

Utah Water Supply Briefing

May 5th, 2023

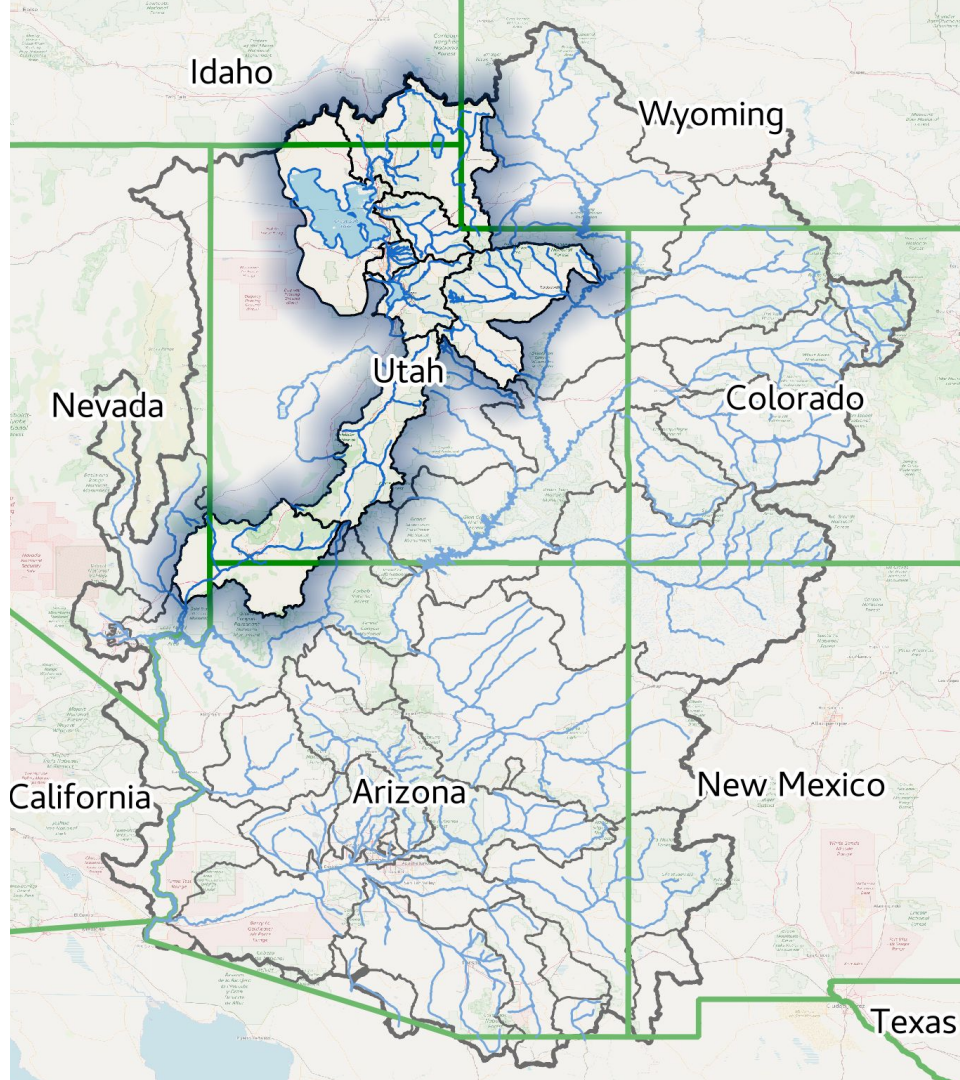
Colorado Basin River Forecast Center

Presenter: - Pat Kormos

