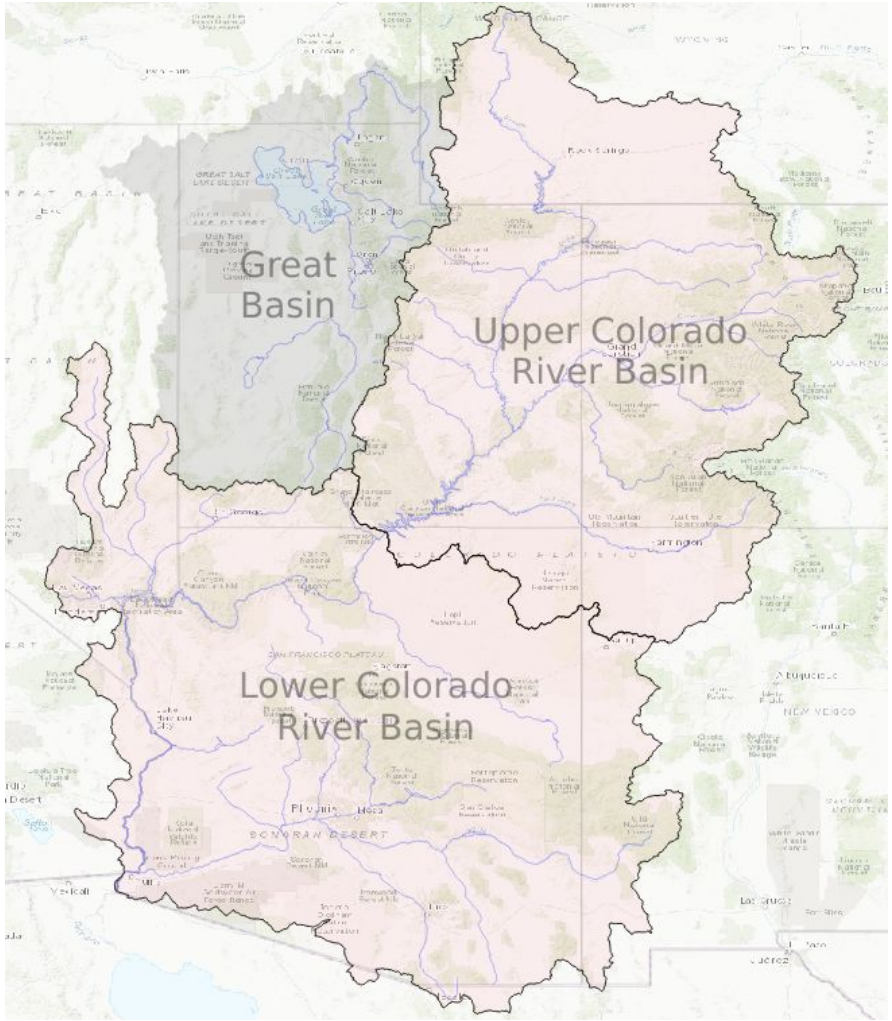
Colorado River Basin
Water Supply Briefing

March 6, 2020

Brenda Alcorn - Hydrologist
Colorado Basin River Forecast Center

Phone: 1-877-929-0660
Passcode: 1706374

Please mute your phone until the question period



Today's Presentation

February & Water Year Precipitation Review

Early March SWE Conditions

March Water Supply Forecasts

Historical March Forecast Error

Upcoming Weather

Contacts & Questions

Phone: 1-877-929-0660
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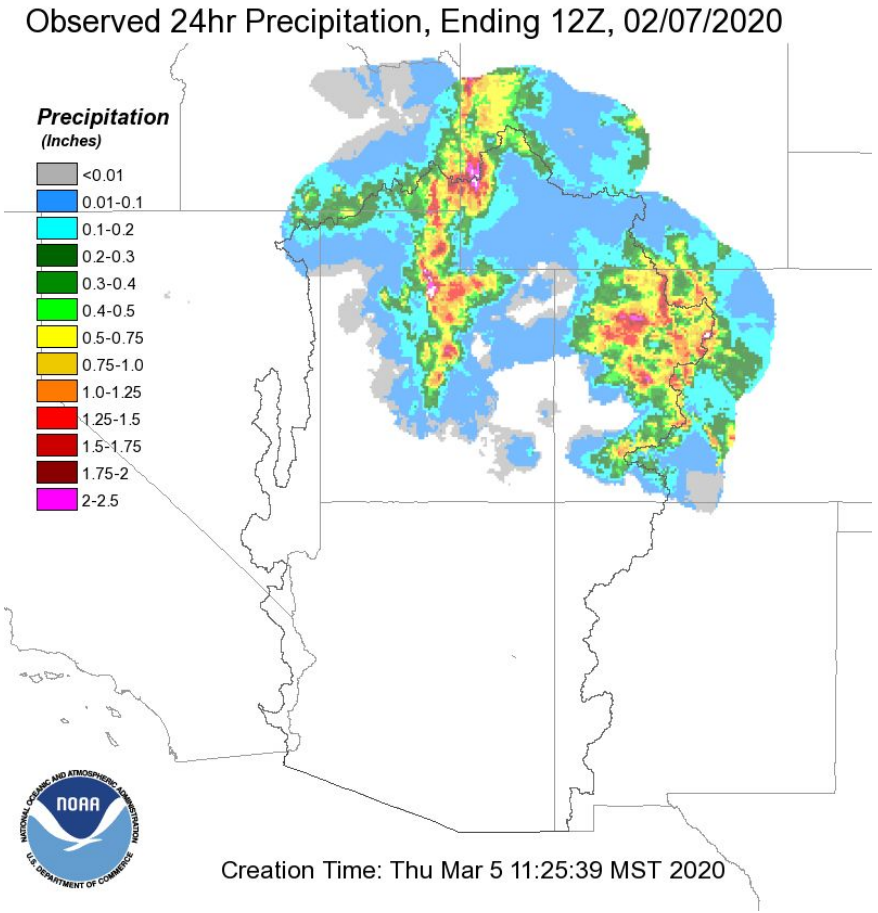
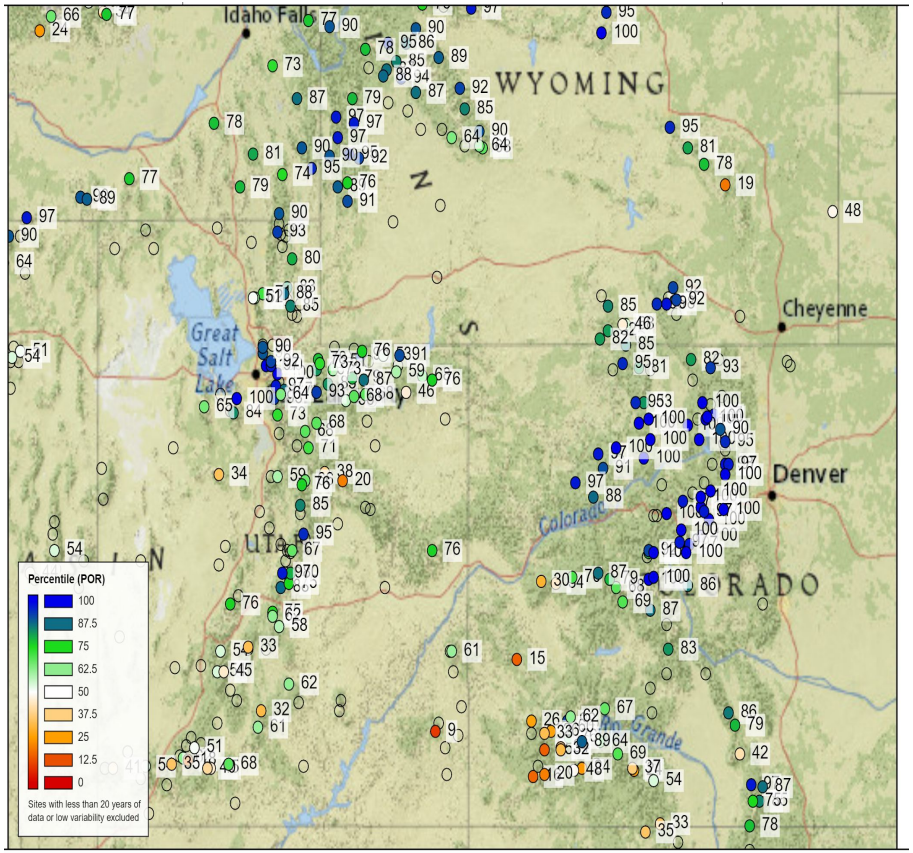
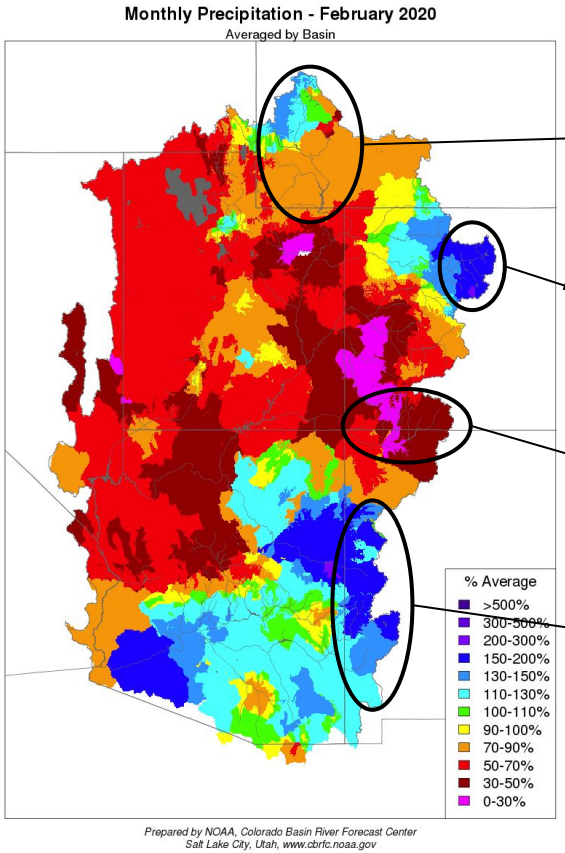
Feb 5-7 Significant Precipitation Event Across North





Precip Percentiles from Feb 1-10

February Precipitation Summary



Parts of the Upper Green fared very well (110-150% avg), while other parts did not (40-75% avg).

