Utah Water Supply Briefing

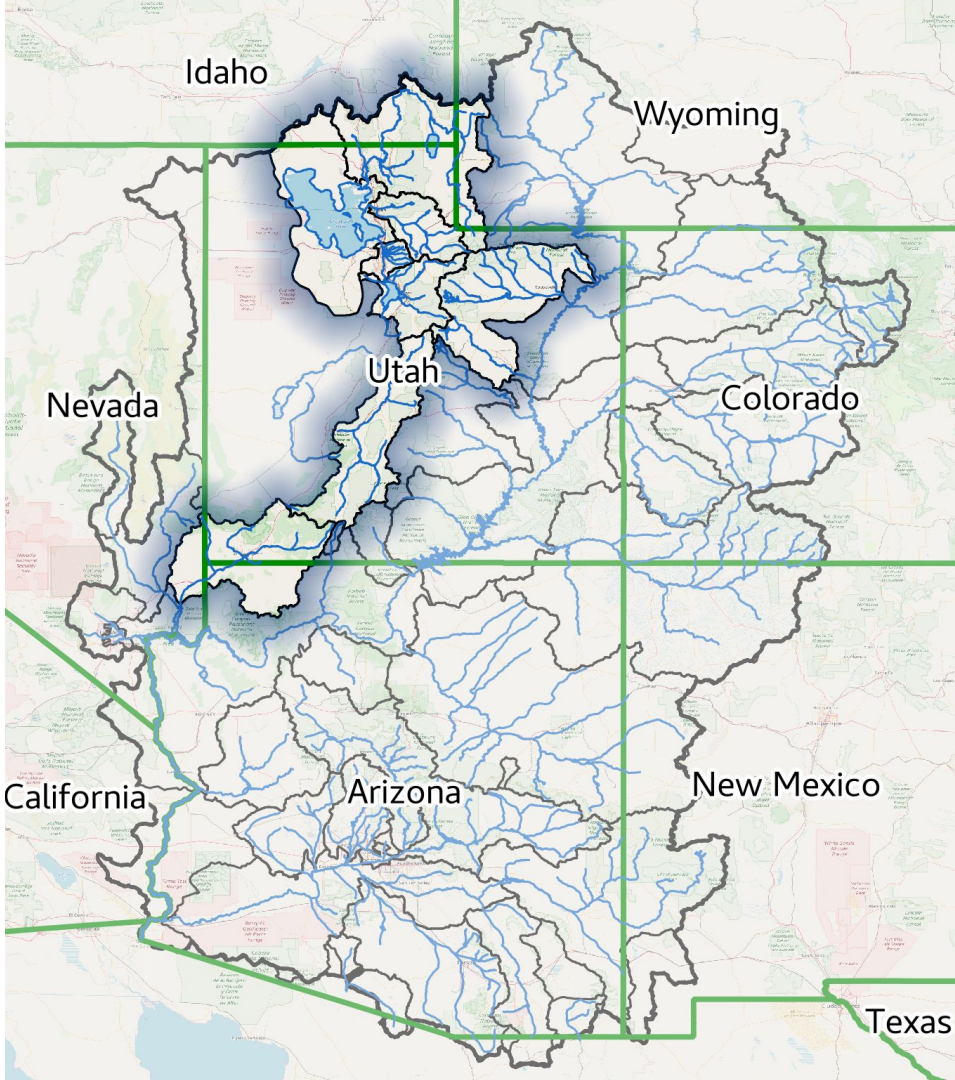
May 7th, 2020

Colorado Basin River Forecast Center
Patrick Kormos- Hydrologist

!!! Revert to Using Conference Line Audio (Sorry) !!!

- Phone number: **1-877-929-0660**
- Participant passcode: **1706374**

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. Peak Flow Update
6. Upcoming Weather
7. Contacts & Questions

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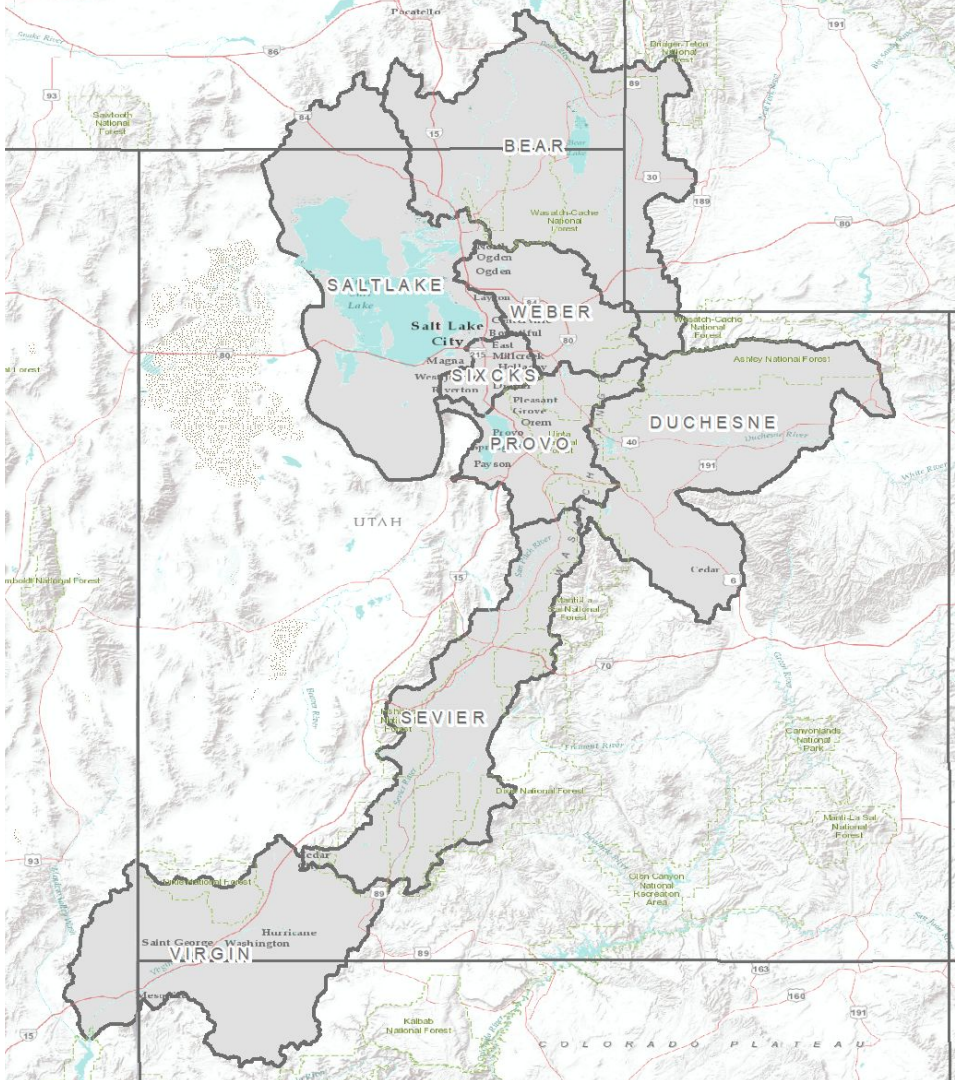
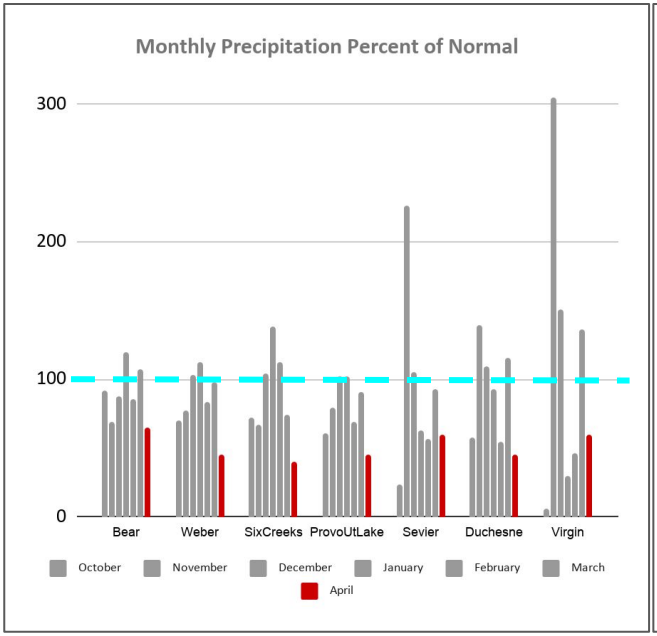
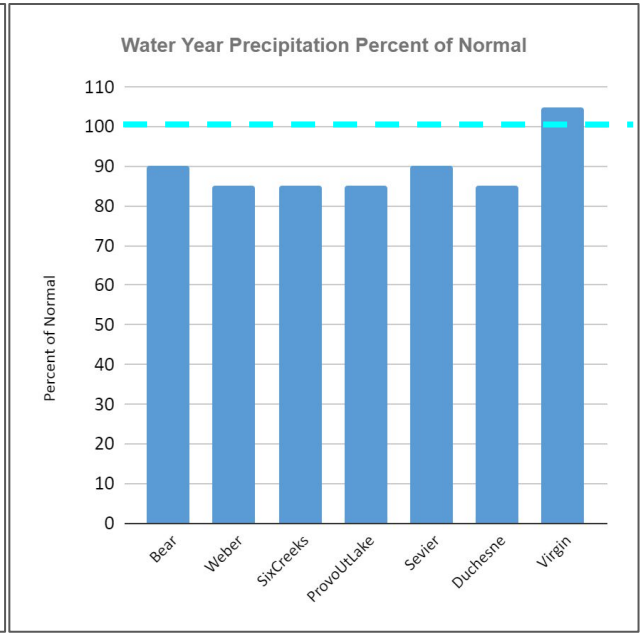


Utah Precipitation Review - Precipitation up to May 1, 2020





April Precipitation

- Bear, Provo, Weber, Sevier, Six Creeks, Duchesne, Virgin: Much Below Normal
- Several SNOTELs in northern Utah near record dry April

Water Year Precipitation

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

- Bear: 90%
- Weber: 85%
- Six Creeks: 85%
- Provo: 85%
- Sevier: 90%
- Duchesne: 85%
- Virgin: 105%

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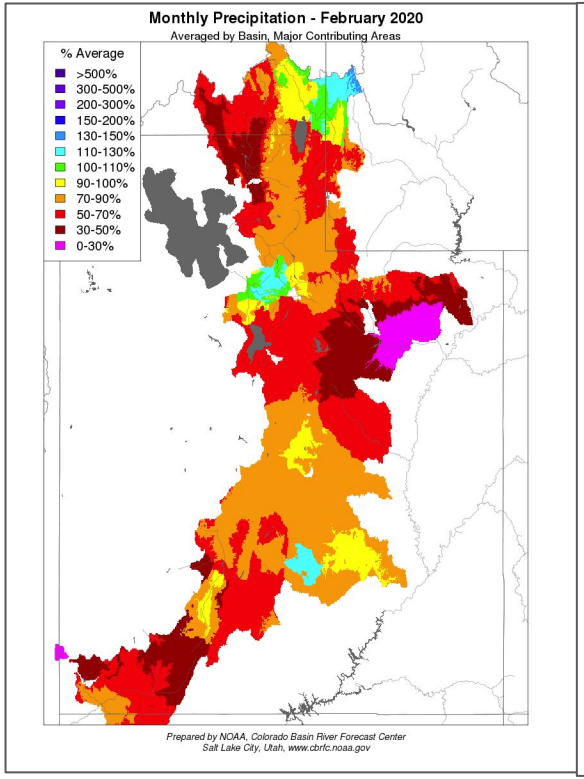
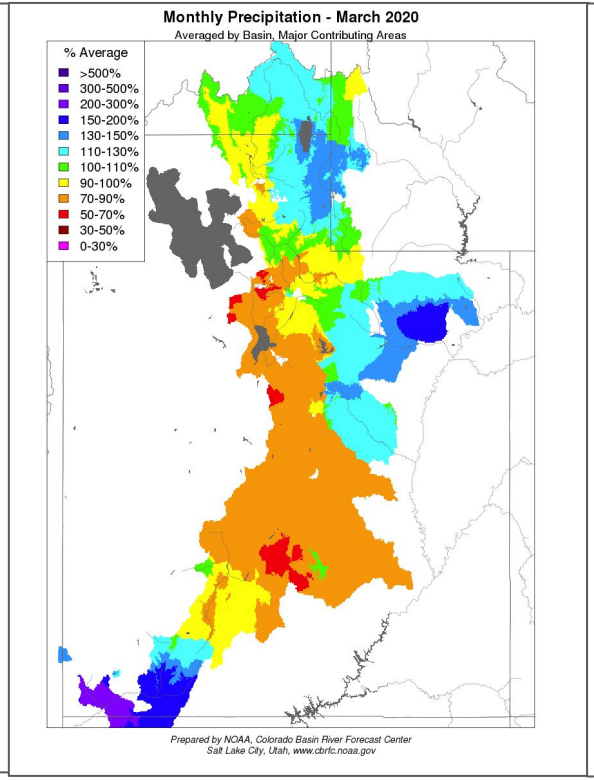
Utah Precipitation Review - Monthly Precipitation