Utah Forecasters: Trevor Grout
Brenda Alcorn
Patrick Kormos

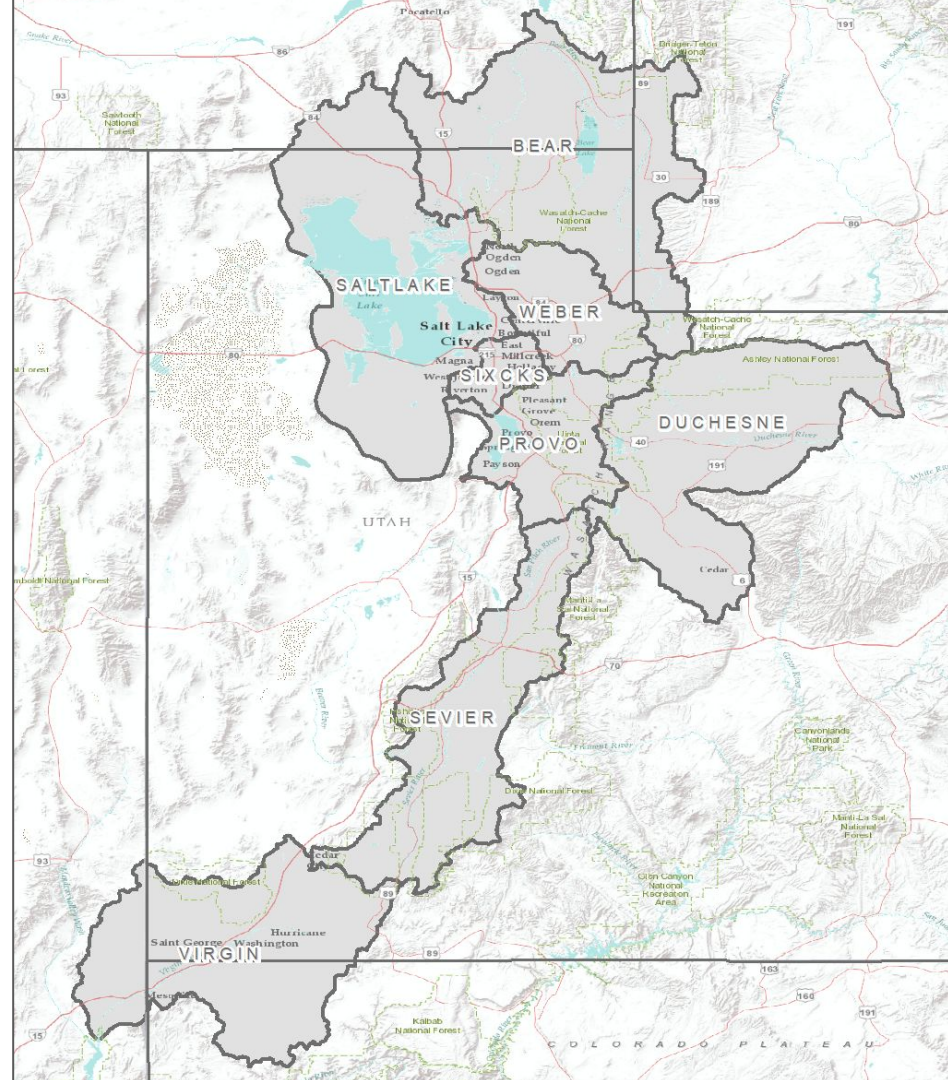
Questions: Type questions into the 'Questions'
Box or Raise Hand

