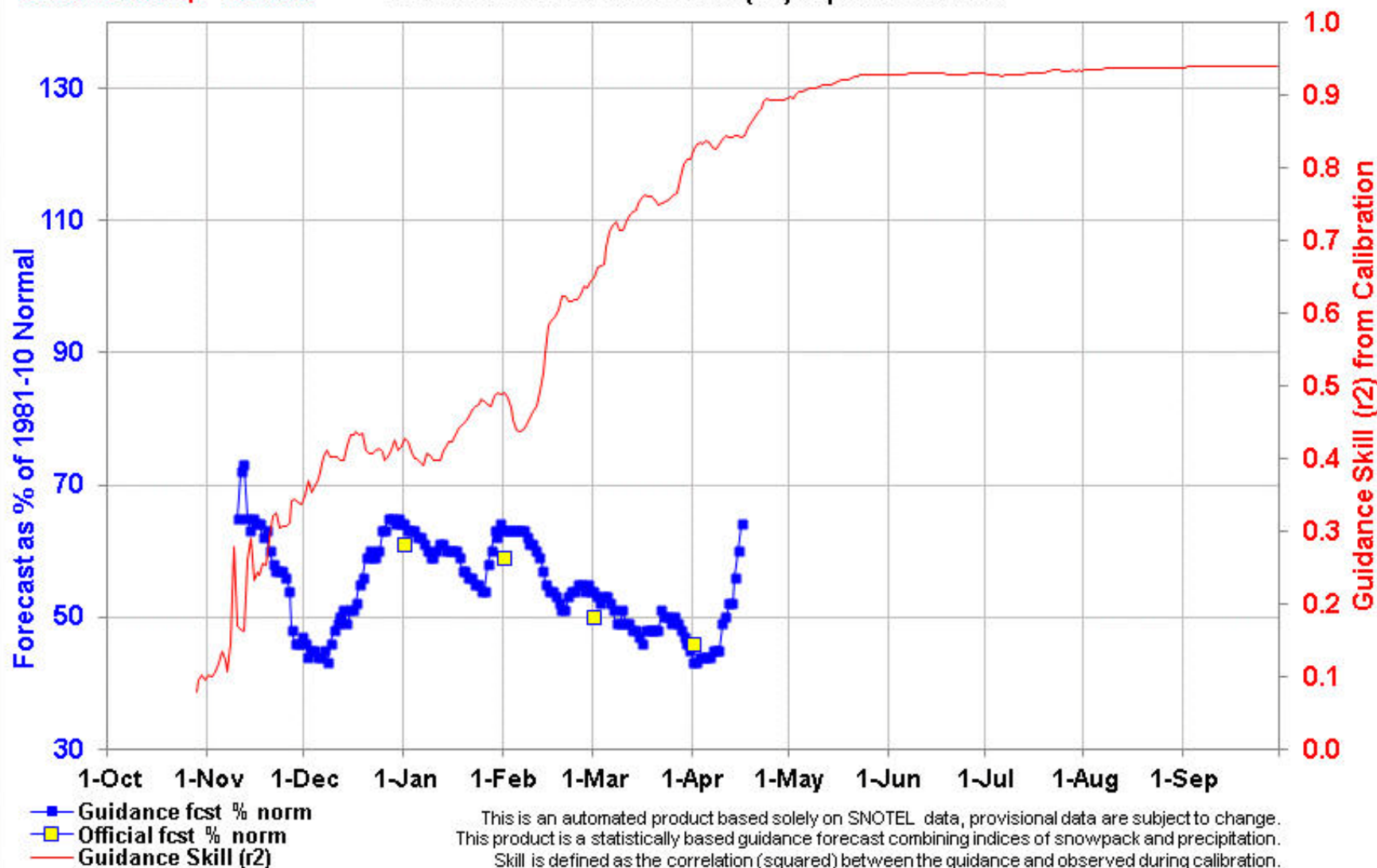
Created 6:56 Apr 16 2013



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Created 6:59 Apr 16 2013

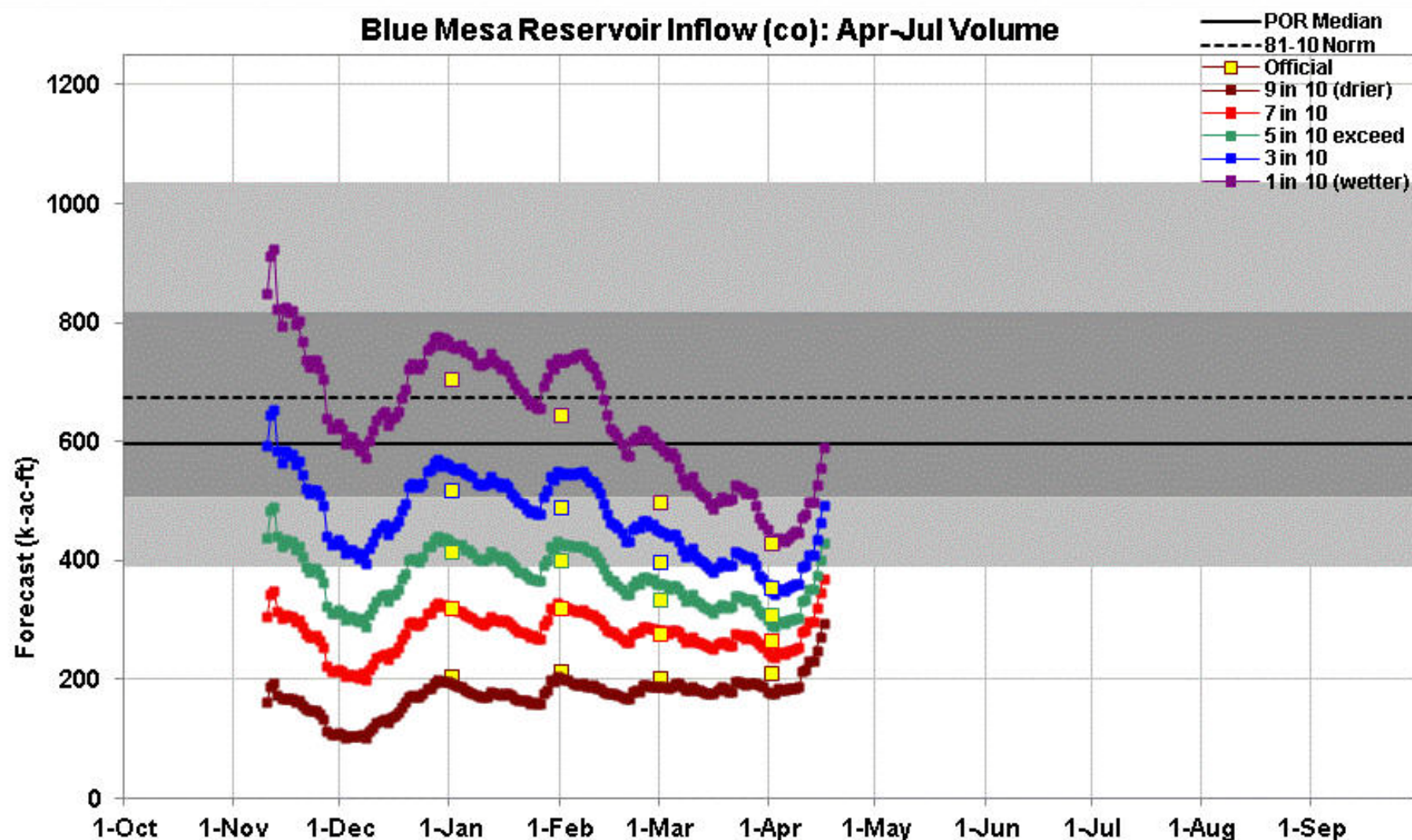
Blue Mesa Reservoir Inflow (co): Apr-Jul Volume



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 www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html