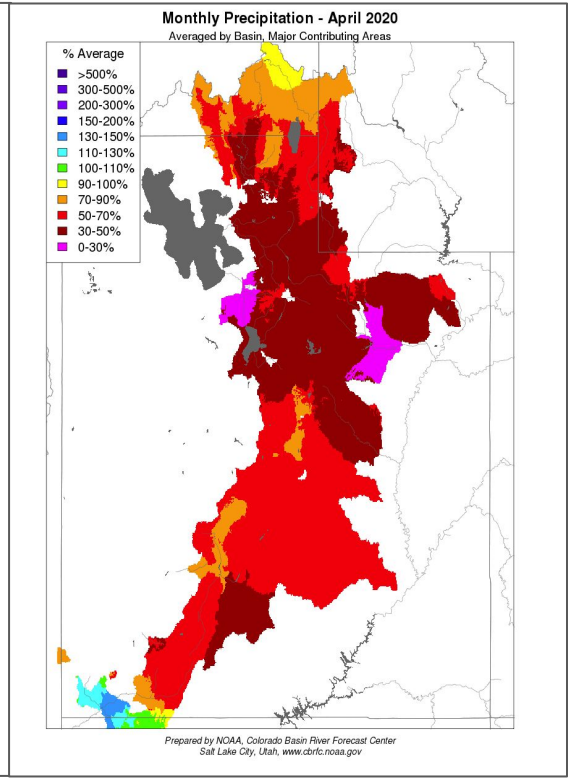
February

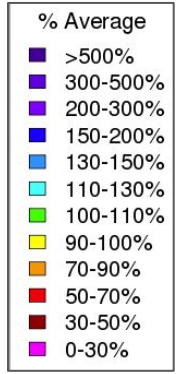


March

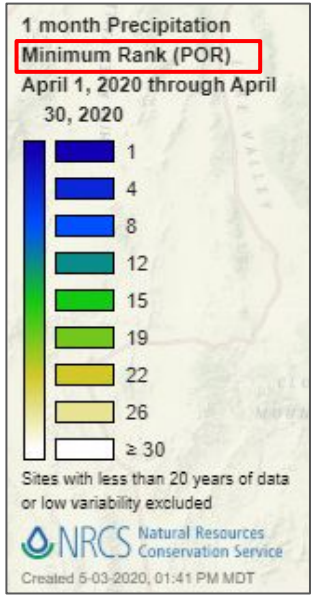


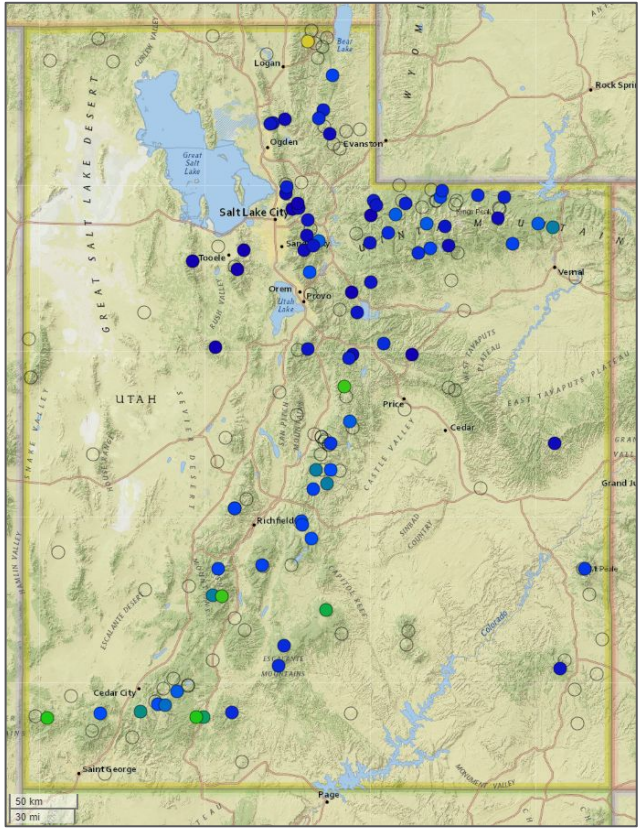
April

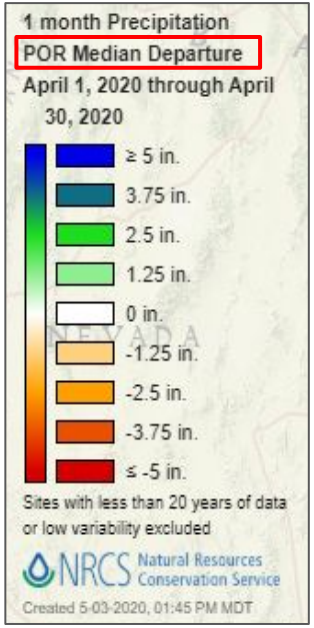


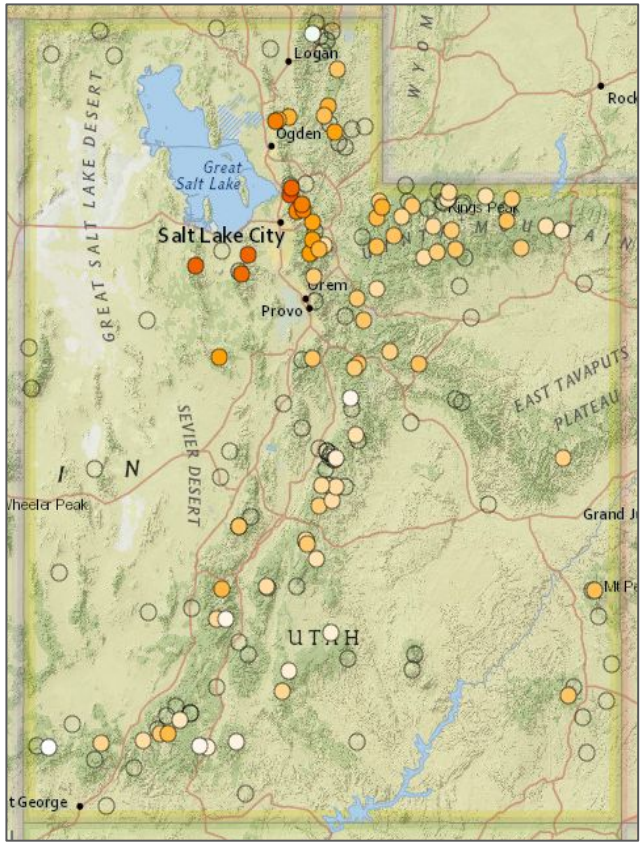


Utah Precipitation Review - Precipitation up to May 1, 2020
April was very dry.



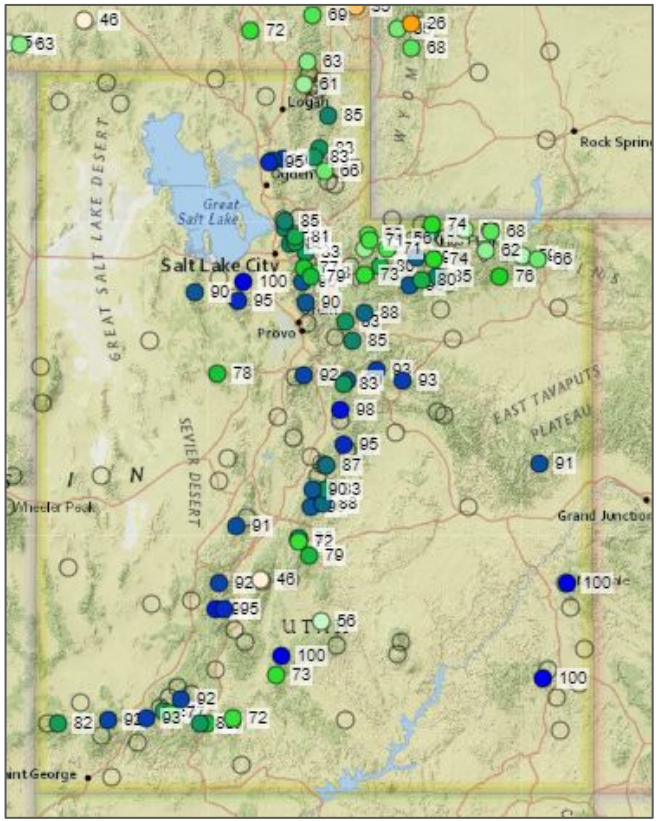


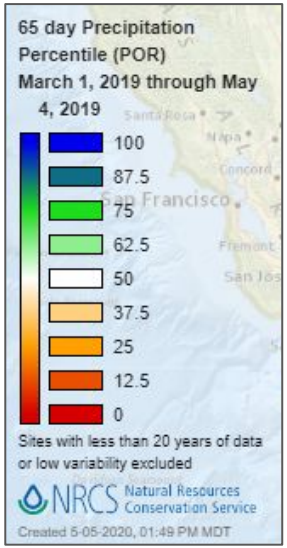




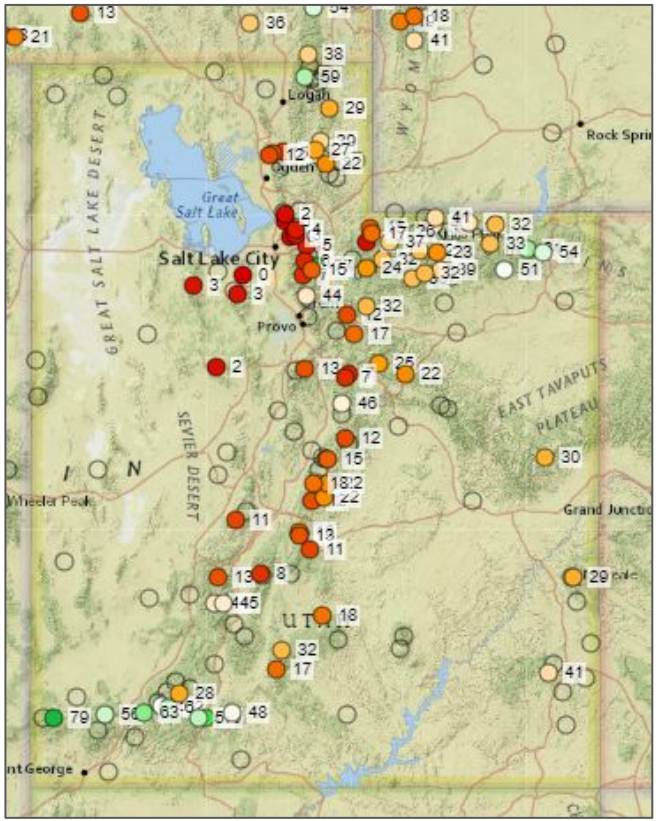
A Tale of Two Spring Seasons - 2019 vs. 2020