**Webinar recording & slides will be
made available on CBRFC webpage**



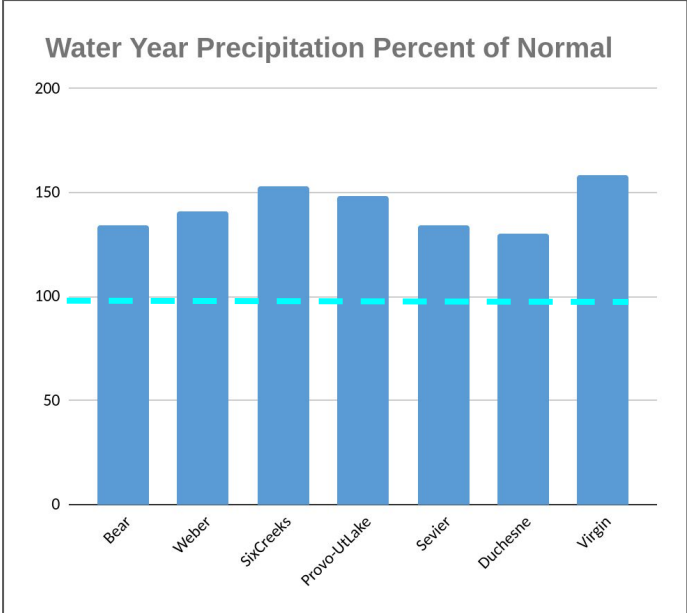
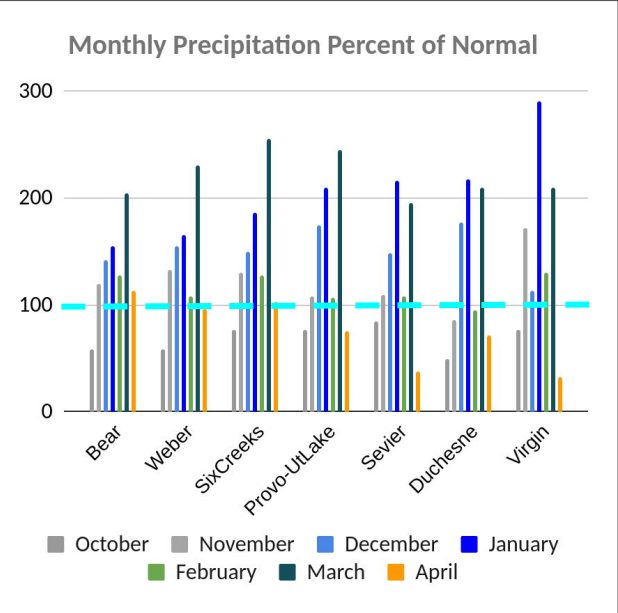
Utah Water Supply Briefing

1. Weather and Snowpack
2. Water Supply Forecasts
3. Upcoming Weather
4. Contacts & Questions



Utah Weather Review - March and Water Year Precipitation Totals

- April precipitation was above normal in the north (Bear: 113%) and below normal in the south (Virgin: 33%)
- All forecast groups have still seen much above normal WY precipitation

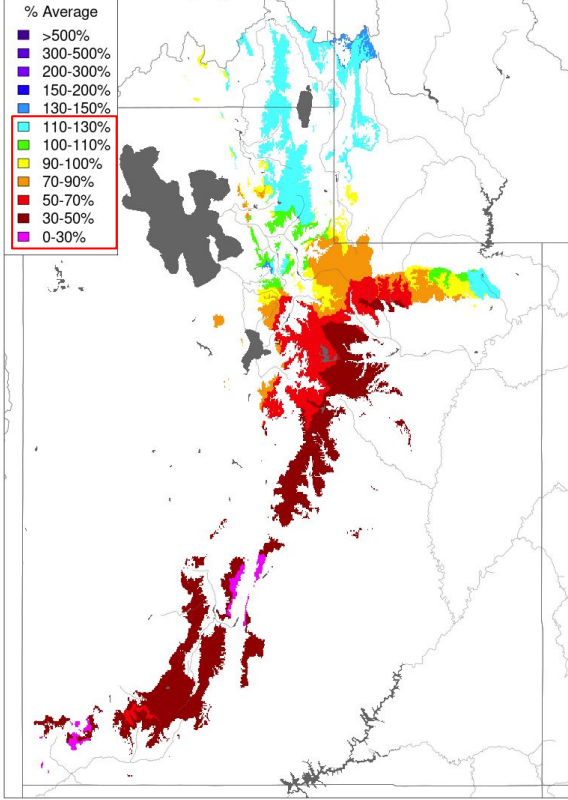


Water Year 2023 CBRFC Precipitation Percent of 1991-2020 Average		
	<u>Apr</u>	<u>Oct-Apr</u>
Bear	113	134
Six Creeks	103	153
Weber	96	141
Duchesne	72	130
Provo/Utah Lake	75	148
Sevier	37	134
Virgin	33	158