Blue Mesa Reservoir Inflow (co): Apr-Jul Volume



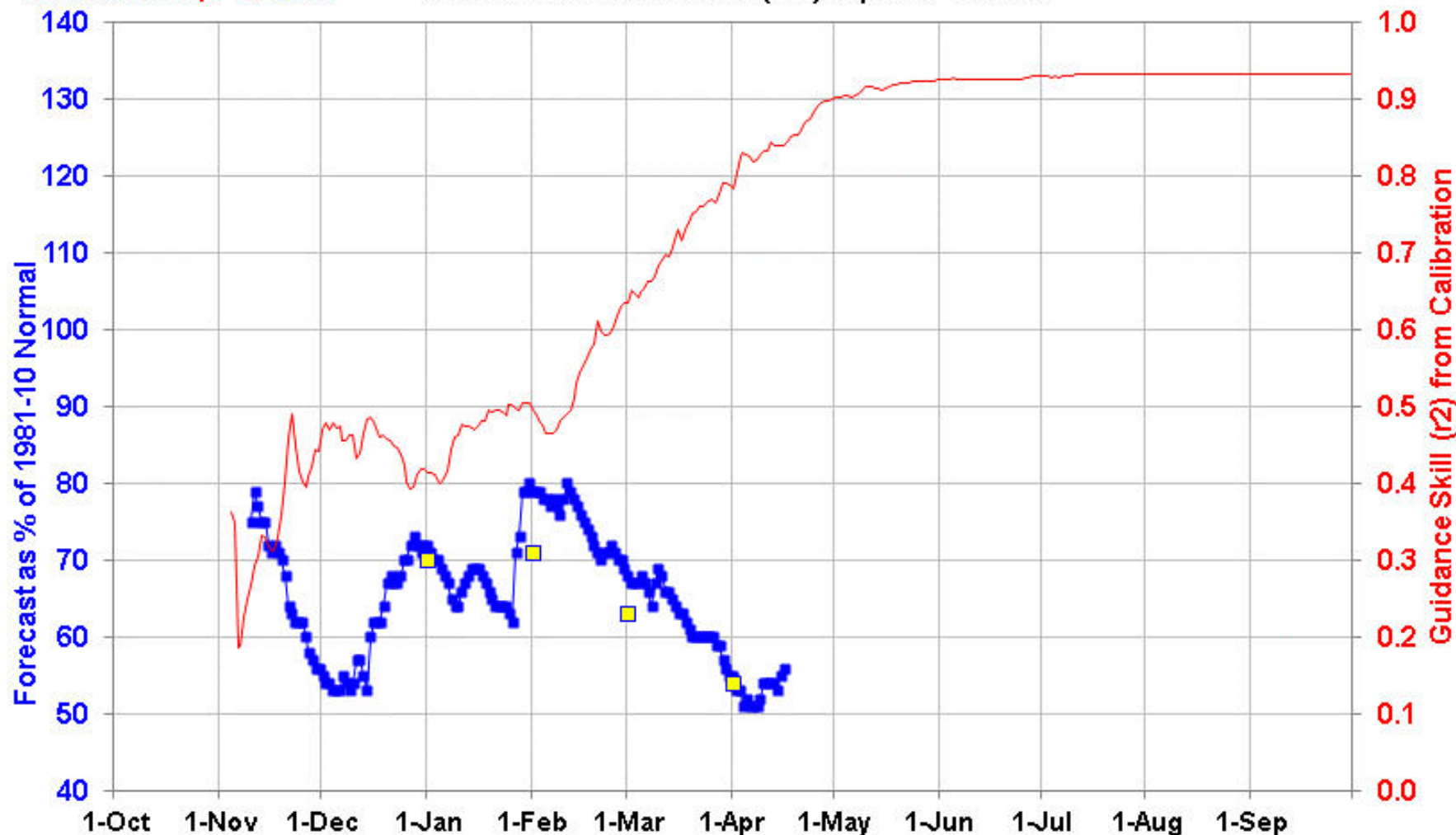
This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. **Yellow squares** are the official outlooks. **Gray background** is the historical period of record variability. 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 www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html