2019

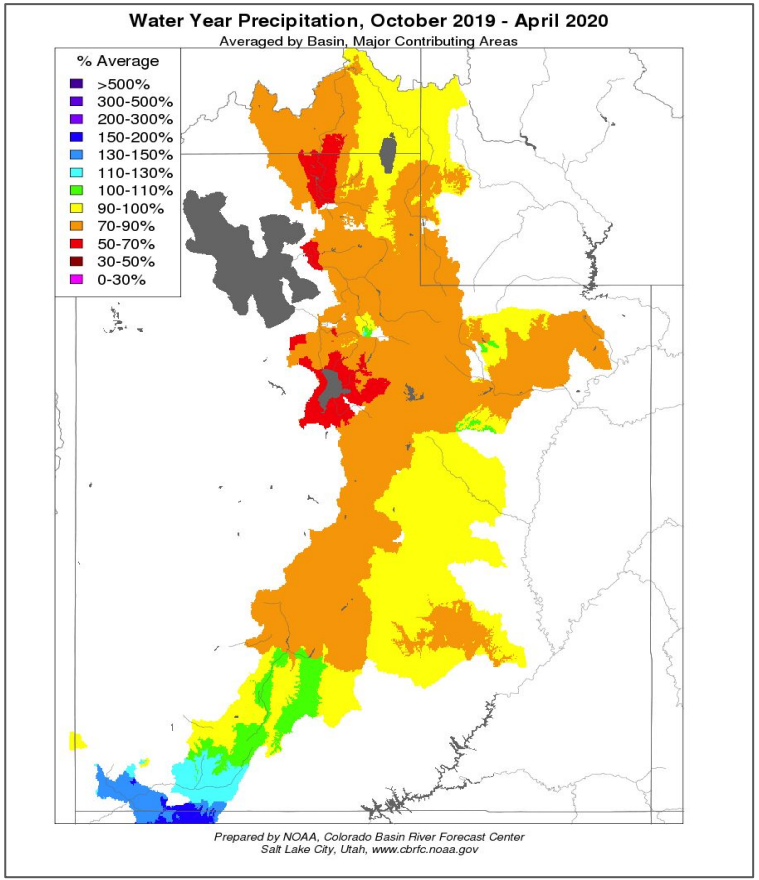


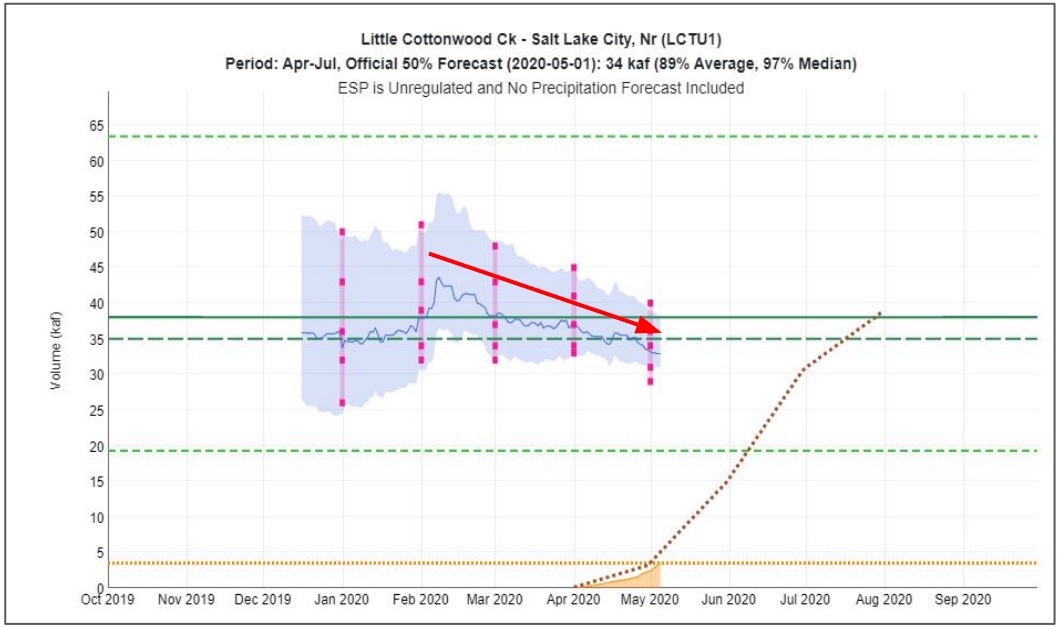


2020



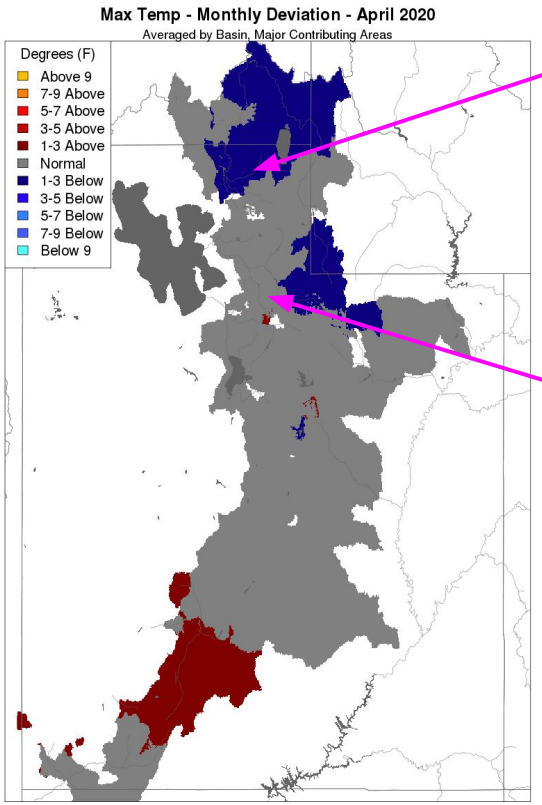
Utah Precipitation Review - Water Year Precipitation

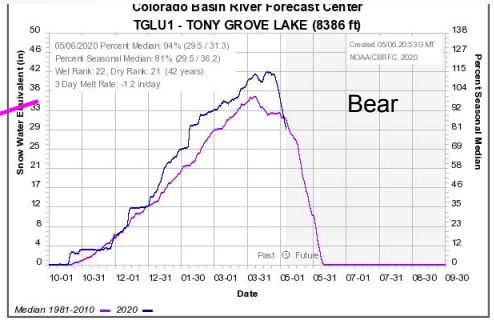


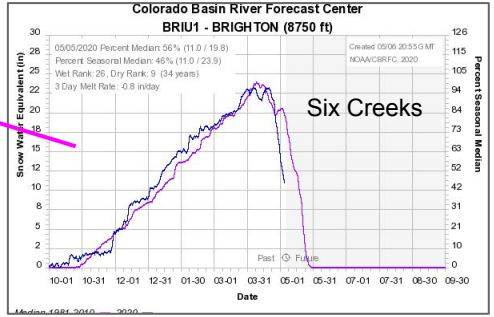


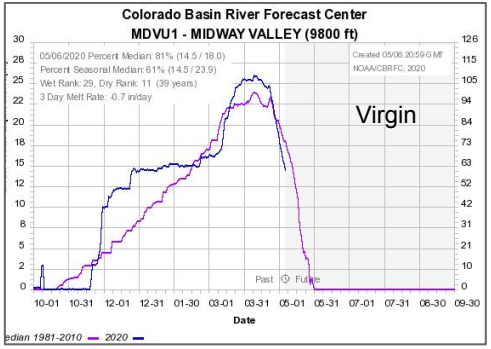
Steady decline in ESP since mid Feb, as dry conditions have persisted, especially across northern Utah.

April Temperature Summary





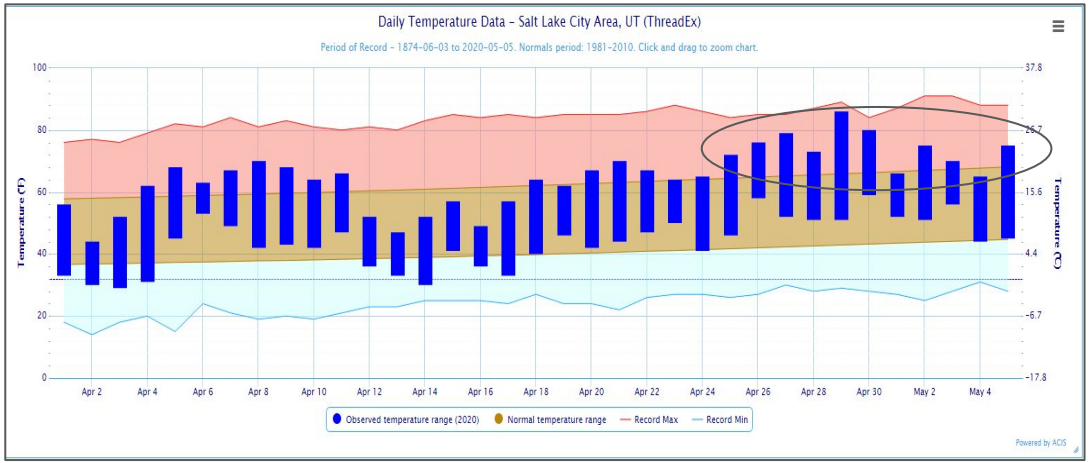


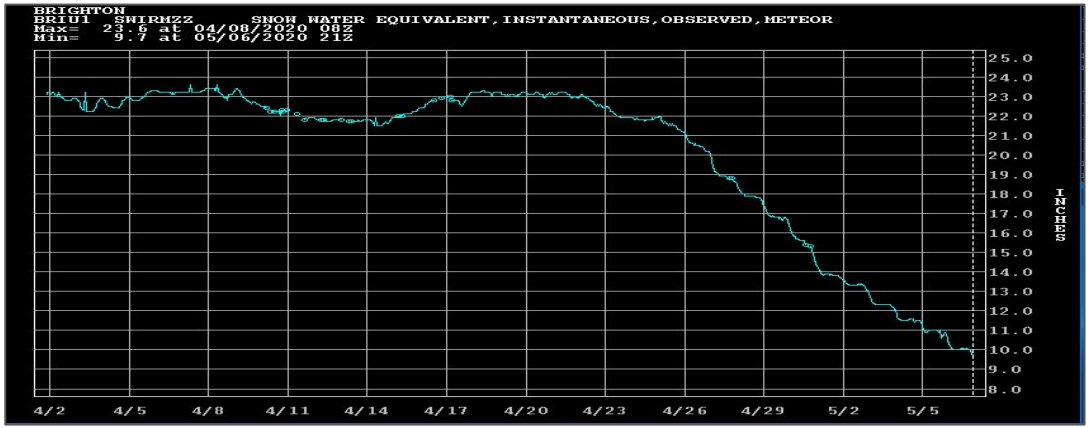


Overall cooler than normal temps in the first half of April delayed melt.

Snowmelt accelerated over last week of April with very warm temps (10-20 degrees above normal).

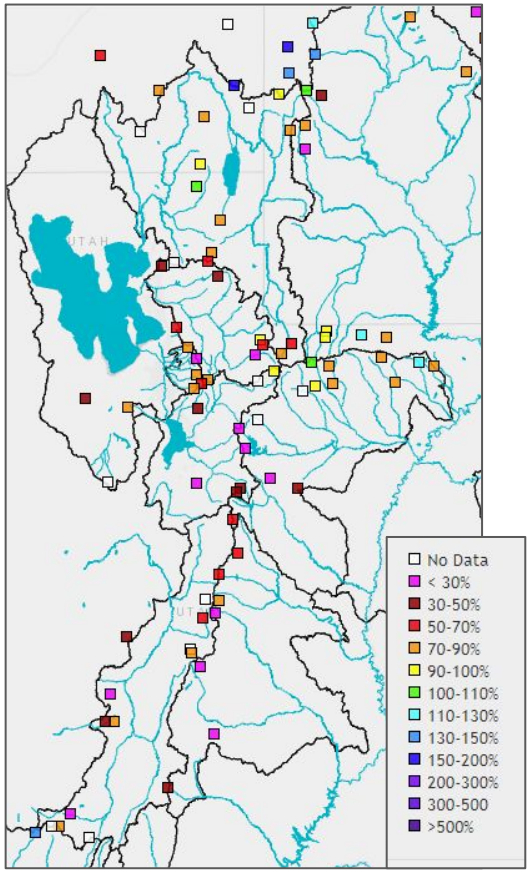
Rapid Runoff of Late

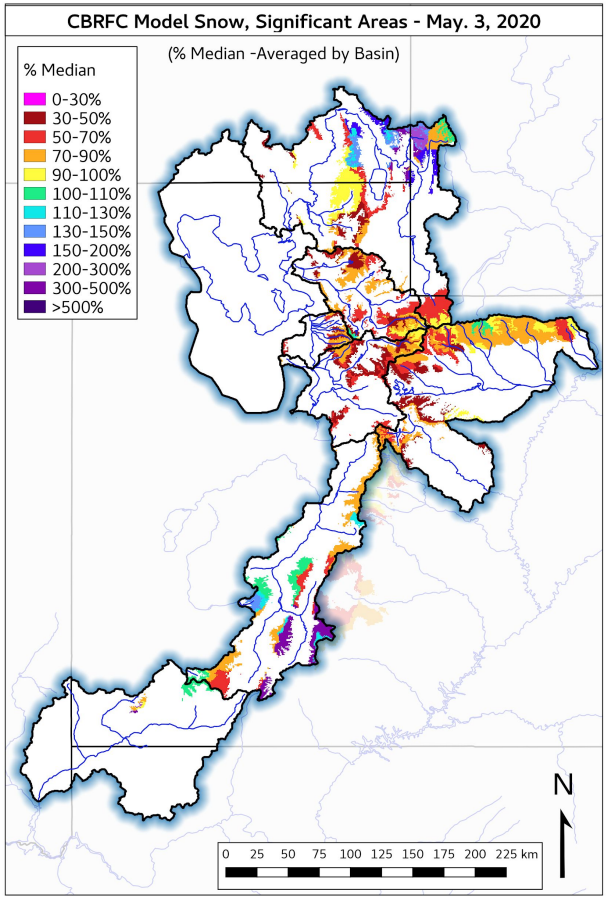




Early May Utah Snowpack

SNOTEL (Observed May. 3, 2020)



