NRCS – Snow Survey & Water Supply Forecasting

Water Availability Task Force Meeting
May 16th, 2013

Mage Hultstrand

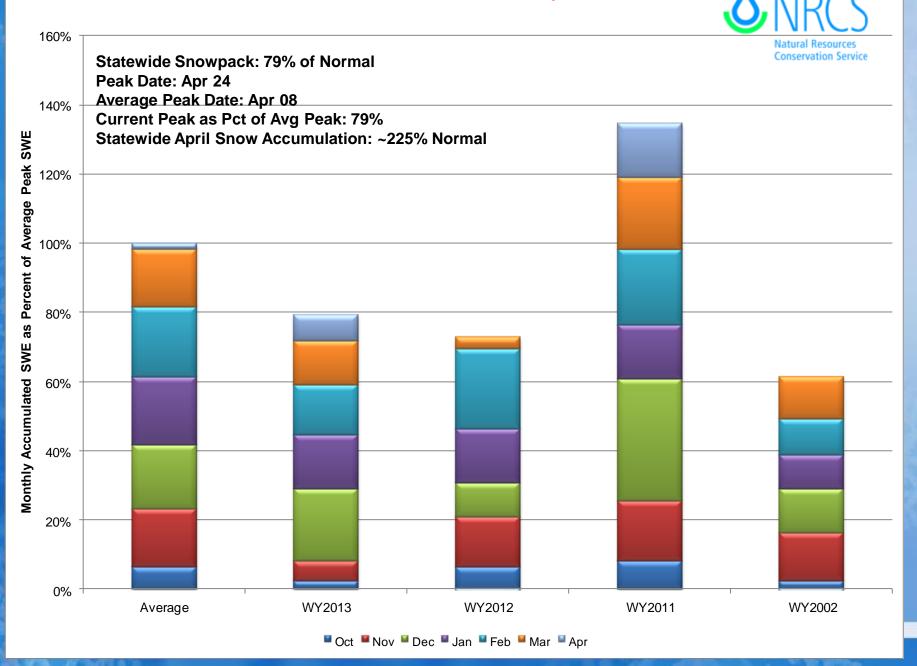
Assistant Snow Survey Supervisor 720-544-2855

mage.hultstrand@co.usda.gov

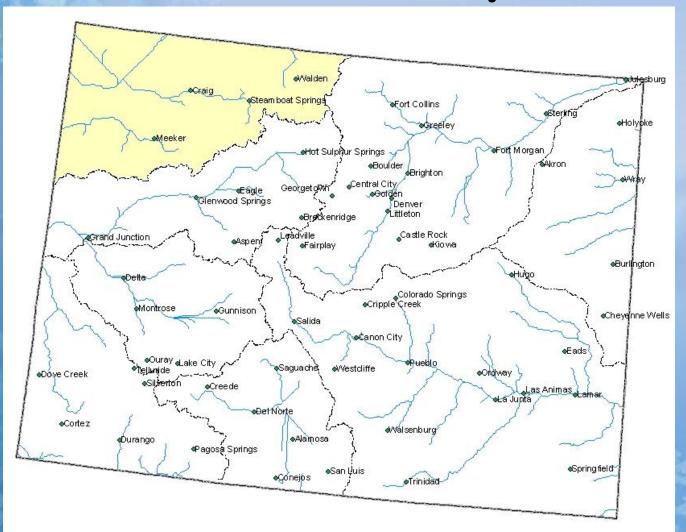
http://www.co.nrcs.usda.gov/snow/

Colorado State-Wide High/Low Monthly Snowpack Summary

Based on Provisional SNOTEL data as of May 15, 2013



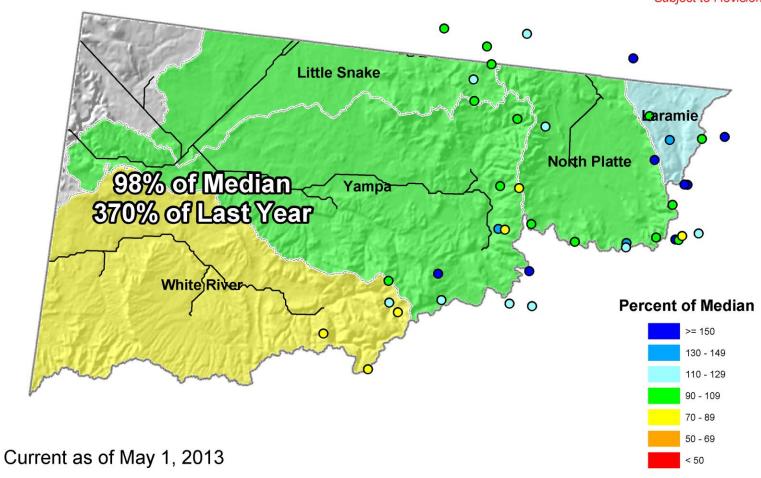
Yampa, White & North Platte River Basins Summary

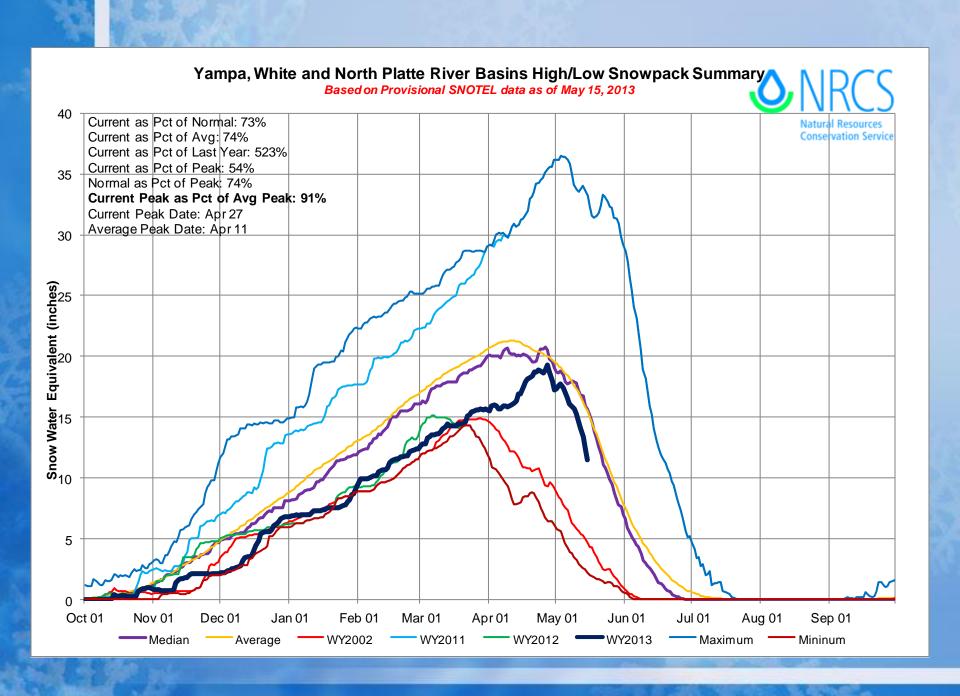


Yampa, White and North Platte River Basins Snowpack Map

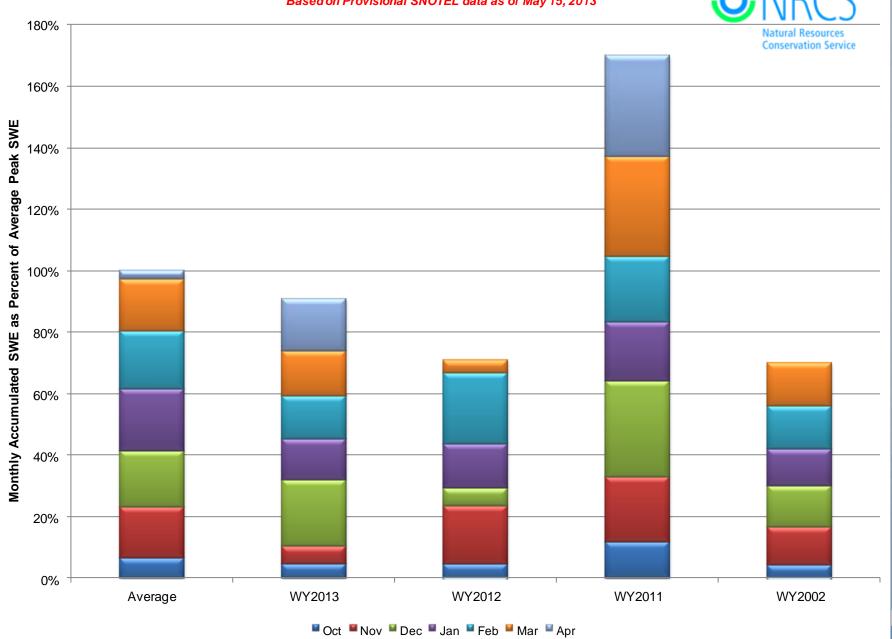


Provisional Data Subject to Revision

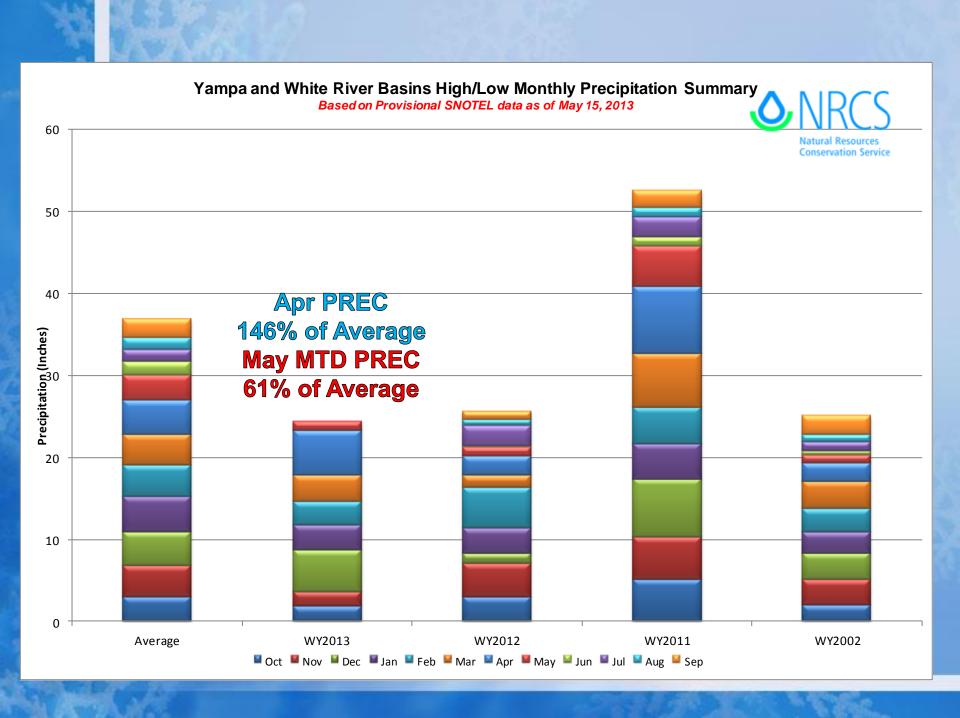




Yampa, White and North Platte River Basins High/Low Monthly Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013

