

Utah Water Supply Briefing

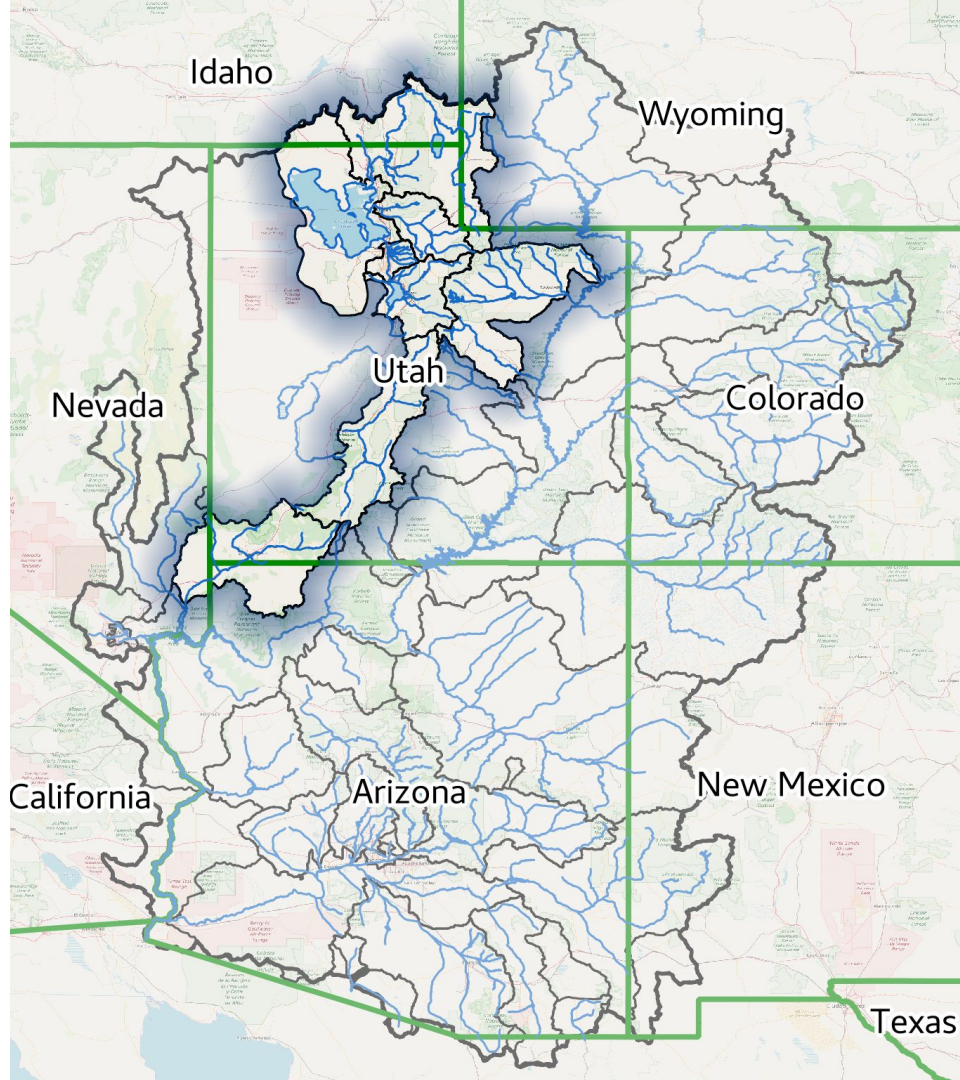
March 6th, 2020

Colorado Basin River Forecast Center
Patrick Kormos - Hydrologist

!!! Use webinar audio !!!

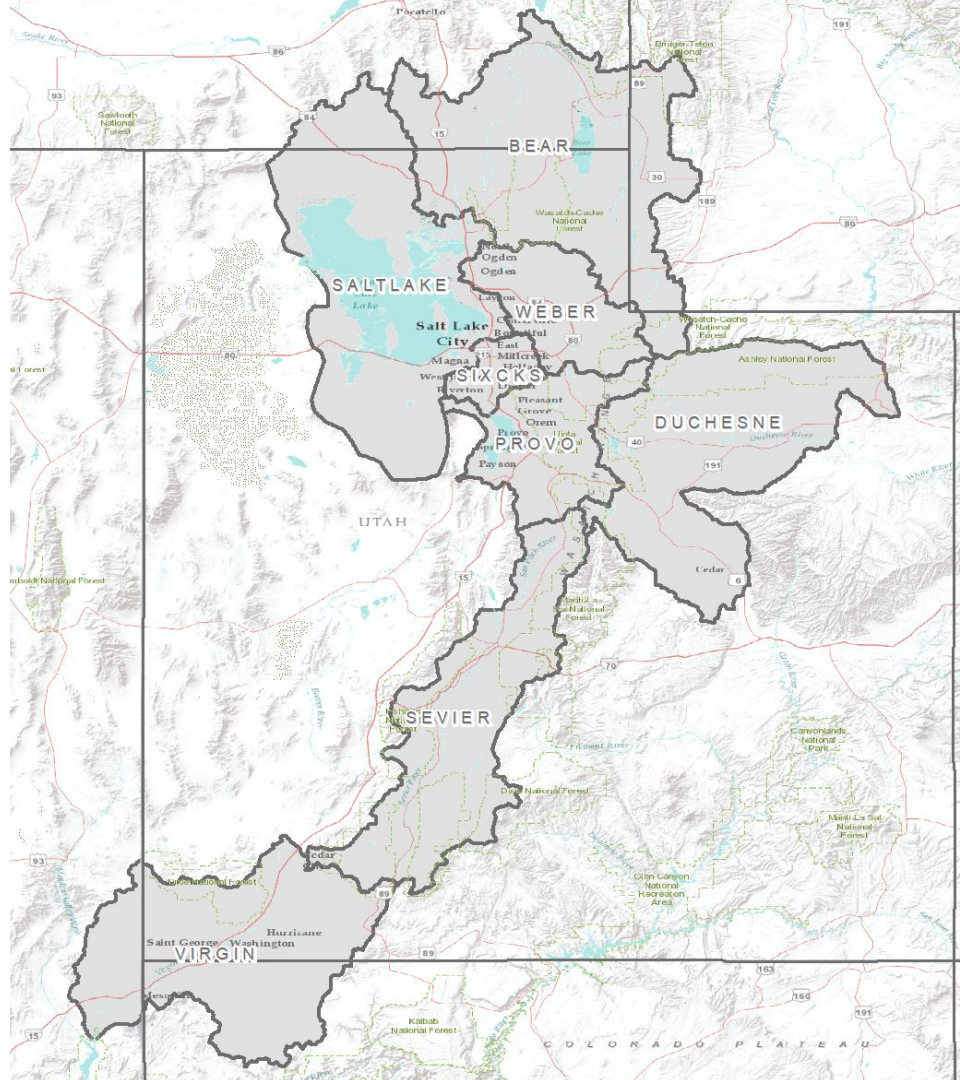
- Either use computer audio, ...
- or dial in using phone number and passcode provided by GoTo.

Please mute your microphone until ready to ask questions



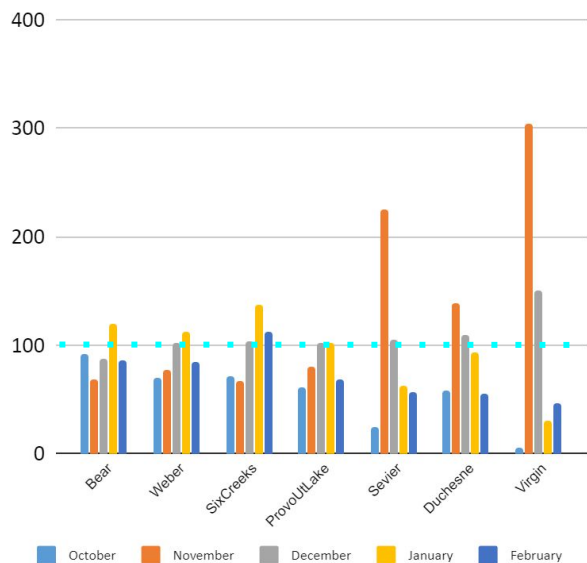
Utah Water Supply Briefing

1. Precipitation Review
2. Current Snowpack
3. 2020 Water Supply Forecasts
4. Forecast Error
5. Upcoming Weather
6. Contacts & Questions

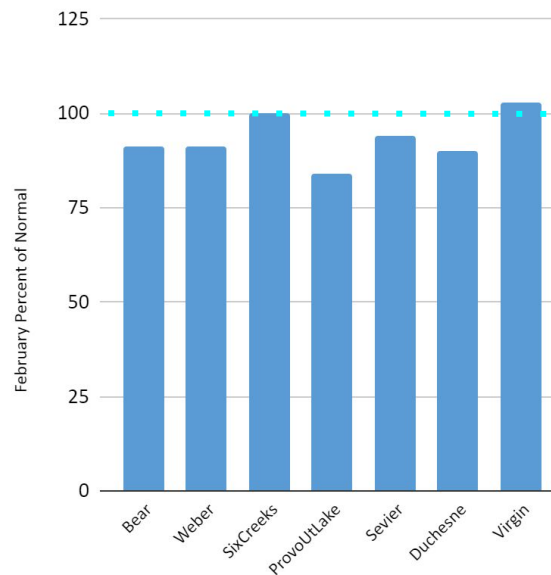


Utah Precipitation Review - Precipitation up to March. 1, 2020

Monthly Precipitation Percent of Normal



Water Year Precipitation Percent of Normal



February Precipitation

- Six Creeks: Above Normal
- ---: Near Normal
- Weber, Bear: Below Normal
- Provo, Sevier, Duchesne, Virgin: Much Below Normal

Water Year Precipitation

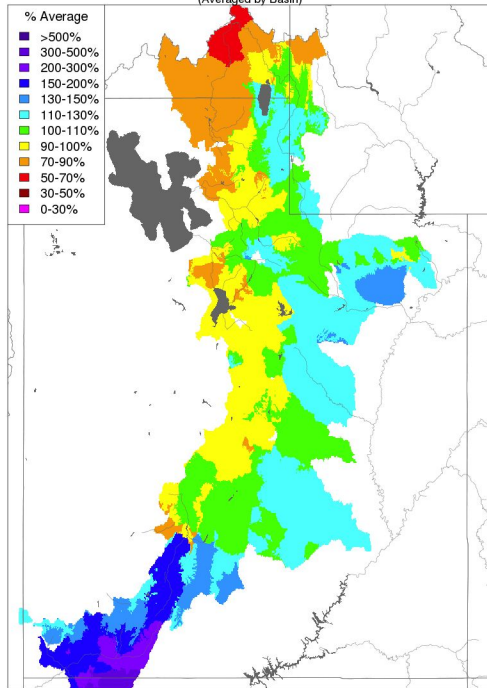
- Bear, Six Creeks, Weber, Sevier, Duchesne Virgin: Near Normal
- Provo: Below Normal

- Bear: 91%
- Weber: 91%
- Six Creeks: 100%
- Provo: 84%
- Sevier: 94%
- Duchesne: 90%
- Virgin: 103%

Utah Precipitation Review - Monthly Precipitation

December

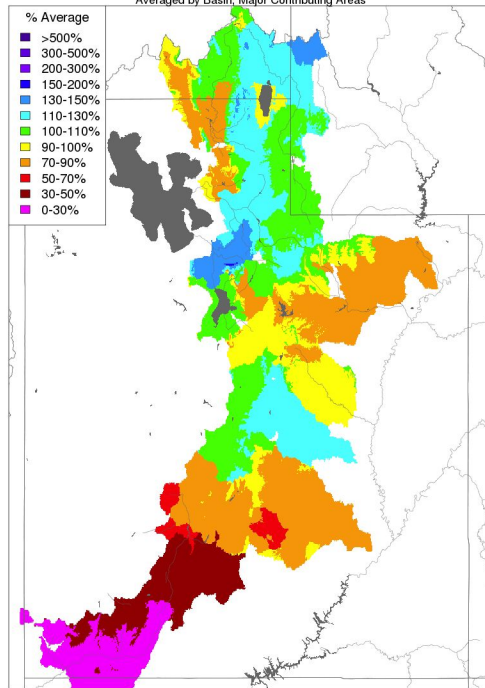
Monthly Precipitation - December 2019
(Averaged by Basin)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

January

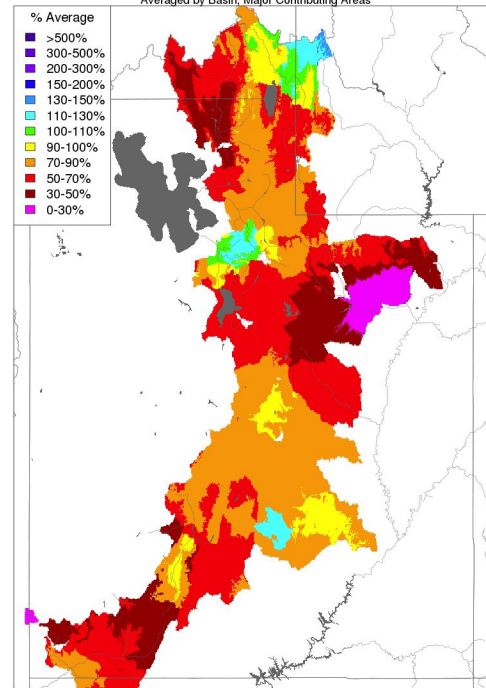
Monthly Precipitation - January 2020
(Averaged by Basin, Major Contributing Areas)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