Many SNOTEL sites in the Upper Colorado River mainstem headwaters had February precipitation totals in the top five of their period of record.

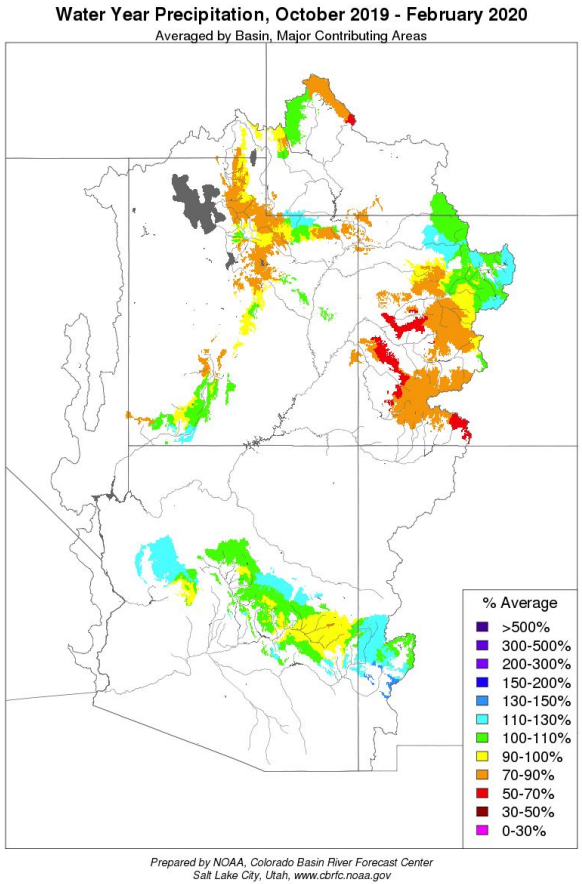
Many SNOTEL sites in the Dolores and San Juan basins had February precipitation totals in the bottom three of their period of record.

In the Lower Colorado River Basin the Upper Gila and eastern headwaters of the Salt and Little Colorado rivers benefited the most from February storms.

February 2020 Precip Summary

Basin	Precip (% Avg)
Upper Green	95%
Duchesne	55%
Price/San Rafael	80%
Yampa/White	130%
Upper CO Mainstem	135%
headwaters	*175%*
Gunnison	70%
Dolores	30%
San Juan	35%
Lake Powell	90%
Virgin	45%
Verde	60%
Salt	105%
Little Colorado	90%
Upper Gila	130%

Water Year Precipitation Summary



Water year precipitation is near to slightly below average over much of the Upper Colorado River Basin above Lake Powell with the exception of the Gunnison, Dolores and San Juan Basins, which are below average.

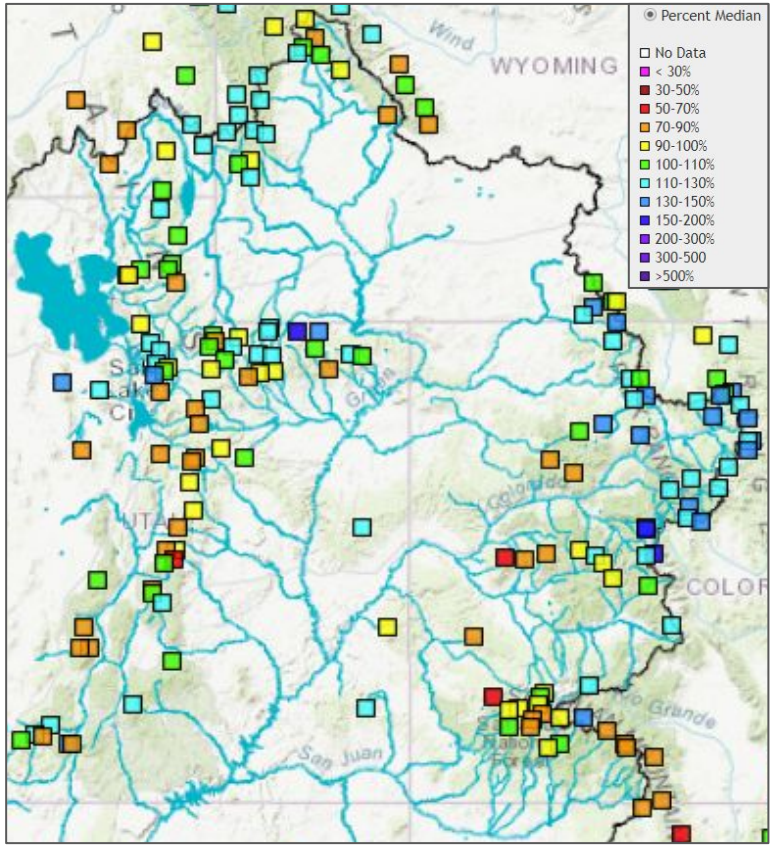
In the Lower Colorado River Basin water year precipitation is near average in the Virgin, Verde, Salt, and Little Colorado river basins and above average in the Gila River Basin.

Water Year 2020
Oct-Feb Precip Summary

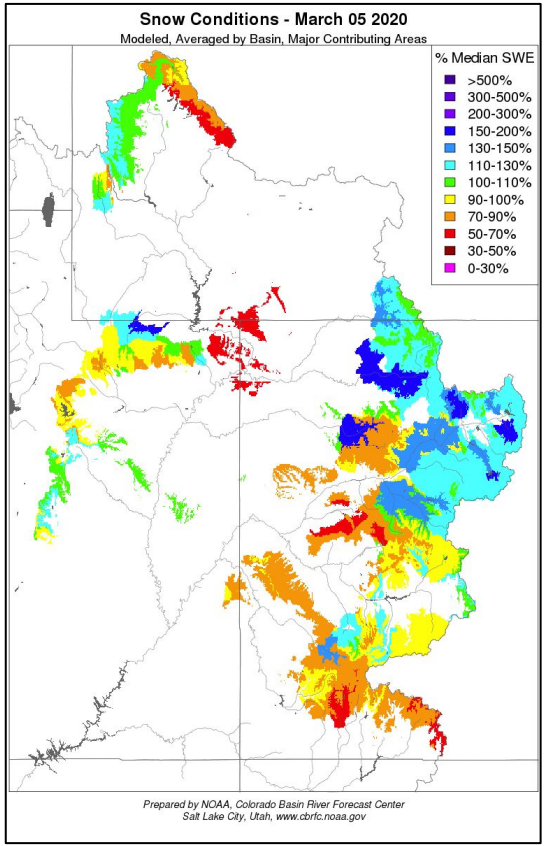
Basin	Precip (% Avg)
Upper Green	90%
Duchesne	90%
Price/San Rafael	95%
Yampa/White	105%
Upper CO Mainstem	100%
Gunnison	80%
Dolores	75%
San Juan	75%
Lake Powell	90%
Virgin	105%
Verde	105%
Salt	100%
Little Colorado	105%
Upper Gila	115%

Early March Snow Conditions

NRCS SNOTEL (Observed)



CBRFC (Model)



March 5th SWE Summary based on SNOTEL sites

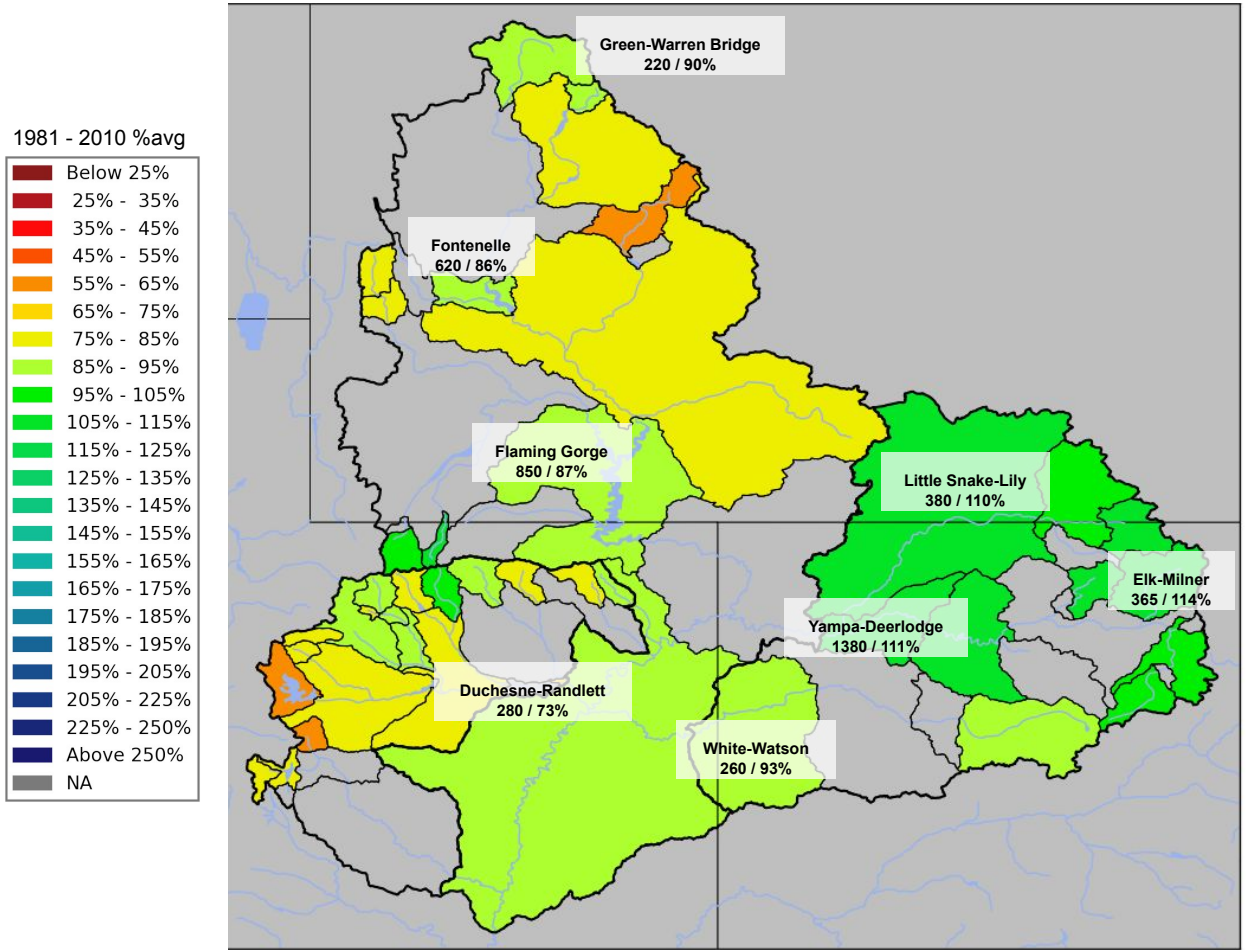
Basin	SWE (% Median)
Upper Green	110%
Duchesne	100%
Price/San Rafael	90%
Yampa/White	115%
Upper CO Mainstem	115%
Gunnison	90%
Dolores	90%
San Juan	90%
Lake Powell	100%
Virgin	105%
Verde	35%
Salt	75%
Little Colorado	60%
Upper Gila	75%