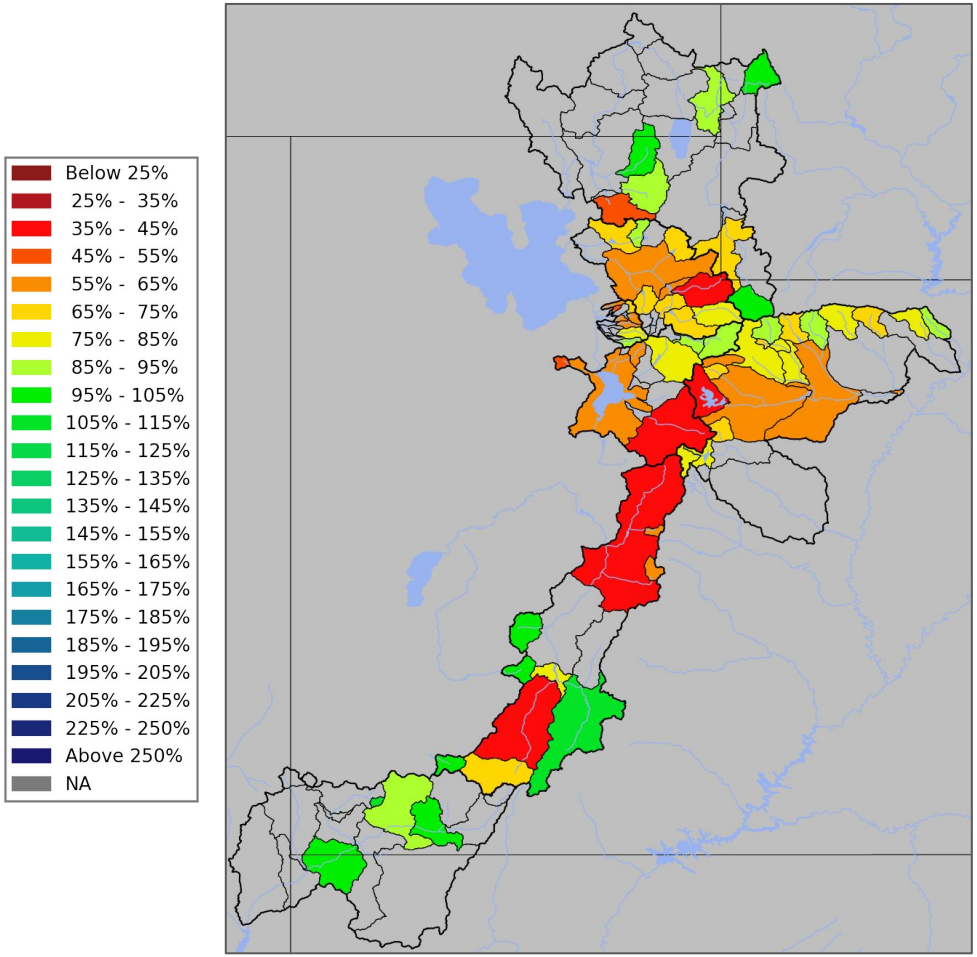


As of May 1, 2020
CBRFC Snow Groups (SNOTEL Stations)
SWE % Median

- Bear: 90%
- Weber: 70%
- Six Cr: 80%
- Provo: 60%
- Duchesne: 90%
- Sevier: 75%
- Virgin: 110%
- Price : 65%

Remote Sensing Note: Clear sky views April 28-29 provided forecasters additional information to justify adjusting model snow.

Utah Water Supply Forecasts - May 1 Overview

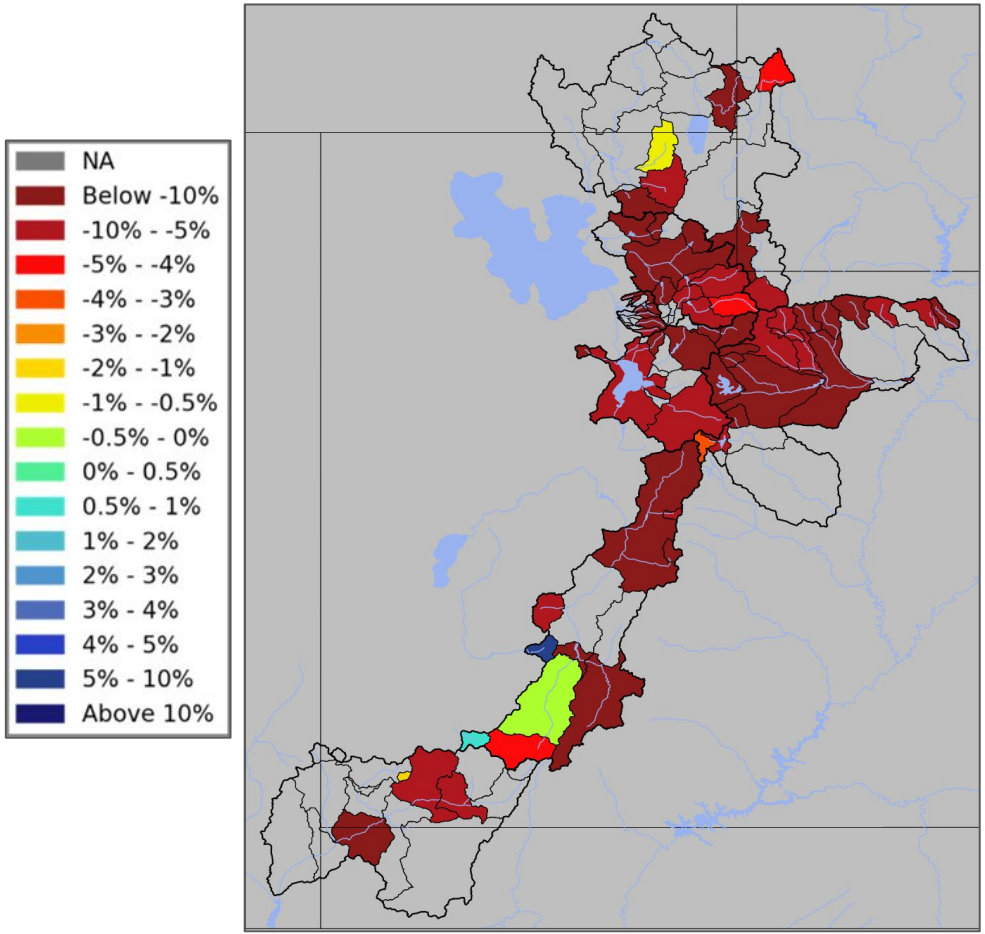


- May 1 Forecasts for April-July Volume in 1000's acre feet (KAF)
- April-July Forecast Streamflow Volumes are in percent of 1981-2010 average
- Includes April Observations
- Approx. 10% drop in Forecasts

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

Bear	90%
Weber	70%
Six Creeks	65%
Provo / Utah Lake	60%
Sevier	75%
Duchesne	75%
Virgin	90%

Utah Water Supply Forecasts - May 1 Overview

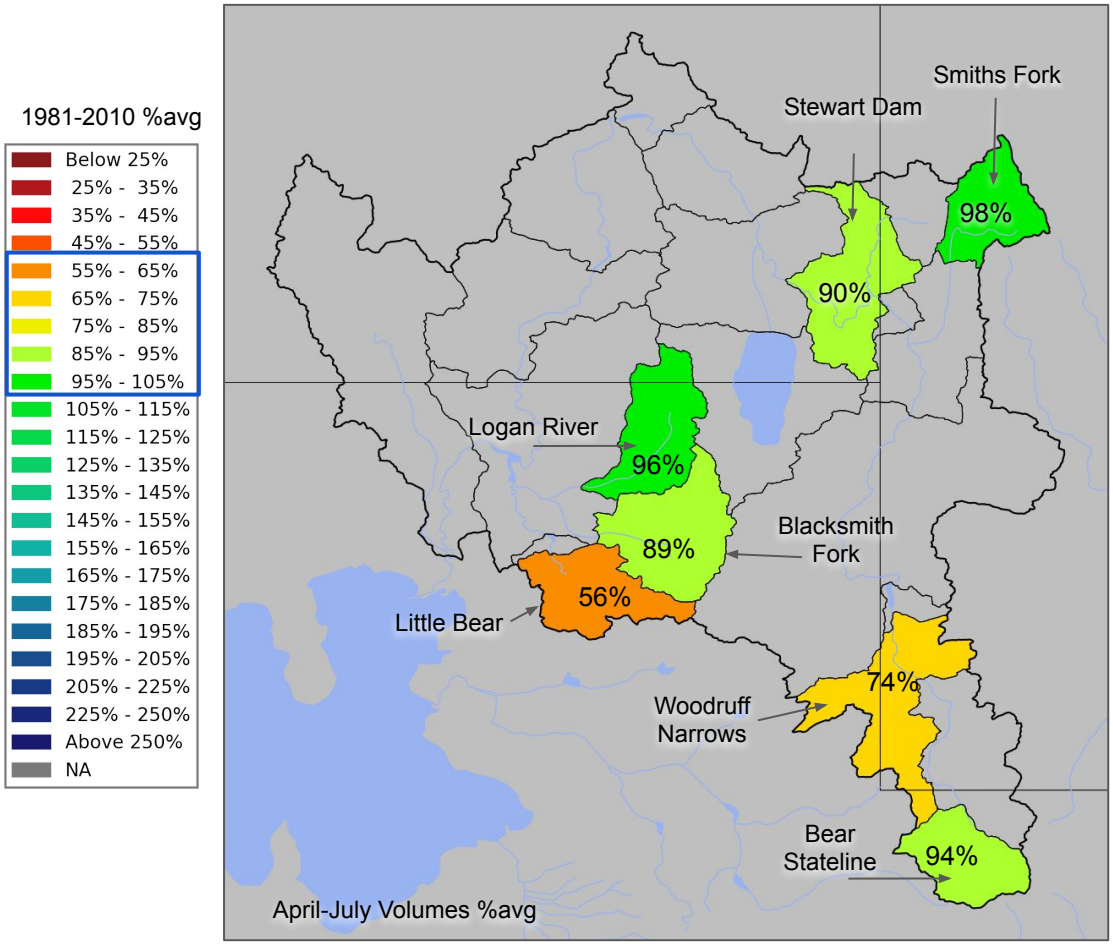


- May 1 Forecasts for April-July Volume in 1000's acre feet (KAF)
- April-July Forecast Streamflow Volumes are in percent of 1981-2010 average
- Includes April Observations
- Approx. 10% drop in Forecasts

Change in Median Forecast from April to May

Bear	-10%
Weber	-10%
Six Creeks	-30%
Provo / Utah Lake	-10%
Sevier	-10%
Duchesne	-10%
Virgin	-15%