Created 6:59 Apr 16 2013



Created 7:00 Apr 16 2013

Dolores River at Dolores (CO): Apr-Jul Volume

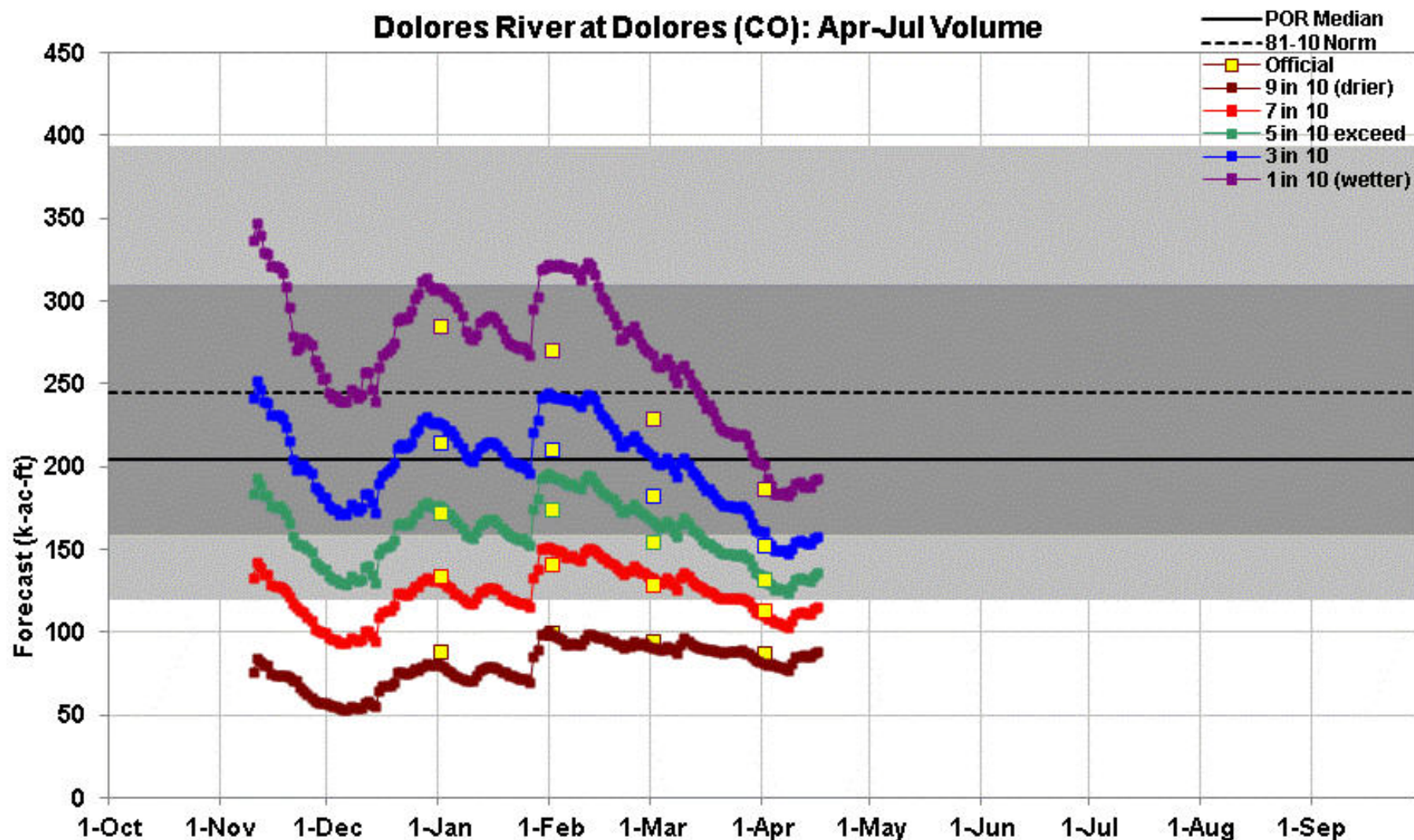


■ Guidance fcst % norm
■ Official fcst % norm
— Guidance Skill (r^2)

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 www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html