%median SWE compared to Feb 1:

-increased in the Yampa and Upper CO mainstem basins

-decreased most in the Duchesne, Dolores, San Juan and Virgin basins

March 1st Water Supply Forecasts: Green, Yampa, White, Duchesne



March 1st Forecasts

Volume (kaf) / % of 1981-2010 avg

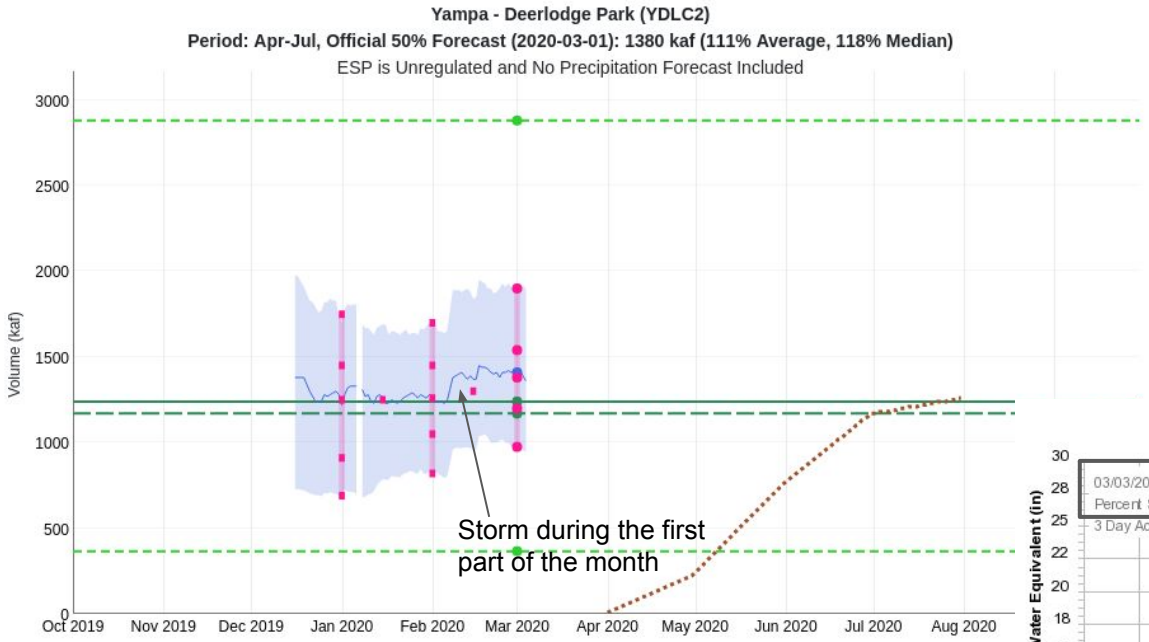
Forecast Ranges & (1-month Trend)

Upper Green: 60 - 105% avg
(little change)

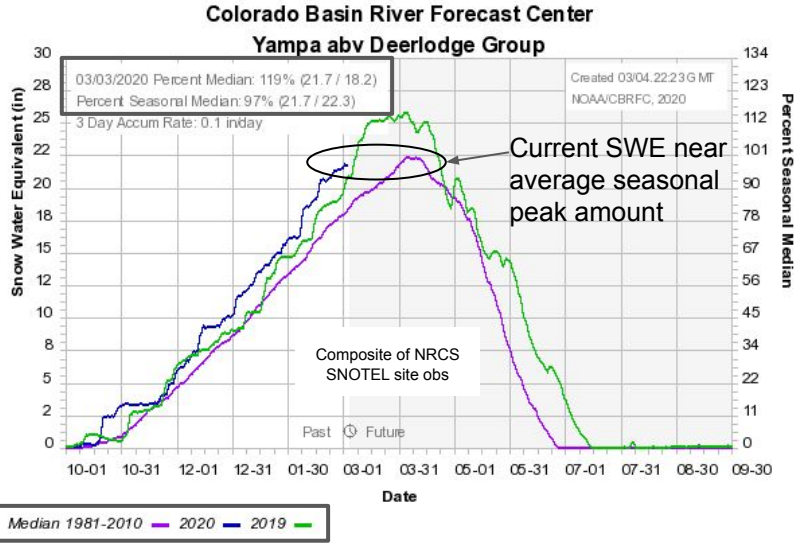
Yampa/White: 90 - 110% avg
(Yampa: 5 - 10% increase)

Duchesne: 70 - 100% avg
(5 - 10% decrease)

Yampa Water Supply Forecasts & Snow Conditions



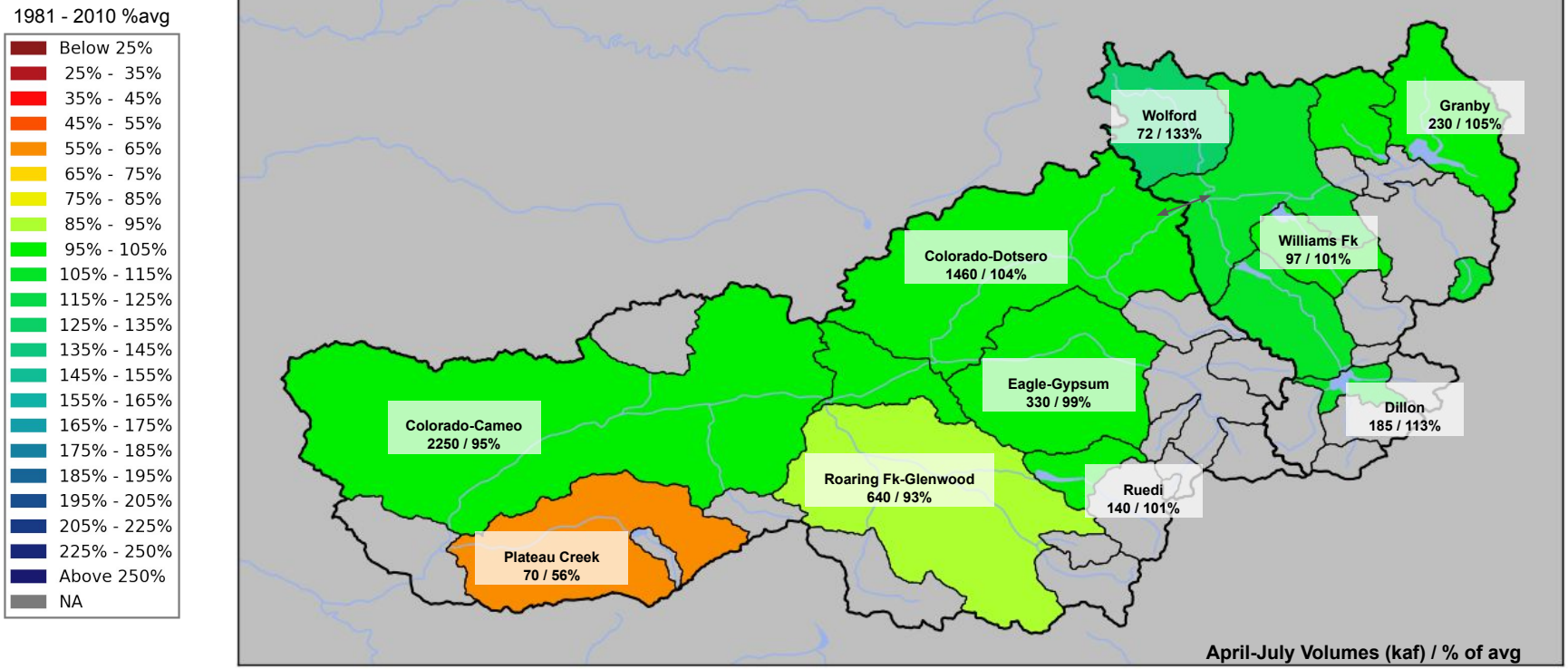
2020/03/01:
Max 2011: 2880.52
Min 2002: 366.16
Average: 1240
Median: 1170
ESP: 1410
Official 10: 1900
Official 30: 1540
Official 50: 1380
Official 70: 1200
Official 90: 975



March 1st Water Supply Forecasts: Upper Colorado River Mainstem

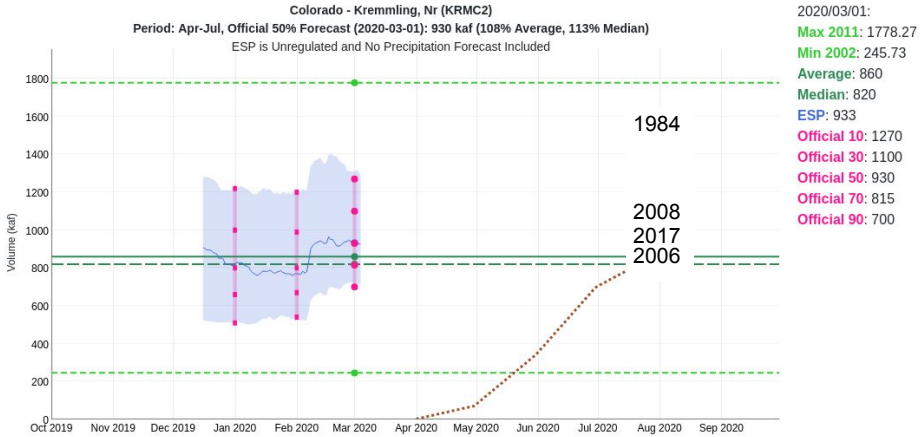
Forecast Ranges & (1-month Trend):