Utah Water Supply Forecasts - Bear



Bear River Basin Forecasts

Median Forecast

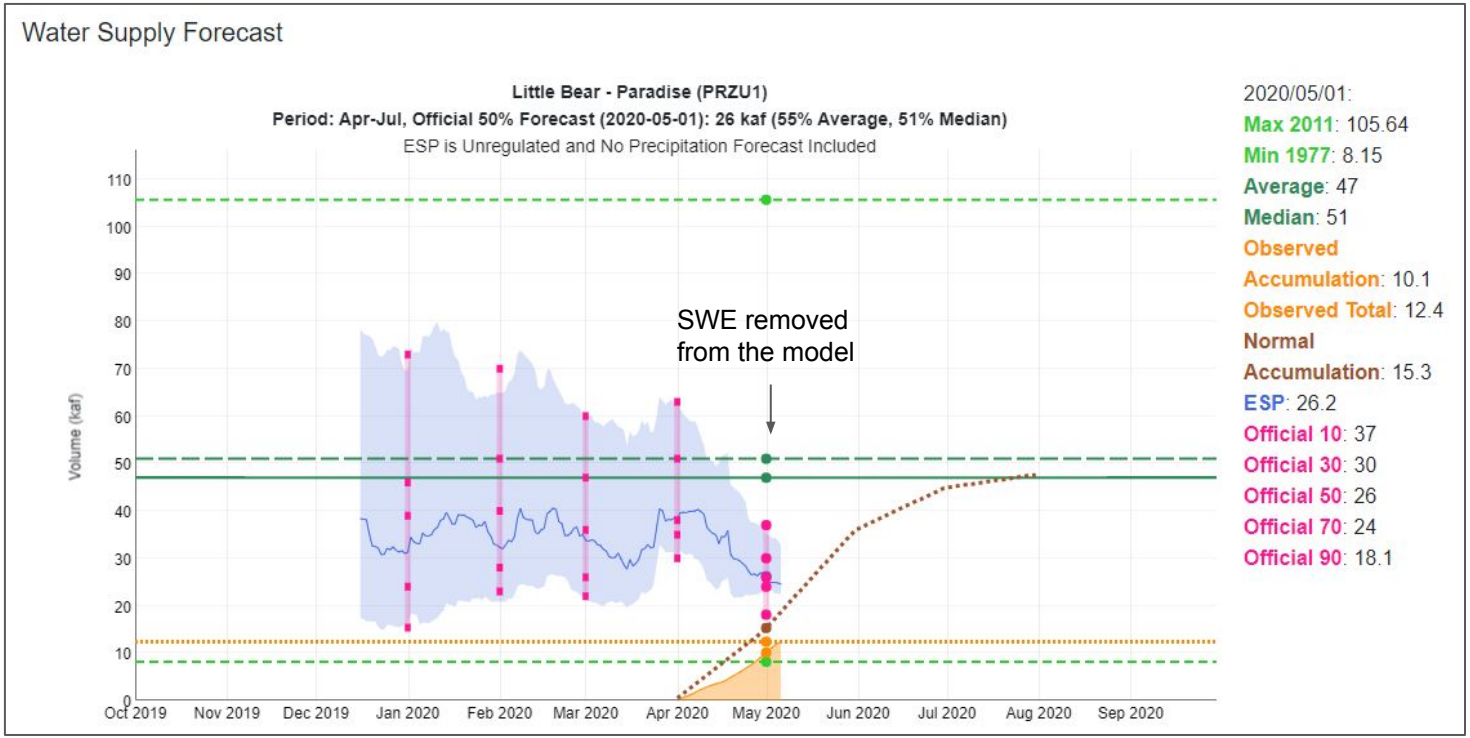
January:	90%
February:	100%
March:	100%
April:	100%
May:	90%

- Forecast Range: 56%-98% avg
- Decrease of 10% or more:
  - Little Bear
  - Stewart
  - Woodruff

Utah Water Supply Forecasts - Logan

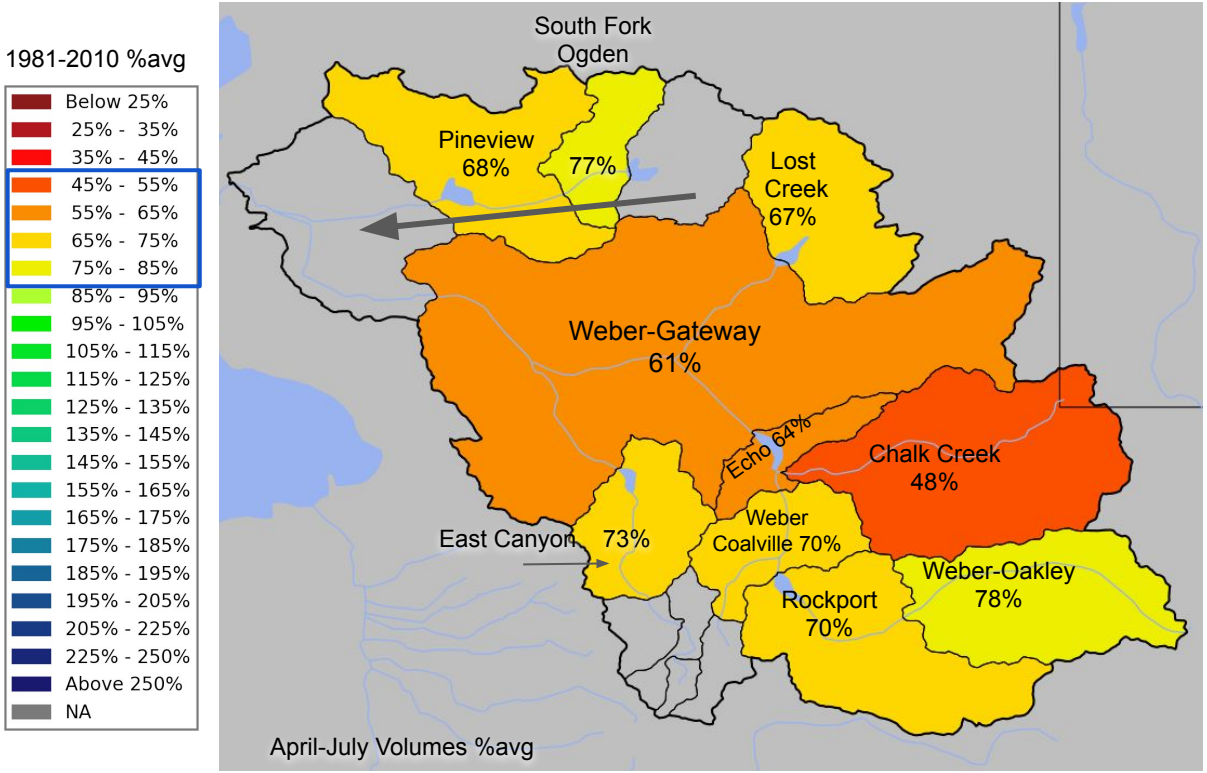
The April-July runoff forecast is between median and average.
Added snow to the model based on MODIS imagery and USGS observed streamflow.

Utah Water Supply Forecasts - Little Bear



The April-July runoff forecast has declined.
A small amount of snow was removed below 7000', but this drop is mostly due to a lack of April precipitation.

Utah Water Supply Forecasts - Weber



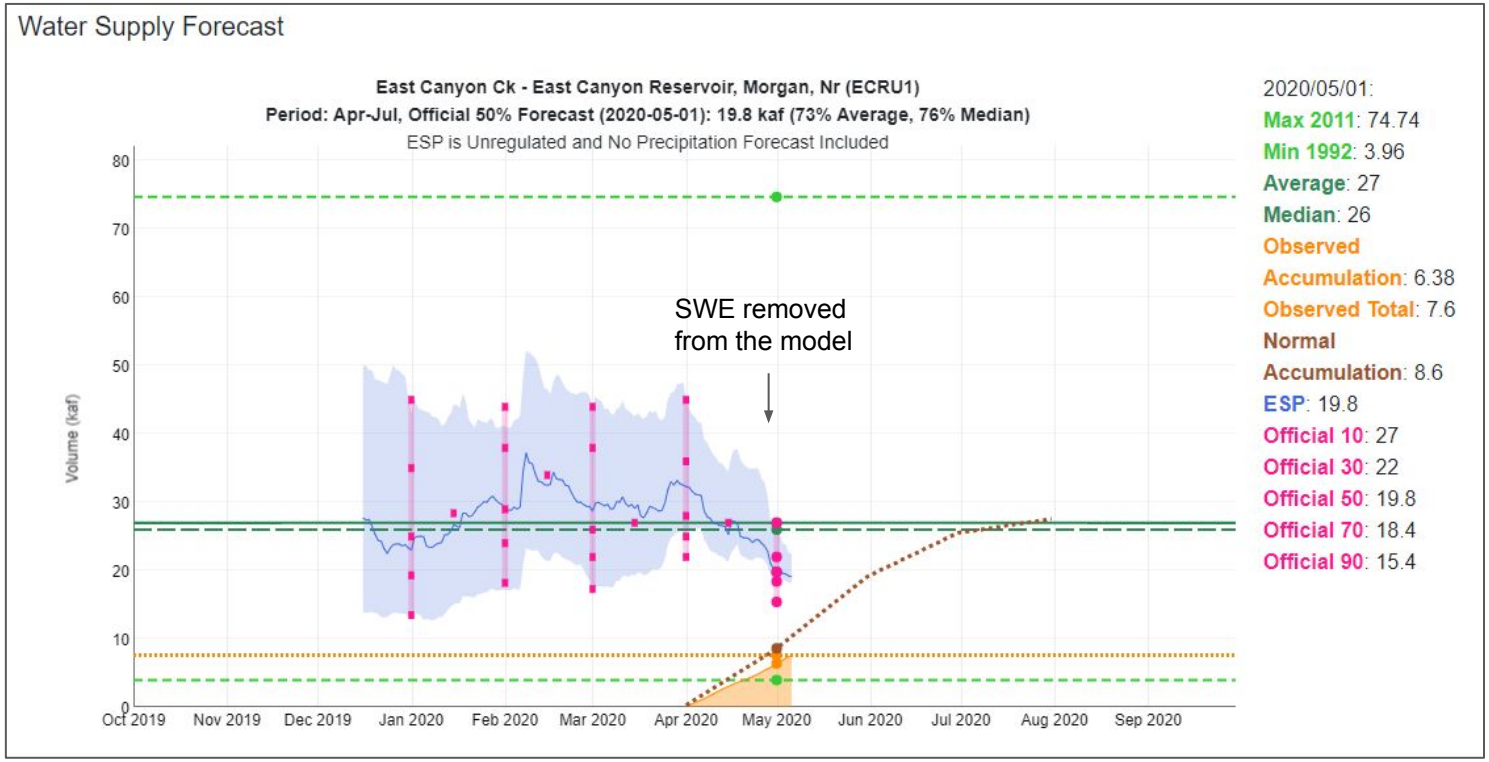
Weber River Basin Forecasts

Median Forecast

January:	85%
February:	85%
March:	80%
April:	80%
May:	70%

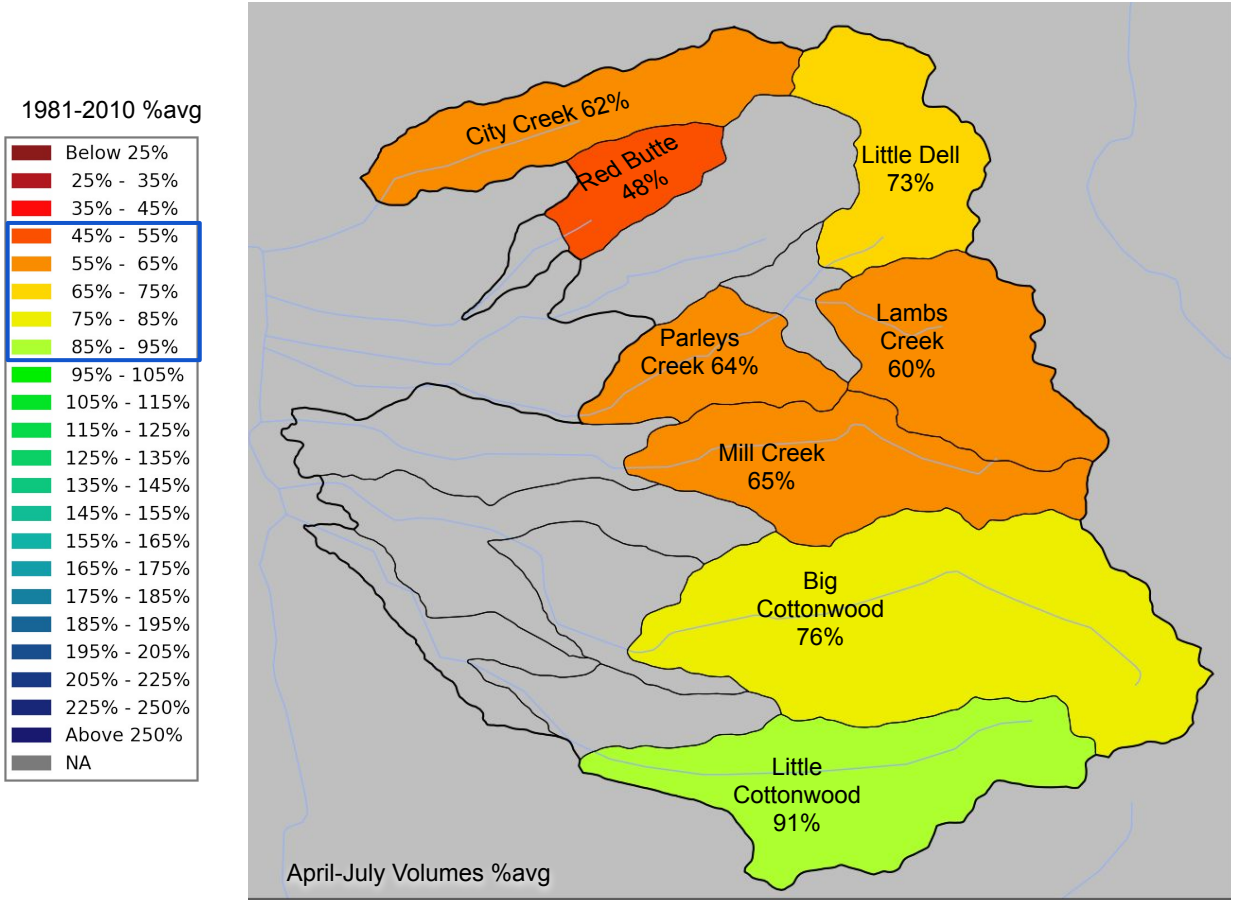
- Forecast Range:48%-78% avg
- Decrease of 10% or more:
  - Lost Creek
  - East Canyon
  - Ogden Huntsville
  - Pineview
  - Gateway

Utah Water Supply Forecasts - Inflow to East Canyon Reservoir



The April-July runoff forecast has declined from near average to below average.
This decline is due to a combination of snow removal and low April precipitation.