February

Monthly Precipitation - February 2020
(Averaged by Basin, Major Contributing Areas)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

% Average

- >500%
- 300-500%
- 200-300%
- 150-200%
- 130-150%
- 110-130%
- 100-110%
- 90-100%
- 70-90%
- 50-70%
- 30-50%
- 0-30%

Utah Precipitation Review - February Precipitation

Feb 6

→ week →

Feb 15

→ week →

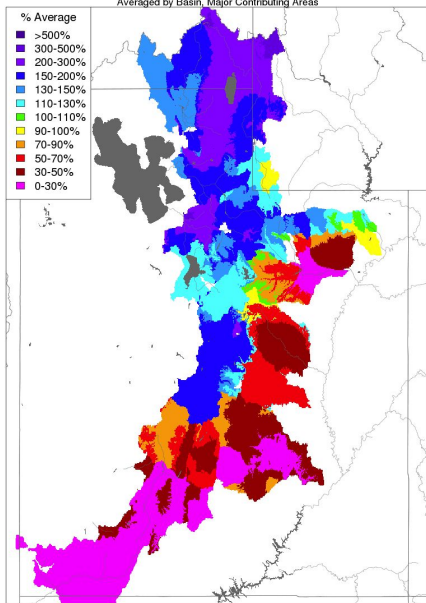
Feb 22

→ week →

Feb 29

Month to Date Precipitation - February 08 2020

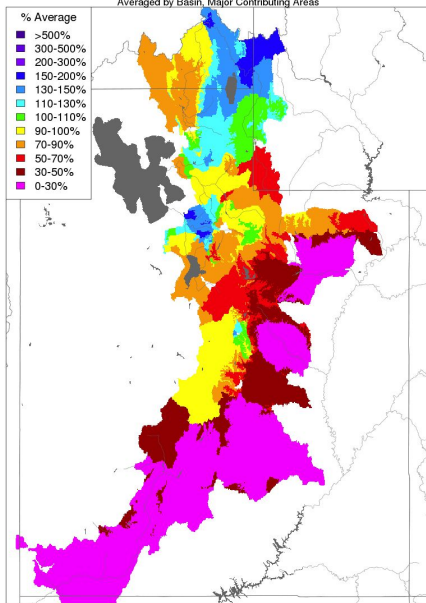
Averaged by Basin, Major Contributing Areas



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Month to Date Precipitation - February 15 2020

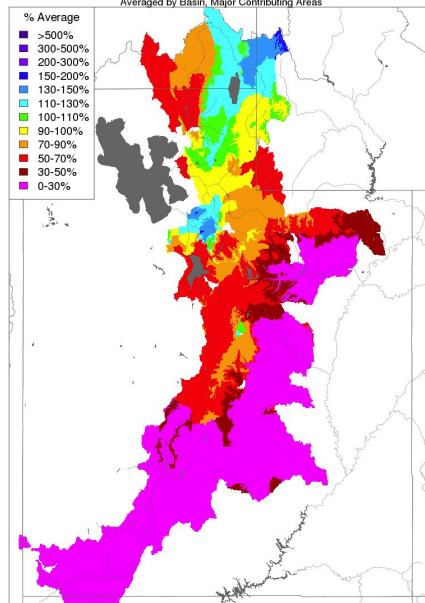
Averaged by Basin, Major Contributing Areas



Prepared by NOAA, Colorado Basin River Forecast Center
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Month to Date Precipitation - February 22 2020

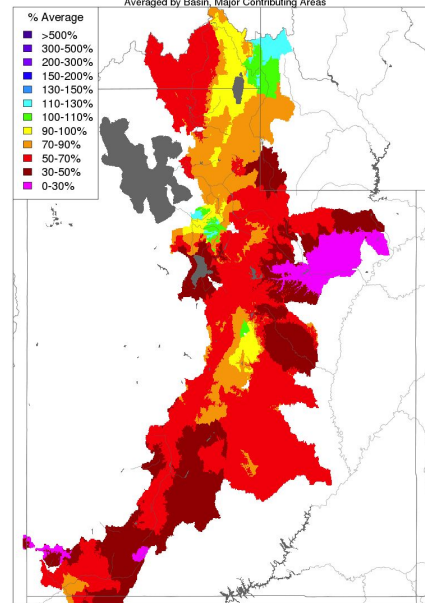
Averaged by Basin, Major Contributing Areas



Prepared by NOAA, Colorado Basin River Forecast Center
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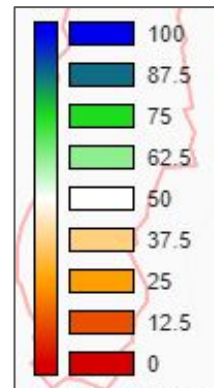
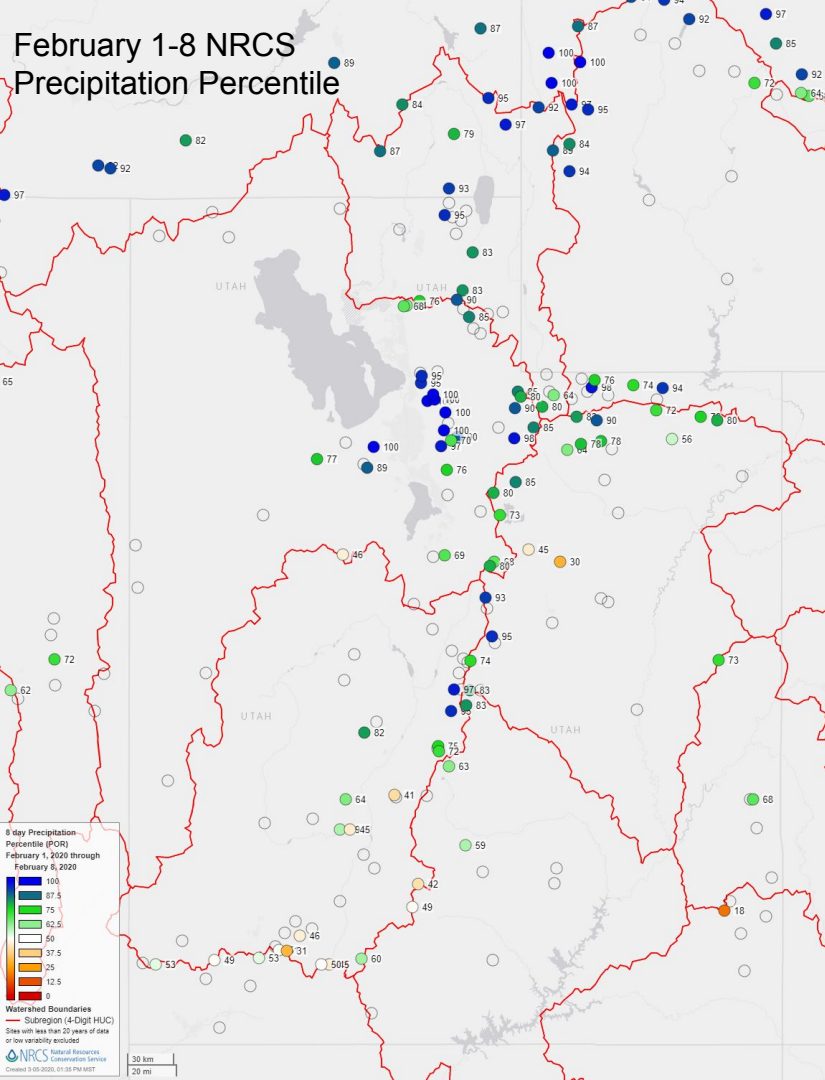
Month to Date Precipitation - February 29 2020

Averaged by Basin, Major Contributing Areas

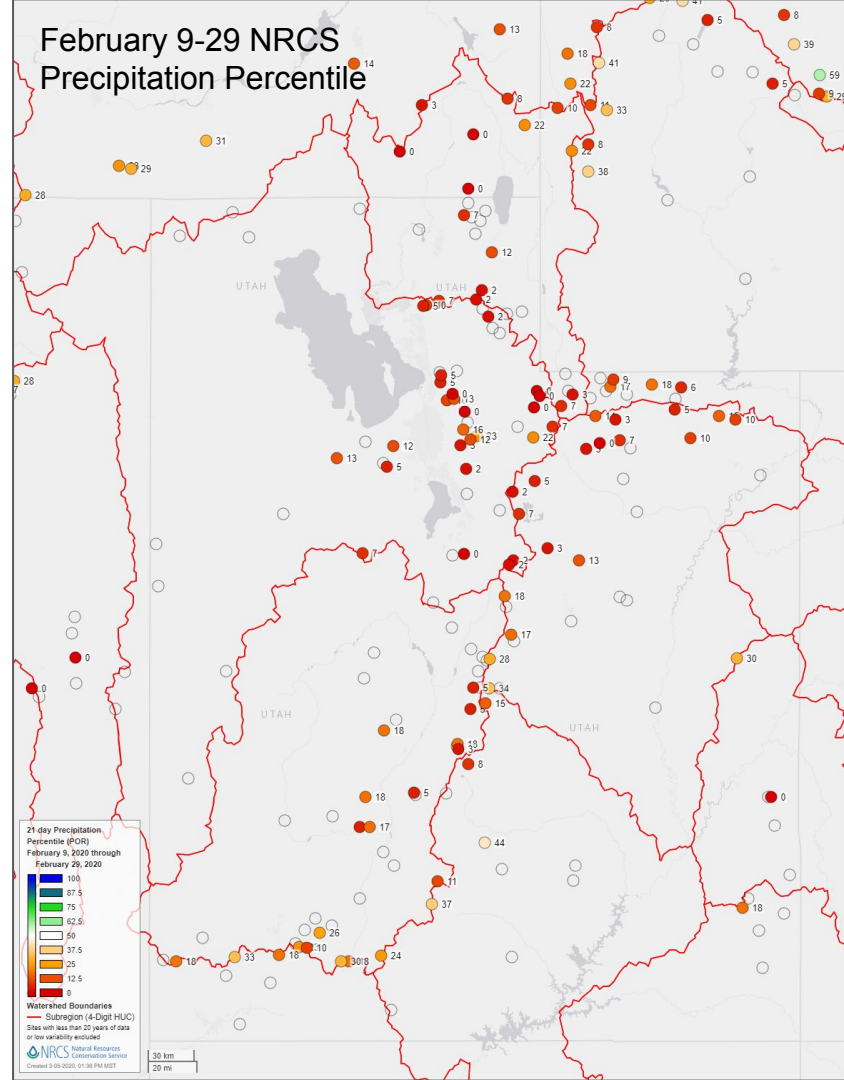


Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

February 1-8 NRCS Precipitation Percentile

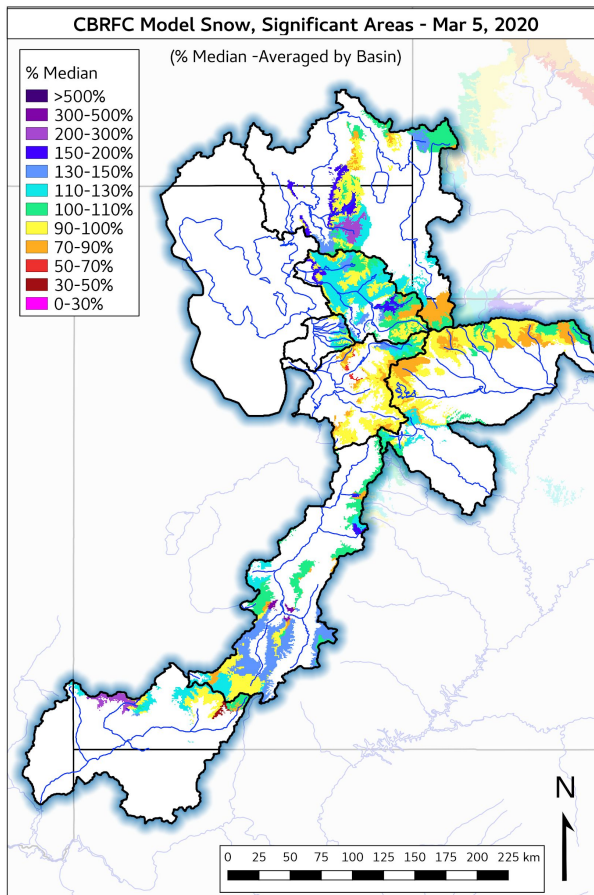
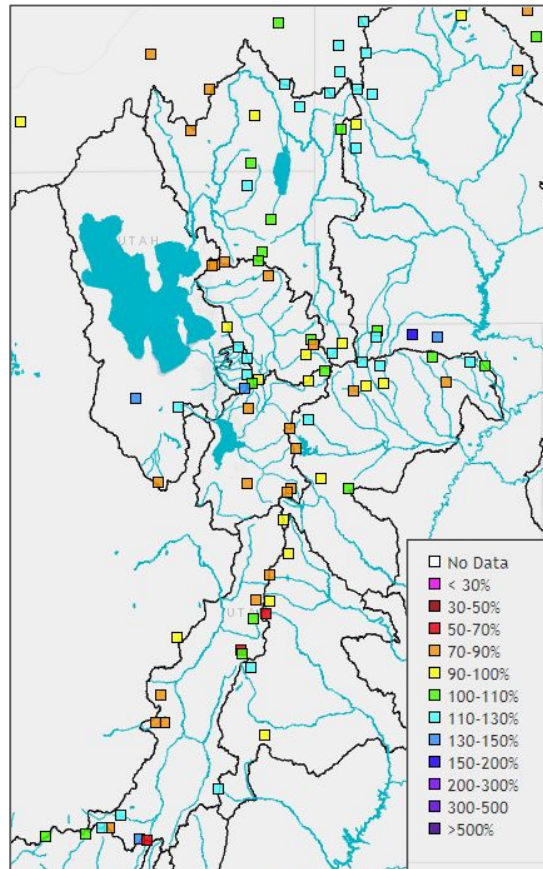