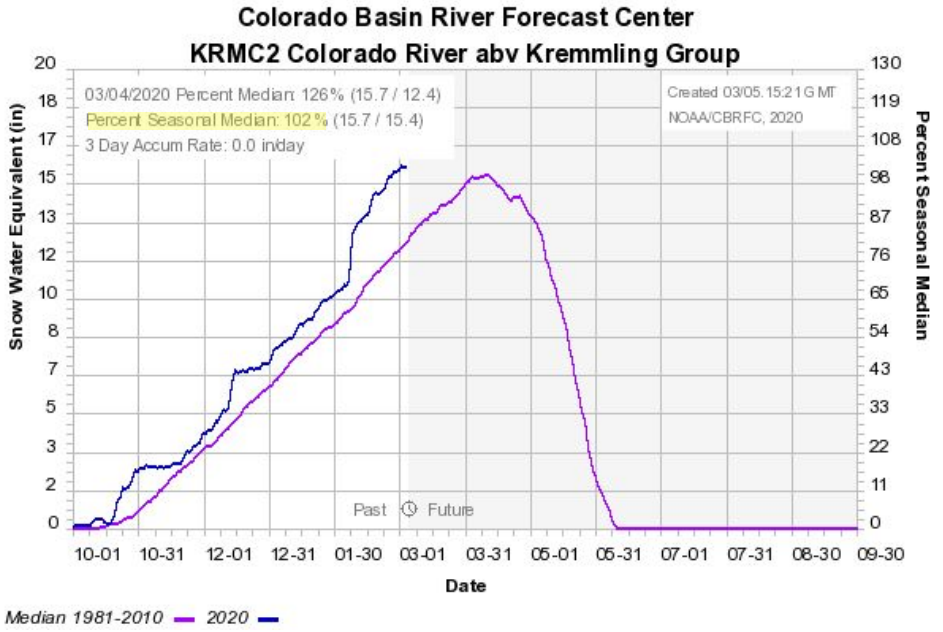
Granby to Kremmling: 100 - 135% avg (10 - 30% increase)
Kremmling to Cameo: 90 - 105% avg (5 - 15% increase)



Upper Colorado Mainstem: Kremmling ESP Guidance & SWE Conditions

Colorado River mainstem headwaters SWE has reached the average seasonal peak ~1 month earlier than normal





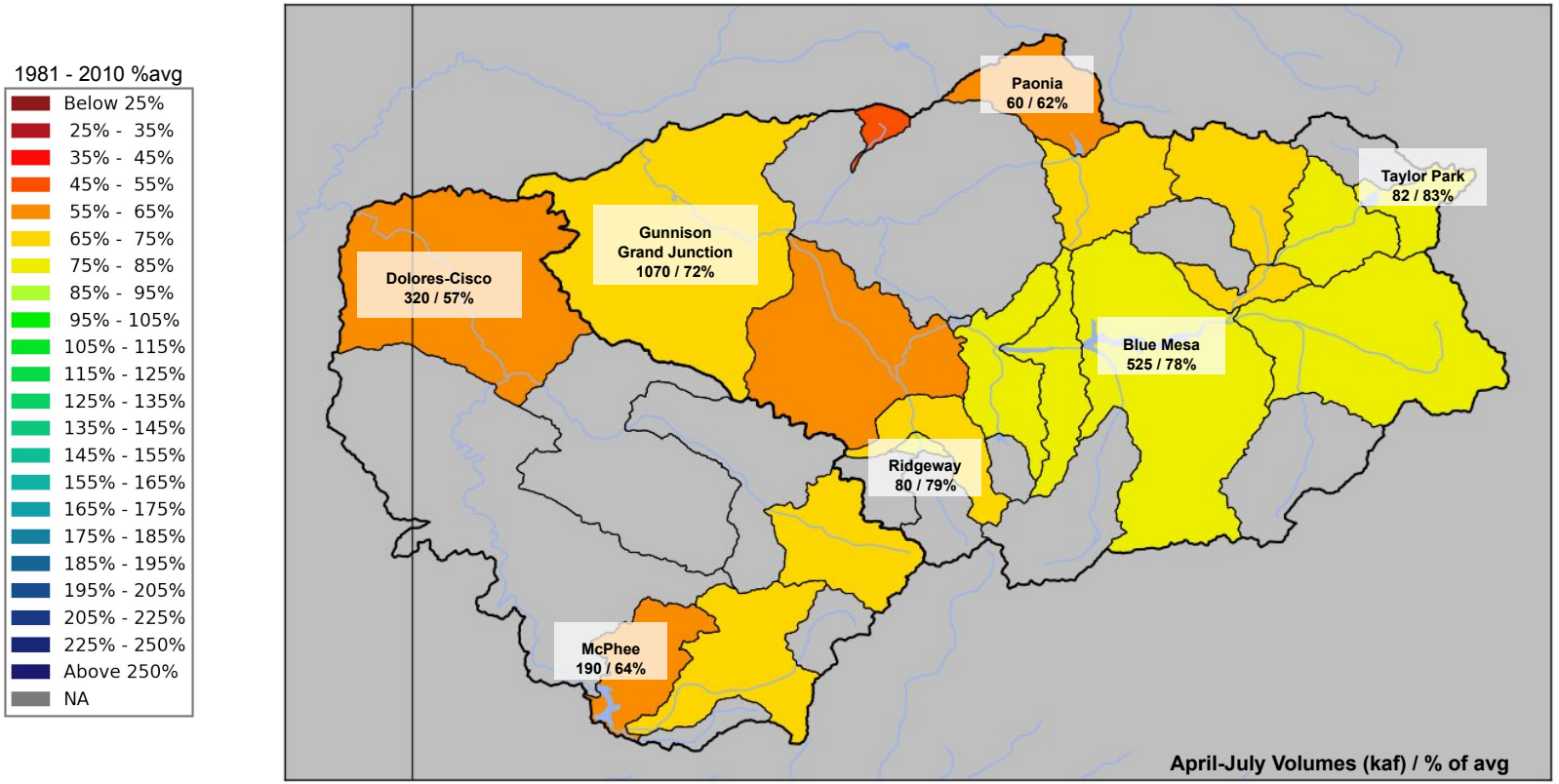
Current SWE Analog Years

Year	SWE (in)	Apr-Jul Vol (kaf)	Spring Precip
1984	15.2	1577	very wet
2008	15.4	1120	wet
2017	16.6	940	near normal
2020	15.7	930 (forecast)	?
2006	15.7	833	dry

March 1st Water Supply Forecasts: Gunnison, Dolores

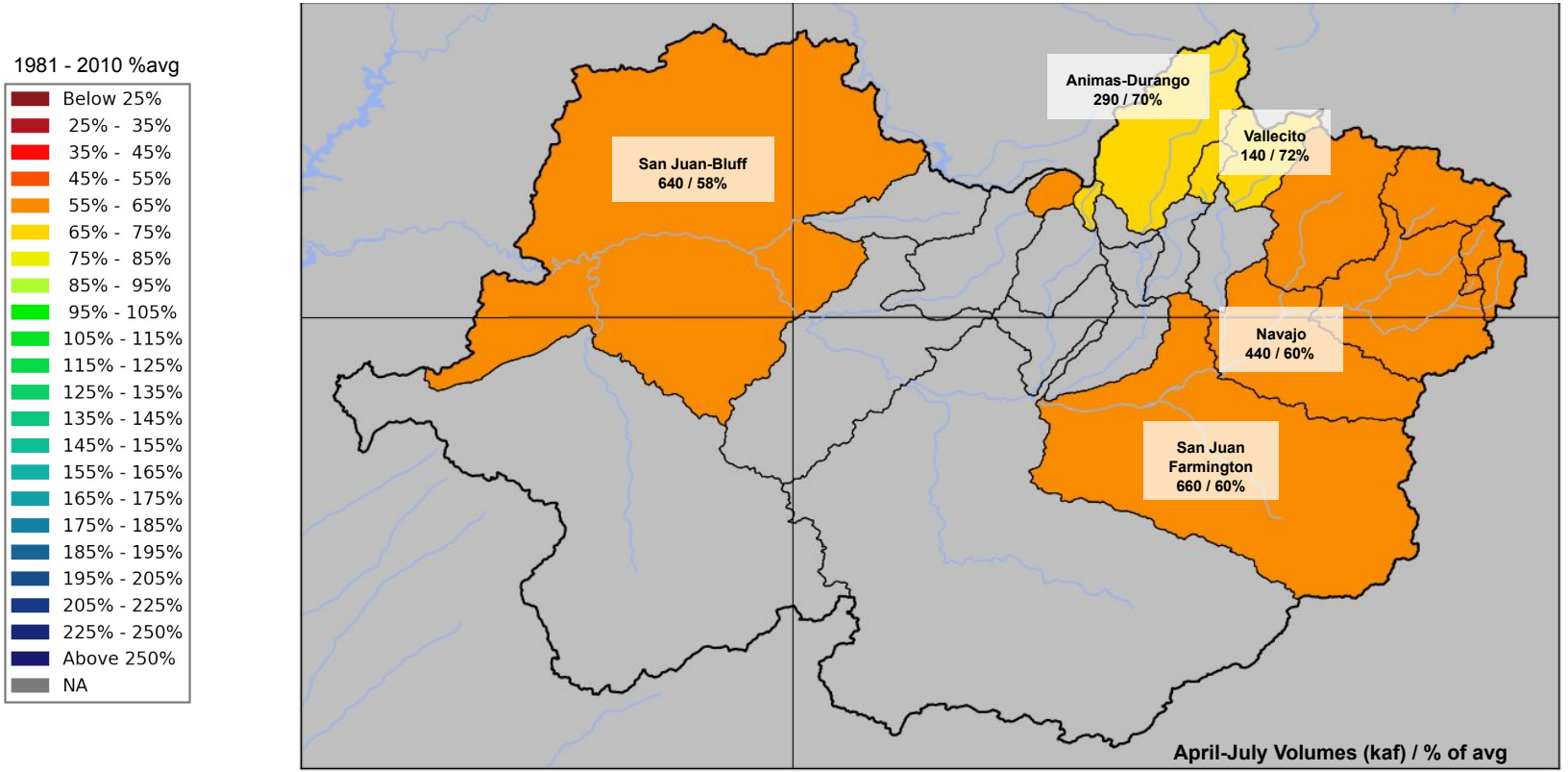
Forecast Ranges & (1-month Trend):