Utah Water Supply Forecasts - Six Creeks



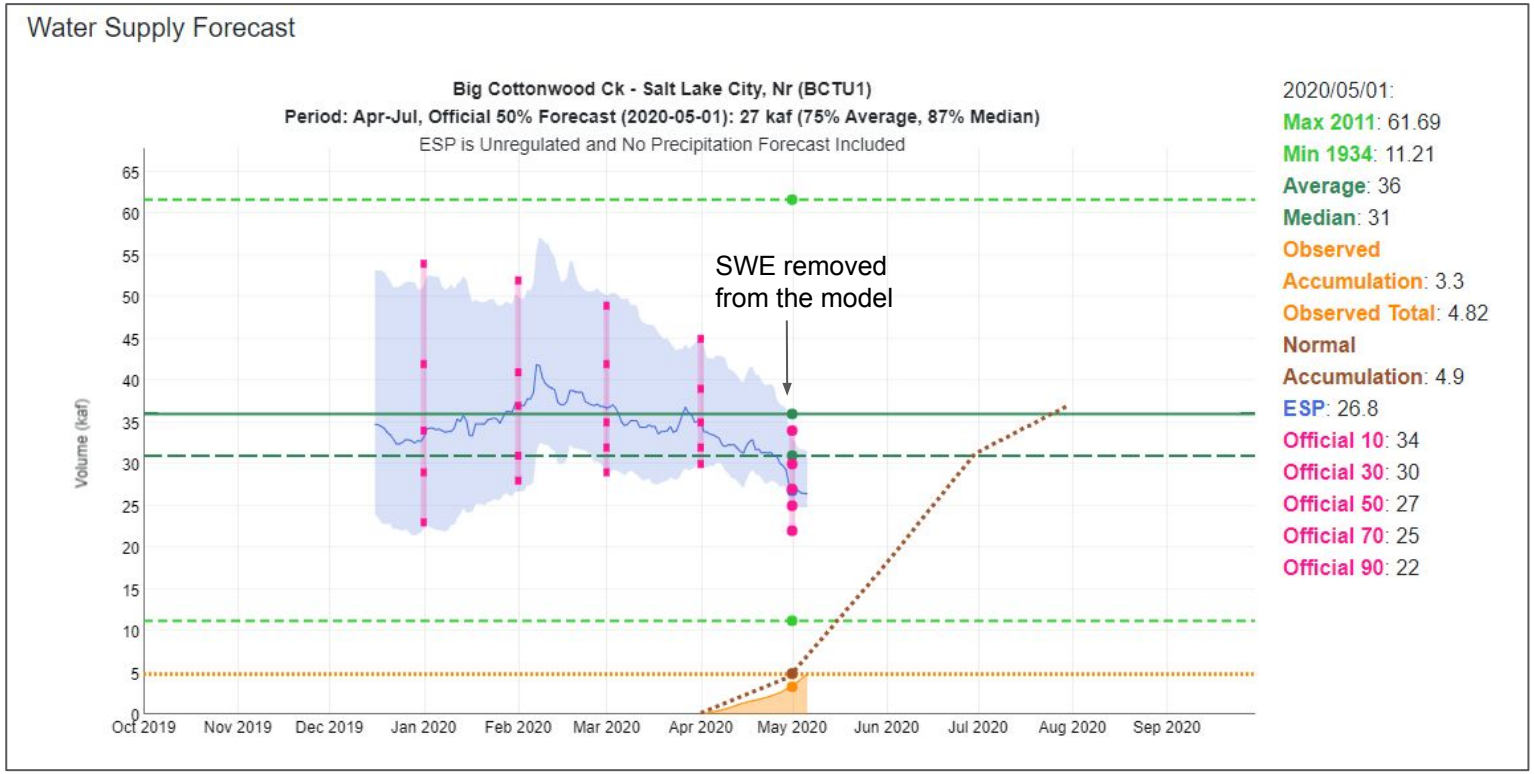
Six Creeks Basin Forecasts

Median Forecast

January:	90%
February:	100%
March:	95%
April:	95%
May:	65%

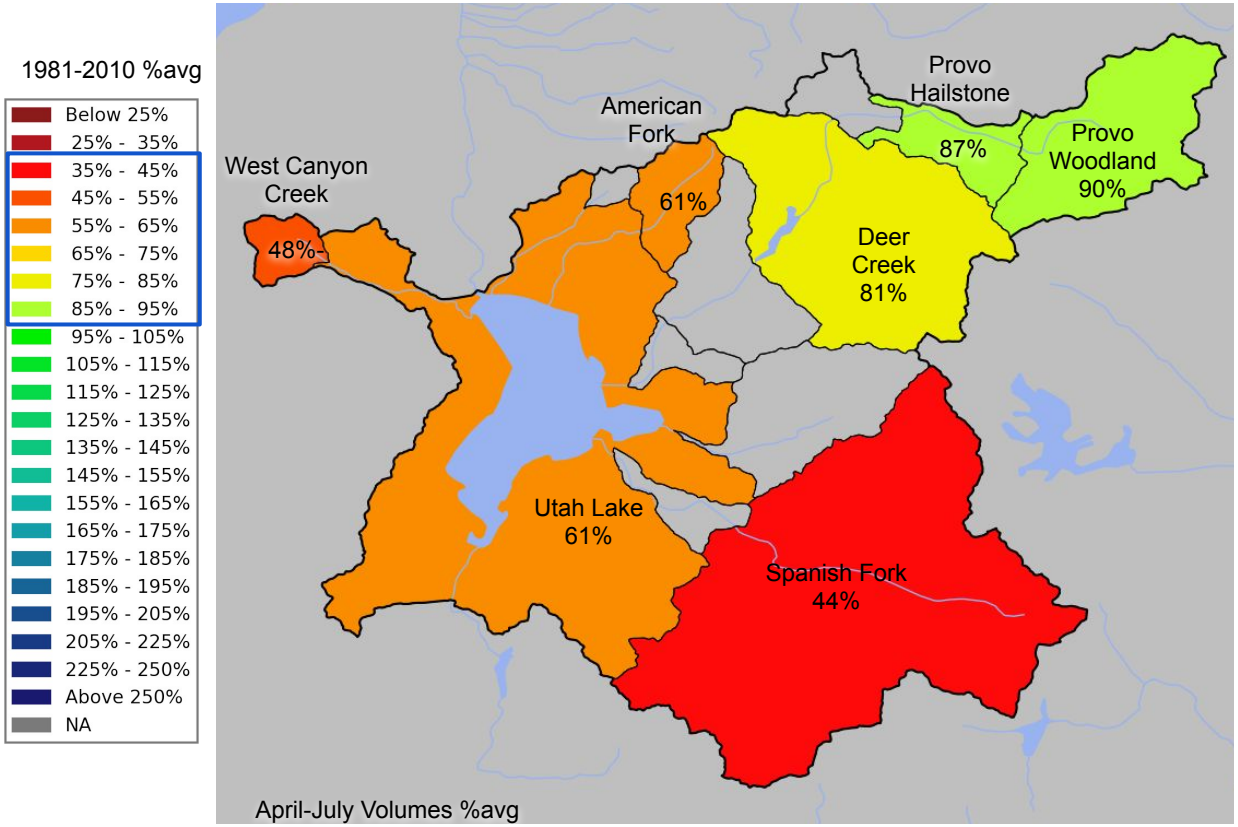
- Forecast Range:48%-88%
- Decrease of 15% or more:
  - Red Butte Creek
  - City Creek
  - Little Dell
  - Parleys Creek
  - Lambs Creek
  - Mill Creek
  - Big Cottonwood Cr.

Utah Water Supply Forecasts - Big Cottonwood



The April-July runoff forecast has declined from near median to below average.
This decline is due to a combination of snow removal below 8500’ and low April precipitation.