Utah Weather Review - March Precipitation and Temperature Maps

Monthly Precipitation - April 2023

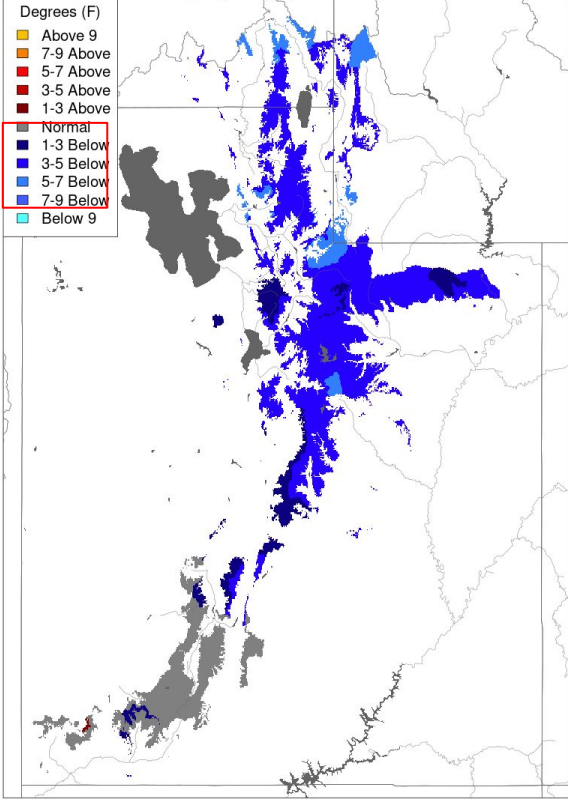
Averaged by Basin, Major Contributing Areas



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

Max Temp - Monthly Deviation - April 2023

Averaged by Basin, Major Contributing Areas



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

April precipitation totals range from above normal in the north to much below normal in the south.

Maximum temperatures, overall, were below normal in April.

High elevation snowpack has largely been preserved. Mid elevation snowpack is starting to contribute to streamflow.

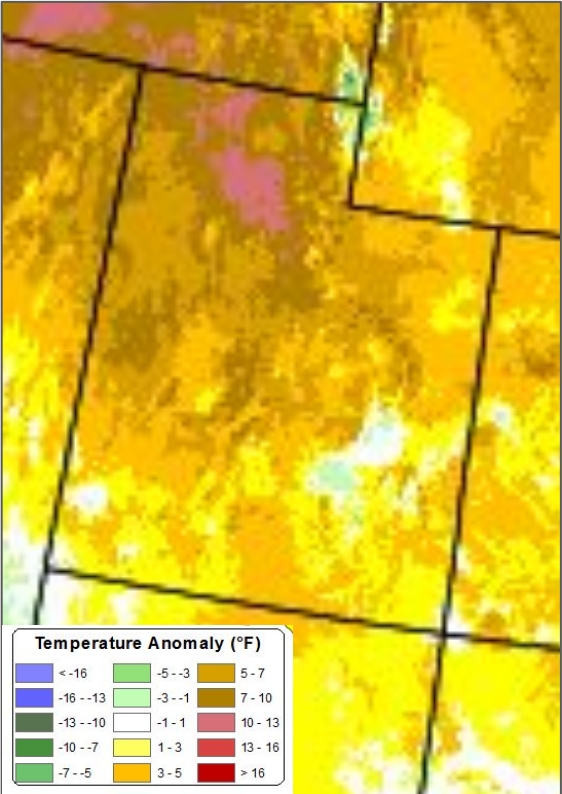
Utah Weather Review - Warm Temperatures April 27ish to May 5ish