February 9-29 NRCS Precipitation Percentile



Utah Current Snowpack

SNOTEL (Observed Mar. 6, 2020)

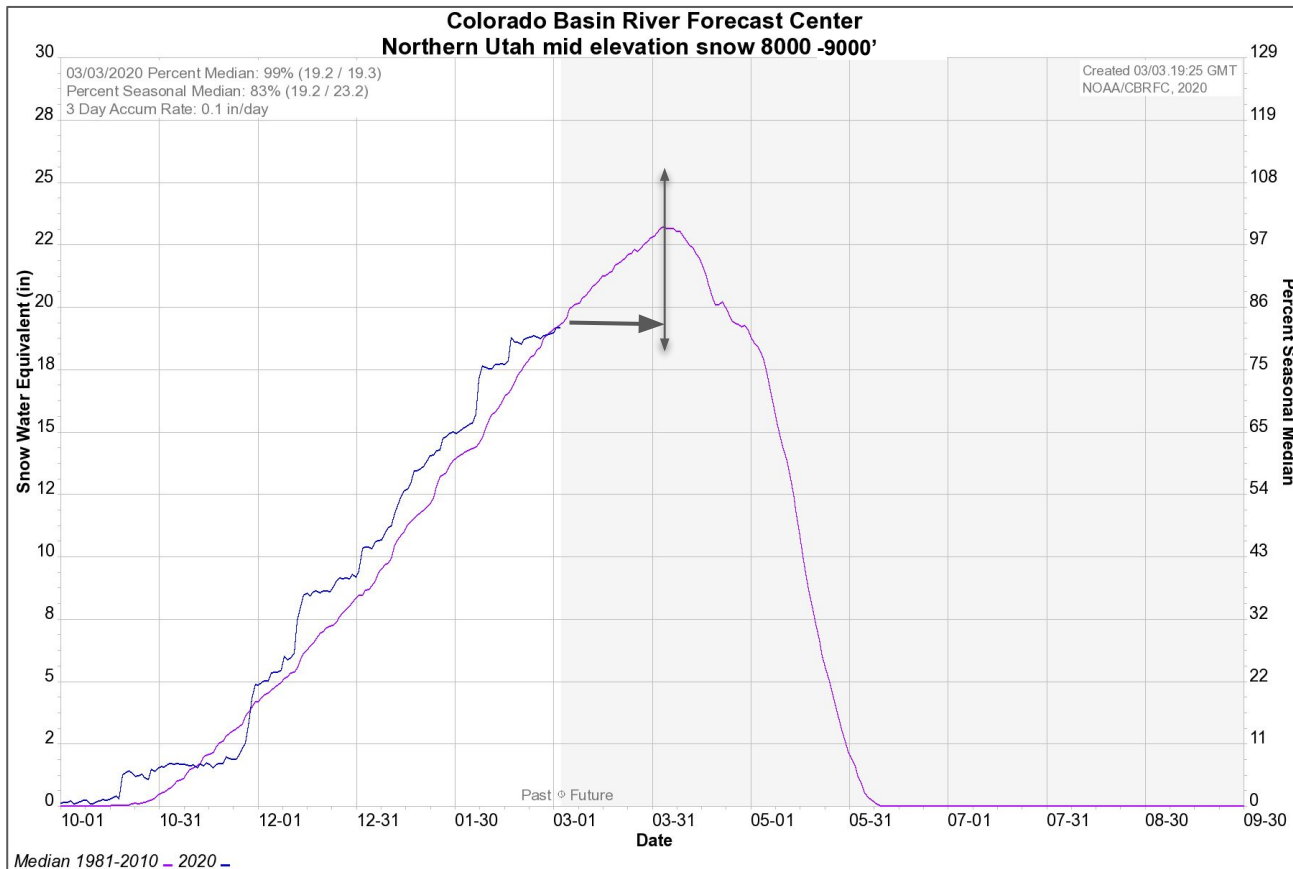
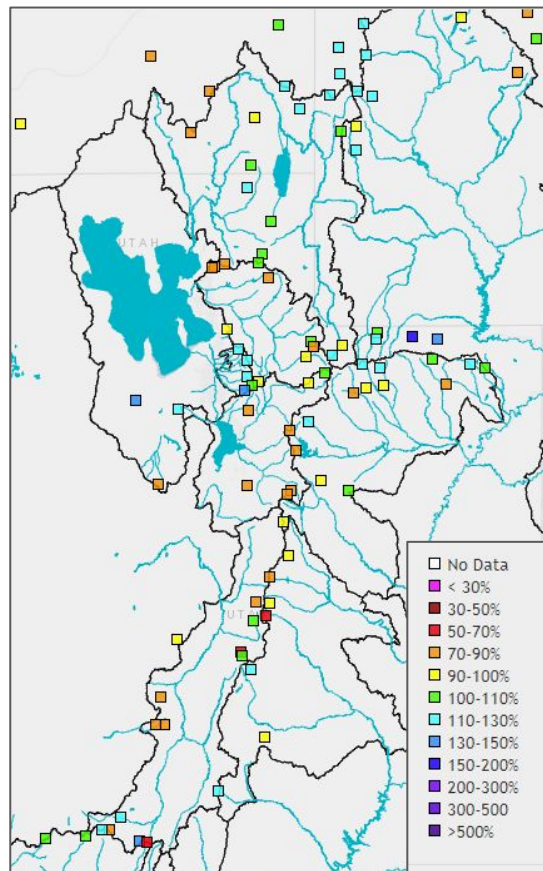


As of March 1, 2020
CBRFC Snow Groups (SNOTEL Stations)

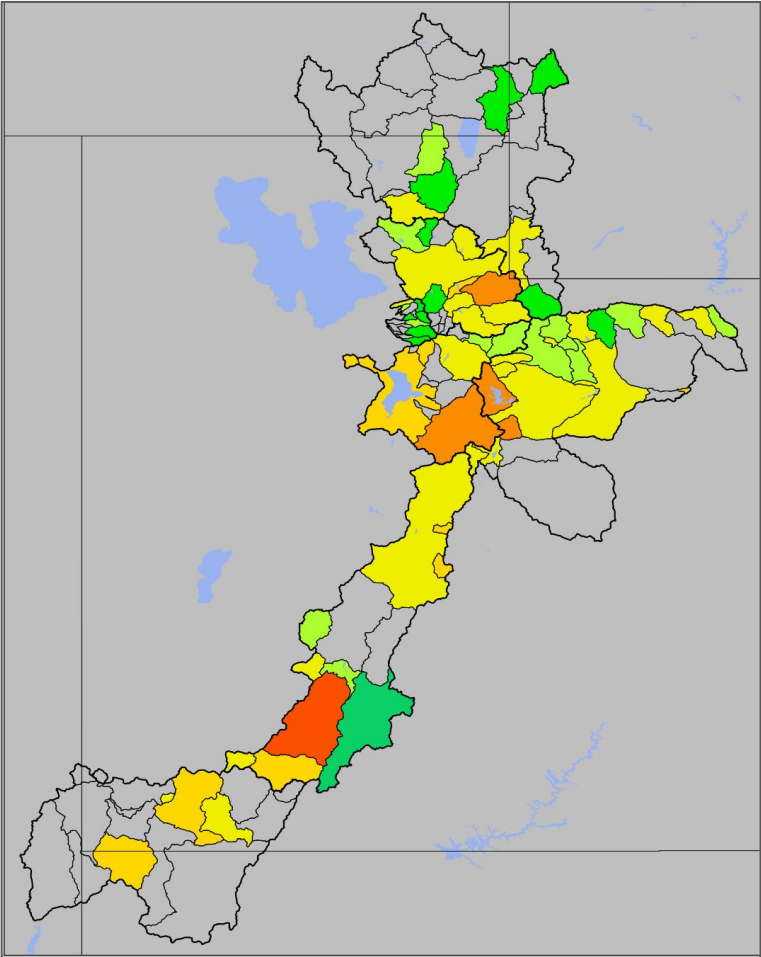
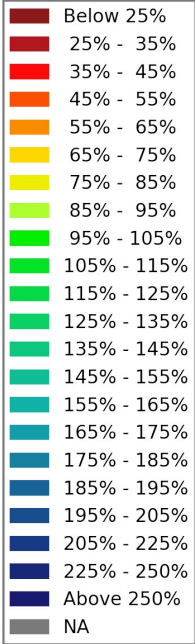
- Bear: 105%
- Weber: 95%
- Six Cr: 120%
- Provo: 85%
- Duchesne: 105%
- Sevier: 100%
- Virgin: 110%

Utah Current Snowpack: approximately 1 more accumulation month

SNOTEL (Observed Mar. 3, 2020)



Utah Water Supply Forecasts - March Overview

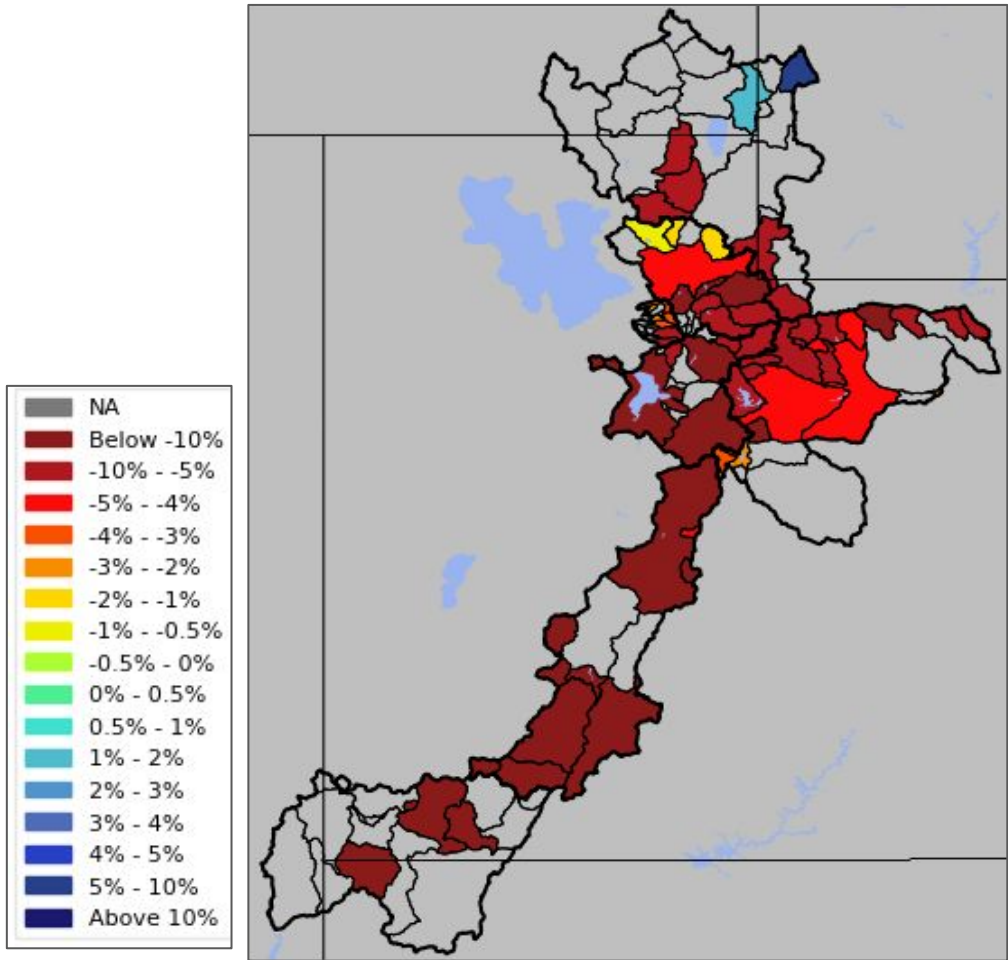


- March 1 Forecasts for April-July Volume in 1000's acre feet (KAF)
- April-July Forecast Streamflow Volumes are in percent of 1981-2010 average

Median value of the...
...individual forecasts (in % of average)
...by Forecast Group.