Utah Water Supply Forecasts - Provo - Utah Lake



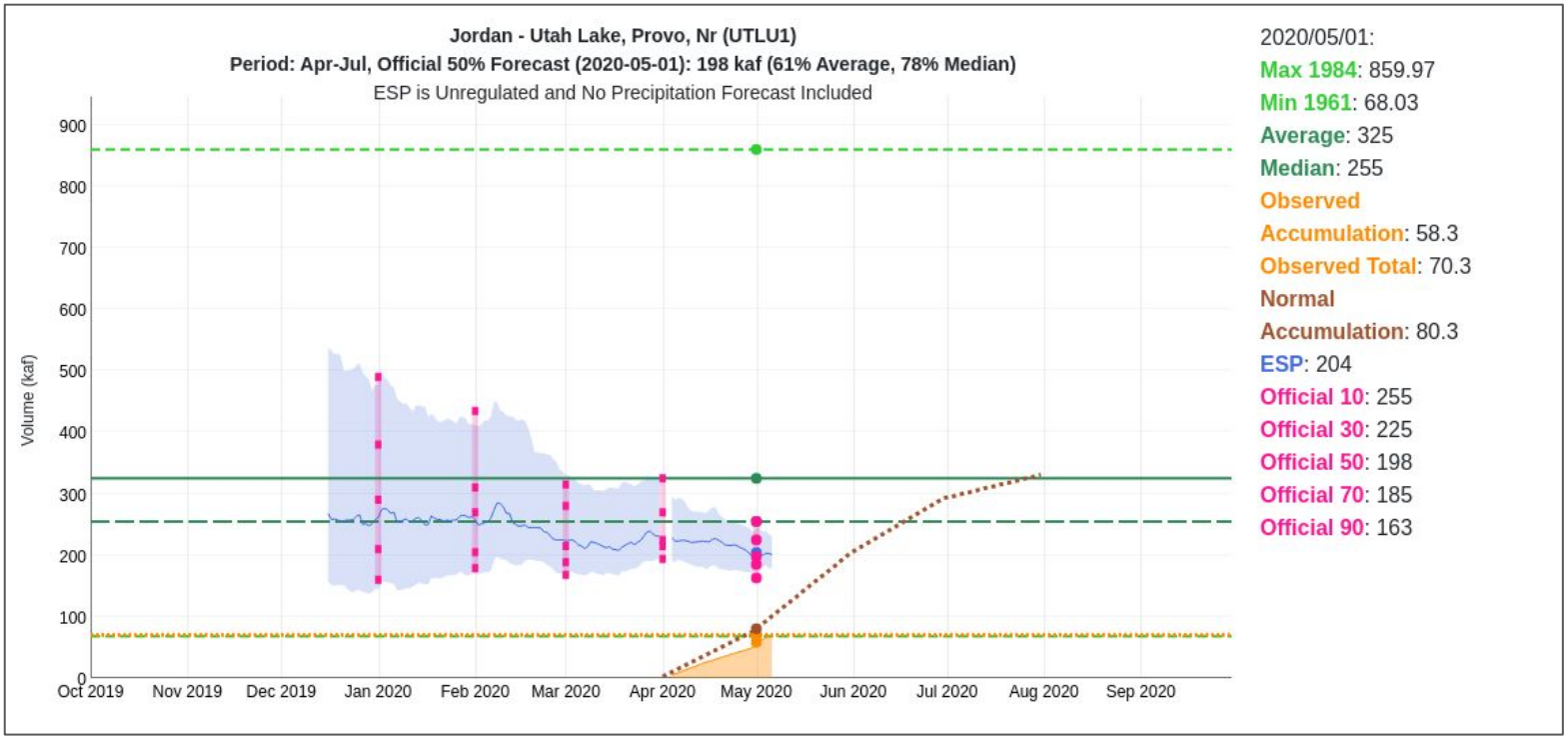
Provo River Basin Forecasts

Median Forecast

January:	90%
February:	95%
March:	70%
April:	70%
May:	60%

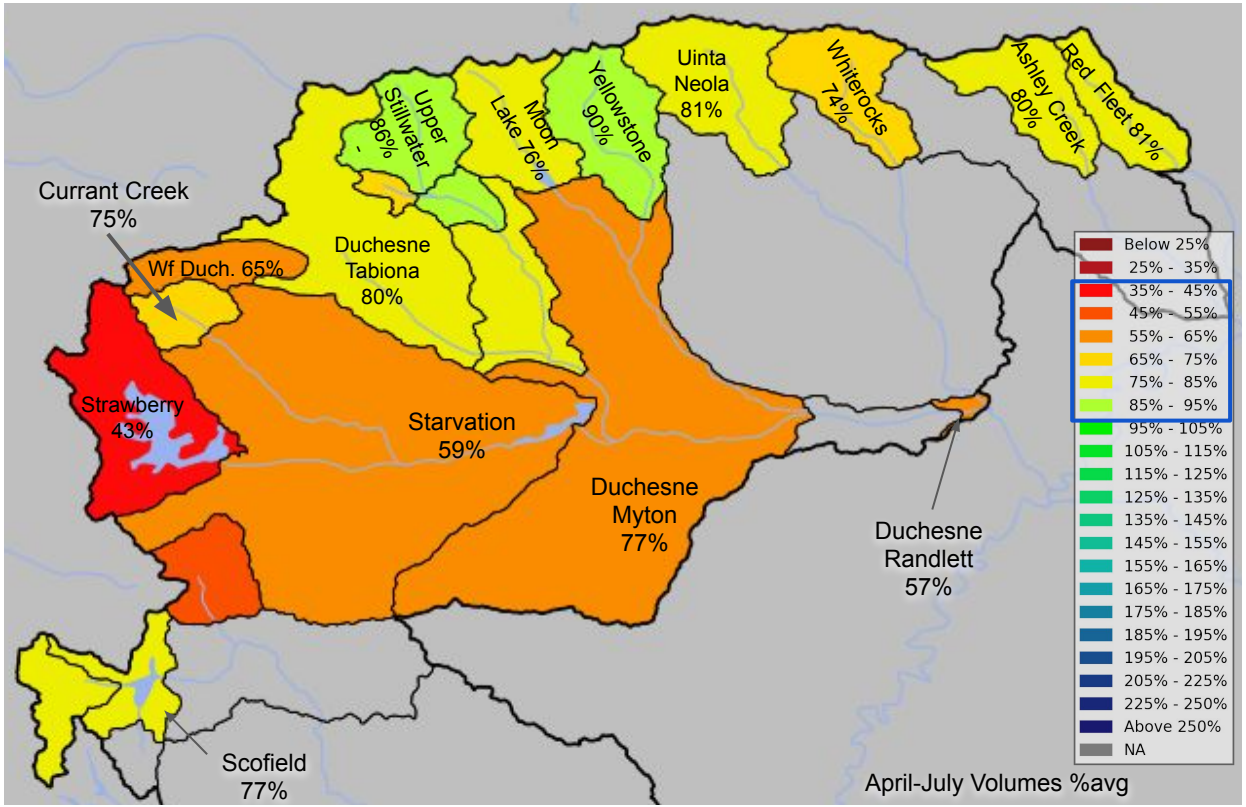
- Forecast Range: 44% - 90%
- Decrease of 10% or more:
  - Provo Woodland
  - Provo Hailstone
  - Deer Creek
  - West Canyon
  - American Fork

Utah Water Supply Forecasts - Utah Lake



The April-July runoff forecast has declined from April 1 to May 1.

Utah Water Supply Forecasts - Duchesne and Price



Duchesne River Basin

Median Forecast

January:	95%
February:	90%
March:	85%
April:	85%
May:	75%

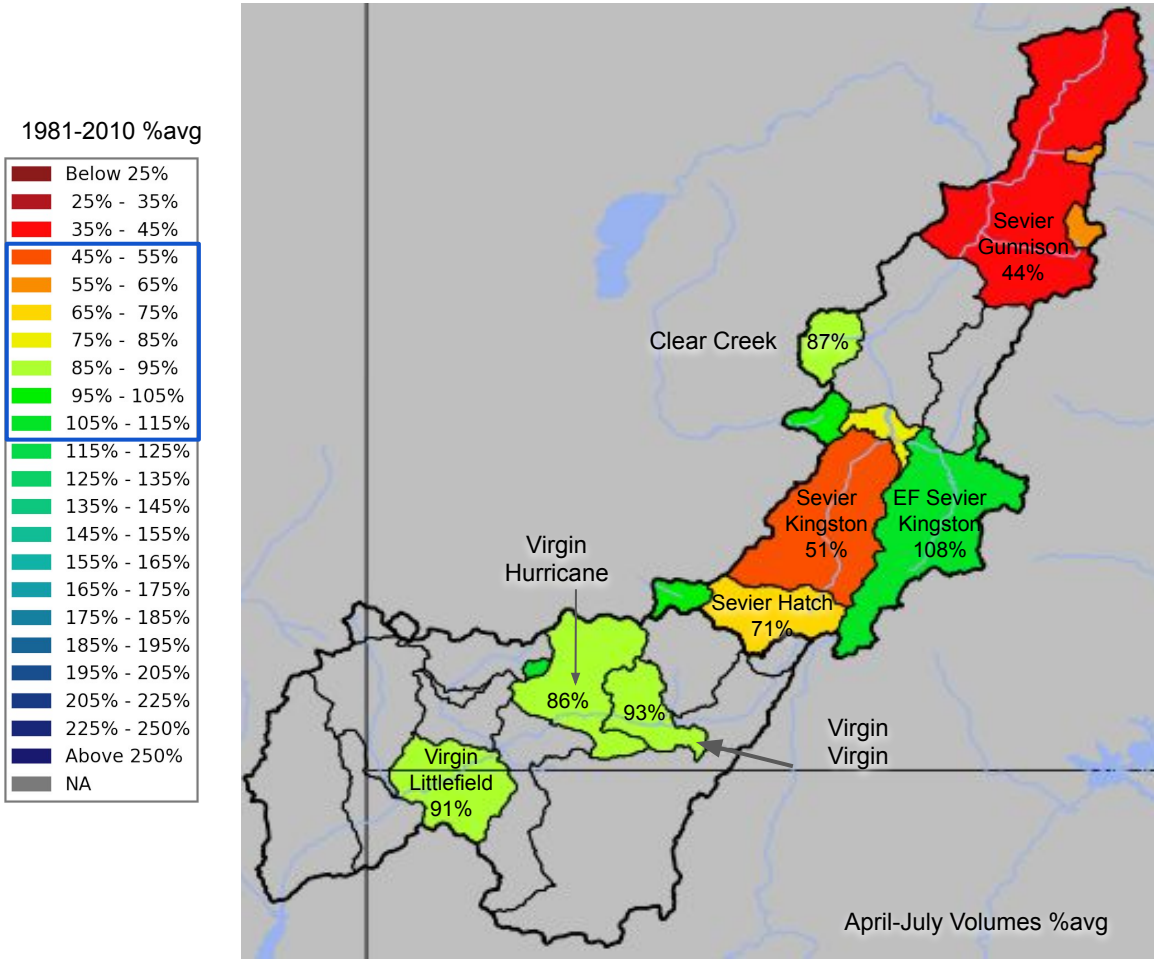
- Forecast Range:40% - 90%
- Decreases 5% - 20%

Price River Basin

Median Forecast

January:	90%
February:	85%
March:	85%
April:	85%
May:	80%

Utah Water Supply Forecasts - Sevier and Virgin



Sevier River Basin

Median Regulated Forecast

January:	115%
February:	110%
March:	80%
April:	85%
May:	75%

- Forecast Range:50% - 110%
- Decreases: 0% -30%

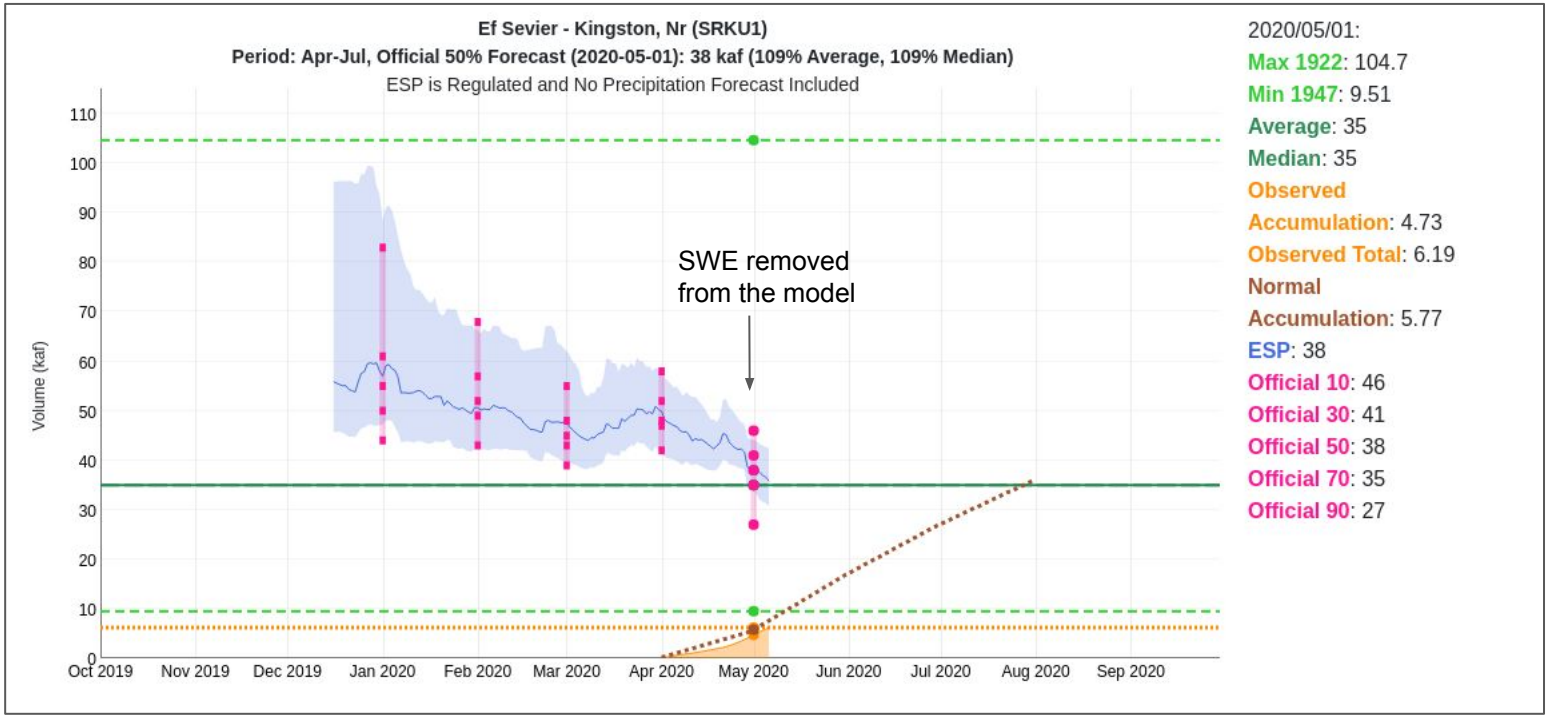
Virgin River Basin Forecasts

Median Forecast

January:	100%
February:	95%
March:	80%
April:	105%
May:	90%

- Forecast Range 90% - 116%
- Decrease: 0% - 10%

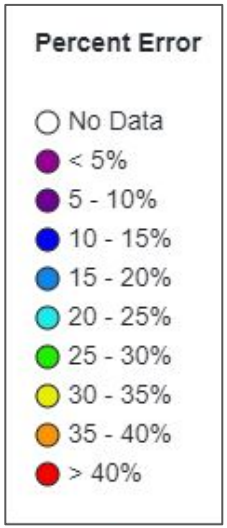
Utah Water Supply Forecasts - East Fork Sevier Kingston

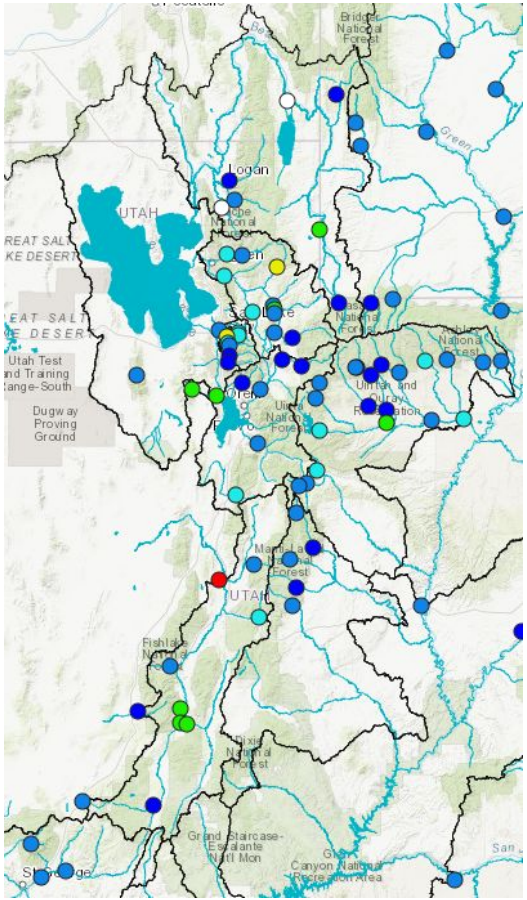


The April-July runoff forecast has declined to near normal.
This decline is due to a combination of snow removal below 10,000’ and low April precipitation.