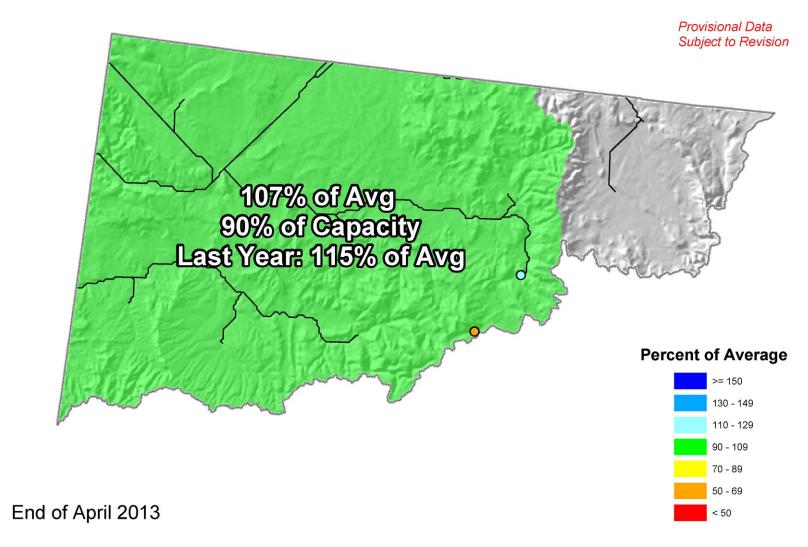


Yampa and White River Basins High/Low Year-to-Date Precipitation Summary Based on Provisional SNOTEL data as of May 15, 2013 Current as Pct of Average: 85% Conservation Service Current as Pct of Last Year: 119% Current as Pct of Average Annnual Total: 66% Average as Pct of Average Annual Total: 78% Pct of Avg Needed to Reach Avg Annual Total: 152% 50 Year-to-Date Precipitation (inches) 10 Oct 01 Nov 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 Average WY2002 WY2011 WY2012 **■**WY2013 Mininum Median Maximum



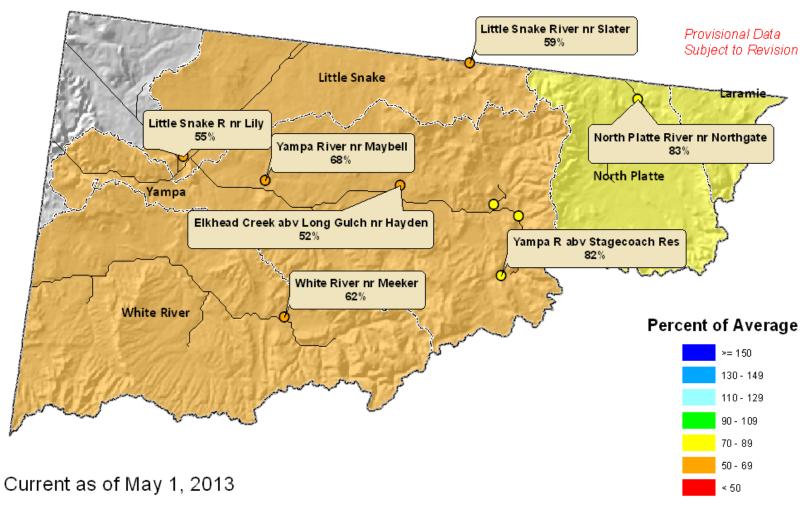
Yampa & White River Basins Reservoir Storage Map



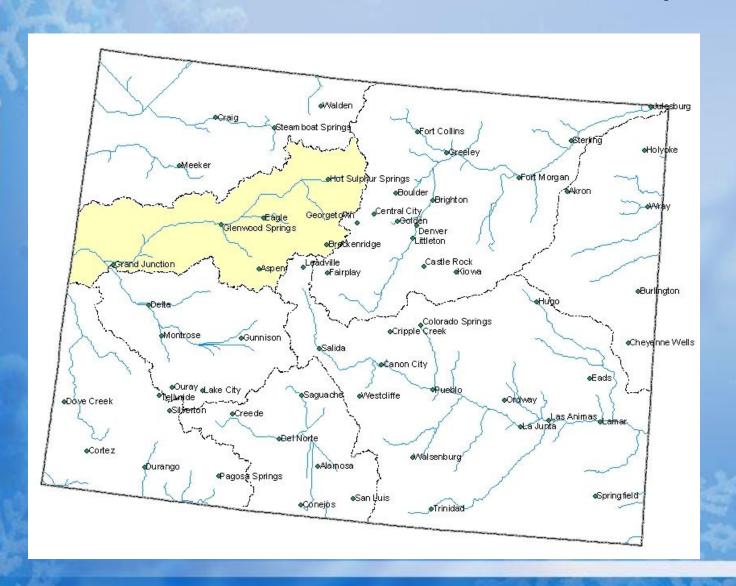


Yampa, White and North Platte River Basins Streamflow Map



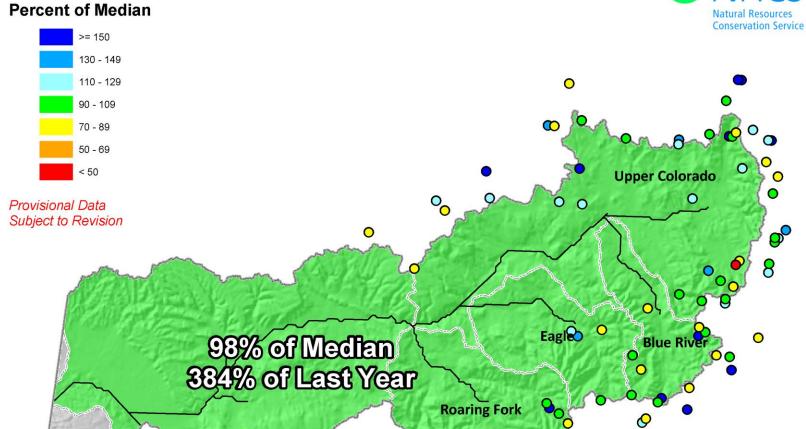


Colorado River Basin Summary



Colorado River Basin Snowpack Map

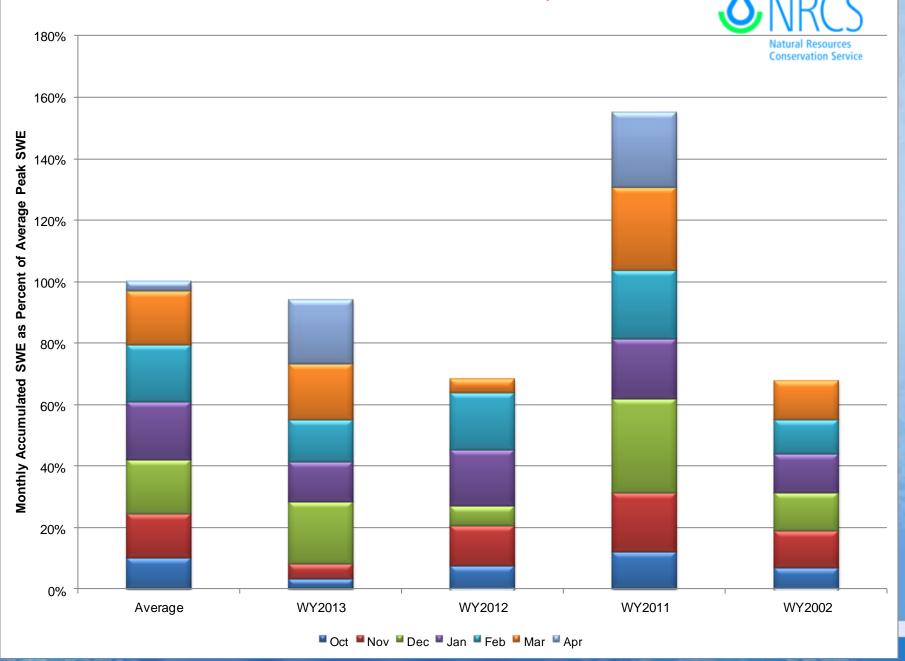




Current as of May 1, 2013

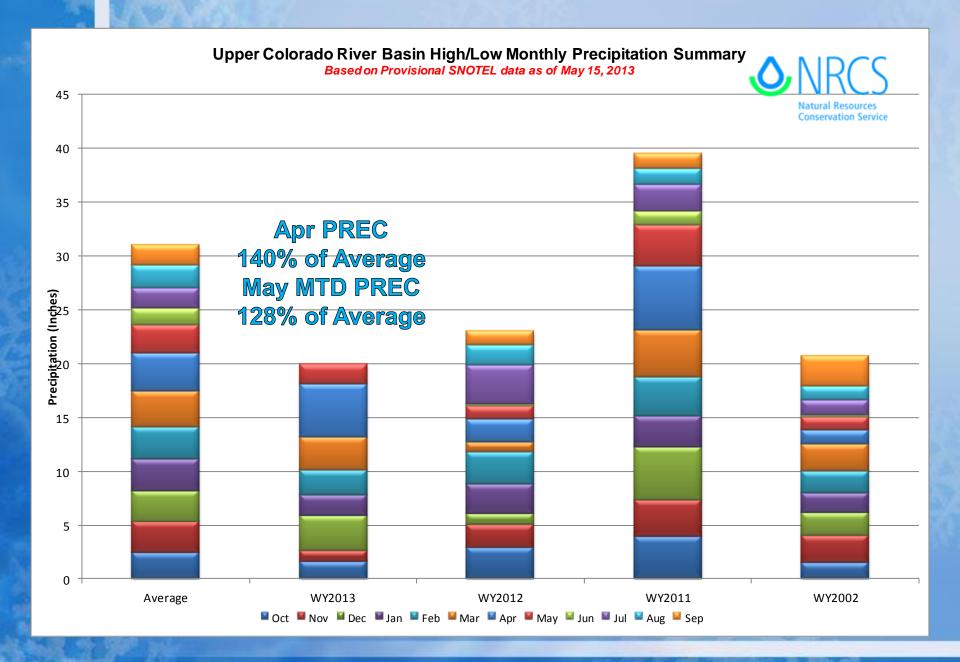
Upper Colorado River Basin High/Low Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013 30 Current as Pct of Normal: 93% Current as Pct of Avg: 92% Conservation Service Current as Pct of Last Year: 1175% Current as Pct of Peak: 59% Normal as Pct of Peak 63% Current Peak as Pct of Avg Peak: 94% Current Peak Date: Apr 25 Average Peak Date: Apr 10 Snow Water Equivalent (inches) 5 Oct 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 WY2011 Maximum WY2002 WY2013 Mininum Median Average WY2012

Upper Colorado River Basin High/Low Monthly Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013



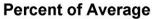
Upper Colorado River Basin High/Low Year-to-Date Precipitation Summary

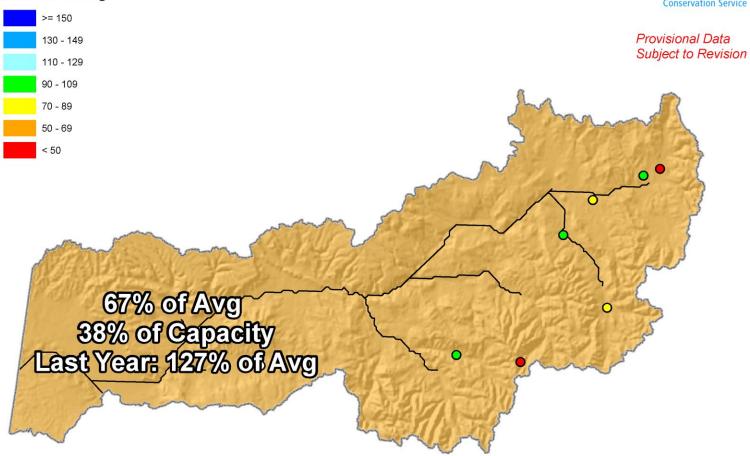
Based on Provisional SNOTEL data as of May 15, 2013 45 Current as Pct of Average: 89% Conservation Service Current as Pct of Last Year: 130% Current as Pct of Average Annnual Total: 64% Average as Pct of Average Annual Total: 72% Pct of Avg Needed to Reach Avg Annual Total: 129% 35 Year-to-Date Precipitation (inches) 10 5 Oct 01 Nov 01 Dec 01 Jul 01 Sep 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Aug 01 Average WY2002 WY2011 Maximum WY2012 **■**WY2013 Median Mininum