Dolores River at Dolores (CO): Apr-Jul Volume



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Created 7:00 Apr 16 2013



Notes on the April SWSI

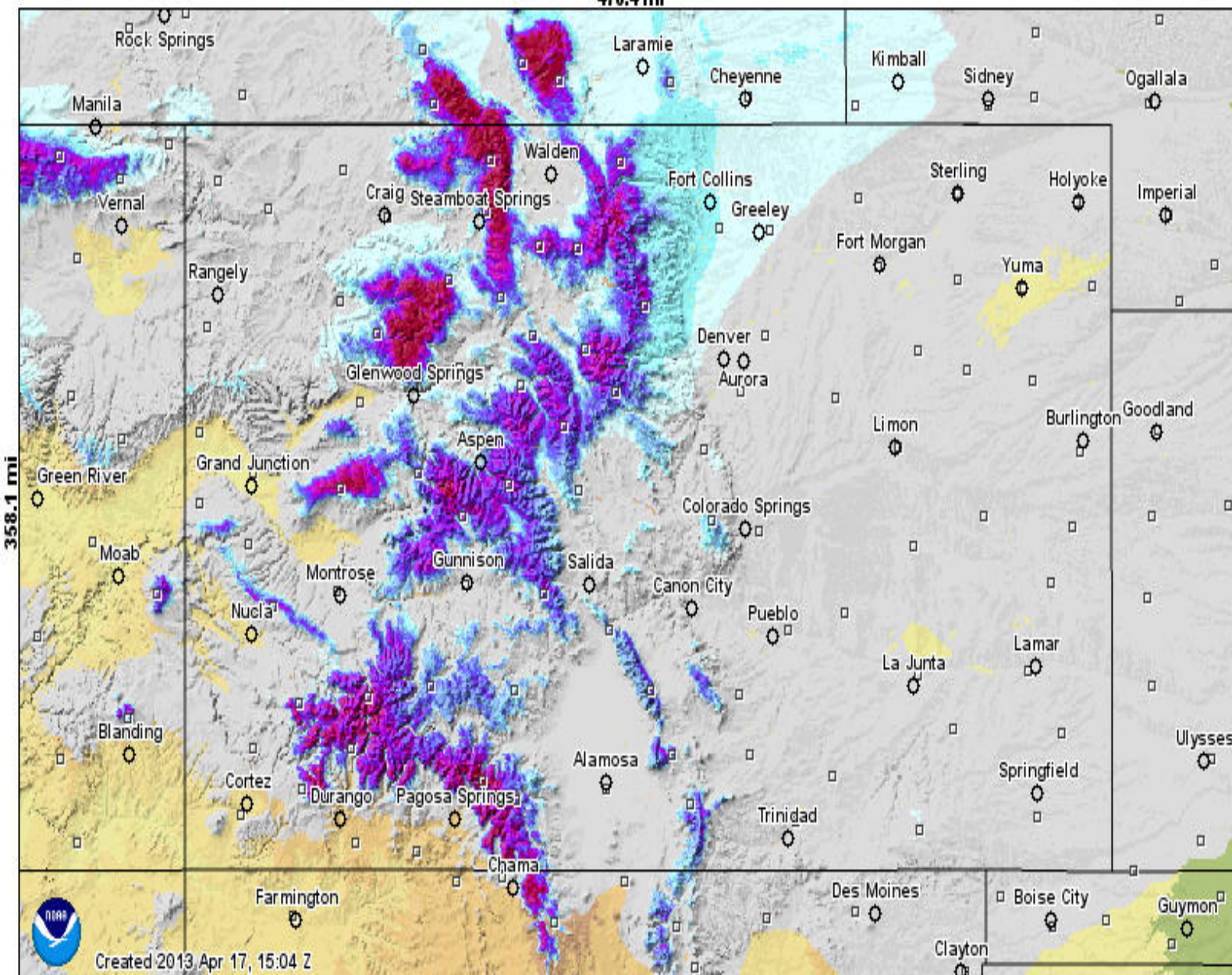
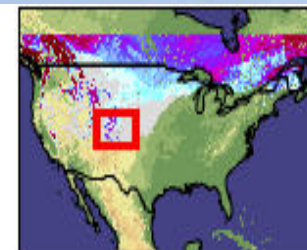
- SWSI inputs switch in January from reservoir storage and observed streamflow to reservoir storage and streamflow forecasts.
 - “More of a future component”
- Those values that remain Near Normal are negative and on the boundary of the next lower classification.
- The Arkansas Headwaters HUC that is negative 3.96 is reporting reservoir storage at the lowest end of the historical probability distribution (Homestake).
- April 1 SWSI values slid due to the declining forecasts. All HUC's are more negative.

WY2013 Summary

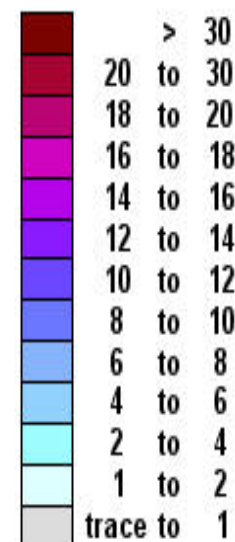
- DEC: SNOW! Finally. Storms in mid to late Dec boosted snowpack but it was not enough to reach normal conditions.
- JAN: Snowpack increases in Southwest basins.
- FEB: Prec below average. The Snow we did receive was just enough to keep from further declining.
- MAR: Storms helped maintained snowpack but no boost.
- APR: So far the recent snow storms have improved the Northern and Eastern portions of the state. The most recent storm brought the snowpack up substantially and in some cases is near normal for this time of year. Snowpack on the Eastern plains linked with much improved snow in the mountains should improve water supply conditions for the South Platte with less improvement in the Arkansas.

Modeled Snow Water Equivalent forecasted for 2013 April 18, 10:00 Z

478.4 mi

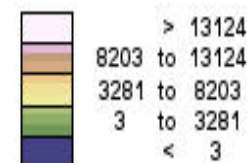


Inches of water equivalent



Not Estimated

Elevation in feet



Created: 2013 Apr 17, 15:04 Z

514.8 mi

Colorado Site - Nunn #1 (2017)

(As of: Thu Apr 18 09:32:26 CDT 2013)

Provisional data, subject to revision