Historical (1981-2010) Forecast Verification

Forecast Error: April-July Volume





Forecast Error

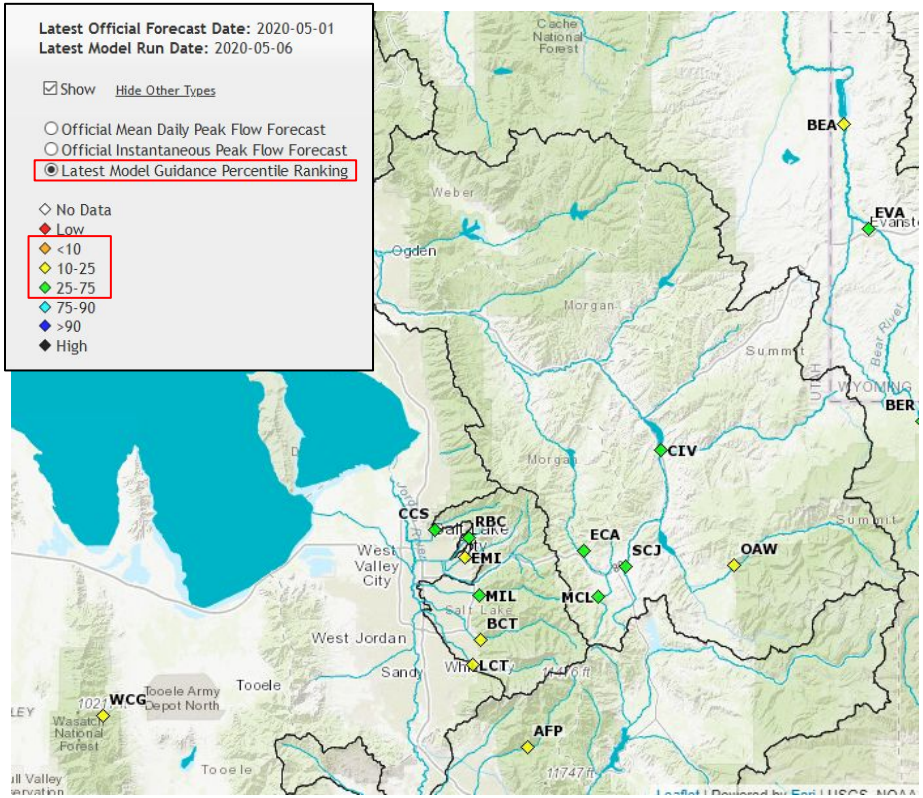
Location	May
BEAR - UTAH-WYOMING STATE	13%
BEAR - WOODRUFF NARROWS	27%
LOGAN - LOGAN- NR	12%
WEBER - OAKLEY- NR	11%
WEBER - ROCKPORT RES	16%
BIG COTTONWOOD CK	13%
PROVO - WOODLAND- NR	14%
PROVO - DEER CK RES	18%
VIRGIN - VIRGIN	15%

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

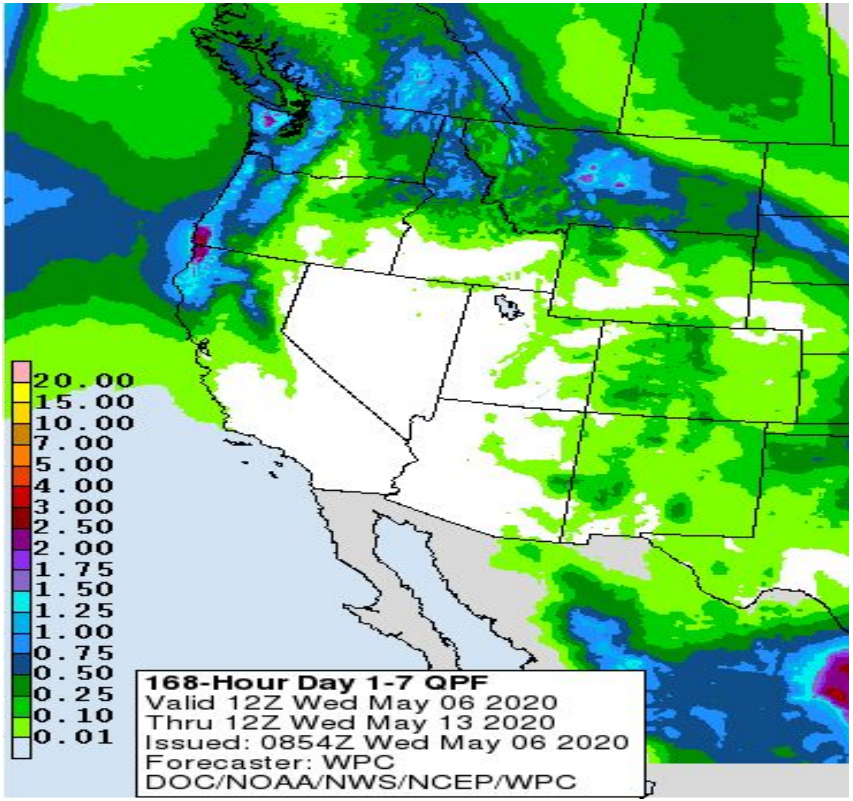
Peak Flows



- Snowmelt peak flows are generally expected to be near normal and lower throughout Utah.
- Some lower elevation drainages have likely already peaked for the season with the warm end of April temperatures.
- The last ‘Official’ peak flow forecasts for this year have been issued. As the time of peak nears, please watch the 10 day forecast hydrographs.
- The ‘Latest Model Guidance Percentile Ranking’ can give you an idea of possible future flow magnitudes compared to historical peak flows even after the peak has occurred.

https://www.cbrfc.noaa.gov/lmap/lmap.php?interface=peak

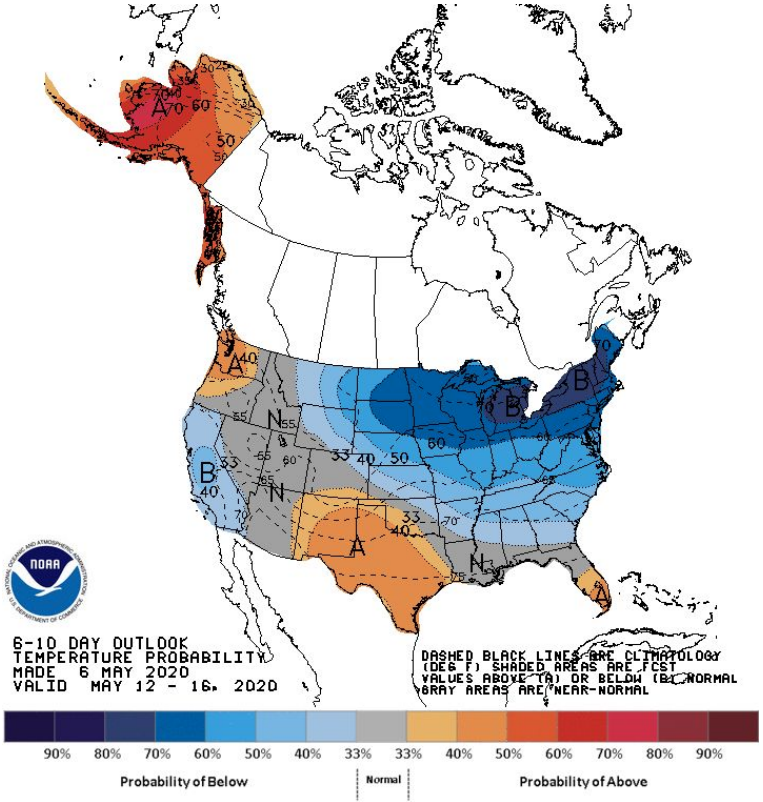
Upcoming Weather: Continued Dry and Warm through Early Next Week

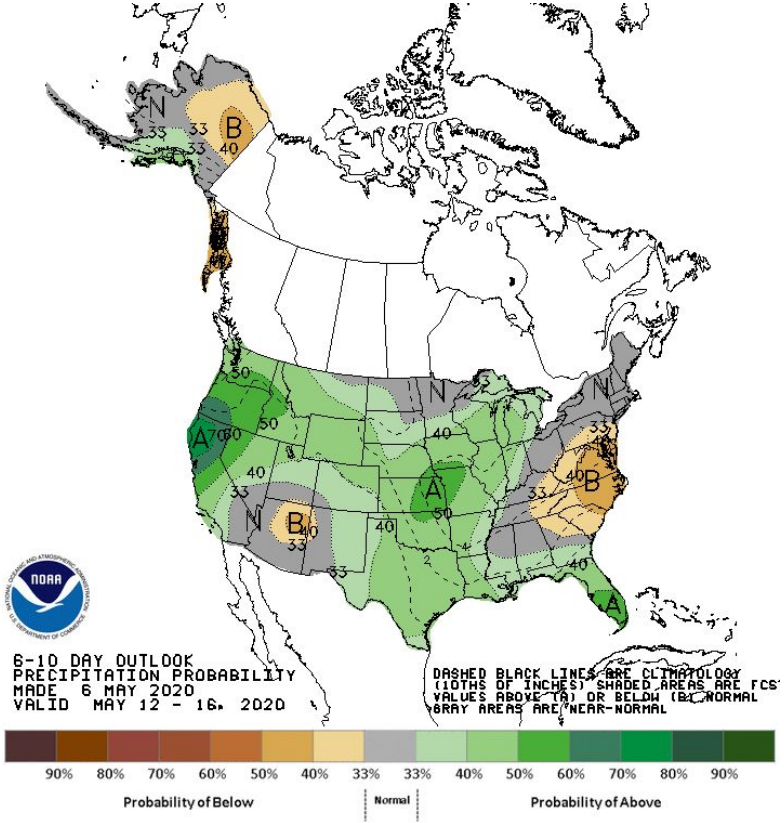


- General ridging will dominate the weather pattern through early next week, leading to minimal precip.
- Temperatures will be **5-10 degrees above normal** through much of the next week.
- Skies will be mostly sunny through the weekend, enhancing snowmelt and runoff.

Upcoming Weather: 6 to 10 day Outlook (May 12-16)

The models are in general agreement, showing a weak trough moving into the Intermountain West by the middle of next week. This would bring slightly cooler temps (back to normal) along with scattered showers, mainly across northern Utah/Idaho. A transition to *significantly* cooler/wetter weather does not appear likely at this time through the next two weeks.





Summary :

- April precipitation was below average, near record dry in some northern Utah locations.

- Bear, Sevier, and Virgin forecast groups have received near normal WY Precipitation
- Weber, Six Creeks, Provo/Utah Lake, and Duchesne forecast groups have received below normal WY precipitation

- Snow conditions in the Bear, Duchesne, and Virgin are near normal.
- Other forecast groups have below normal snow conditions as of May 1.

- Water Supply Forecasts have dropped significantly from April 1.

- Dry and warm through early next week
  - Clear skies will contribute to enhanced snowmelt.
  - A weak trough by the middle of next week will cool temps and increase precip chances across northern Utah.
  - Weather models indicate continuing dry conditions.

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 (formerly 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

Additional briefings may be scheduled as needed.

All registration information is available on the CBRFC web page.

COVID-19 Operations at CBRFC

- Still staffed 7 days a week 6:30 am - 4:00 pm
- Minimal staff in the office each day
  - Others working from home, but not necessarily every day
- Water Supply forecasts may be delayed slightly
  - Please contact Operations if you don’t hear back from your normal contact(s)
  - They can either answer your question or get a hold of someone who can

Operational Hydrologist

- 801-524-4004
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CBRFC Contacts

Basin Focal Points (Forecasters)

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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?