Colorado River Basin Reservoir Storage Map



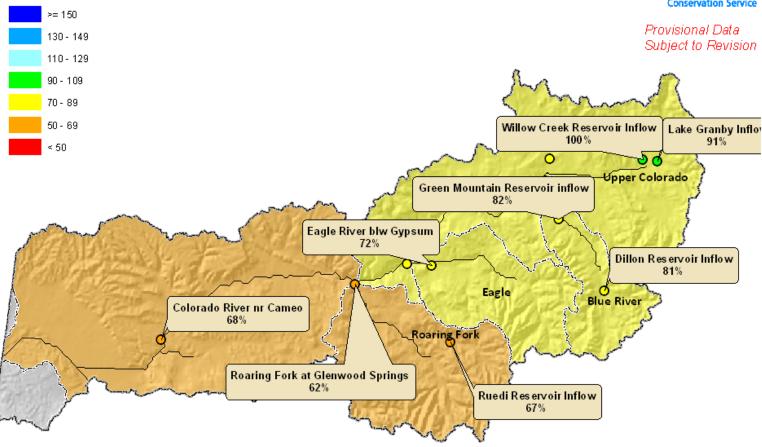




End of April 2013

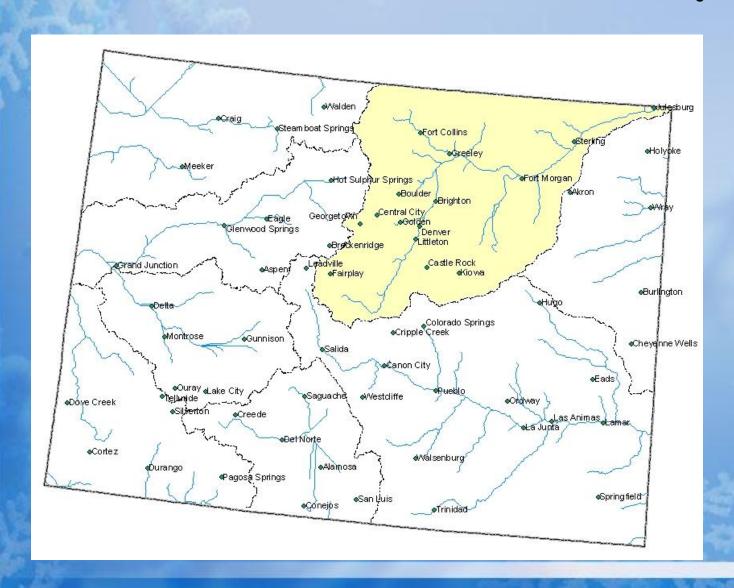
Colorado River Basin Streamflow Forecast Map Percent of Average





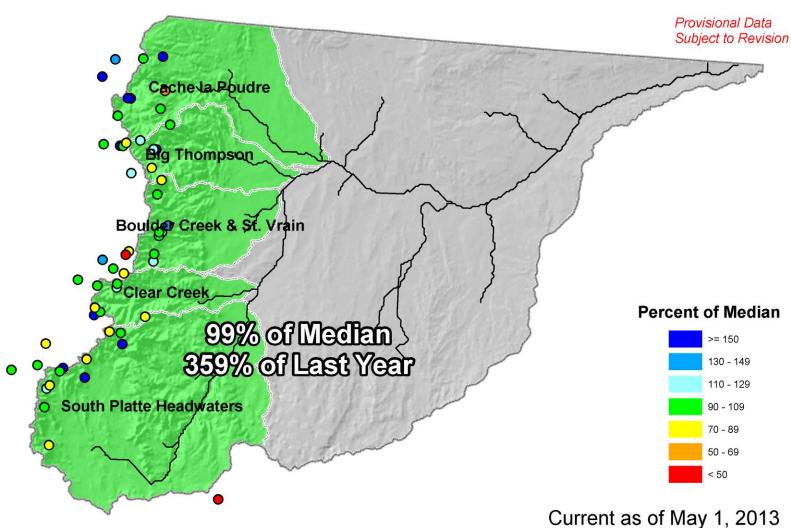
Current as of May 1, 2013

South Platte River Basin Summary



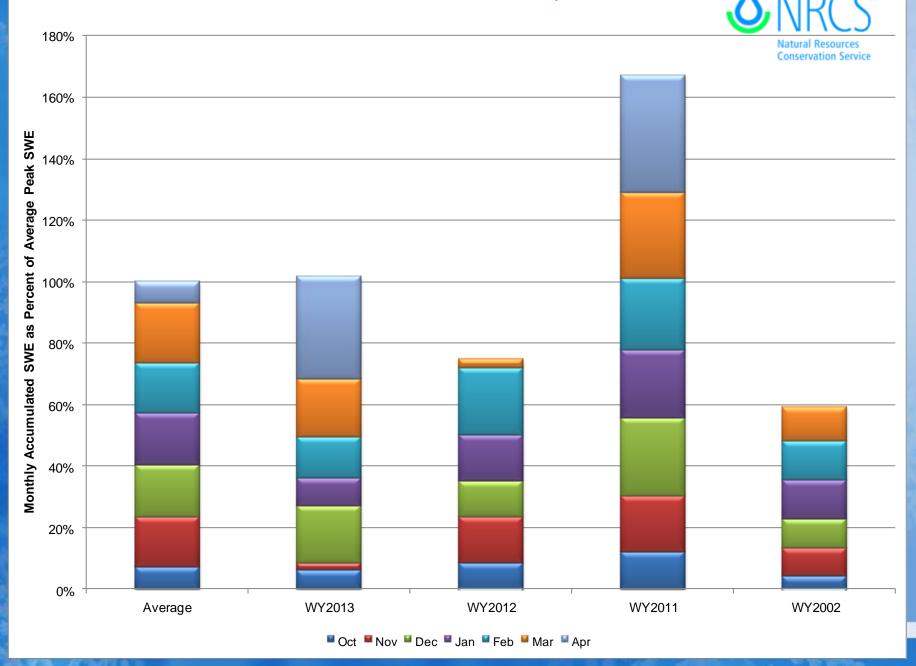
South Platte River Basin Snowpack Map





South Platte River Basin High/Low Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013 35 Current as Pct of Normal: 106% Current as Pct of Avg: 110% Conservation Service Current as Pct of Last Year: 1146% Current as Pct of Peak: 90% Normal as Pct of Peak: 84% Current Peak as Pct of Avg Peak: 105% Current Peak Date: May 10 Average Peak Date: Apr 28 25 Equivalent (inches) Snow Water | 5 Oct 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 Maximum WY2002 WY2011 WY2013 Mininum Median Average WY2012

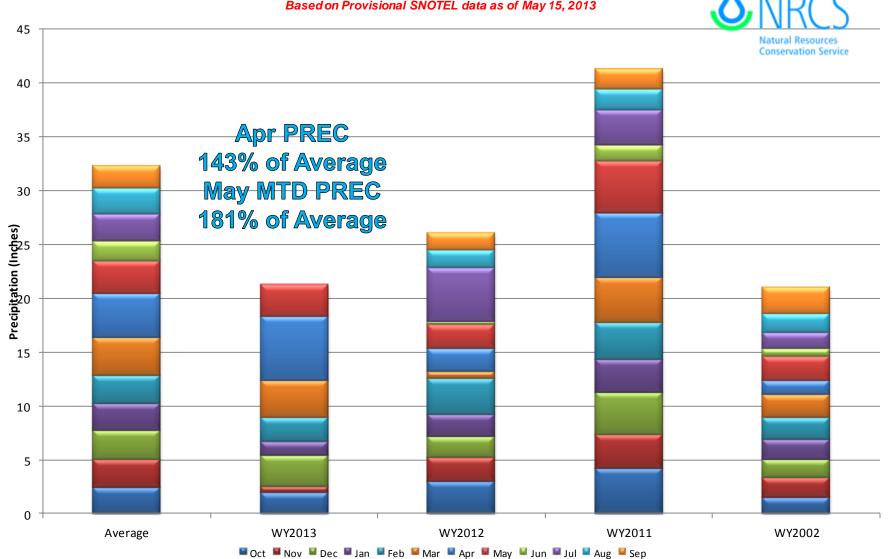
South Platte River Basin High/Low Monthly Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013



South Platte River Basin High/Low Year-to-Date Precipitation Summary Based on Provisional SNOTEL data as of May 15, 2013 Current as Pct of Average: 96% Conservation Service Current as Pct of Last Year: 127% Current as Pct of Average Annnual Total: 66% Average as Pct of Average Annual Total: 68% Pct of Avg Needed to Reach Avg Annual Total: 108% 35 Year-to-Date Precipitation (inches) 10 5 Oct 01 Nov 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 WY2002 WY2011 WY2012 **W**Y2013 Median Mininum Average Maximum

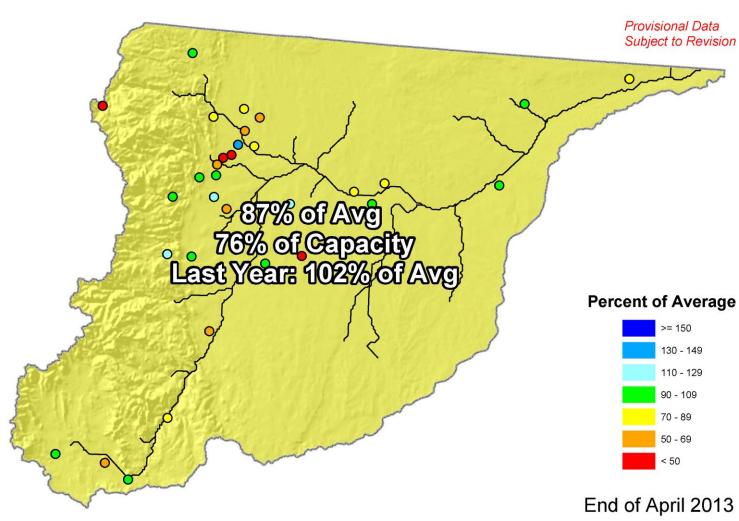
South Platte River Basin High/Low Monthly Precipitation Summary

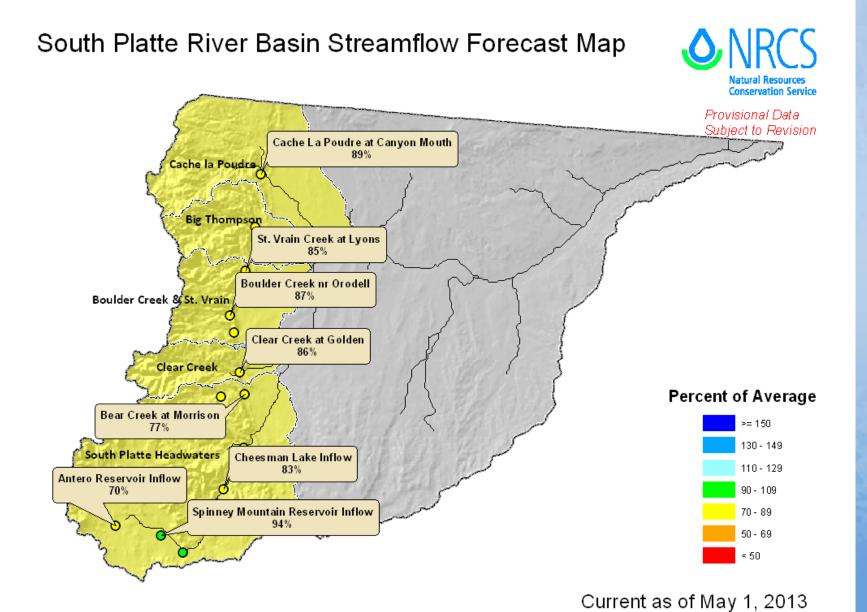
Based on Provisional SNOTEL data as of May 15, 2013