Gunnison:	55 - 85% avg	(5 - 10% decrease)
Dolores:	55 - 70% avg	(10 - 20% decrease)

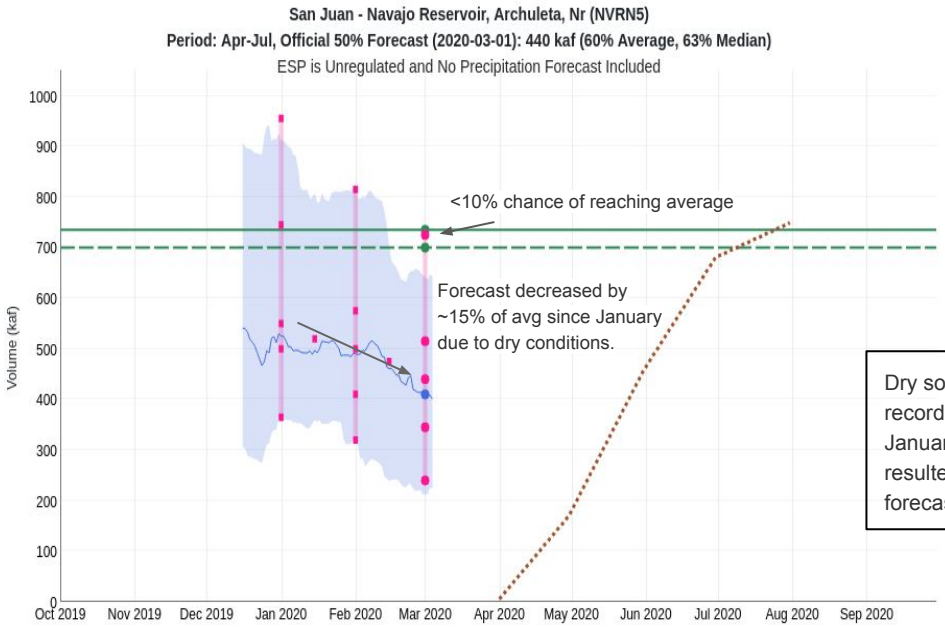


March 1st Water Supply Forecasts: San Juan

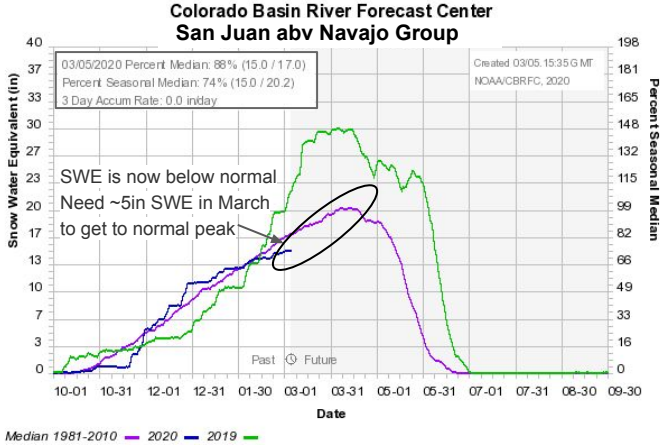
Forecast Range & (1-month Trend):
55 - 75% of average (10 - 15% decrease)



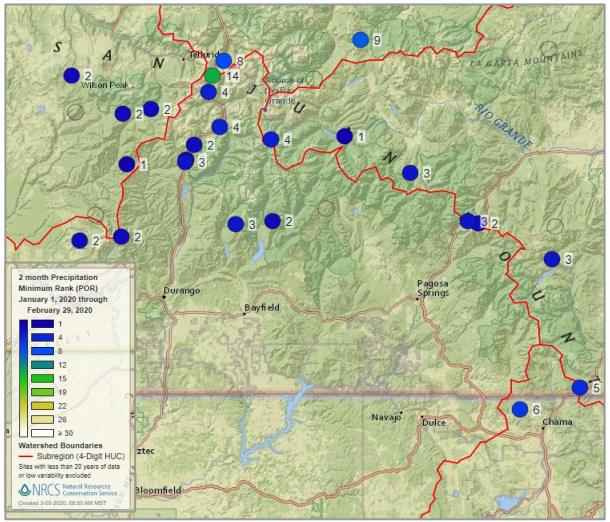
San Juan River Basin: Navajo Reservoir ESP Guidance & SWE Conditions



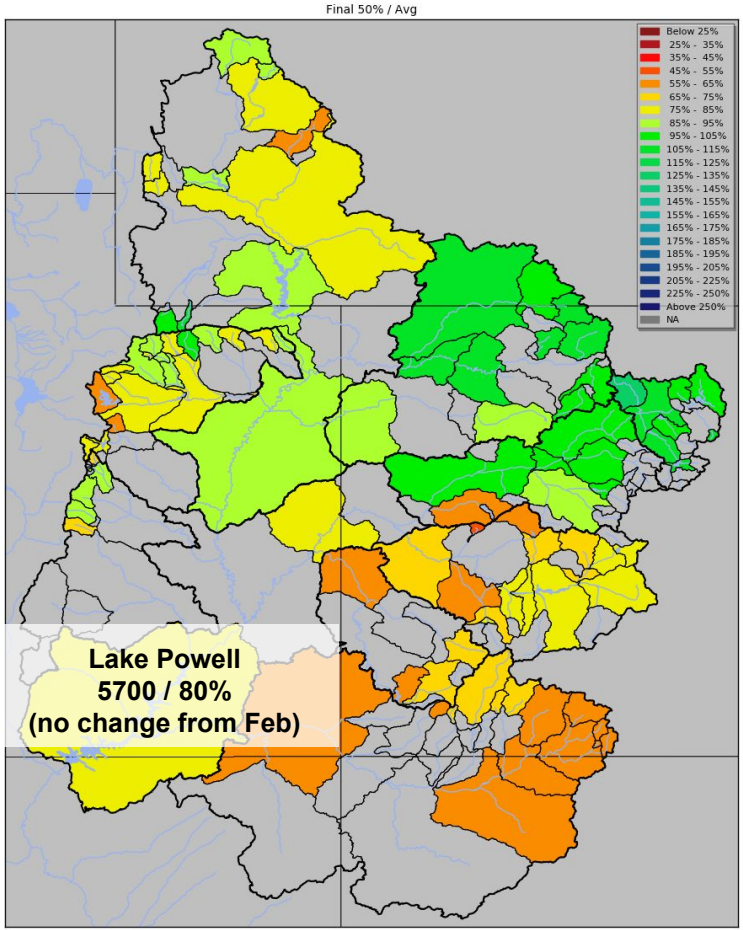
2020/03/01:
Average: 735
Median: 700
ESP: 410
Official 10: 725
Official 30: 515
Official 50: 440
Official 70: 345
Official 90: 240

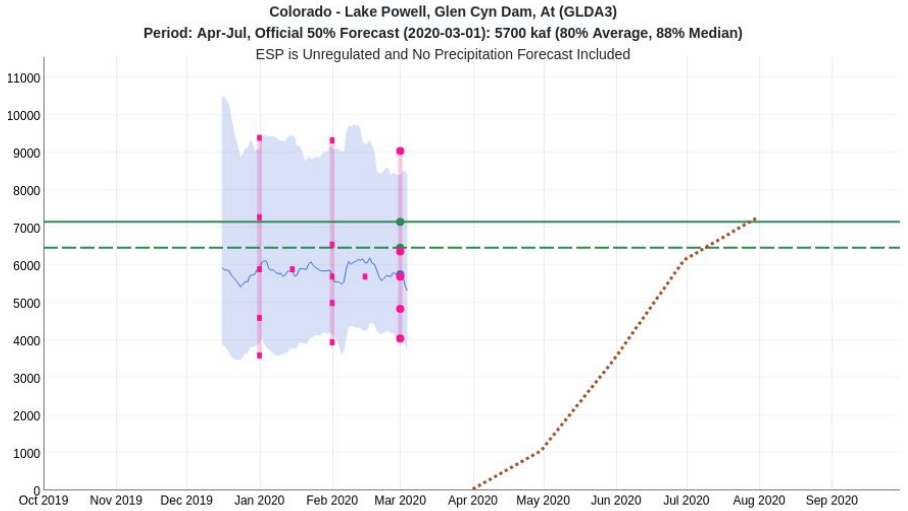


Dry soil conditions and near record dry conditions in January and February have resulted in below average forecasts.