Bear	100%
Weber	80%
Six Creeks	95%
Provo / Utah Lake	70%
Sevier	80%
Duchesne	85%
Virgin	80%

Utah Water Supply Forecasts - March Overview

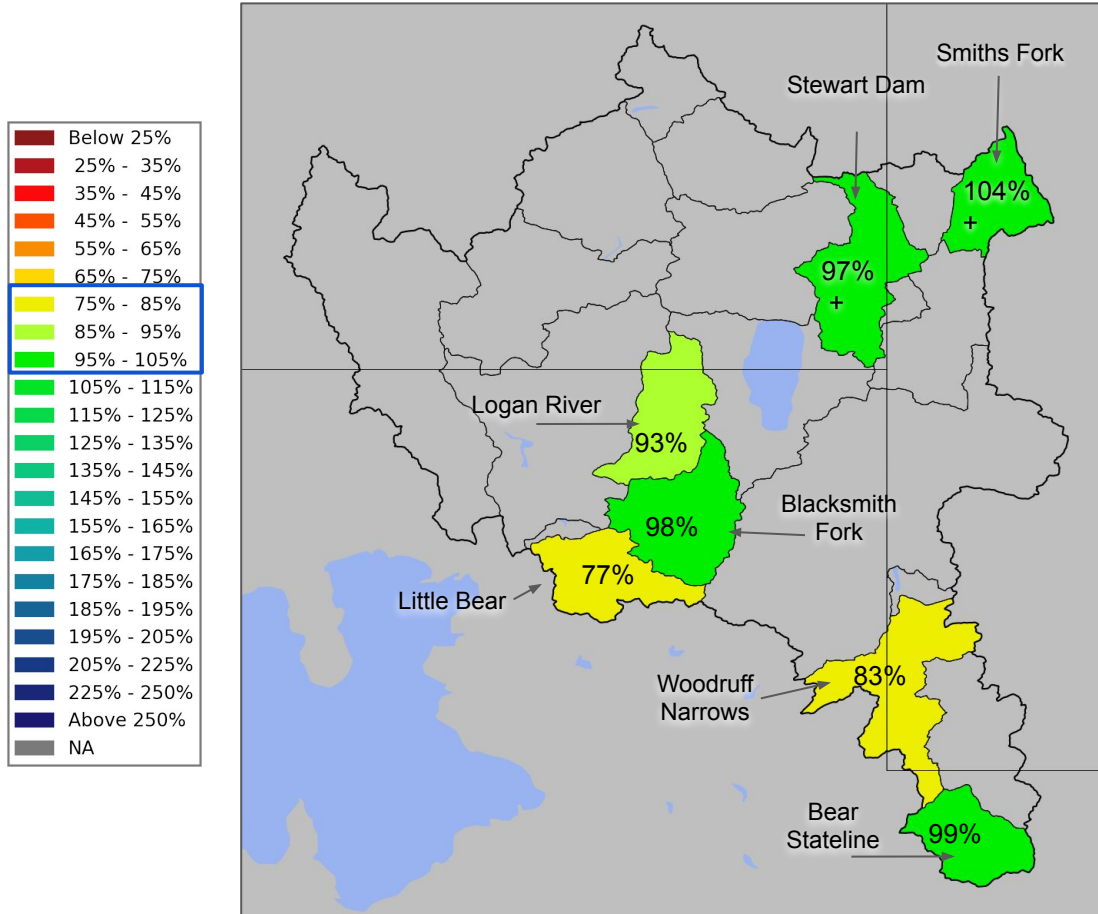


- March 1 Forecasts for April-July Volume in 1000's acre feet (KAF)
- April-July Forecast Streamflow Volumes are in percent of 1981-2010 average

Change in Median Forecast from February to March

Bear	+-%
Weber	-5%
Six Creeks	-5%
Provo / Utah Lake	-25%
Sevier	-30%
Duchesne	-5%
Virgin	-15%

Utah Water Supply Forecasts - Bear



Bear River Basin Forecasts

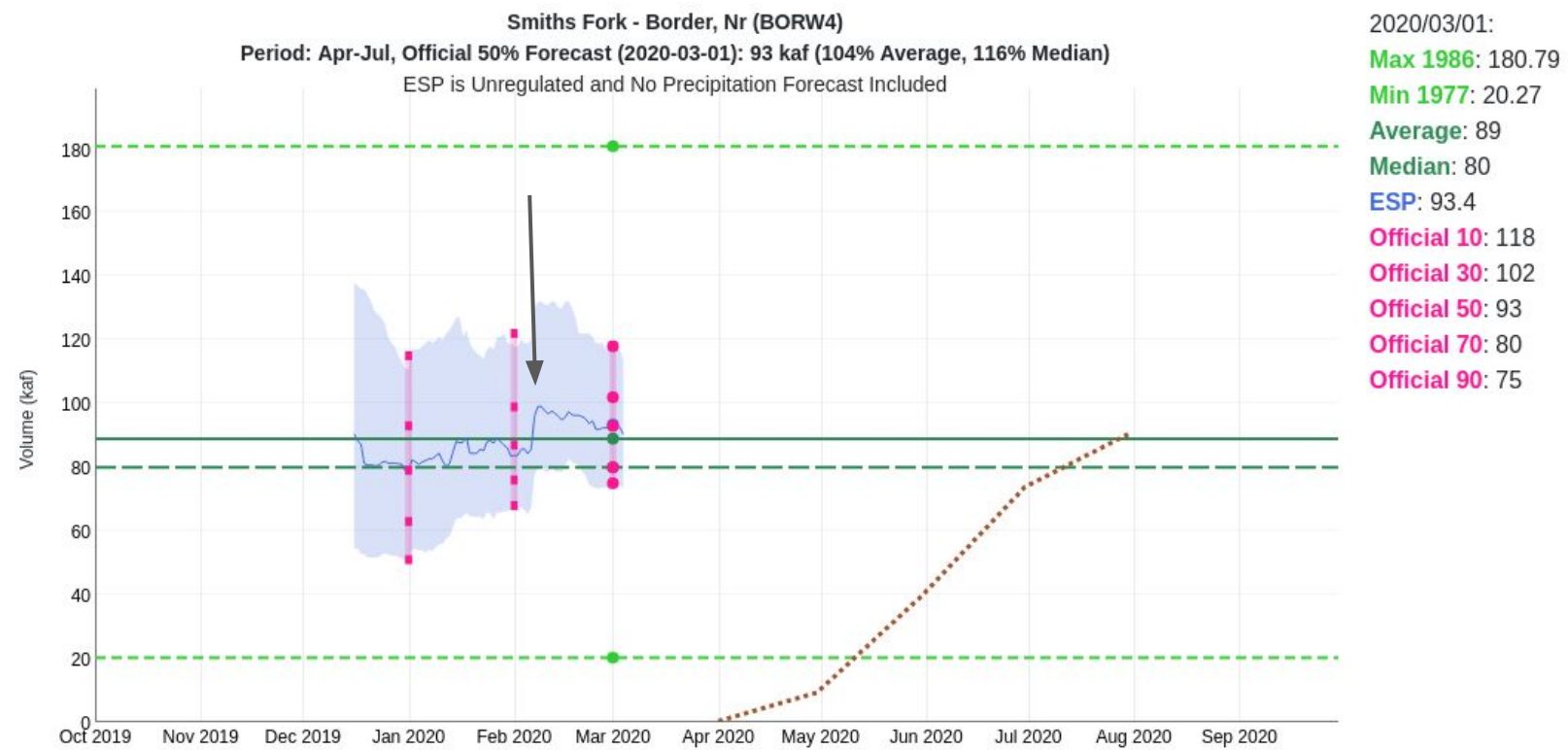
January: 90%

February: 100%

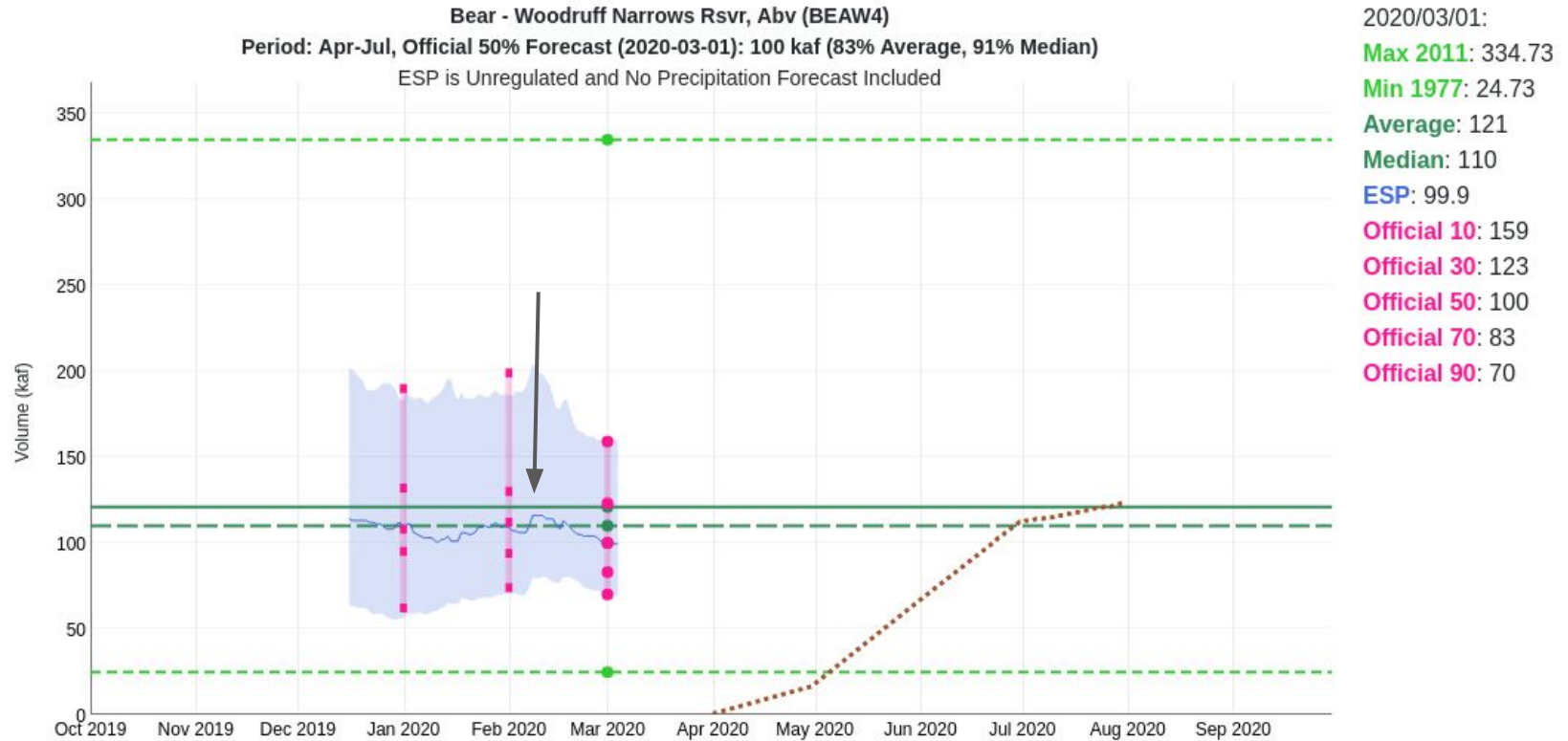
March: 100%

- Between 77% and 104%
- Slight increase in
 - Smith's Fork
 - Stewart
- Slight decrease in others

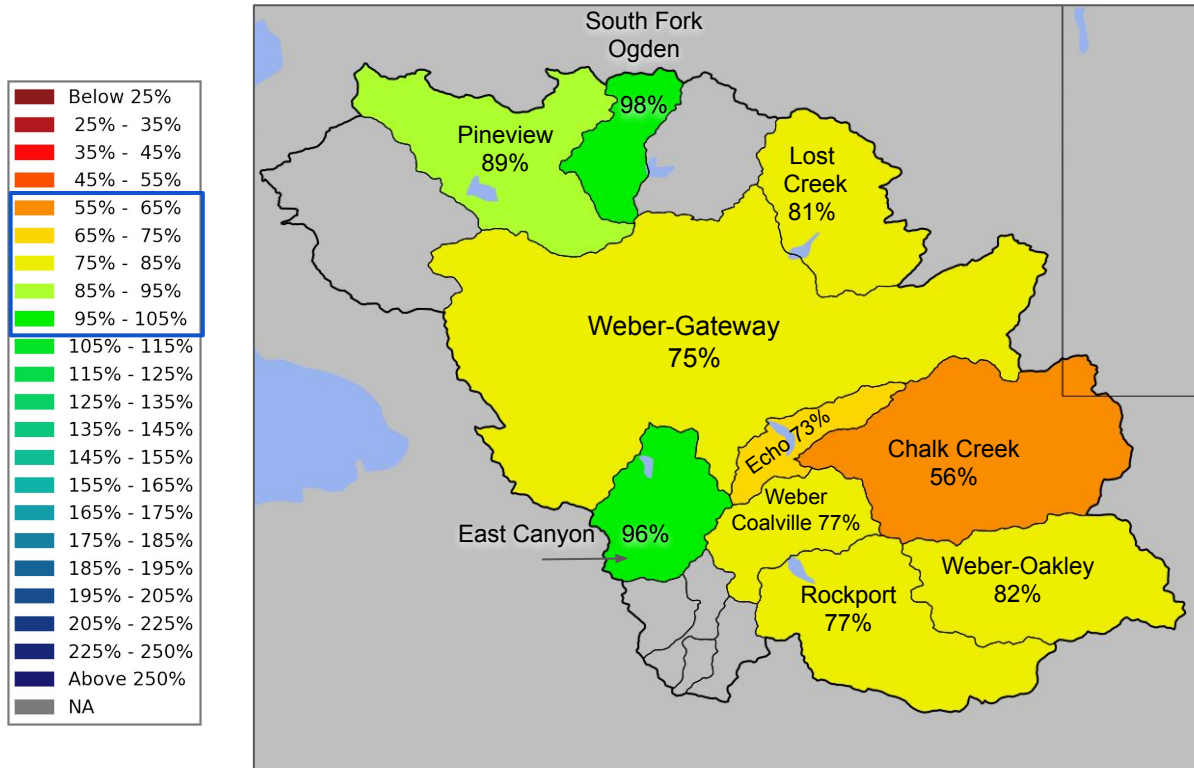
Utah Water Supply Forecasts - Bear Smiths Fork