South Platte River Basin Reservoir Storage Map

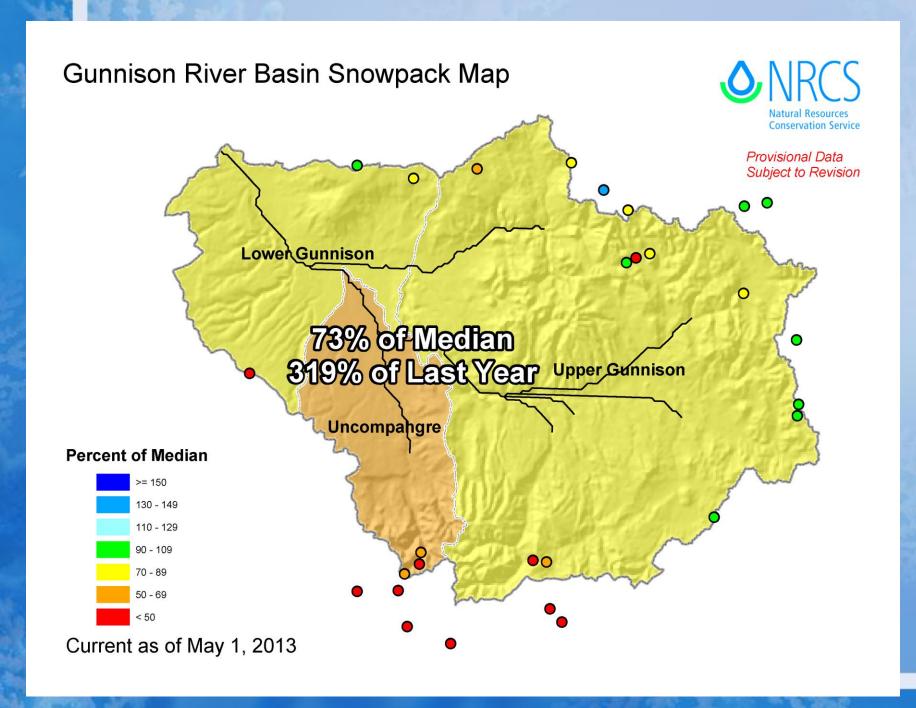






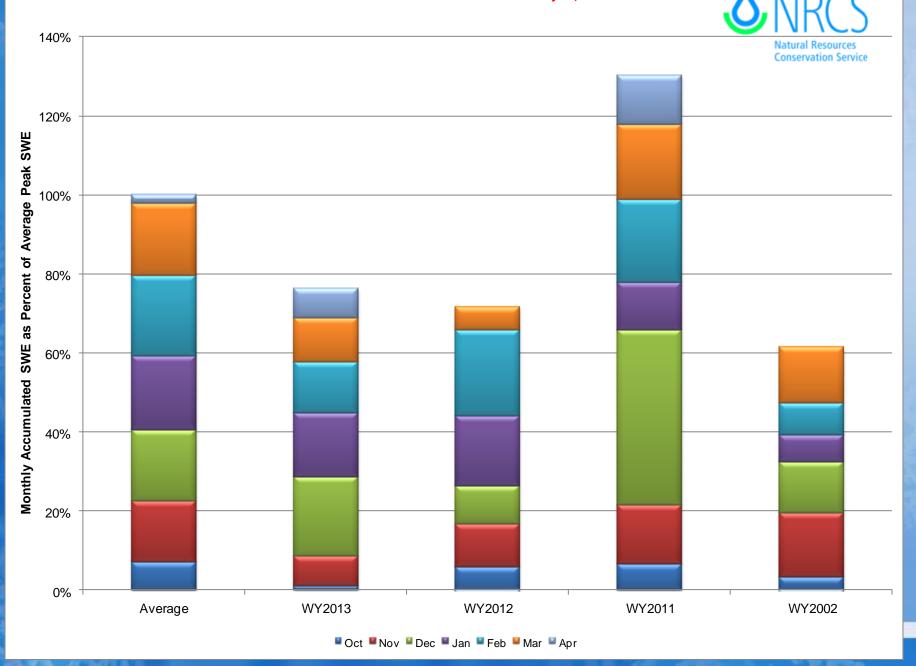
Gunnison River Basin Summary



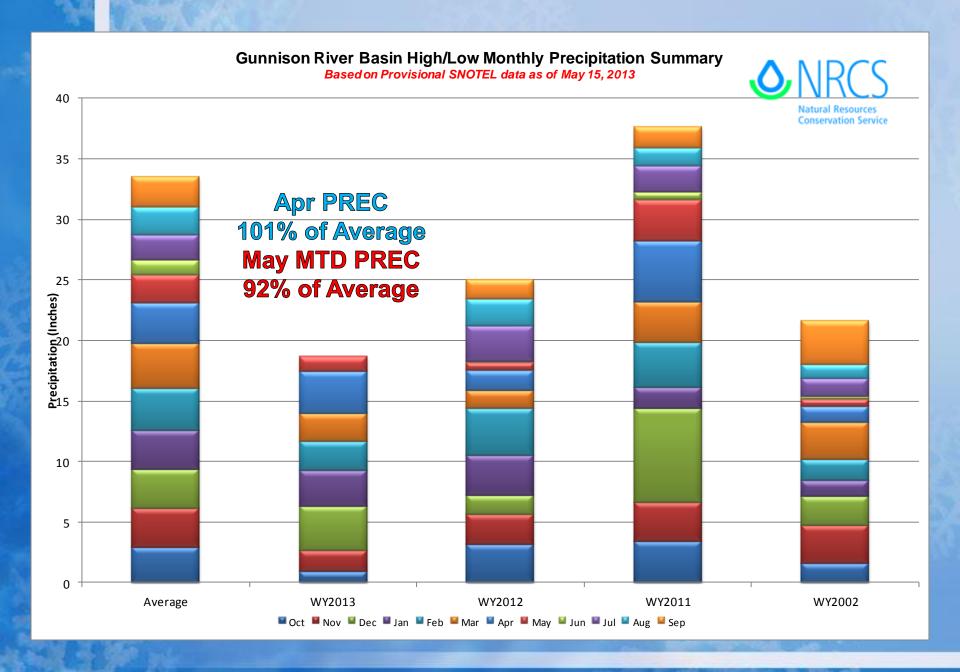


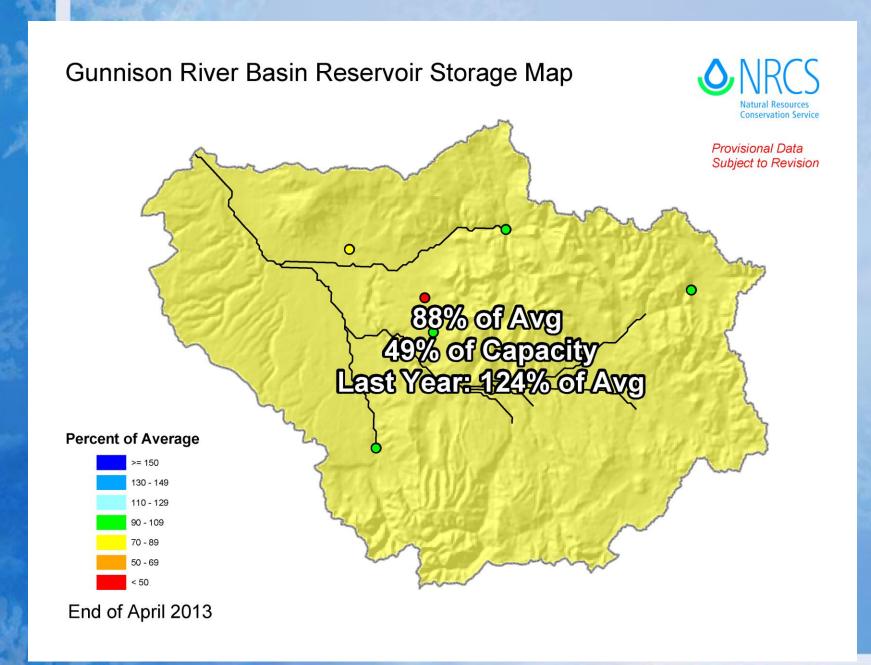
Gunnison River Basin High/Low Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013 35 Current as Pct of Normal: 72% Current as Pct of Avg: 61% Conservation Service Current as Pct of Last Year: 1067% Current as Pct of Peak: 34% Normal as Pct of Peak: 48% Current Peak as Pct of Avg Peak: 76% Current Peak Date: Apr 21 Average Peak Date: Apr 10 25 Equivalent (inches) Snow Water | 5 Oct 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 WY2002 WY2013 Maximum Median Average WY2011 WY2012 Mininum

Gunnison River Basin High/Low Monthly Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013

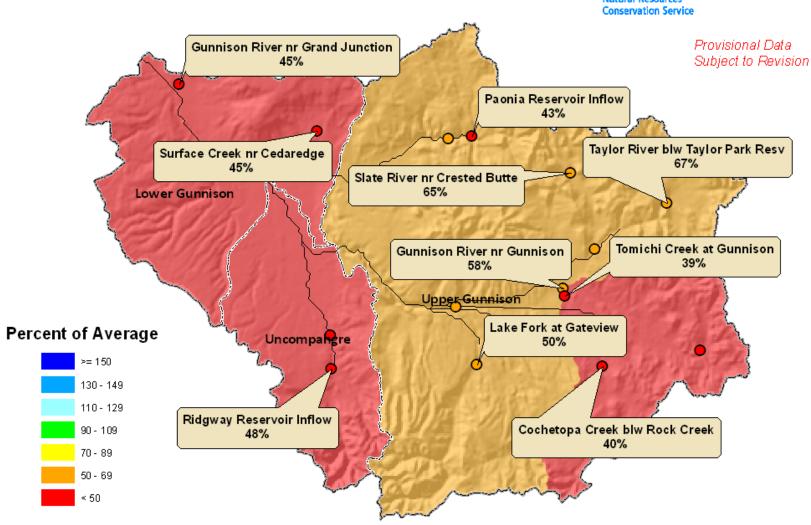


Gunnison River Basin High/Low Year-to-Date Precipitation Summary Based on Provisional SNOTEL data as of May 15, 2013 50 Current as Pct of Average: 76% Current as Pct of Last Year: 104% Current as Pct of Average Annnual Total: 56% Average as Pct of Average Annual Total: 73%
Pct of Avg Needed to Reach Avg Annual Total: 164% 40 35 Year-to-Date Precipitation (inches) 10 5 Oct 01 Nov 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 Average WY2002 WY2011 WY2012 **W**Y2013 Median Maximum Mininum



