CBRFC
March 2013
Water Supply Webinar

March 6, 2013

Greg Smith

These slides: www.cbrfc.noaa.gov/present/present.php
Outline

- Weather Review
- Current Snow States
- Water Supply Forecasts
- Peak Flows
- Future Weather

March 1-5 Precipitation in the CBRFC area
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SNOW: Historical Median vs Average

Colorado Basin River Forecast Center
PRPC2 - PORPHYRY CREEK

Percent Average To Date: 65% (8.5 / 13.1)
Percent Seasonal Average: 53% (8.5 / 16.0)
Accumulation rate 0.3 in/day averaged over last 3 days.


Created 03/05. 19:57 GMT
NOAA/CBRFC, 2013
SNOW: Historical Median vs Average

Very large years like 2005 can skew the historical average.
Snow: Upper Green Basin (above Flaming Gorge)

Snow:
Colorado Mainstem (above Cameo)

Snow:
Gunnison Basin

Colorado Basin River Forecast Center
Gunnison River Basin Group

To Date: 74% (11.2 / 15.2)
Seasonal: 60% (11.2 / 18.6)
Accumulation rate 0.2 in/day averaged over last 3 days.

Created 03/04, 20:24 GMT
NOAA/CBRFC, 2013

Snow:
San Juan Basin

[Map of San Juan Basin with data points]

Colorado Basin River Forecast Center
San Juan Basin Group

To Date: 84% (14.1 / 16.9)
Seasonal: 70% (14.1 / 20.2)
Accumulation rate 0.1 in/day averaged over last 3 days.

Created 03/04, 20:23 GMT
NOAA/CBRFC, 2013


[Graph showing snow accumulation over time with data points in green, blue, purple, and red]

Snow:
Lower Colorado

Snow:
Six Creeks in Salt Lake County

March 1, 2013
Water Supply Forecasts

Highlights:
• Below average/median forecasts everywhere

• Major factors:
  • Dry antecedent soil moisture conditions
  • Dry fall (Oct – Nov)
  • Below average snow is widespread
  • General decrease in forecasts since Feb 1st
March 1st April-July Volume Forecasts by River Basin

(percent of average)
March 1\textsuperscript{st} April-July Volume Forecasts

10\% Exceedance Probability

(volumes as a percent of average)
Flaming Gorge:

MIN (90%)  290 KAF
MP (50%)   550 KAF  56% avg
MAX (10%)  905 KAF
Forecast Trend: Colorado Mainstem

MIN (90%) 975 KAF
MP (50%) 1350 KAF 57% avg
MAX (10%) 2130 KAF
Forecast Trend: Gunnison Basin

Gunnison – Blue Mesa:

MIN (90%) 270 KAF
MP (50%) 360 KAF 50% avg
MAX (10%) 580 KAF
Forecast Trend: San Juan Basin

Navajo Reservoir:
MIN (90%) 280 KAF
MP (50%) 490 KAF 56% avg
MAX (10%) 800 KAF
Forecast Trend: Lake Powell

Lake Powell:

MIN (90%) 1740 KAF
MP (50%) 3400 KAF 47% avg
MAX (10%) 5280 KAF
Forecast Trend: Weber Basin

Weber - Oakley:

MIN (90%) 36 KAF  
MP (50%) 66 KAF 56% avg  
MAX (10%) 106 KAF
Forecast Trend: Virgin River Basin

Virgin - Virgin:

MIN (90%)  23 KAF
MP (50%)  38 KAF  66% avg
MAX (10%)  50 KAF
Mar – May volume

Salt - Roosevelt Nr
SLRA3

Official Forecast Date: 2013-03-01
Official Min (90%): 43 kaf
Official MP (50%): 80 kaf
Official Max (10%): 120 kaf
Official Percent Avg: 33%
Official Percent Med: 26%

Average: 240 kaf
Median: 320 kaf

ESP Min (90%): 44 kaf
ESP Min (70%): 59 kaf
ESP MP (50%): 78 kaf
ESP Min (30%): 98 kaf
ESP Max (10%): 121 kaf
ESP Percent Average: 17%
ESP Percent Median: 25%
ESP Date: 2013-03-05

2013 Runoff Forecast
Salt - Roosevelt- Nr (SLRA3)

Jan – May volume

Plot Created 2013-03-06 09:59:59, Latest ESP Run from 2013-01-01, CBRFC / NWS / NOAA
Maximum of 2120.2 in 1918, Minimum of 48.2 in 2002, Average/Median for 1981-2010
**Residual forecasts include observed
Peak Flow Forecast Synopsis

• All 50% forecasts (much) below flood stages

• Many Sites have only a 10% chance of reaching historical average peaks.