Daily Mean Temperature Anomaly: 01 May 2023 - 03 May 2023

Period ending 7 AM EST 03 May 2023

Base period: 1991-2020

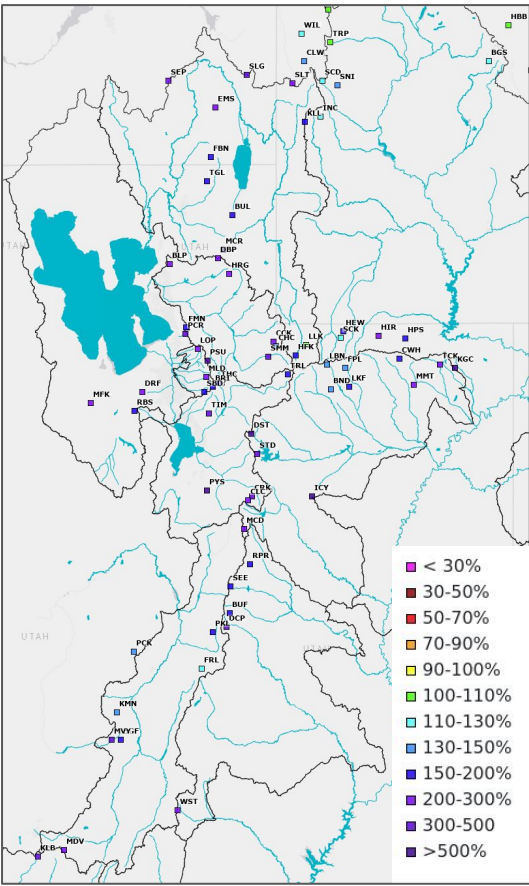
(Map created 04 May 2023)



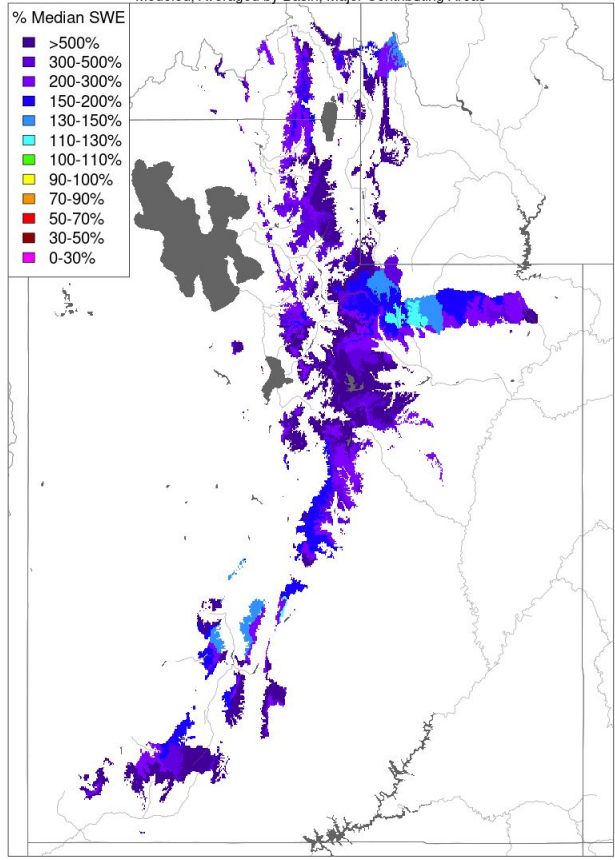
The first week of May continued to be warm and mostly sunny. Snow melt below 8500' has contributed to streamflow rises.

Utah Current Snowpack: May 4th

SNOTEL conditions



Snow Conditions - May 04 2023
Modeled, Averaged by Basin, Major Contributing Areas