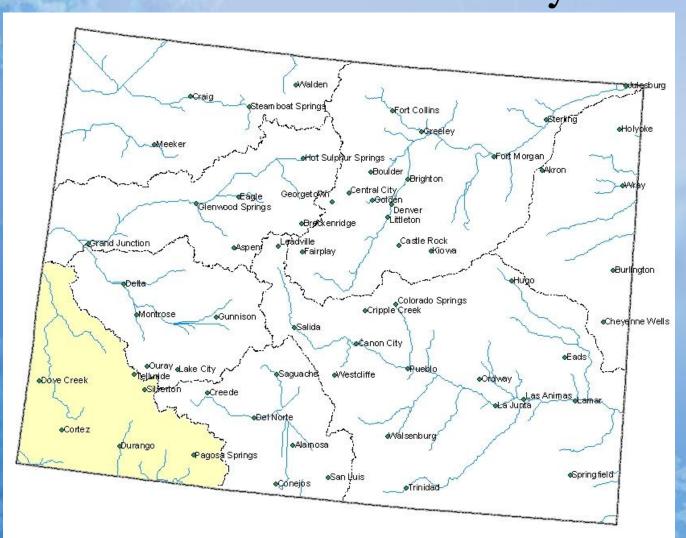


Gunnison River Basin Streamflow Forecast MONRCS

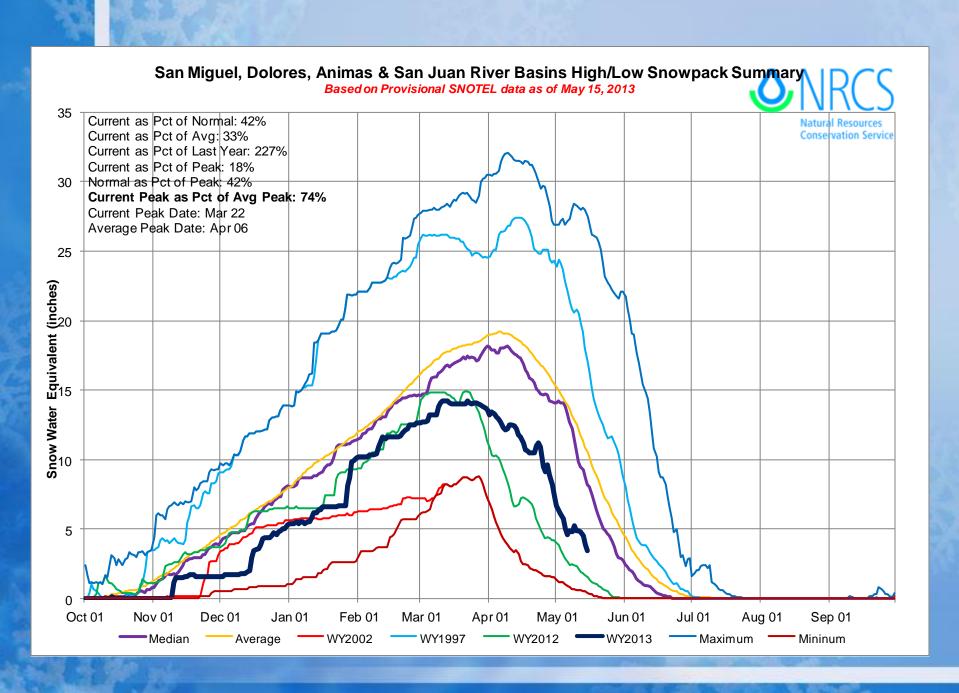


Current as of May 1, 2013

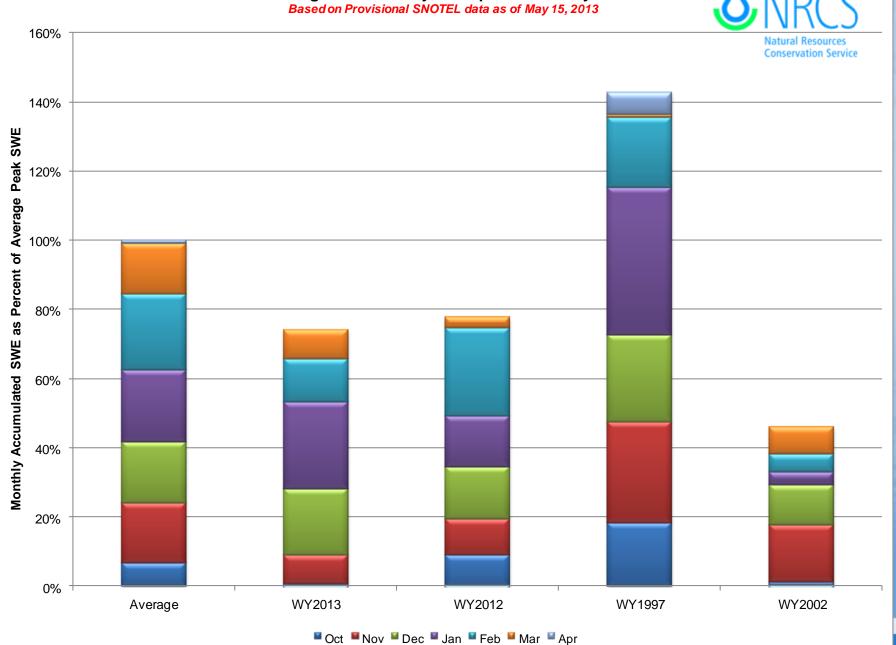
San Miguel, Dolores, Animas & San Juan River Basins Summary



San Miguel, Dolores, Animas and San Juan River Basins Snowpack Map **Percent of Median** Conservation Service >= 150 Provisional Data 130 - 149 Subject to Revision 110 - 129 90 - 109 70 - 8950 - 69 < 50 San Miguel 960 Dolores 43% of Median 145% of Last Year Animaso Mancos San Juan La Plata Current as of May 1, 2013

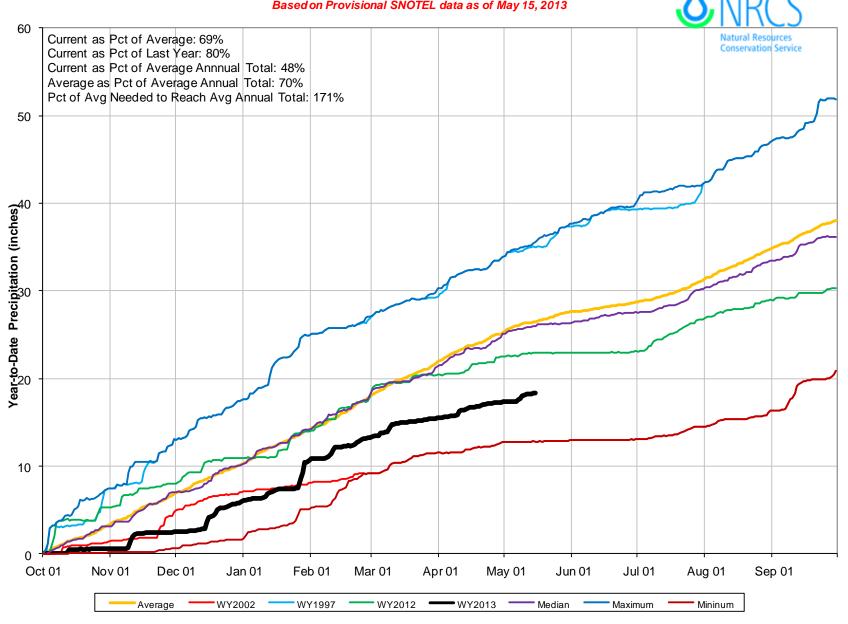


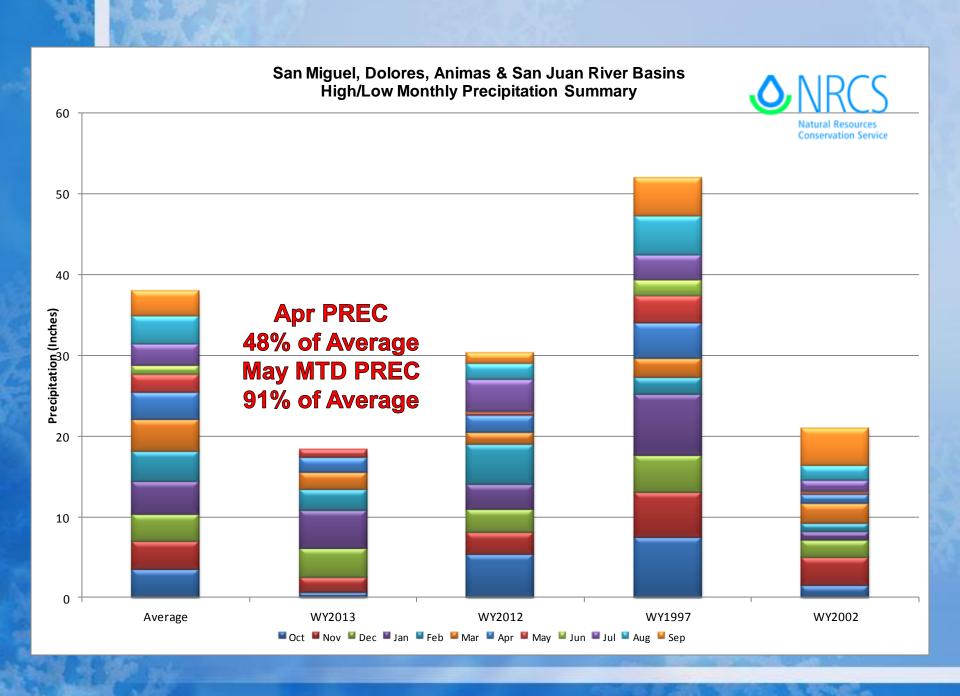
San Miguel, Dolores, Animas & San Juan River Basins High/Low Monthly Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013



San Miguel, Dolores, Animas & San Juan River Basins High/Low Year-to-Date Precipitation Summary Based on Provisional SNOTEL data as of May 15, 2013



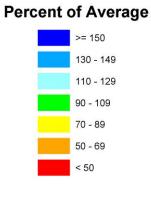


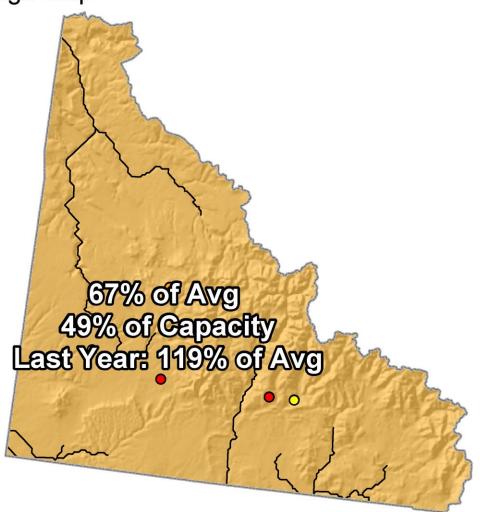


San Miguel, Dolores, Animas and San Juan River Basins Reservoir Storage Map



Provisional Data Subject to Revision



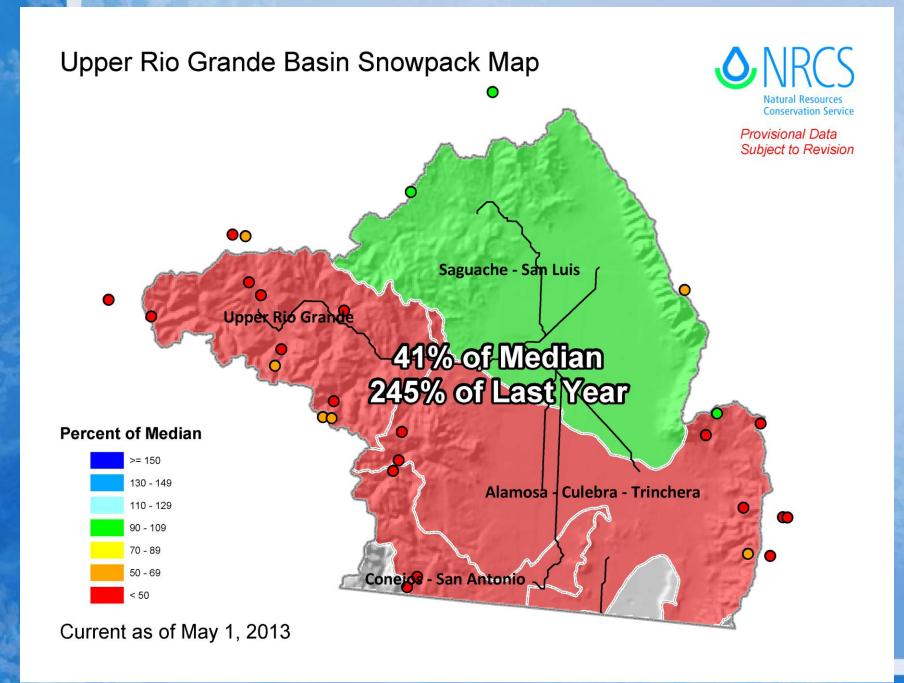


End of April 2013

San Miguel, Dolores, Animas and San Juan River Basins Streamflow Forecast Map **Percent of Average** >= 150 Dolores 130 - 149 Provisional Data Subject to Revision 110 - 129 90 - 109 70 - 89 50 - 69 < 50 San Miguel River nr Placerville San Miguel 45% McPhee Reservoir Inflow 35% Mancos River nr Mancos 33% Vallecito Reservoir Inflow 51% Dolores River at Dolores 40% San Juan Mancos Animas River at Durango 41% San Juan River nr Carracus Current as of May 1, 2013