Utah Water Supply Forecasts - Bear Woodruff



Utah Water Supply Forecasts - Weber



Weber River Basin Forecasts

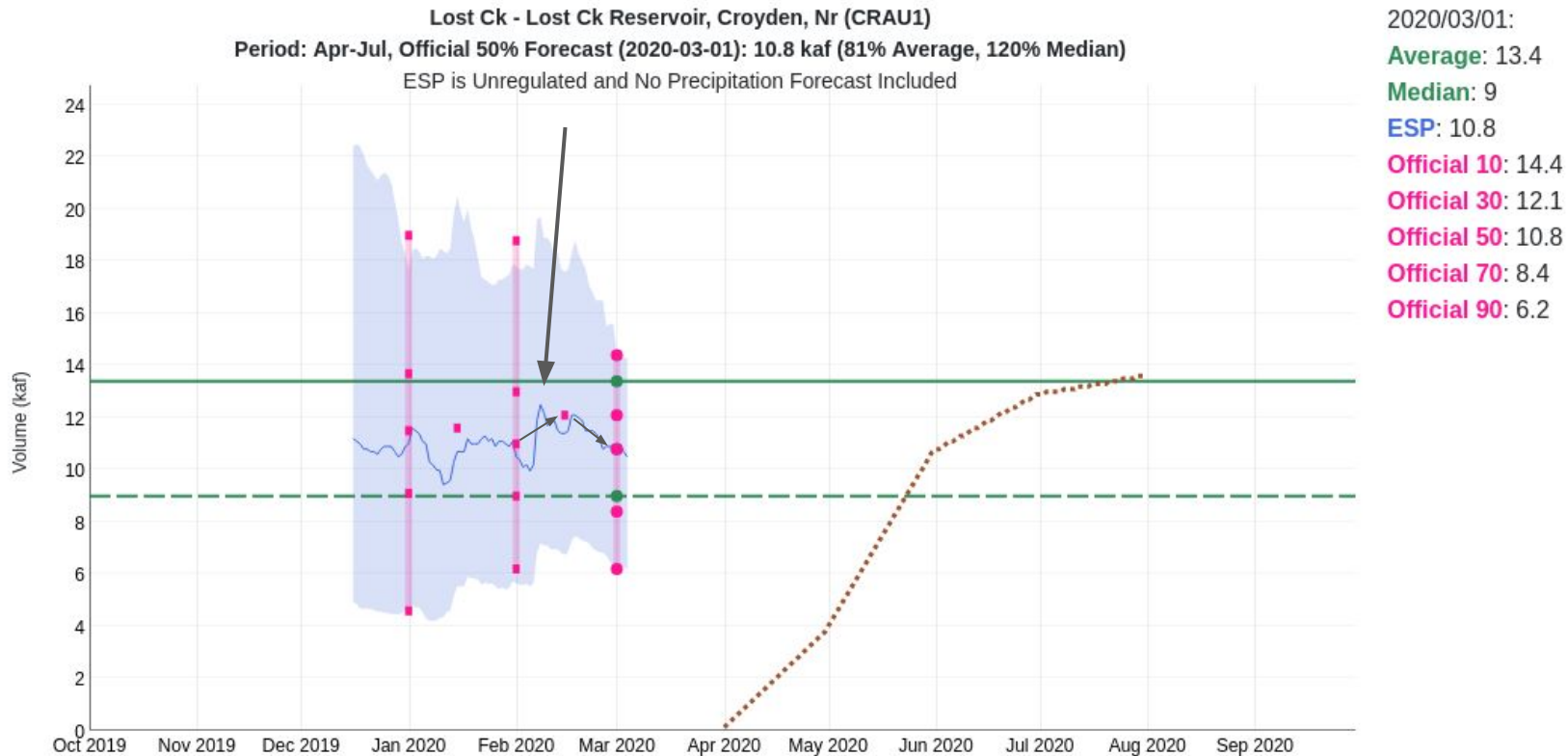
January: 85%

February: 85%

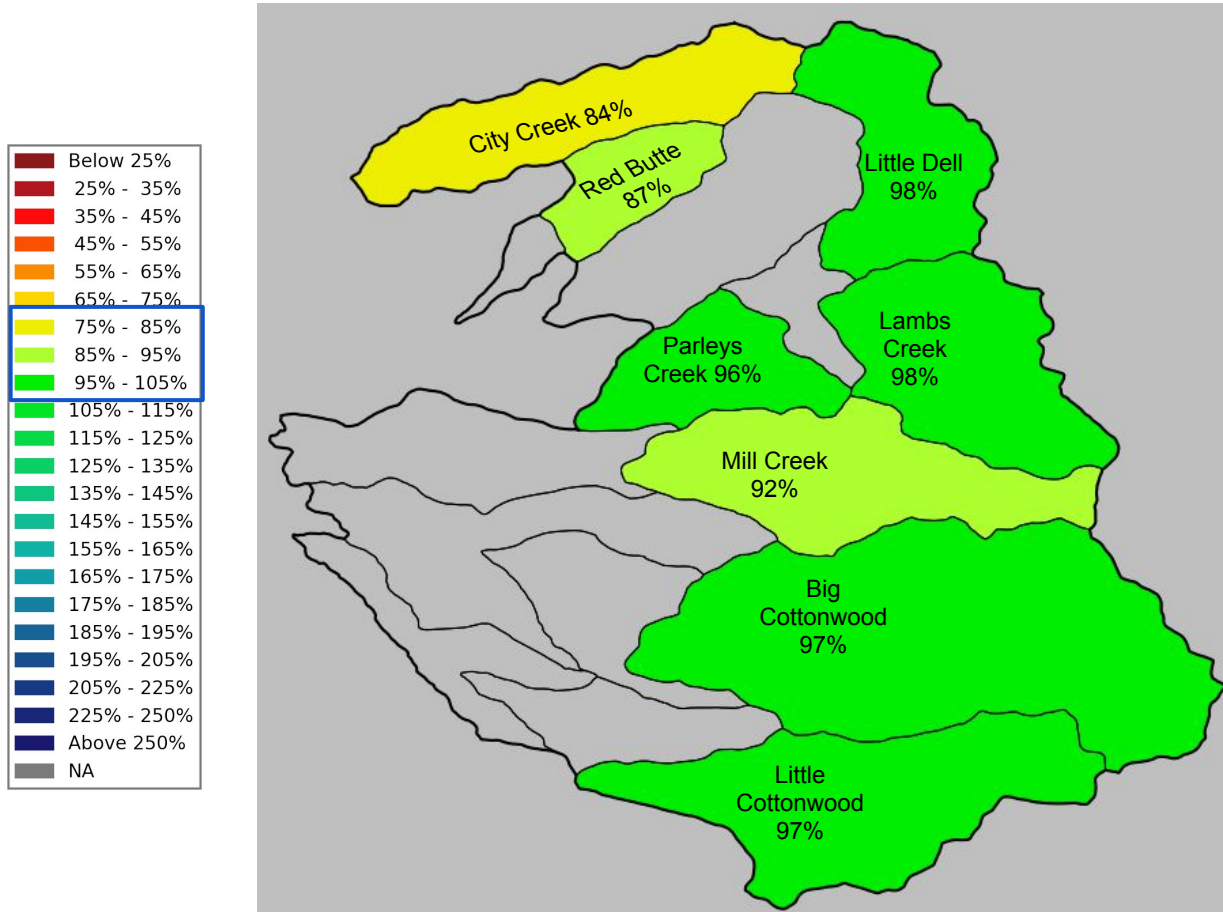
March: 80%

- Decrease across basin
- Between 56% and 98%

Utah Water Supply Forecasts - Weber Lost Creek



Utah Water Supply Forecasts - Six Creeks



Six Creeks Basin Forecasts

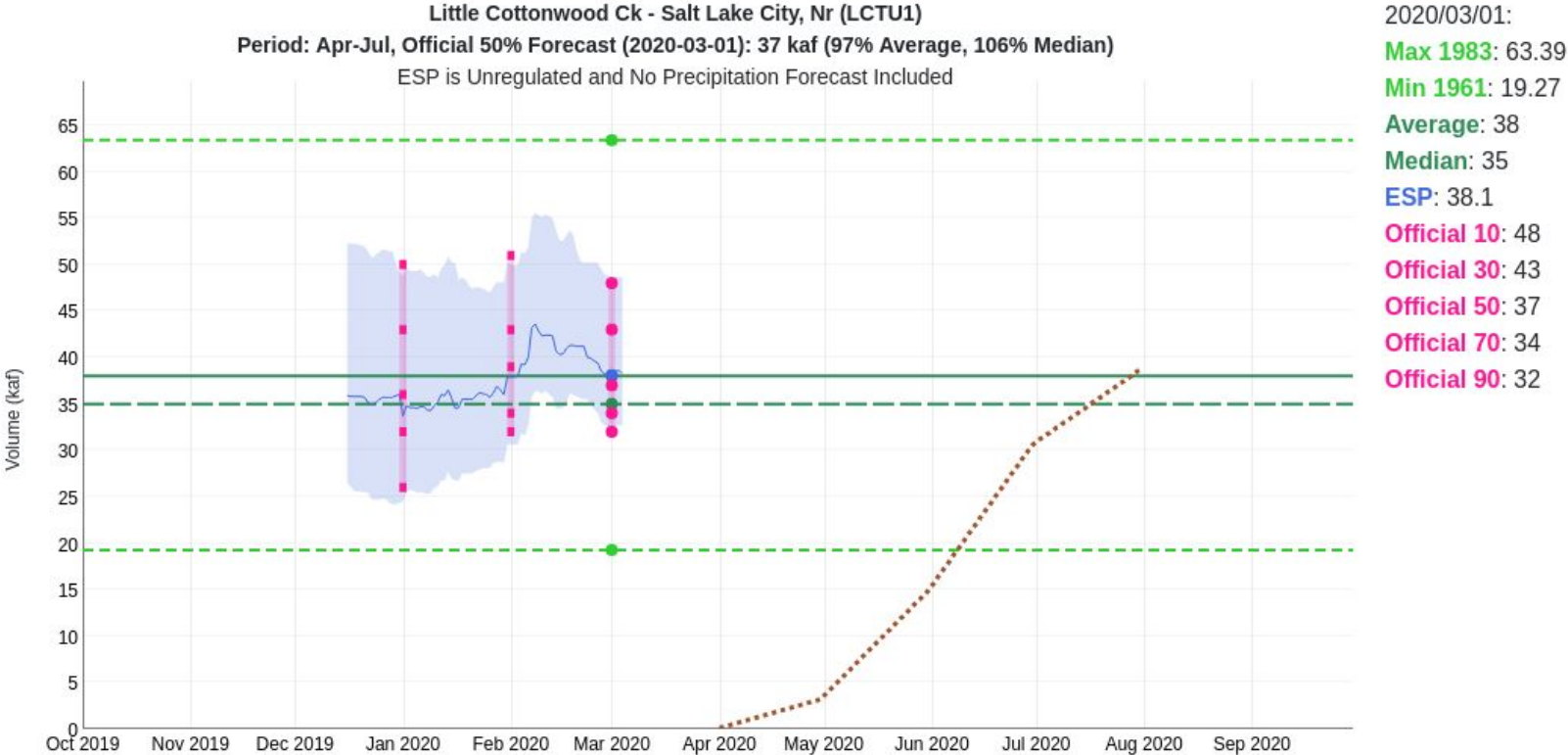
January: 90%

February: 100%

