CBRFC Forecast Update: Fontenelle Reservoir

April 20th, 2016

Ashley Nielson-Senior Hydrologist
Colorado Basin River Forecast Center
National Weather Service/NOAA
Today’s Presentation

• Weather Review (Fall + Winter)

• Current Conditions Impacting Forecasts
  • Soil Moisture (modeled)
  • Snow

• Forecasts
  • April-July Water Supply Volumes

• Upcoming Weather
Warm October resulted in rain rather than snow at high elevations.
Weather Review: Winter Precipitation

Monthly Precipitation - December 2015
(Averaged by Basin)

Monthly Precipitation - January 2016
(Averaged by Basin)

Monthly Precipitation - February 2016
(Averaged by Basin)
Weather Review: Spring Precipitation

Monthly Precipitation - March 2016
(Averaged by Basin)

Month to Date Precipitation - April 17 2016
(Averaged by Basin)
Weather Review: February and March Temperatures

Max Temp - Monthly Deviation - February 2016
(Averaged by Basin)

Min Temp - Monthly Deviation - February 2016
(Averaged by Basin)

Max Temp - Monthly Deviation - March 2016
(Averaged by Basin)

Min Temp - Monthly Deviation - March 2016
(Averaged by Basin)
Snow (SNOTELs above Fontenelle)

4/17: 92% Median
88% Peak

4/17: 108% Median
105% Peak

FLOW = 75-85%

FLOW = 20-25%

Colorado Basin River Forecast Center
Green abv Fontenelle Group

4/17: 92% Median
88% Peak

Colorado Basin River Forecast Center
Wyoming Range Group

4/17: 108% Median
105% Peak

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Wind Rivers Group

4/17: 75% Median
70% Peak

Percent Median To Date: 108% (21.0 / 19.9)
Percent Seasonal Median: 105% (21.0 / 20.1)
Accumulation rate 0.1 in/day averaged over last 3 days.

Percent Median To Date: 108% (13.3 / 13.5)
Percent Seasonal Median: 88% (13.8 / 13.1)
Accumulation rate 0.0 in/day averaged over last 3 days.

Percent Median To Date: 92% (13.4 / 14.3)
Percent Seasonal Median: 97% (13.8 / 14.0)
Accumulation rate 0.0 in/day averaged over last 3 days.

Percent Median To Date: 105% (8.1 / 8.1)
Percent Seasonal Median: 99% (8.4 / 8.4)
Accumulation rate 0.1 in/day averaged over last 3 days.
Snow (CBRFC Hydrologic Model)

April 17th 2016
Significant Runoff Areas
Fall Soil Moisture

Soil Moisture
November 15, 2015

Soil Moisture representation from the CBRFC hydrologic model
Forecast: Fontenelle Inflow

Seasonal Forecast Progression

Green - Fontenelle Res- Fontenelle Nr (GBRW4)

2016-04-15 Apr-Jul Official 50% Forecast: 565 kaf (78% of average)

ESP is Unregulated and No Precipitation Forecast Included

The latest (2016-04-18) 50% ESP forecast is 586 kaf.
Plot Created 2016-04-18 14:46:48, NOAA / NWS / CBRFC
Forecasts in the forecast target period include observed values.
Contact Us!

• Operational Hydrologist
  • 801-524-5130 x340
  • cbrfc.operations@noaa.gov
• Ashley Nielson-Green River Forecaster
  • ashley.nielson@noaa.gov
  • 801-524-5130 x333
• Michelle Stokes - Hydrologist In Charge
  • michelle.stokes@noaa.gov

www.cbrfc.noaa.gov

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Questions?
Why is the forecast only ~75% of average when the snowpack is near normal?

1. Dry fall soil moisture conditions
   - Can impact spring runoff efficiency
   - Negative impact on the forecasts

2. High elevation snow conditions are not as good
   - Rain rather than snow in Fall, normally snow
   - SNOTELs don’t represent this area
   - Largest contributing area for water supply

3. Distribution of snow in contributing areas
   - Wind Rivers → Below normal snow → ~75-80% of inflow
   - Wyoming Range → Normal snow → ~20-25% of inflow
El Niño Event

- Still a strong event but has been weakening over the past several weeks.
- The 2015-2016 will go down as one of the strongest on record (82-83, 97-98)
- Impacts the Jet stream strength, location, and storm tracks (favors LC Basin)
- No strong correlation between ENSO and April-July runoff volumes in Green River Basin
- La Niña conditions are possible by later this fall (~50% chance)