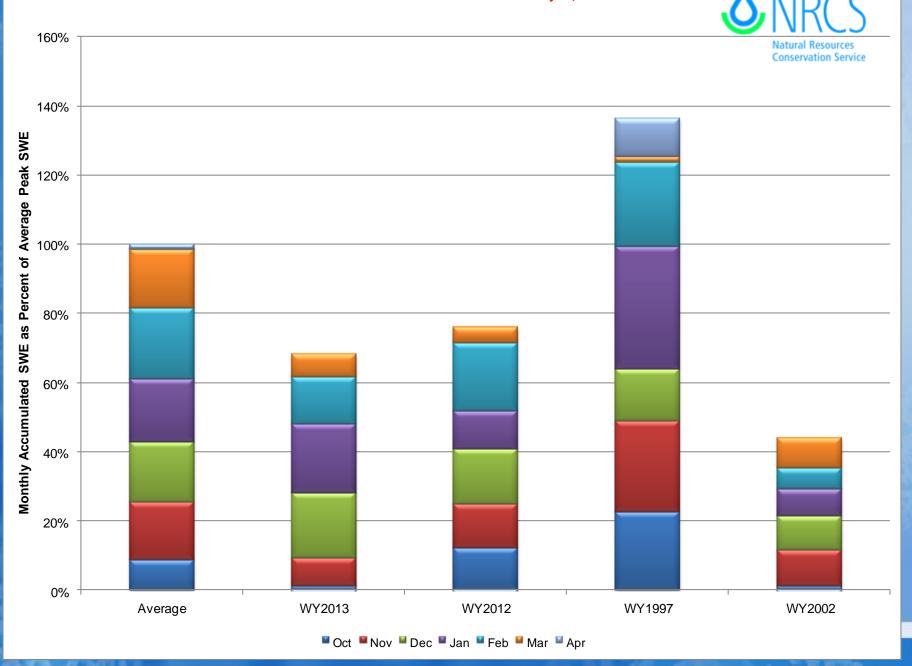
Upper Rio Grande Basin Summary





Upper Rio Grande Basin High/Low Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013 30 Current as Pct of Normal: N/A Current as Pct of Avg: N/A Conservation Service Current as Pct of Last Year: N/A Current as Pct of Peak: N/A Normal as Pct of Peak: 47% Current Peak as Pct of Avg Peak: 68% Current Peak Date: Mar 29 Average Peak Date: Apr 06 Snow Water Equivalent (inches) 5 Oct 01 Nov 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 WY2002 WY1997 WY2013 Maximum Mininum Median Average WY2012

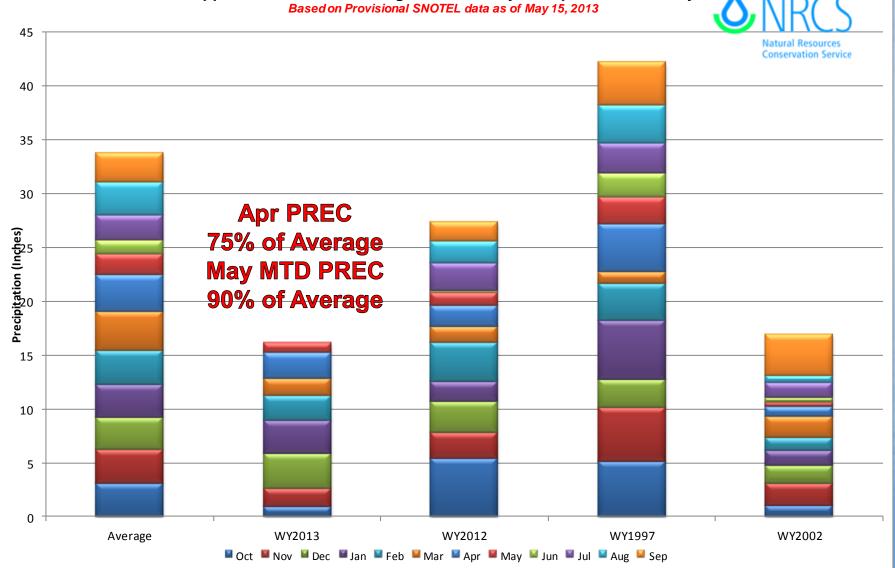
Upper Rio Grande Basin High/Low Monthly Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013



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

Based on Provisional SNOTEL data as of May 15, 2013 50 Current as Pct of Average: 69% Conservation Service Current as Pct of Last Year: 77% Current as Pct of Average Annnual Total: 48% Average as Pct of Average Annual Total: 69% Pct of Avg Needed to Reach Avg Annual Total: 170% 40 35 Year-to-Date Precipitation (inches) 10 5 0 Oct 01 Nov 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 Average WY2002 WY1997 WY2012 WY2013 Mininum Median Maximum

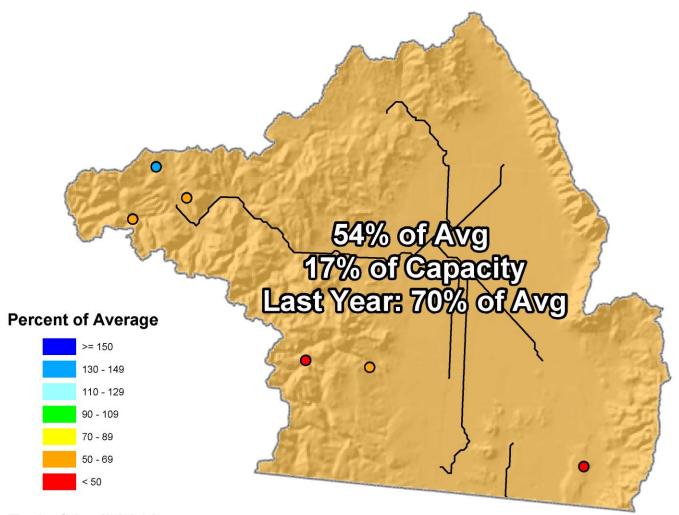
Upper Rio Grande Basin High/Low Monthly Precipitation Summary



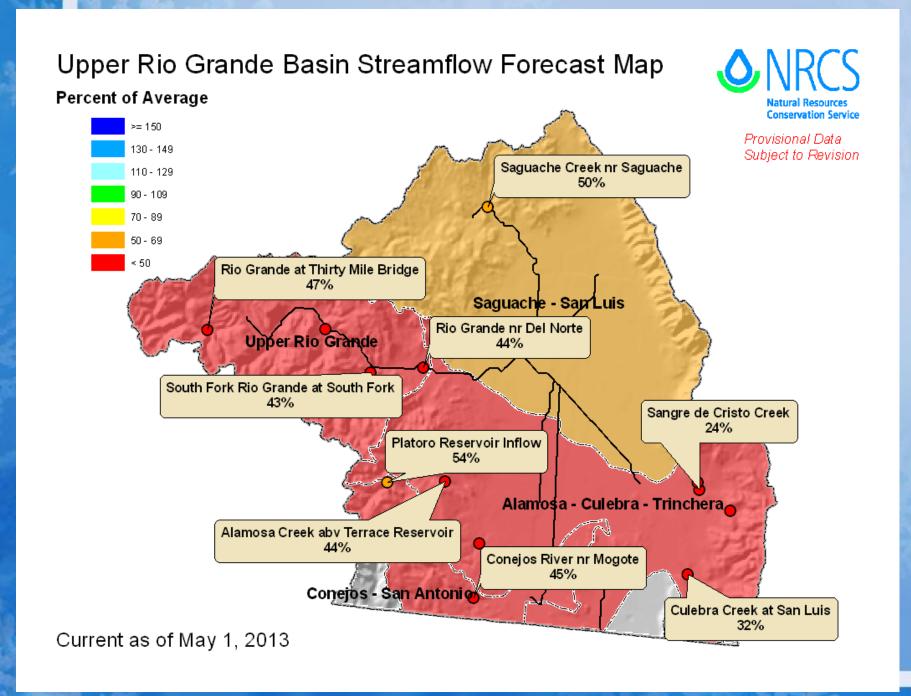
Upper Rio Grande Basin Reservoir Storage Map





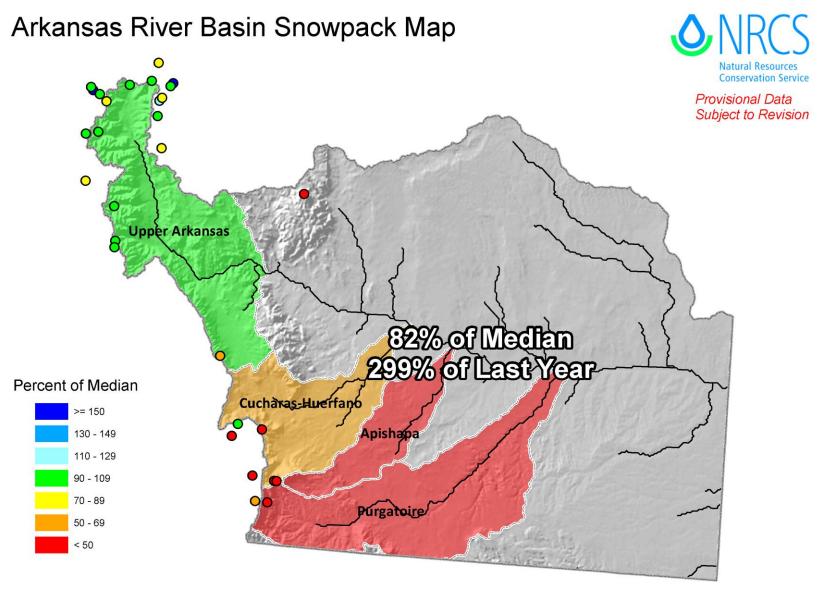


End of April 2013



Arkansas River Basin Summary

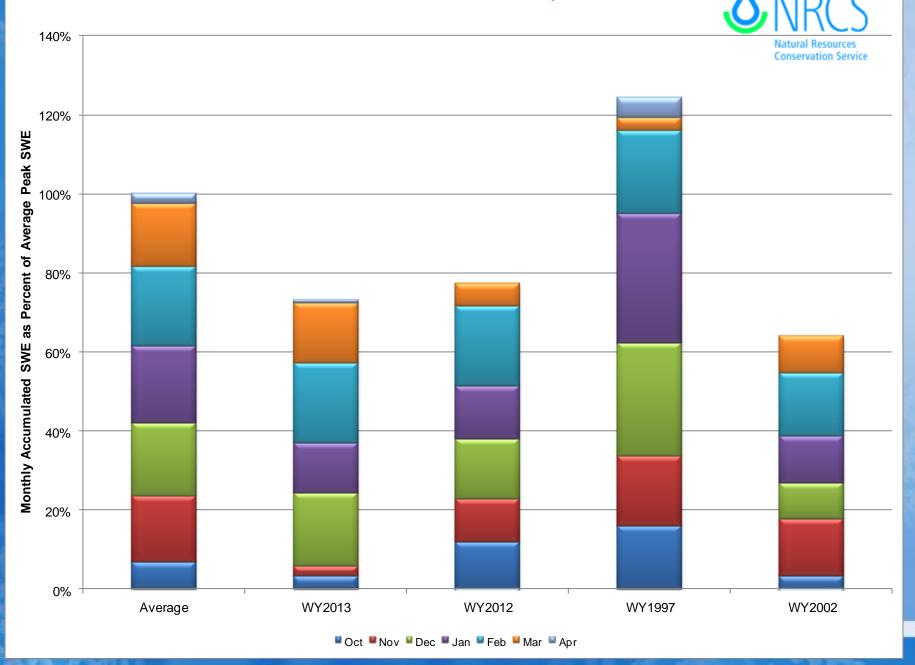




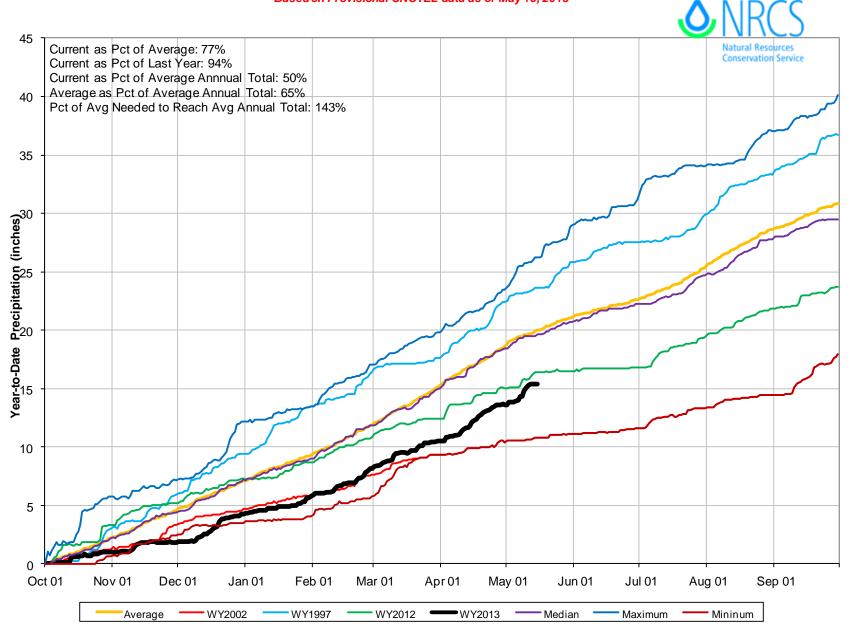
Current as of May 1, 2013

Arkansas River Basin High/Low Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013 Current as Pct of Normal: 88% Current as Pct of Avg: 82% Conservation Service Current as Pct of Last Year: 268% Current as Pct of Peak: 50% Normal as Pct of Peak 56% Current Peak as Pct of Avg Peak: 73% Current Peak Date: Apr 27 Average Peak Date: Apr 10 Snow Water Equivalent (inches) 5 Oct 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01 WY2002 WY1997 WY2013 Maximum Median Average WY2012 Mininum