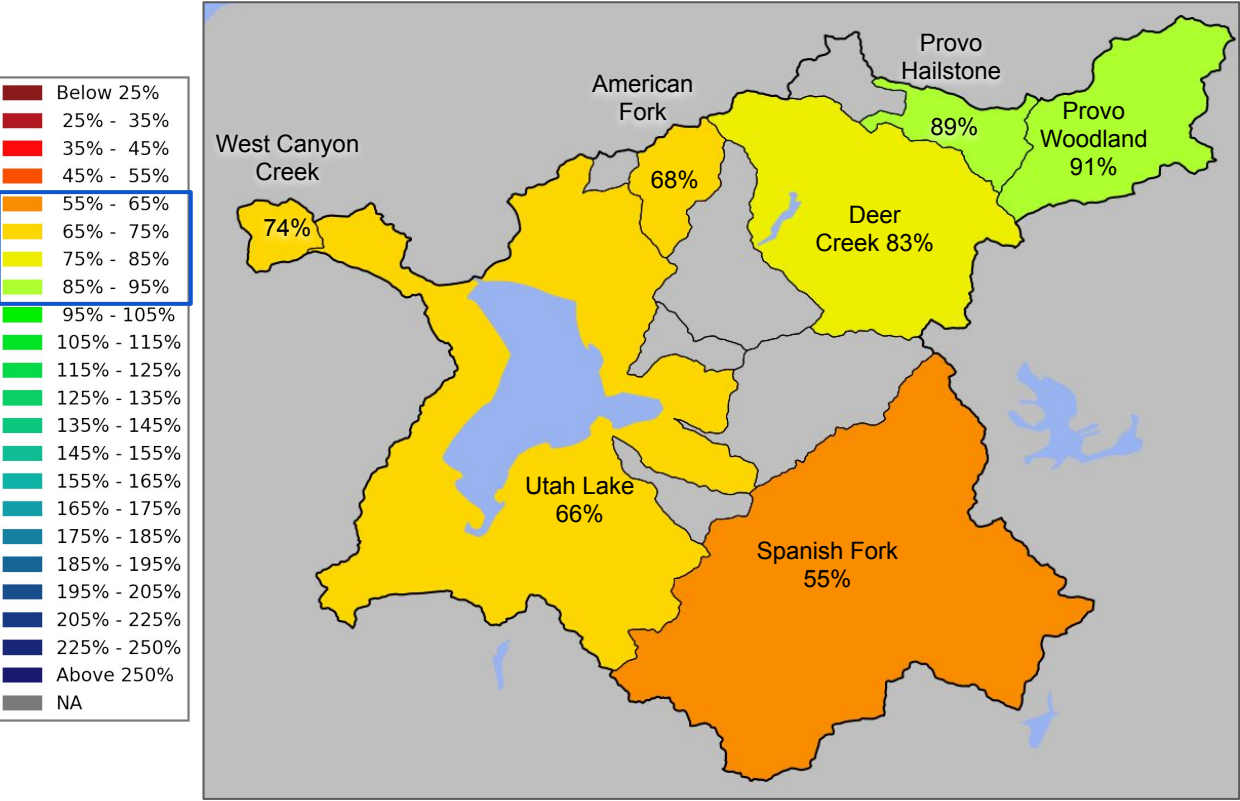
March: 95%

- Between 84% and 98%
- Slight decrease in all basins

Utah Water Supply Forecasts - Six Creeks Little Cottonwood



Utah Water Supply Forecasts - Provo - Utah Lake



Provo River Basin Forecasts

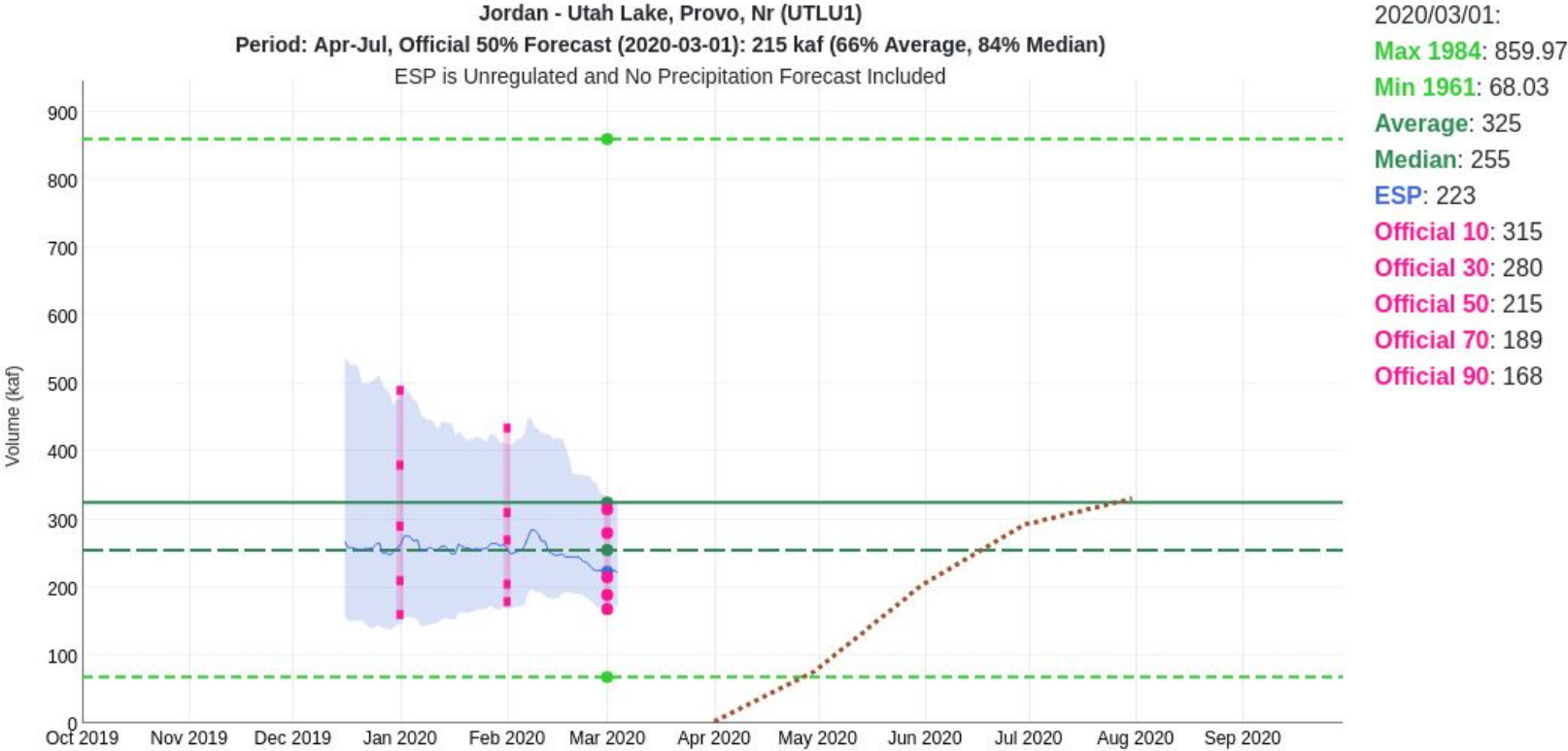
January: 90%

February: 95%

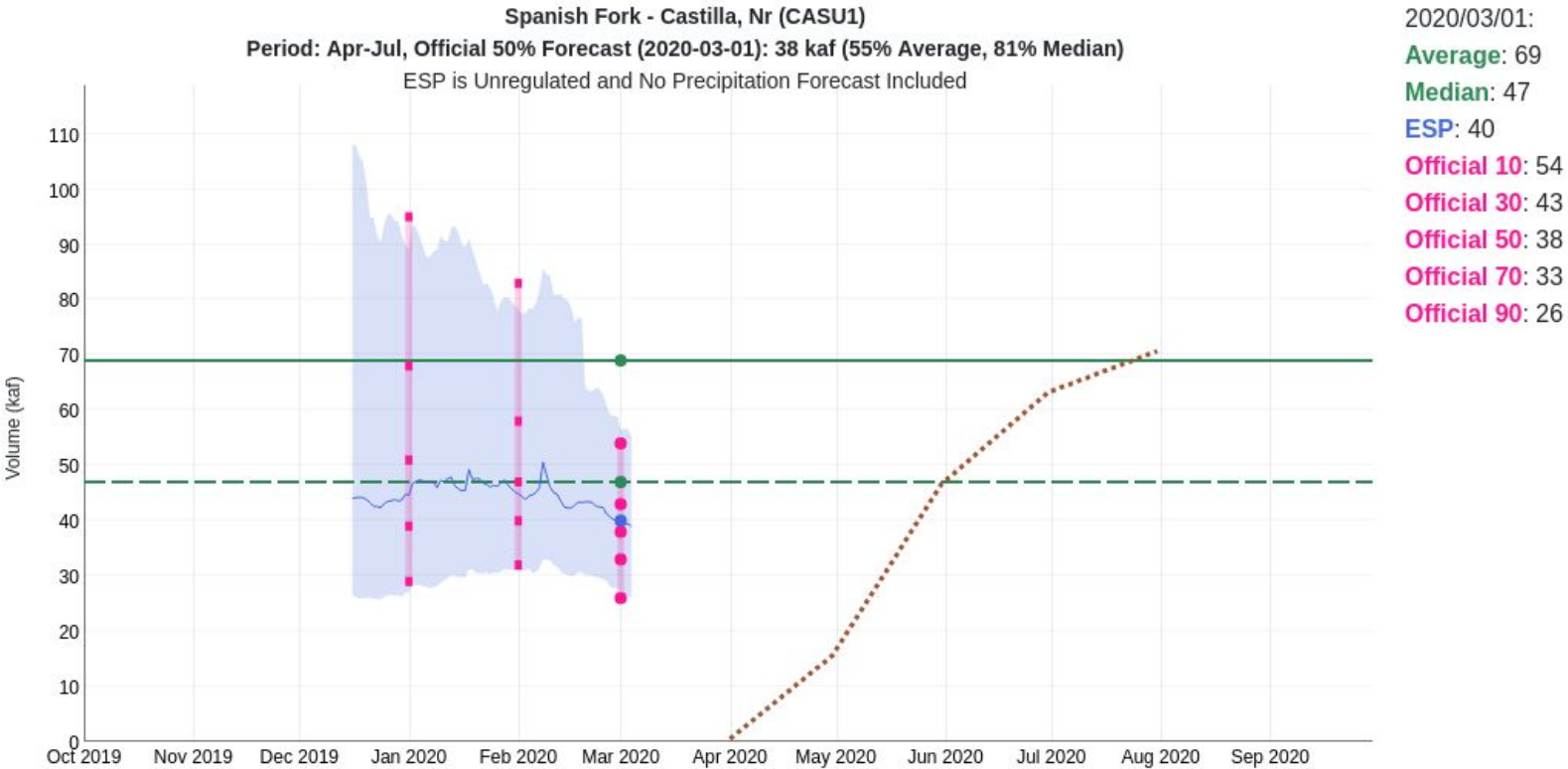
March: 70%

- Decreases across all basins
- Between 55% and 91%

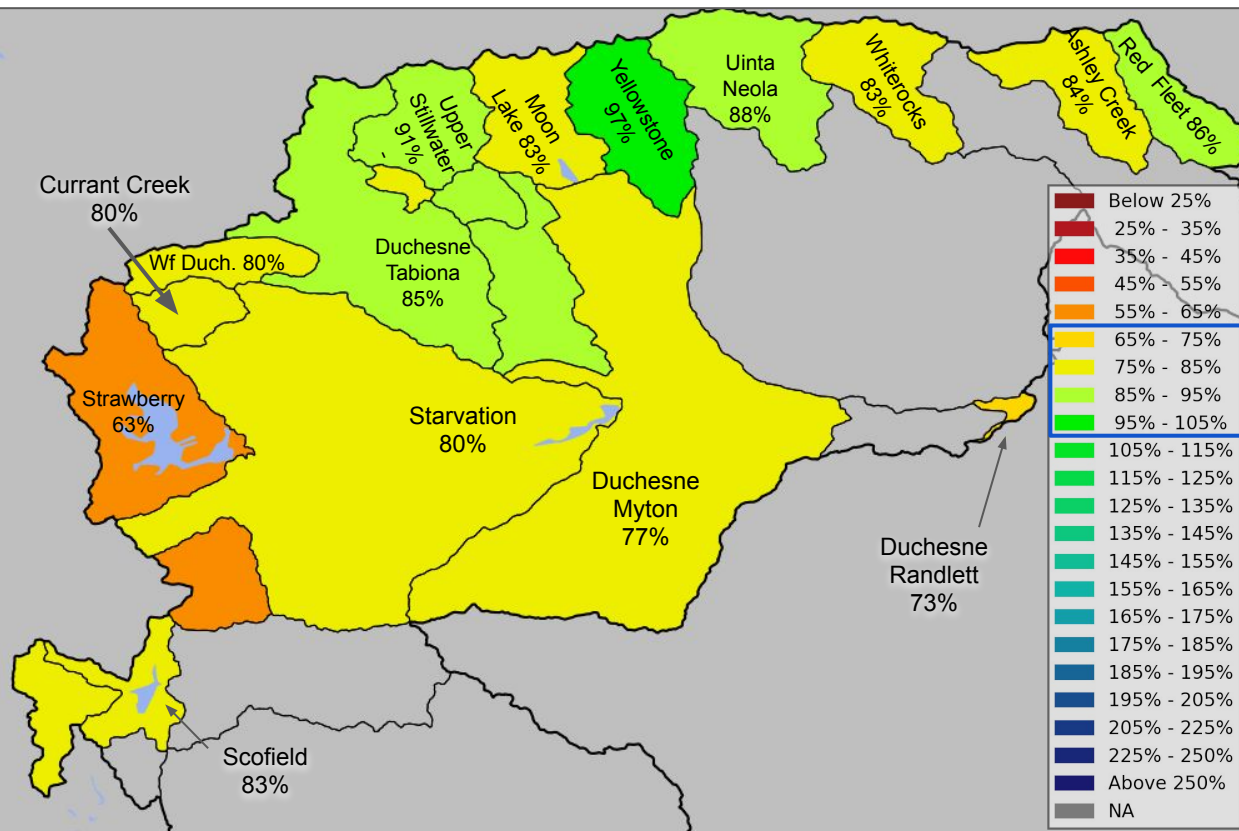
Utah Water Supply Forecasts - Provo - Utah Lake