March 1st Water Supply Forecasts: Upper Colorado (Lake Powell)



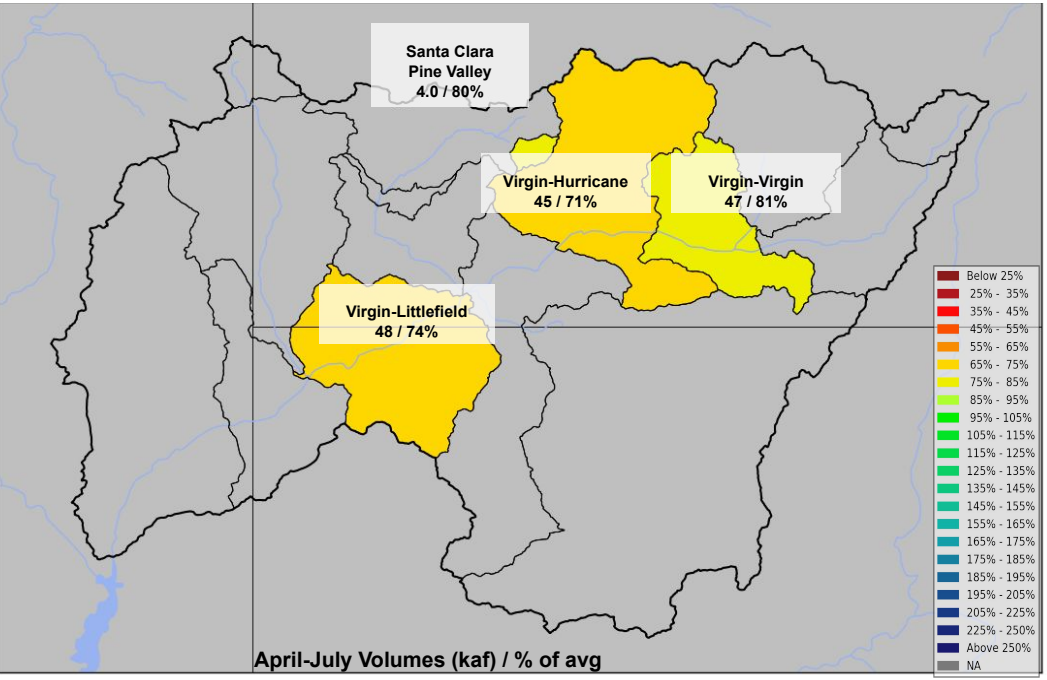


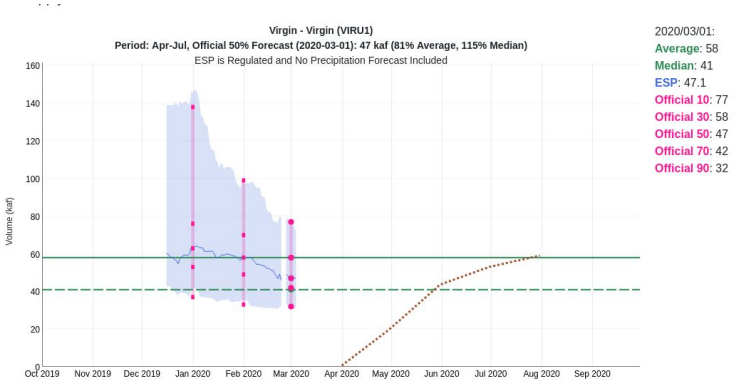
2020/03/01:
Average: 7160
Median: 6470
ESP: 5760
Official 10: 9050
Official 30: 6370
Official 50: 5700
Official 70: 4840
Official 90: 4050

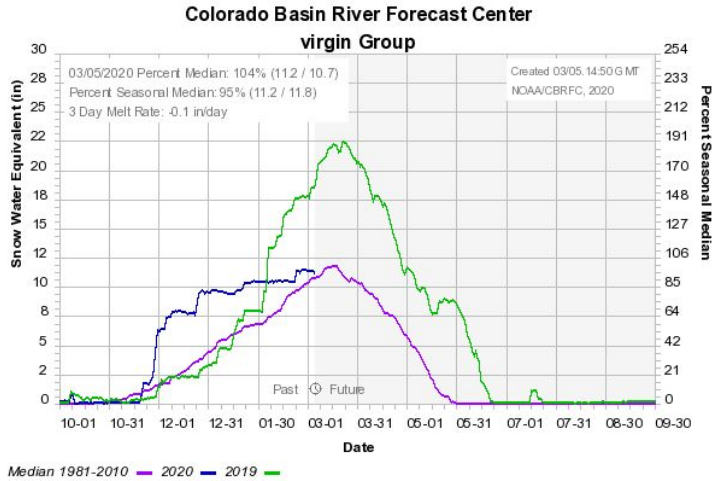
Lake Powell summarizes the hydrologic conditions throughout the Upper Colorado River Basin.

March 1st Water Supply Forecasts: Virgin River Basin

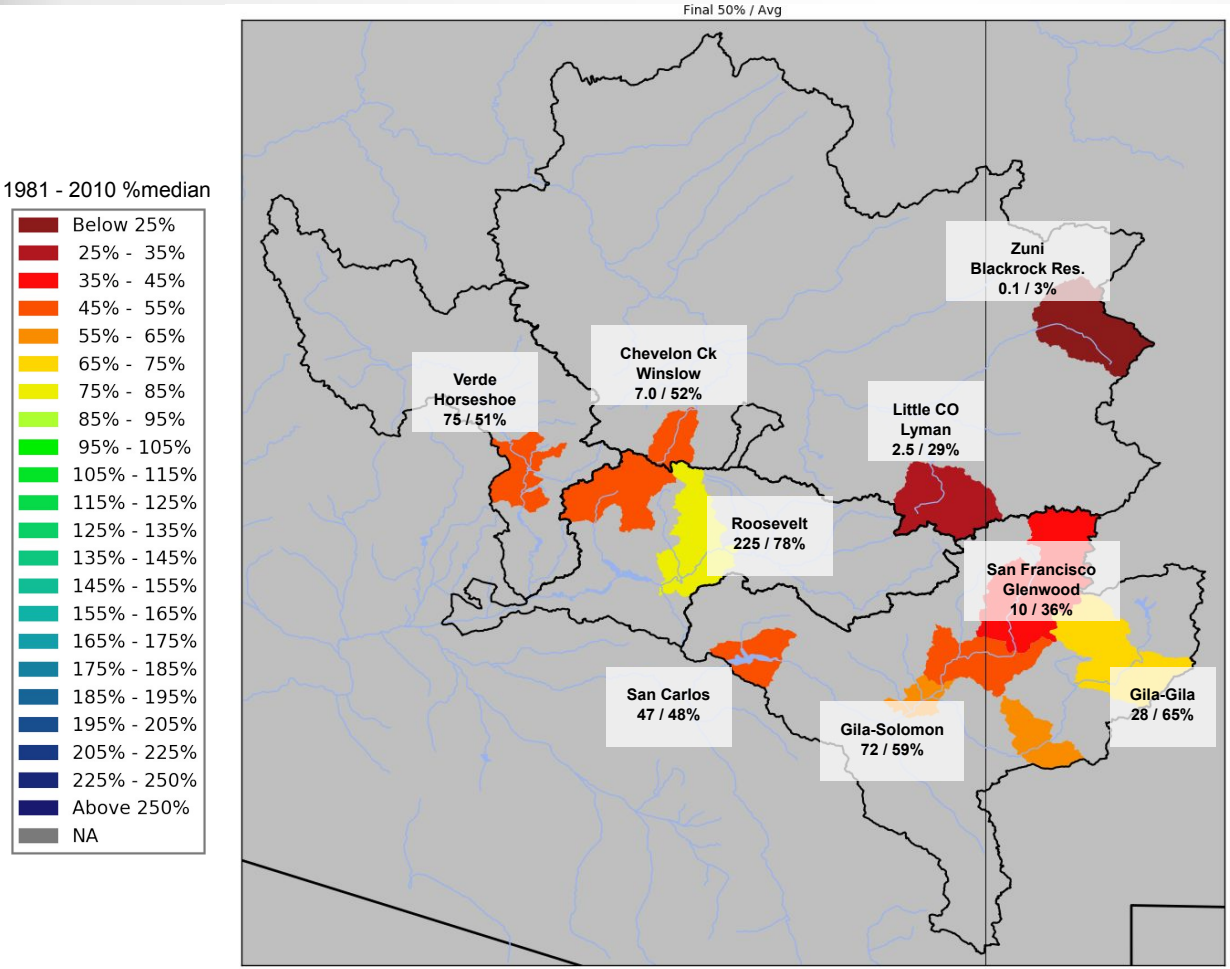
Forecast Range & (1-month Trend):
75 - 80% avg (15 - 25% decrease)







March 1st Water Supply Forecasts: Lower Colorado River Basin



March - May Forecast Period
Volume (kaf) / % of 1981-2010 Median

Forecast Ranges

Little Colorado: 5 - 50%

Upper Gila: 35 - 65%

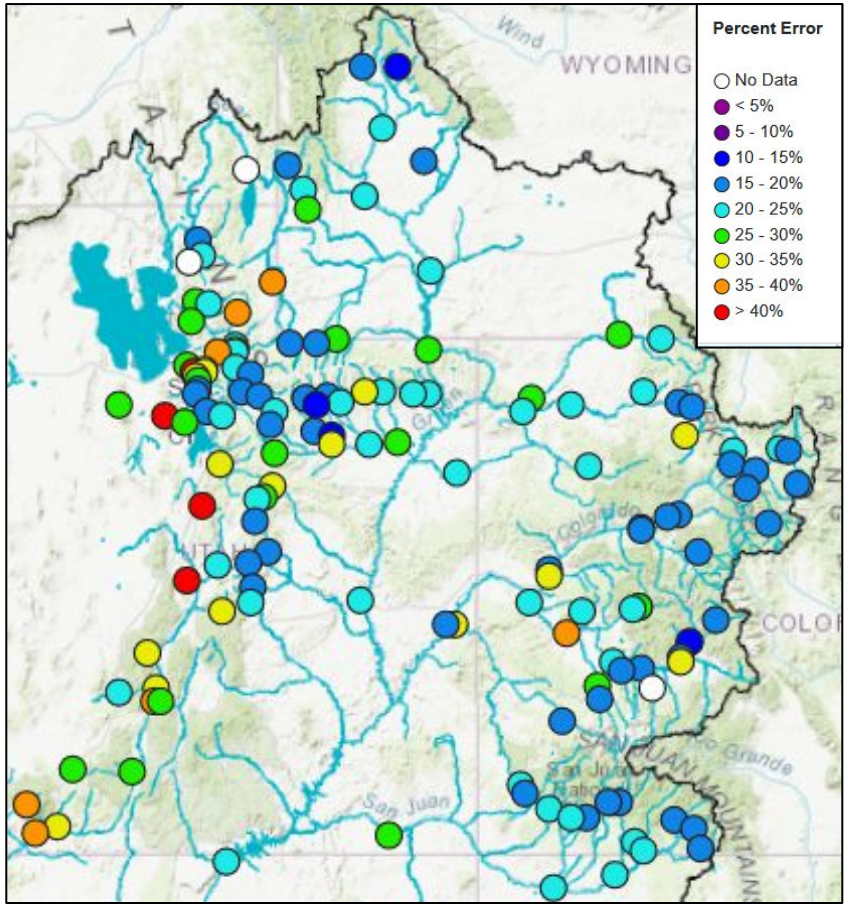
Salt: 55 - 80%

Verde: 51%

Jan-May forecasts increased on the Gila and Salt (mostly due to observed runoff), but decreased elsewhere.