Arkansas River Basin High/Low Monthly Snowpack Summary Based on Provisional SNOTEL data as of May 15, 2013

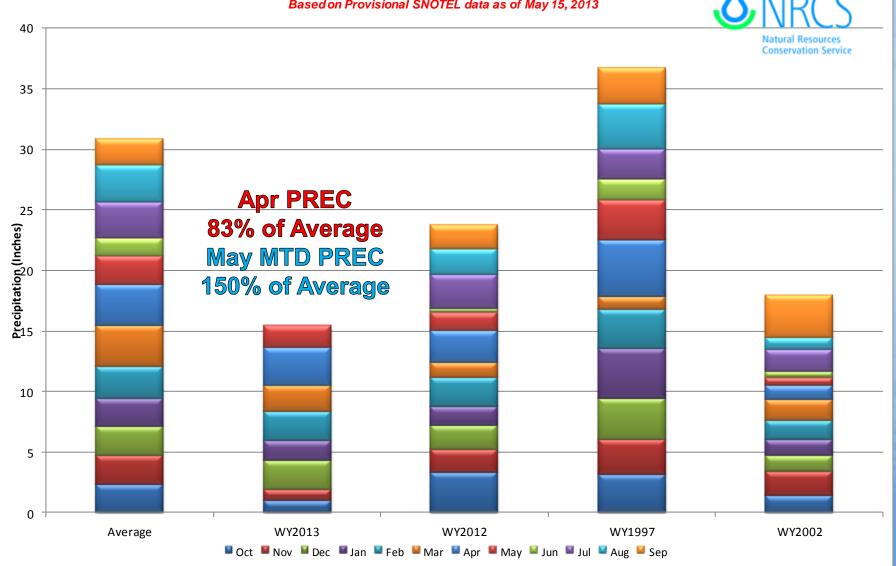


Arkansas River Basin High/Low Year-to-Date Precipitation Summary Based on Provisional SNOTEL data as of May 15, 2013



Arkansas River Basin High/Low Monthly Precipitation Summary

Based on Provisional SNOTEL data as of May 15, 2013

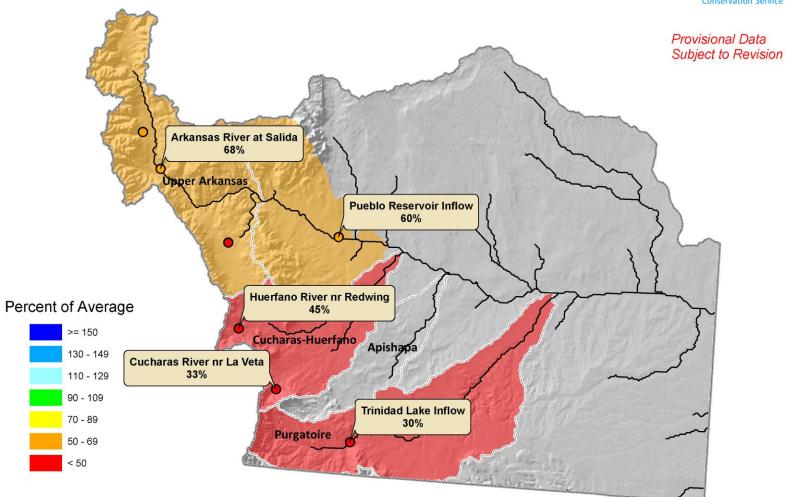


Arkansas River Basin Reservoir Storage Map **Conservation Service** Provisional Data Subject to Revision 52% of Avg 17% of Capacity Last Years 94% of Avg **Percent of Average** >= 150 130 - 149 110 - 129 90 - 109 70 - 89 50 - 69 < 50

End of April 2013

Arkansas River Basin Streamflow Forecast Map





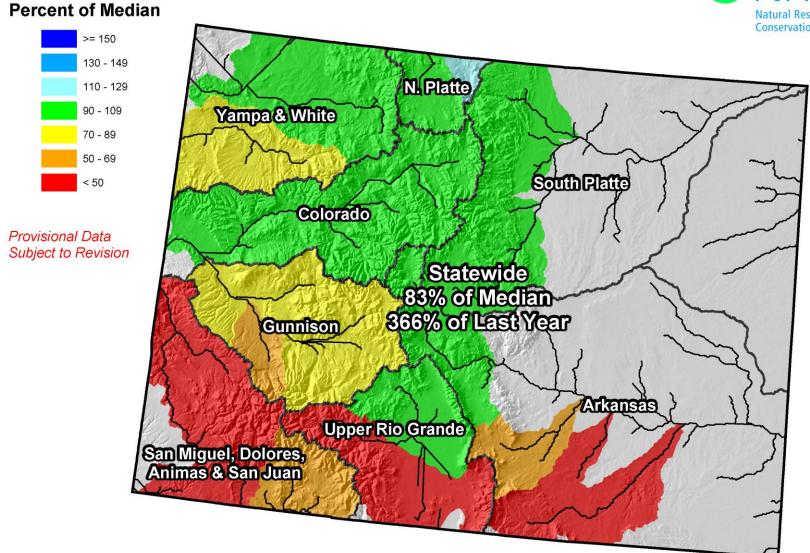
Current as of May 1, 2013

Colorado Statewide Summary



Colorado Snowpack Map

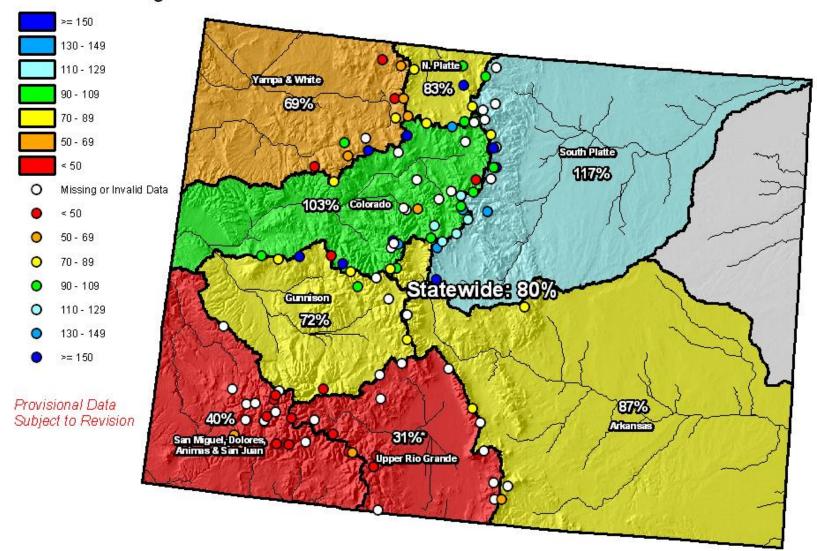




Current as of May 1, 2013

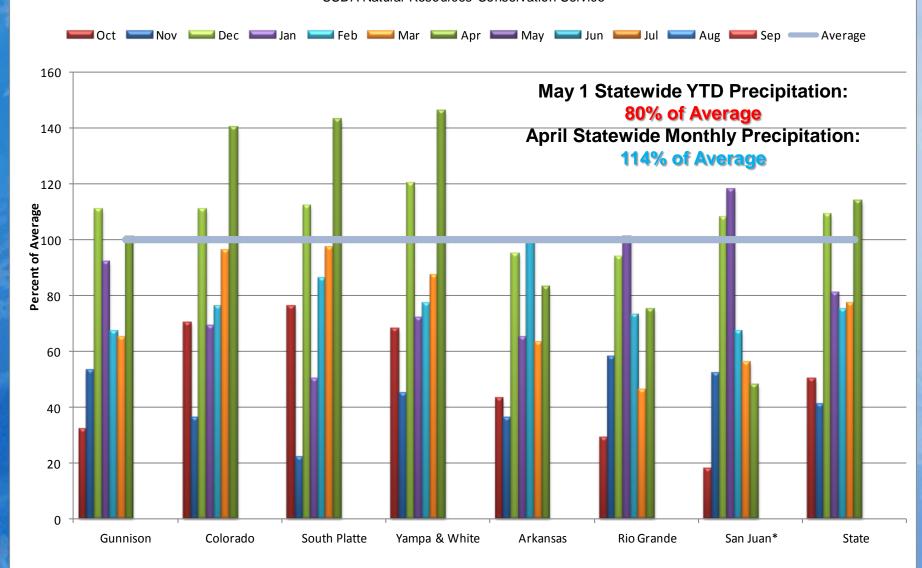
Colorado SNOTEL Snowpack Update Map with Site Data

Percent of Average



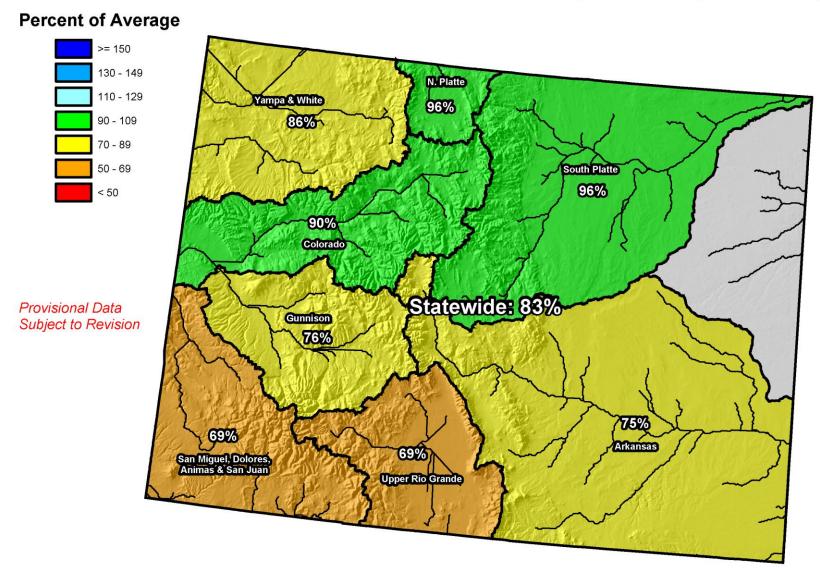
Colorado Monthly Precipitation Summary for WY2013