Utah Water Supply Forecasts - Provo - Utah Lake Spanish Fork



Utah Water Supply Forecasts - Duchesne and Price



Duchesne River Basin

January: 95%

February: 90%

March: 85%

- Decreases across all basins
- Between 63% and 97%

Price River Basin

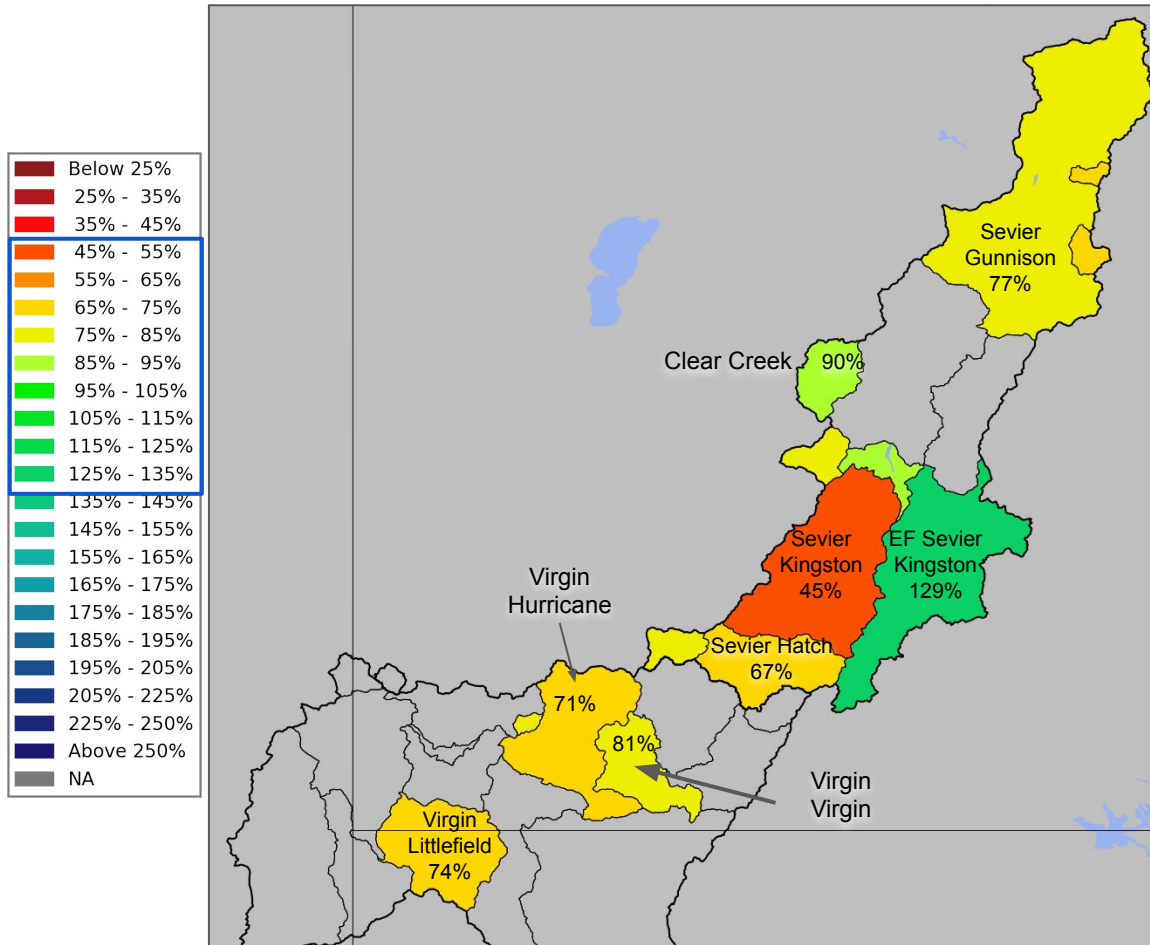
January: 90%

February: 87%

March: 83%

- Decrease in all basins
- Between 65% and 83%

Utah Water Supply Forecasts - Sevier and Virgin



Sevier River Basin

January: 115%

February: 110%

March: 80%

- Between 45% and 129%
- Decreases across basins

Virgin River Basin Forecasts

January: 100%

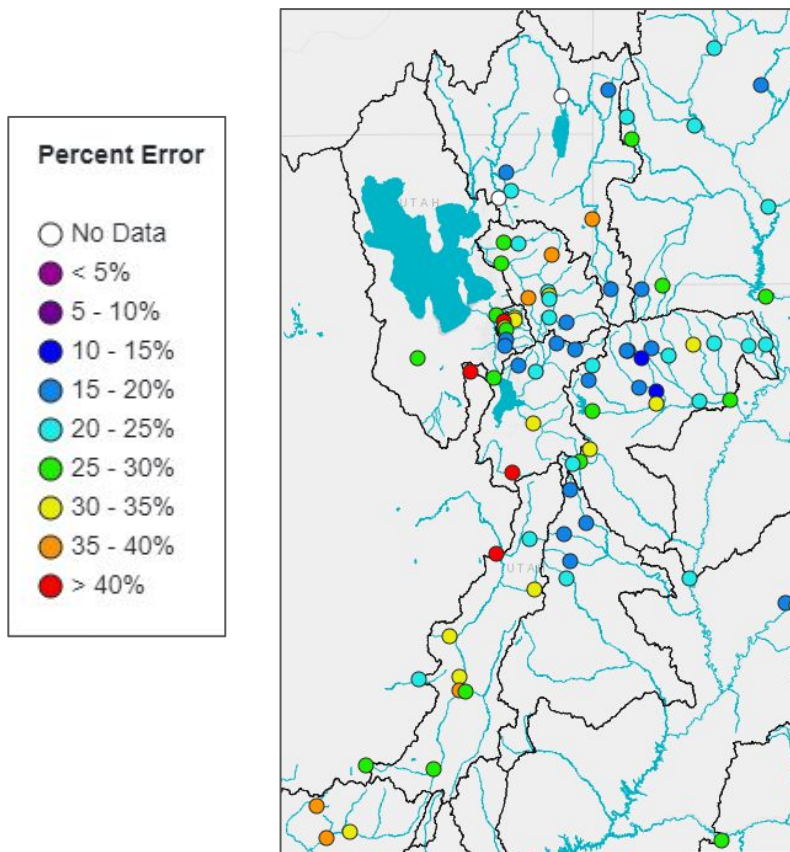
February: 95%

March: 80%

- Between 71% and 81%
- Decreases in all basins

Historical (1981-2010) Forecast Verification

Forecast Error: April-July Volume



<u>Location</u>	<u>Forecast Error</u>		
	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>
BEAR - UTAH-WYOMING STATE	21%	20%	18%
BEAR - WOODRUFF NARROWS	40%	38%	36%
LOGAN - LOGAN- NR	27%	22%	19%
WEBER - OAKLEY- NR	23%	19%	17%
WEBER - ROCKPORT RES	30%	25%	24%
BIG COTTONWOOD CK	21%	18%	19%
PARLEYS CK	39%	32%	32%
PROVO - WOODLAND- NR	25%	20%	16%
PROVO - DEER CK RES	33%	26%	23%
VIRGIN - VIRGIN	44%	34%	31%

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

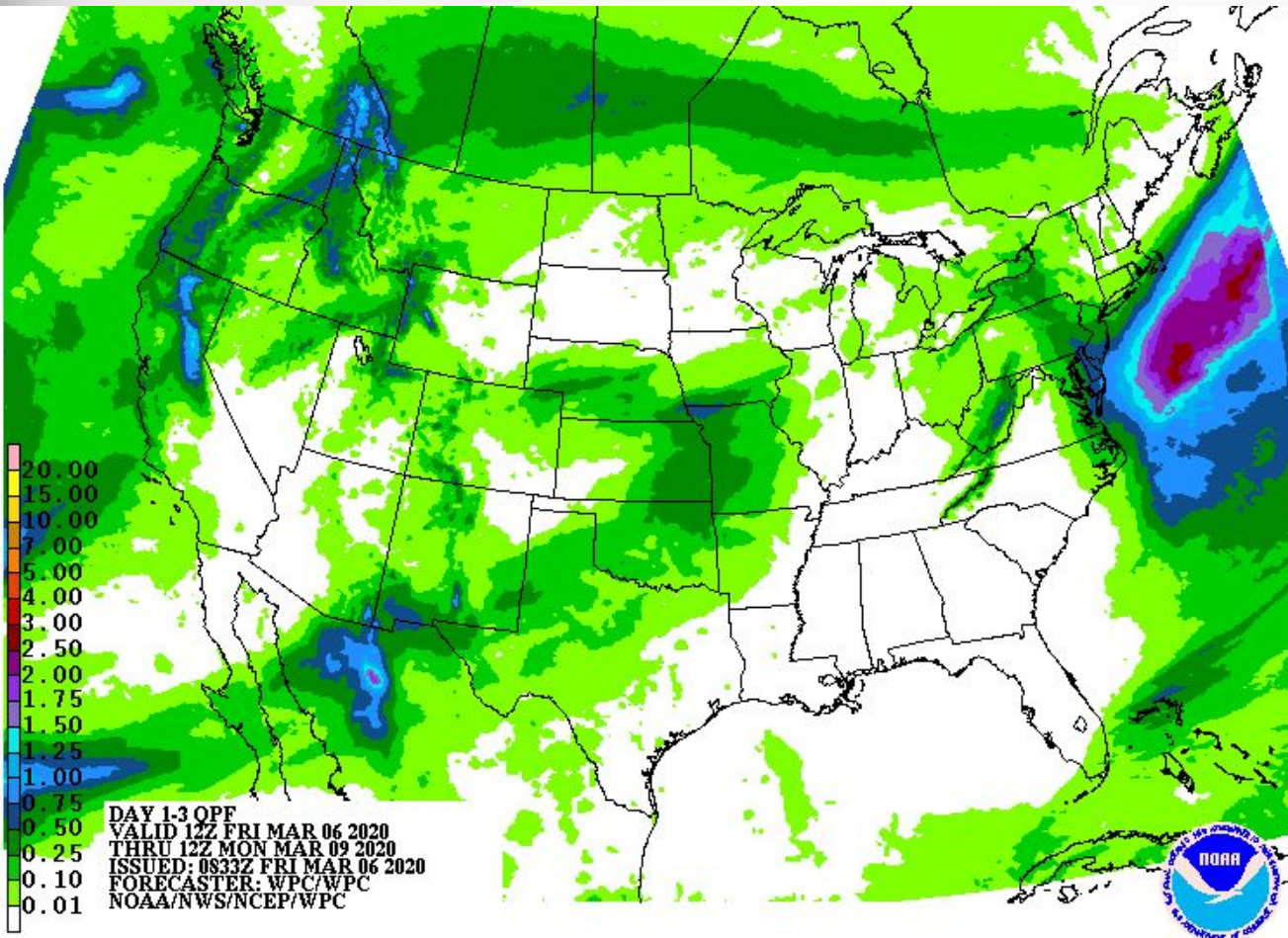
Where Forecasts are Better:

- 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

Upcoming Weather: This Weekend

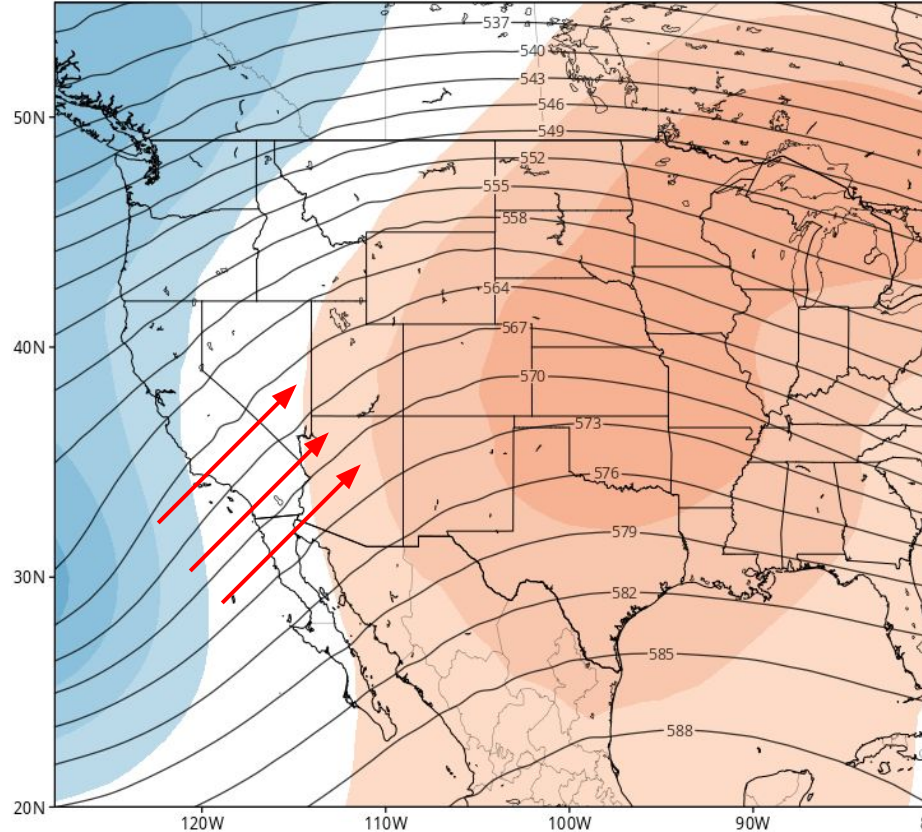


- Up to 0.75 inch of precipitation in upper elevations in northern Utah.