• Forecasts should be available later today or tomorrow at the latest

Example of 2012 Map
Peak Flow – Spring Weather Is Important

- Runoff characteristics are largely determined by the day-to-day spring weather.
  - While large snow pack years increase chances for flooding, it is not an inevitability
  - Small snow pack years can flood with the right sequence of spring temperatures
  - Rain during peak melt is a wildcard
Upcoming Weather – Short Term

- Large low pressure system moves across the area during the Thu-Mon time frame.

- Widespread precipitation likely during this period. Some areas may see significant precipitation.

- Favored areas for precipitation at this time appear to be Southern Utah, Arizona, and southwest Colorado.

Web Reference: www.hpc.noaa.gov
Precipitation Forecast
Thu Mar 7 – Mon Mar 11
• A period of dry and warmer weather next week as temporary high pressure builds into the area.

• The upper air pattern becomes more westerly by the middle of March.

• Light precipitation over the far northern areas at best in this pattern
ENSO Update: Neutral Conditions through summer

Seasonal Outlook: March – May 2013

Web Reference: www.cpc.ncep.noaa.gov
Click on WATER SUPPLY
Select feature of interest
Select area of interest
Forecast points are clickable

www.cbrfc.noaa.gov
Weather Synopsis:
The weather pattern during January was dominated by a mostly dry northwest flow over the CBRFC area. There was a brief but significant event that took place towards the end of January. A moist, warm southwest flow became established for a few days over the Southern portions of the CBRFC including most of Arizona, New Mexico and portions of Southern Colorado. This event brought several inches of precipitation to these areas and resulted in a large increase in snow over the San Juan mountains and a significant rain event over Arizona.

Snowpack:
Snow conditions in early February deteriorated over the northern Great Basin and upper Green Basin, with some improvement over the San Juan basin and southern portions of the Gunnison basin. In general, as of February 1st, most SNOTEL sites in the CBRFC area are at or below average.

Snow in the Roaring Fork, Blue, and Eagle River Basins continue to record some of the lowest values for their respective periods of record (red sites on the map below). Several other sites are in the bottom 10 percent of record (orange on the map). Most SNOTEL sites in this area have periods of record around 30 to 35 years so they rank near the 2nd or 3rd lowest for this time of year.

February 1, 2013 Water Supply Forecast Discussion

The CBRFC geographic forecast area includes the Upper Colorado River Basin, Lower Colorado River Basin, and Eastern Great Basin.

Seasonal Water Supply Forecasts:

Quick Summary: Some Improvement in the San Juan, Uncompahgre, and Salt Rivers Elsewhere Forecasts Generally Lower

Below average spring and summer April-July streamflow volumes are forecast throughout the Upper Colorado River Basin and Great Basin. Near median to below median February-May volumes are expected in the Lower Colorado River Basin.

The highest runoff volumes relative to average are expected in the Great Basin of northern Utah and Green River Basin of southeast Utah. Lowest volumes relative to average are forecast for the Blue, Eagle and Roaring Fork Rivers. In the Lower Colorado River Basin highest volumes relative to median are expected in the Verde Basin with lowest volumes in the Gila Basin.
CBRFC News

- Basin Focal Points (Available to discuss forecasts: 801.524.5130 or email)
  - Upper Colorado: Brenda Alcorn (brenda.alcorn@noaa.gov)
  - Green: Ashley Nielson (ashley.nielson@noaa.gov)
  - San Juan / Gunnison: Greg Smith (greg.smith@noaa.gov)
  - Dolores: John Lhotak (john.lhotak@noaa.gov)
  - Great Basin: Brent Bernard (brent.bernard@noaa.gov)
  - Sevier / Virgin: Stacie Bender (stacie.bender@noaa.gov)
  - Lower Colorado (below Lake Powell): Tracy Cox (tracy.cox@noaa.gov)

- Misc:
  - Sign up for next webinar Apr 4, 2013 11am MDT
    • www.cbrfc.noaa.gov/news/wswebinar2013.html
  - New water supply email notification list – are you on it??
    • Send a request to greg.smith@noaa.gov
  - Stakeholder forum this summer at the CBRFC