USDA Natural Resources Conservation Service



*Includes Animas, Dolores, San Miguel Basins

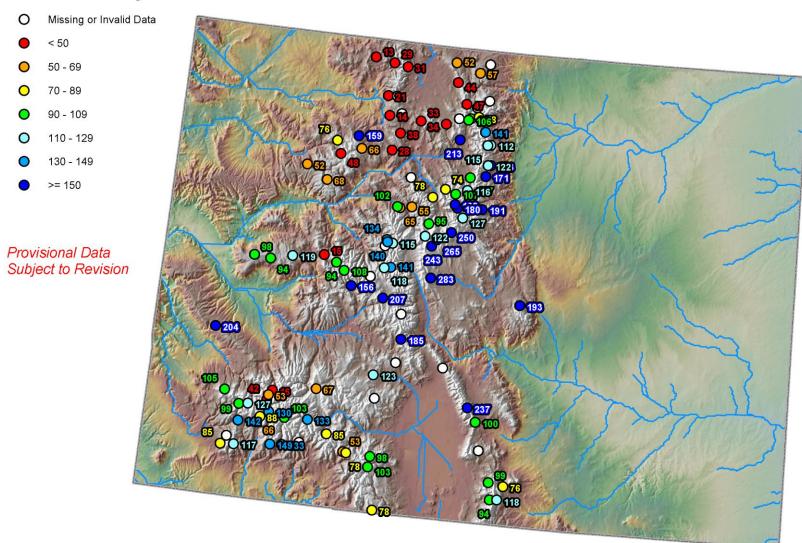
Colorado SNOTEL Water Year-to-Date Precipitation Update Map



Current as of May 15, 2013

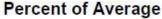
Colorado SNOTEL Month-to-Date Precipitation

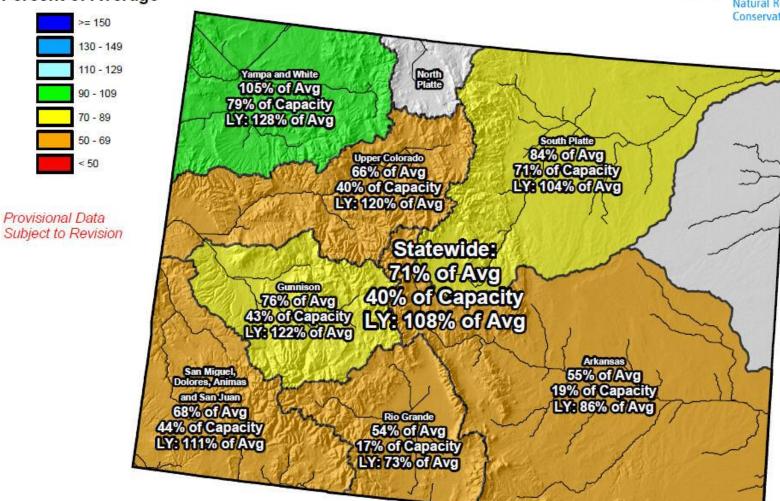
Percent of Average



Colorado Reservoir Storage Map

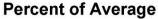


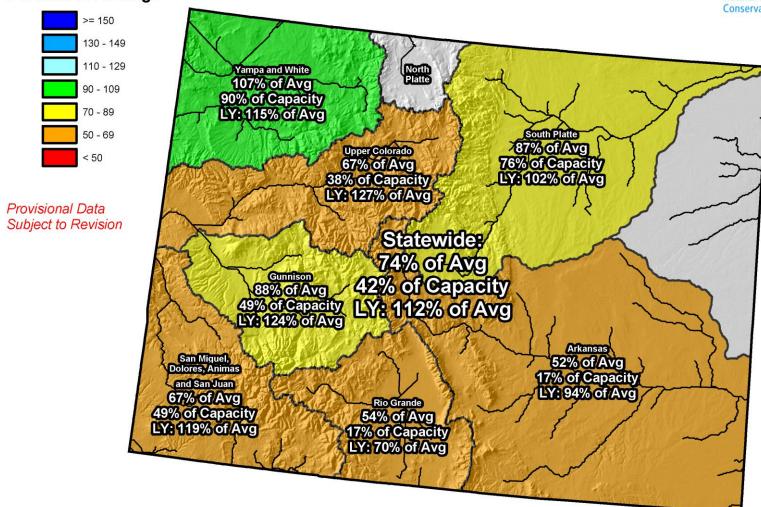




Colorado Reservoir Storage Map



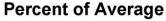


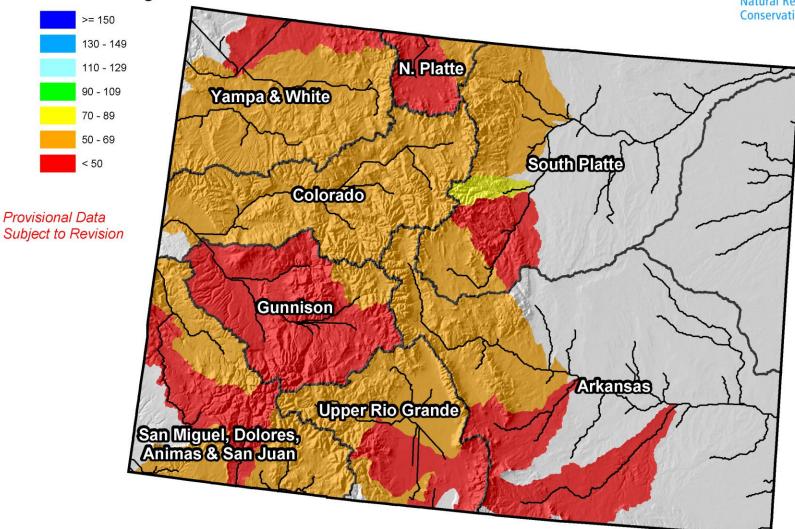


End of April 2013

Colorado Streamflow Forecast Map

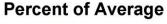


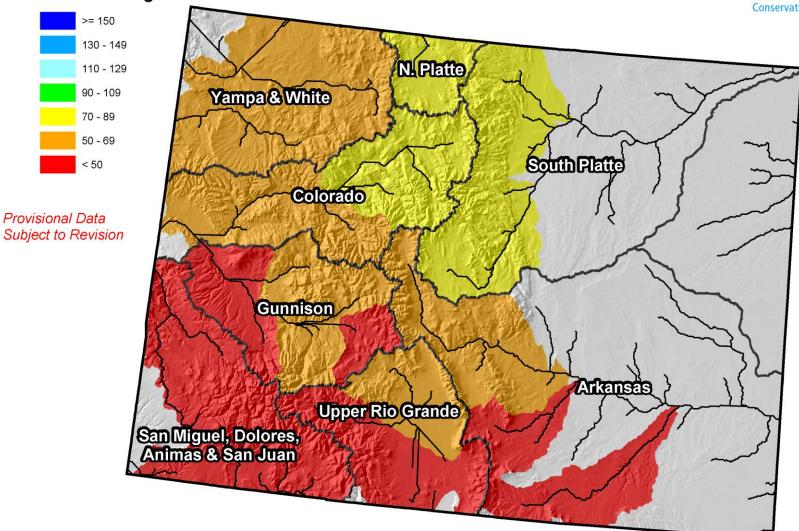


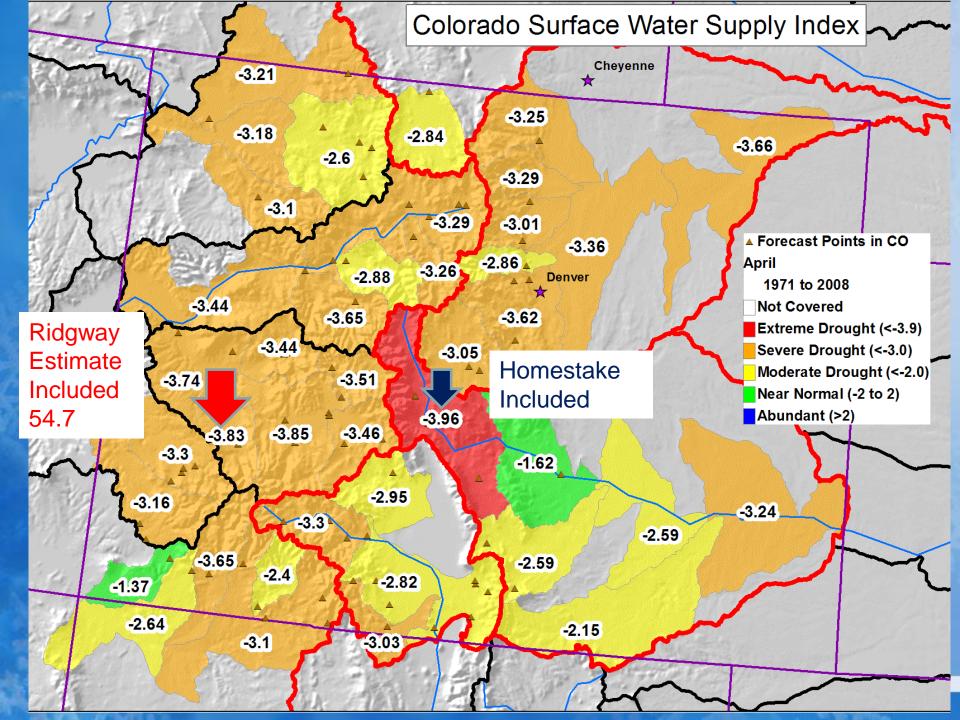


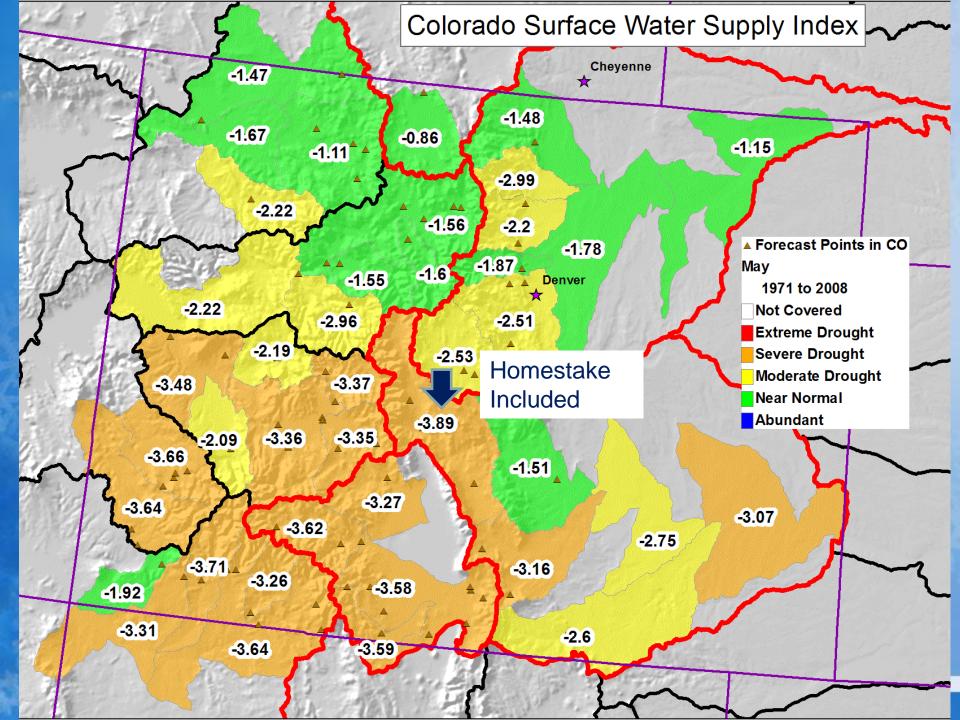
Colorado Streamflow Forecast Map











WY2013 Summary

- •DEC: SNOW! Finally. Storms in mid to late Dec boosted snowpack but it was not enough to reach normal conditions.
- •JAN: End of month storm increased the snowpack in Southwest basins.
- •FEB: Prec below average. The Snow we did receive was just enough to keep the snowpack from further declining.
- •MAR: Storms helped maintained snowpack but no boost.
- •APR: Multiple storm systems brought the snowpack up substantially and in some cases to near normal peaks. Really improved the northern basins but did not help the southern basins.
- •MAY: Still recording above normal prec at many SNOTEL sites in the South Platte and Upper Colorado.