Historical (1981-2010) Forecast Verification

March Forecast Error: April-July Volume



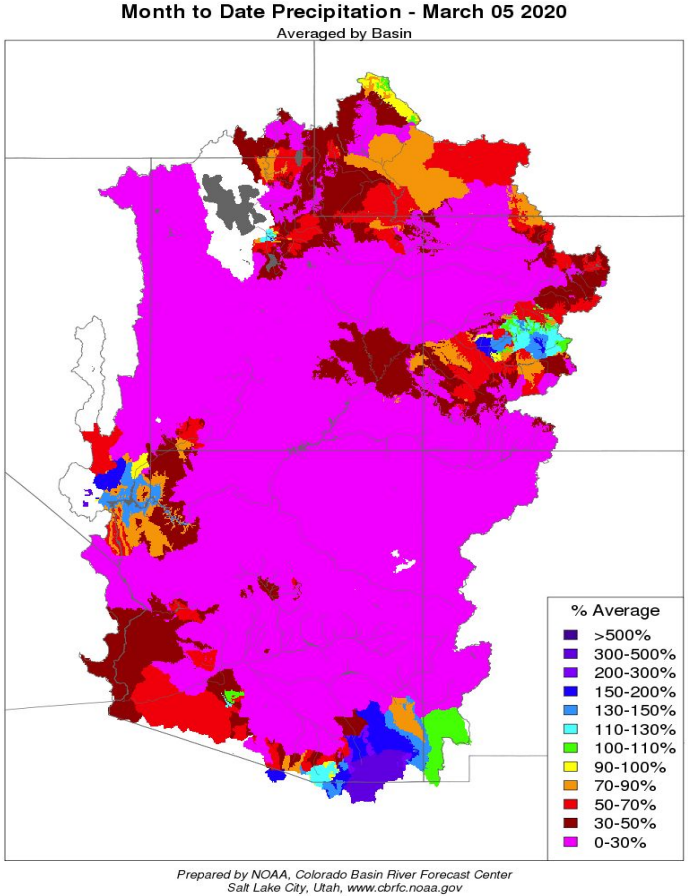
Location	Avg Mar Forecast Error
Green River - Warren Bridge	15%
Fontenelle Reservoir	22%
Yampa River - Deerlodge	23%
Blue River - Dillon Reservoir	16%
Colorado River - Cameo	17%
Blue Mesa Reservoir (Gunnison)	18%
McPhee Reservoir (Dolores)	22%
Navajo Reservoir (San Juan)	22%
Lake Powell	24%
Virgin River at Virgin	31%

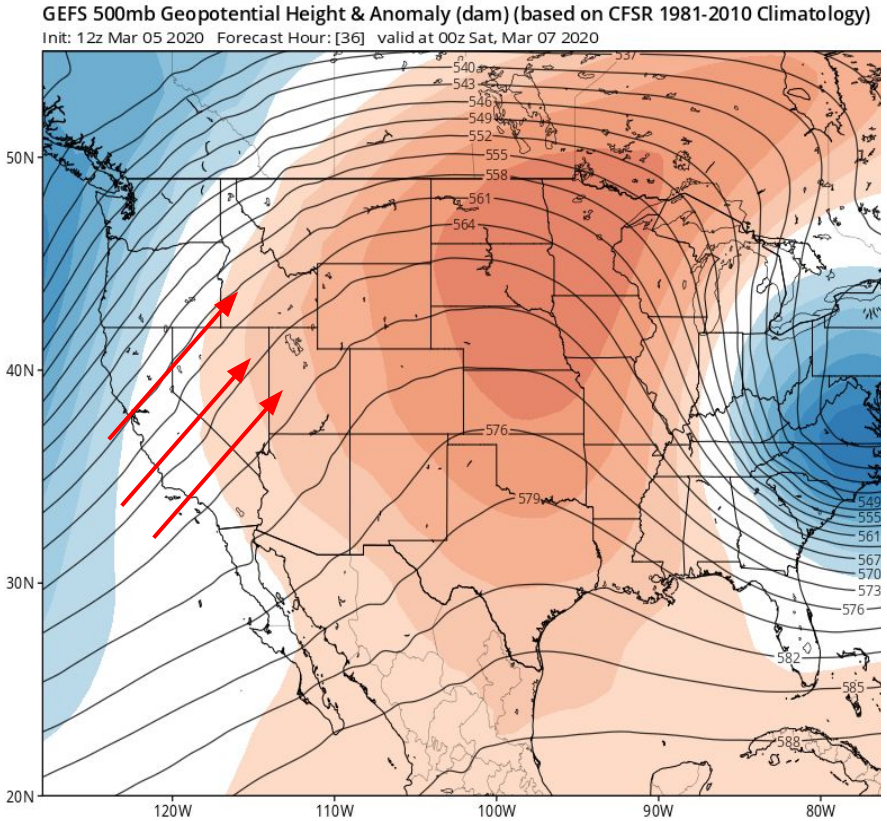
Forecasts are better than just going with average
Error tends to decrease each month into the spring

Where Forecasts are Better:
- -Headwaters
- -Primarily snow melt basins
- -Known diversions / demands

Where Forecasts are Worse:
- -Lower elevations (rain or early melt)
- -Downstream of diversions / irrigation
- -Little is known about diversions / demands

Generally Dry/Warm First Week of March

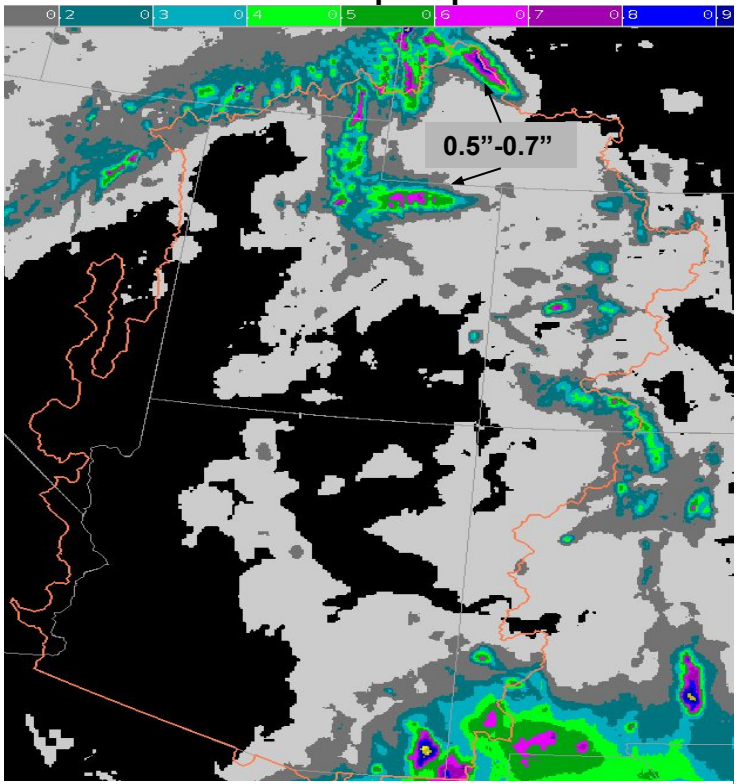




Strong ridging into Sunday results in temperatures 10-15 degrees above normal.

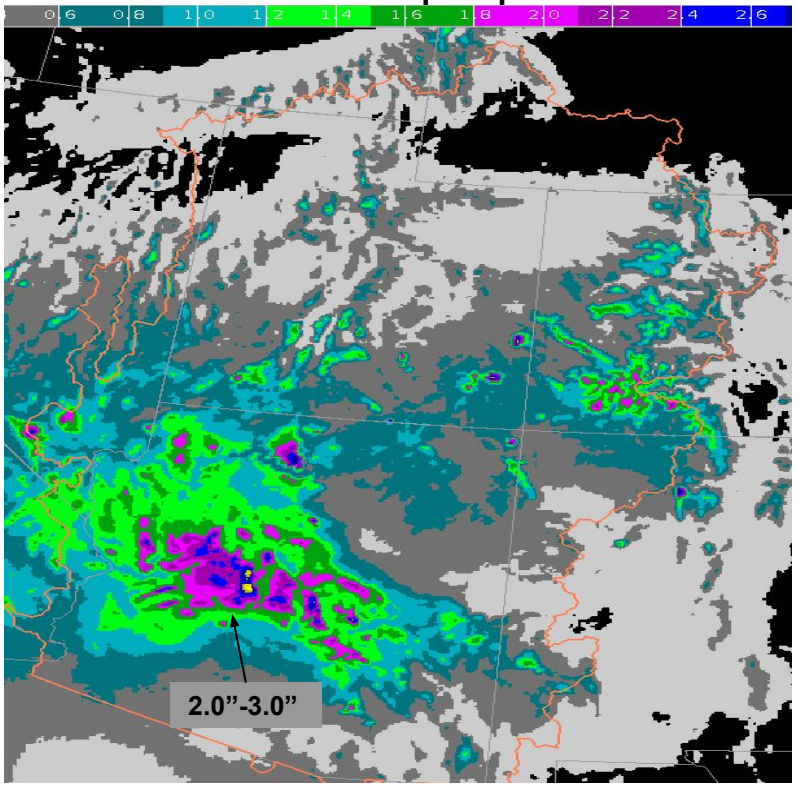
Turning Wet Across the South Next Week

March 8-9 forecast precipitation totals



Weak system forecast to bring light precipitation to Upper Colorado basin Sunday-Monday.