Generally Warm Early March

GEFS Mean 500mb GPH & Anomaly (dam) from 12z05Mar2020 to 12z10Mar2020 (Day

Init: 12z Mar 05 2020 Forecast Hour: [120] valid at 12z Tue, Mar 10 2020



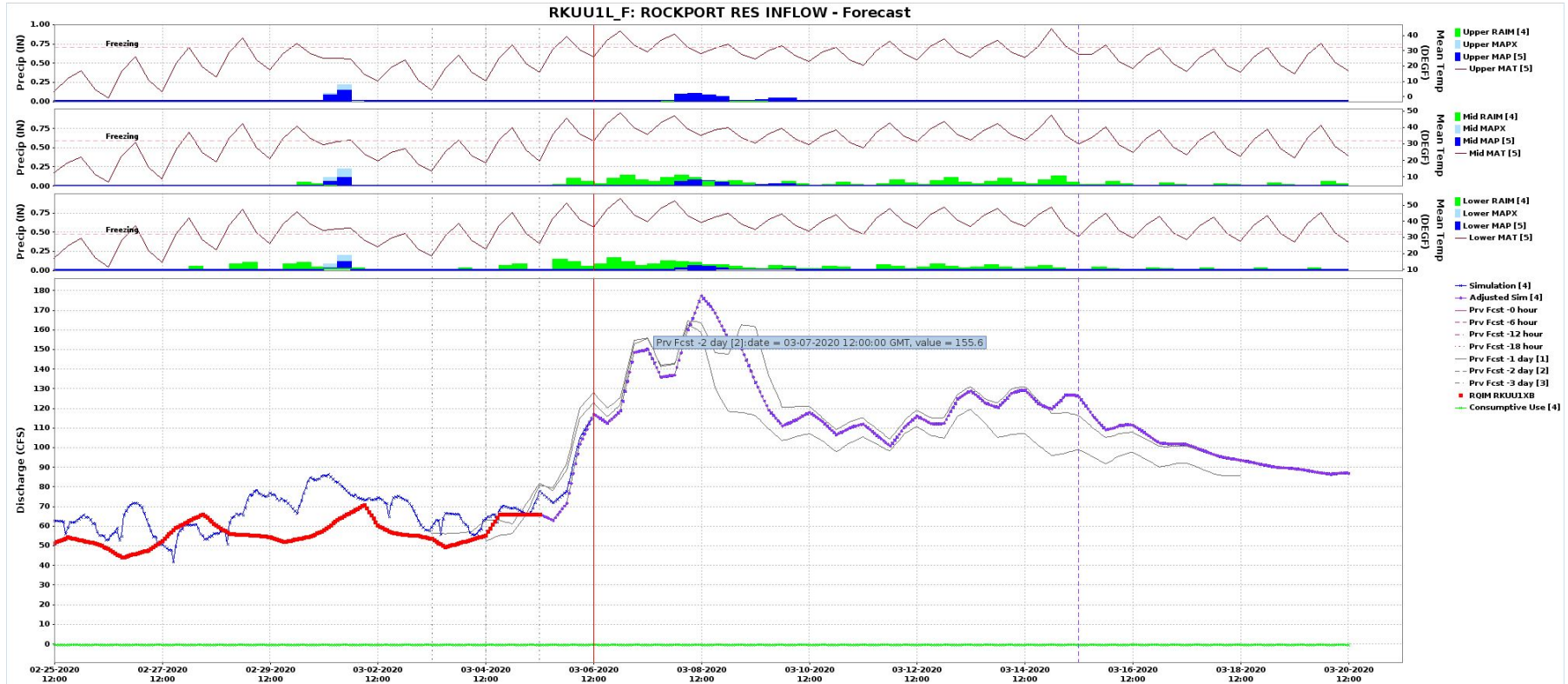
- Strong ridging brings above normal temps over the next few days.

High Temp Forecast at SLC (Departure from Normal)

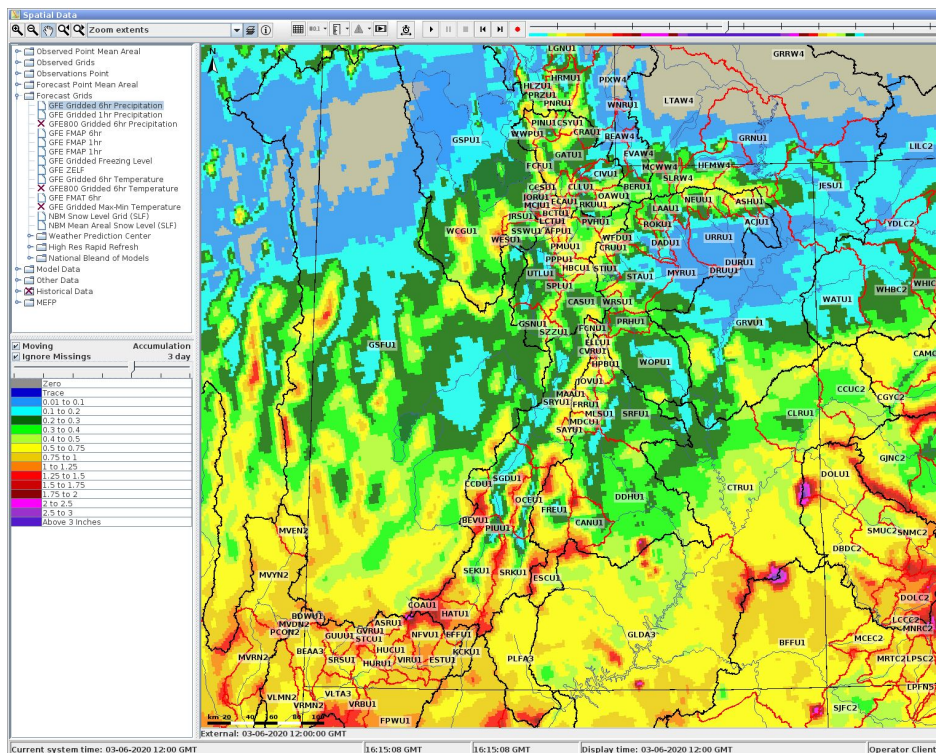
	normal	forecast	departure
Friday 3/6	51.0	65	+14
Saturday 3/7	50.3	66	+16
Sunday 3/8	50.2	55	+3
Monday 3/9	54.0	57	+3
Tuesday 3/9	55.1	55	--

Upcoming Weather: Warm Temperatures and Snow Melt

- Snow below 8000' begins to melt
- Streams may begin to see increases in flow

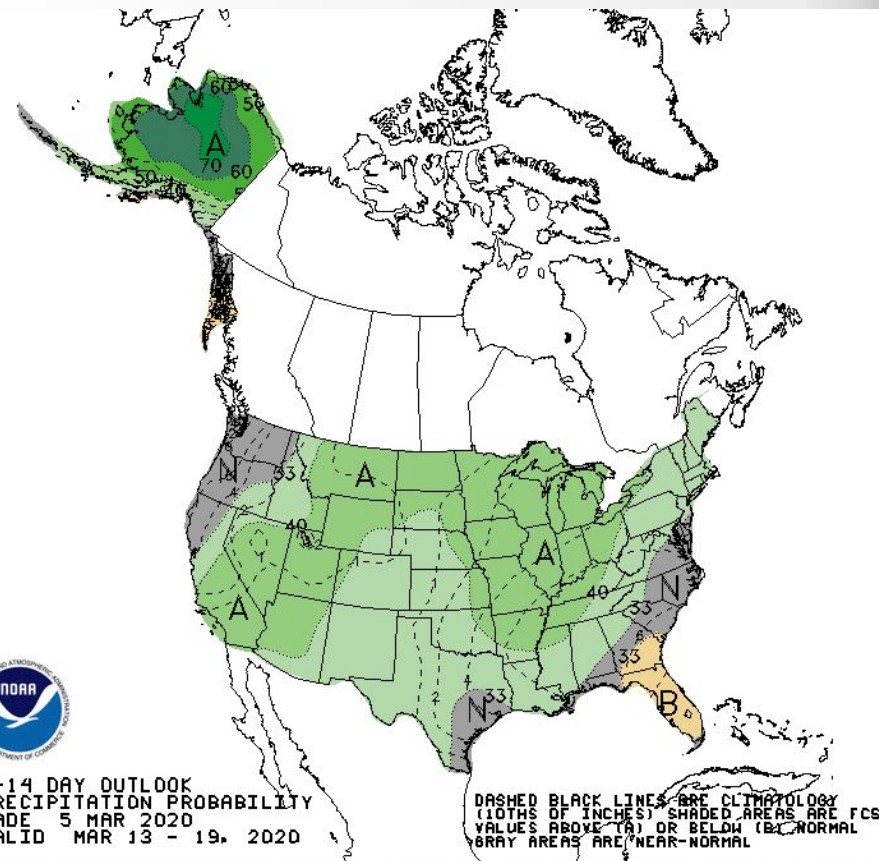
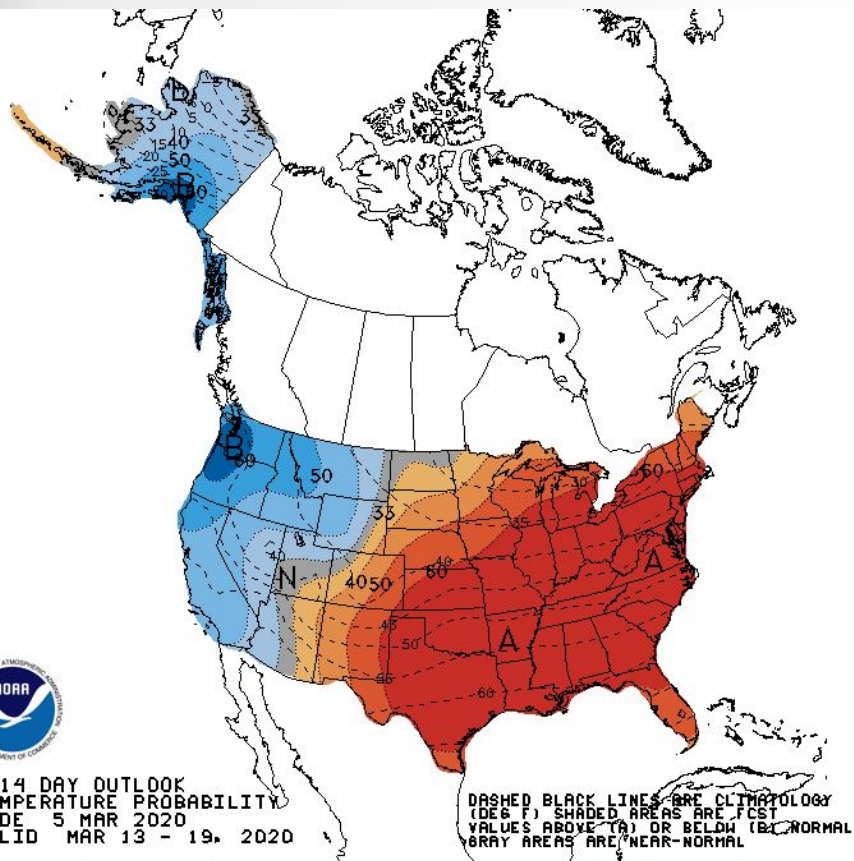


Upcoming Weather: Precipitation March 10-12 Southern Utah



- Models in general agreement at potent storm with deep subtropical moisture tap moving across Arizona next week.
- Heaviest precip currently forecast over Arizona
- *However*, Virgin River Basin may see over 1" in upper elevations, providing a jump in ESP there.

Upcoming Weather: next 8-14 days



90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%

Probability of Below

Normal

Probability of Above

90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%

Probability of Below

Normal

Probability of Above

Summary

- February precipitation totals were low, except for Six Creeks Basins, and the northeastern most Bear (Smith's Fork area).
- All Utah Forecast groups are at near normal Water Year Precipitation, except for Provo/Utah Lake, which is below normal.
- Snow conditions are near normal, except for Six Creeks (above) and Provo/Utah Lake (below).
- Water Supply Forecasts
 - Bear and Six Creeks are near normal
 - Weber, Provo/Utah Lake, Sevier, Virgin, Price, Duchesne are below normal
- A weak storm system moves into northern Utah late this weekend with modest precipitation amounts
- No significant storm systems are expected to impact Utah through March 10
- Virgin River Basin may see significant precipitation March 10-12.
- Temperatures today and tomorrow will be warmer than normal, expect some streamflow rises

2020 Water Supply Briefing Schedule

**All Times Mountain Time (MT)*

Colorado River Basin

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

Utah (formerly Great Basin)

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

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

Additional briefings may be scheduled as needed.

All registration information is available on the CBRFC web page.

CBRFC Contacts

Basin Focal Points (Forecasters)

Brenda Alcorn - Upper Green, White, Yampa, Duchesne

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Tracy Cox - San Rafael, Price

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Cody Moser – Upper Colorado Mainstem

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Ashley Nielson – San Juan, Gunnison, Dolores, Lake Powell

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Zach Finch – Virgin, Lower Colorado Basin

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Patrick Kormos – Bear, Weber

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Brent Bernard – Six Creeks, Provo , Sevier

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John Lhotak – Development and Operations Hydrologist

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Craig Peterson - Senior Hydro/Met

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CBRFC Webpage

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

CBRFC Operations

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801-524-4004

CBRFC Water Supply Presentations

<https://www.cbrfc.noaa.gov/present/present.php>

Questions?