March 10-13 forecast precipitation totals

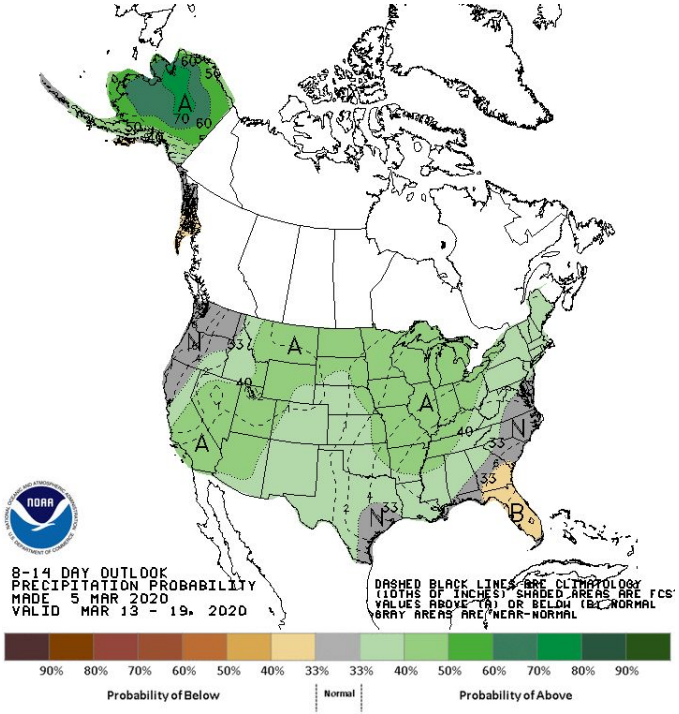


System with a subtropical moisture tap forecast to move through the Lower Colorado Basin and southern Utah/Colorado mid-week.

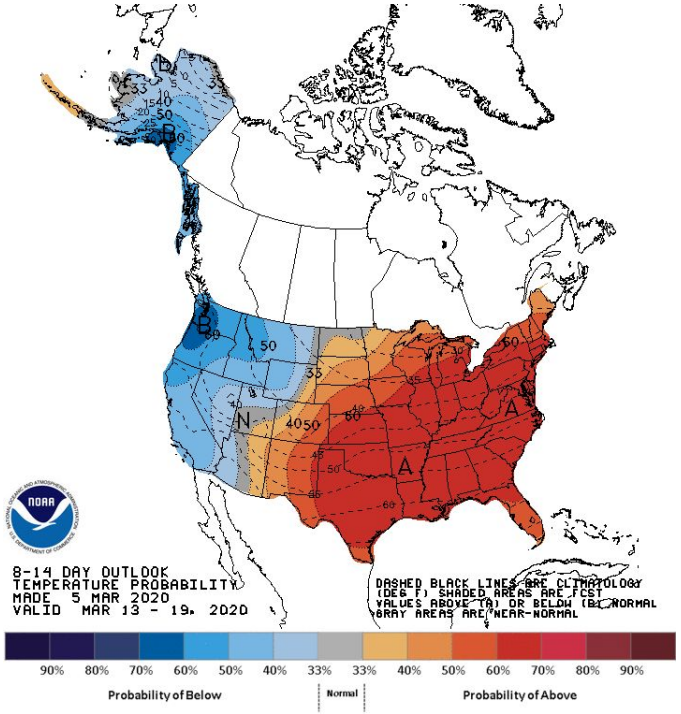
Upcoming Weather: 8-14 Day Outlook (Mar 13th-19th)

Increased probability of above average precipitation into mid-March.

Precipitation Outlook



Temperature Outlook



Summary

- The Upper Colorado mainstem headwaters benefitted the most from February storms, as did the Yampa and parts of the Upper Green.
  - Water supply forecasts increased in those areas over last month.
  - Biggest decreases in volume forecasts occurred in the San Juan, Dolores, and Virgin basins.

- Early March snow conditions:
  - Variable across the Upper Colorado Basin, but near to slightly below normal overall.
    - Best conditions are in the Upper Colorado mainstem, Yampa and parts of the Upper Green with many individual SNOTEL sites >120% of median.
    - Conditions have declined most in SW Colorado with some individual SNOTEL sites 80-85% of median.
  - Virgin River Basin: near median
  - Rest of Lower Colorado Basin: below median

- March can be a pivotal month for water supply.
  - Right now no indication of dry, warm conditions through ~3rd week of the month.
  - Currently, it looks like there is a good chance of near normal precipitation for March.
    - This would mean little change in forecasts.

2020 Water Supply Briefing Schedule

**All Times Mountain Time (MT)*

Colorado River Basin

~~Wednesday~~	~~Jan 8th~~	~~10 am~~
~~Friday~~	~~Feb 7th~~	~~10 am~~
Friday	Mar 6th	10 am
Tuesday	Apr 7th	10 am
Thursday	May 7th	10 am

Utah / Great Basin

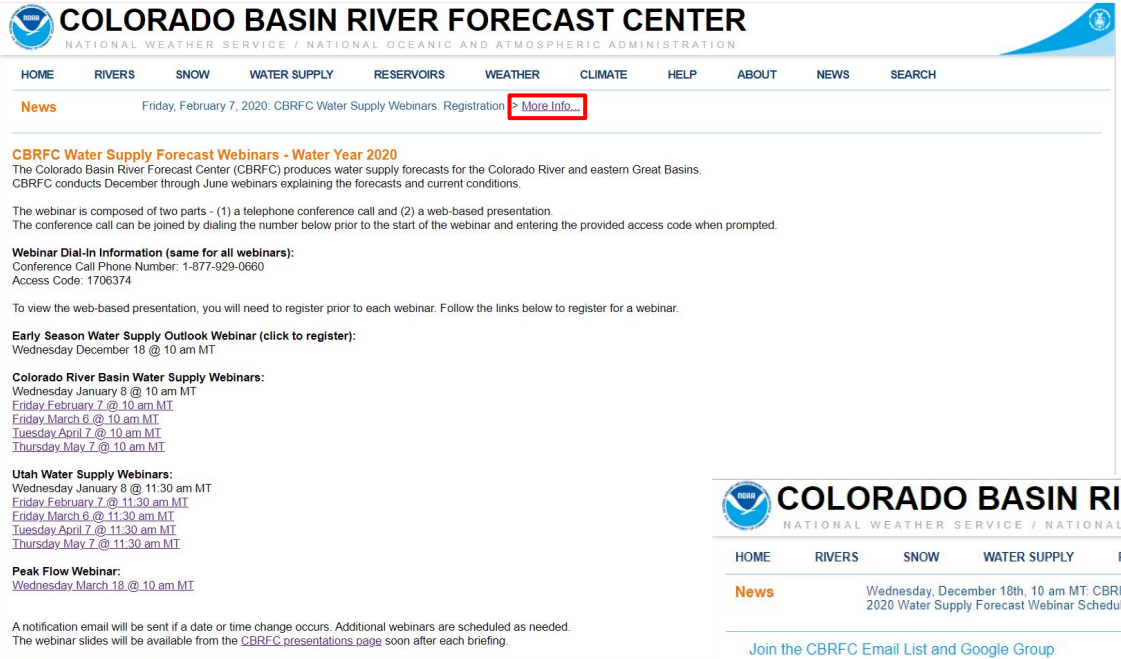
~~Wednesday~~	~~Jan 8th~~	~~11:30 am~~
~~Friday~~	~~Feb 7th~~	~~11:30 am~~
Friday	Mar 6th	11:30 am
Tuesday	Apr 7th	11:30 am
Thursday	May 7th	11:30 am

Peak flow forecast webinar Wednesday, March 18th, 10 am MT

Additional briefings scheduled as needed

All registration information has been posted to the CBRFC web page.

CBRFC Webinar Registration & Email List



COLORADO BASIN RIVER FORECAST CENTER

NATIONAL WEATHER SERVICE / NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME RIVERS SNOW WATER SUPPLY RESERVOIRS WEATHER CLIMATE HELP ABOUT NEWS SEARCH

News Friday, February 7, 2020: CBRFC Water Supply Webinars. Registration > More Info...

CBRFC Water Supply Forecast Webinars - Water Year 2020

The Colorado Basin River Forecast Center (CBRFC) produces water supply forecasts for the Colorado River and eastern Great Basins.
CBRFC conducts December through June webinars explaining the forecasts and current conditions.

The webinar is composed of two parts - (1) a telephone conference call and (2) a web-based presentation.
The conference call can be joined by dialing the number below prior to the start of the webinar and entering the provided access code when prompted.

Webinar Dial-In Information (same for all webinars):
Conference Call Phone Number: 1-877-929-0660
Access Code: 1706374

To view the web-based presentation, you will need to register prior to each webinar. Follow the links below to register for a webinar.

Early Season Water Supply Outlook Webinar (click to register):
Wednesday December 18 @ 10 am MT

Colorado River Basin Water Supply Webinars:
Wednesday January 8 @ 10 am MT
Friday February 7 @ 10 am MT
Friday March 6 @ 10 am MT
Tuesday April 7 @ 10 am MT
Thursday May 7 @ 10 am MT

Utah Water Supply Webinars:
Wednesday January 8 @ 11:30 am MT
Friday February 7 @ 11:30 am MT
Friday March 6 @ 11:30 am MT
Tuesday April 7 @ 11:30 am MT
Thursday May 7 @ 11:30 am MT

Peak Flow Webinar:
Wednesday March 18 @ 10 am MT

A notification email will be sent if a date or time change occurs. Additional webinars are scheduled as needed.
The webinar slides will be available from the CBRFC presentations page soon after each briefing.

https://www.cbrfc.noaa.gov/

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NATIONAL WEATHER SERVICE / NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME RIVERS SNOW WATER SUPPLY RESERVOIRS WEATHER CLIMATE HELP ABOUT NEWS SEARCH

News Wednesday, December 18th, 10 am MT: CBRFC Early Season Water Supply Outlook Webinar. Registration -> More Info...
2020 Water Supply Forecast Webinar Schedule and Registration -> More Info...

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If you would like to add any information about your area of interest and association or agency you represent please do so in the body of the email.
This information would help us maintain a more comprehensive contact list.

This list is used to provide notification when webinars are scheduled, water supply forecasts are updated, and for other news of interest to our stakeholders regarding CBRFC operations.

For questions or comments, including suggestions on additional CBRFC products or services we might provide, please contact us at cbrfc.webmasters@noaa.gov.

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Questions?