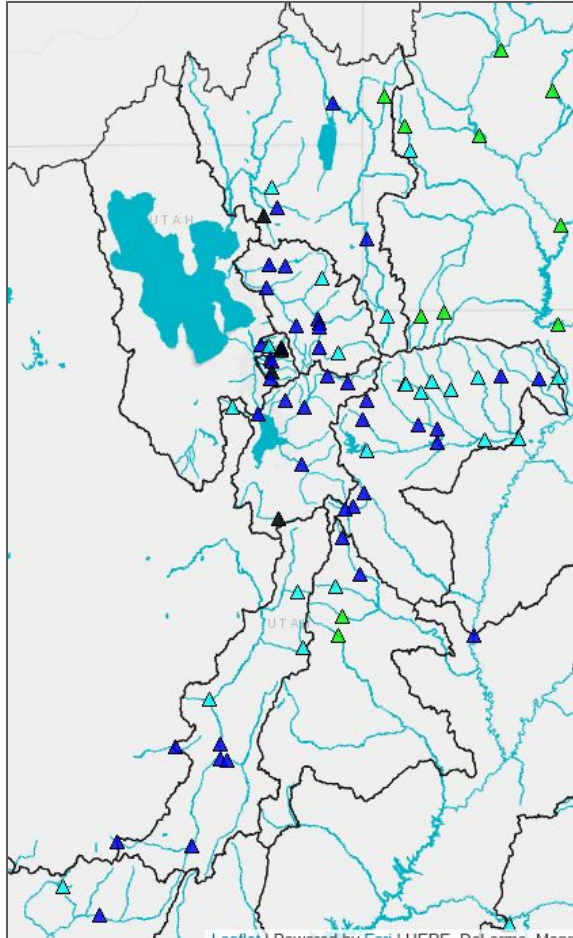
Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

CBRFC Model Snow by Forecast Group (Significant Areas) %Median

Forecast Group	%Median
Bear	237
Weber	250
Six Creeks	252
Provo	298
Duchesne	194
Sevier	206
Virgin	466

Increased % median snow in southern Utah due more to lack of melt than to significant additional accumulation.

Utah Water Supply Forecasts - Percentile Map



Water Supply Forecasts ^

Show ?

First of Month Forecast: 2023-05-01

Percent Average
 Percent Median
 Percentile

Latest Model Guidance: 2023-05-04

Percent Average
 Percent Median
 Percentile

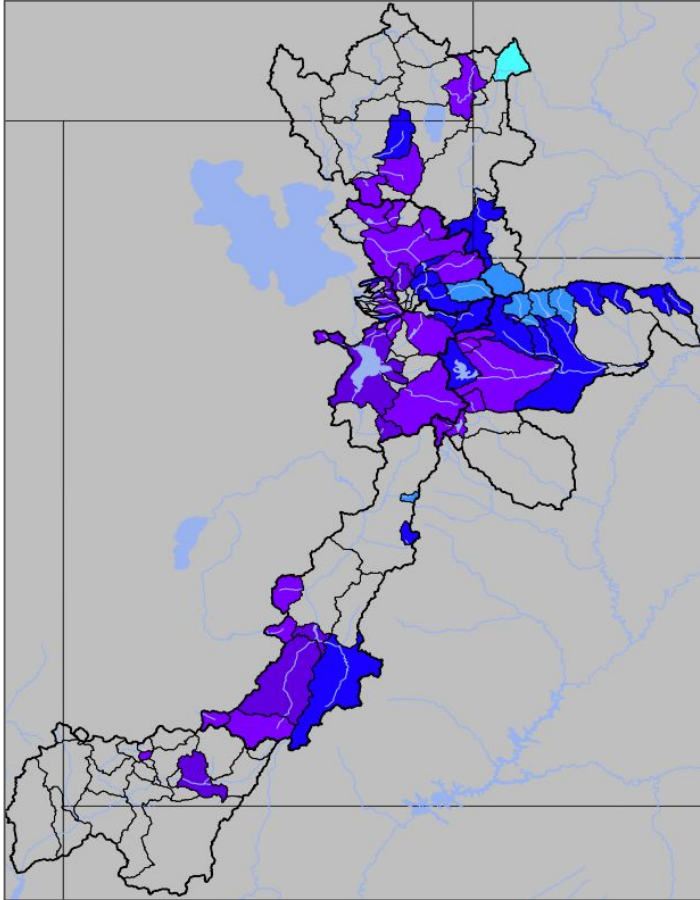
△ No Forecast
▲ No Data
▲ Low
▲ <10
▲ 10-25
▲ 25-75
▲ 75-90
▲ >90
▲ High

Locations Forecast to have Record High April - July Volumes

- Little Bear Paradise
- Big Cottonwood Creek
- Salt Creek Nephi

Utah Water Supply Forecasts

Percent of Average

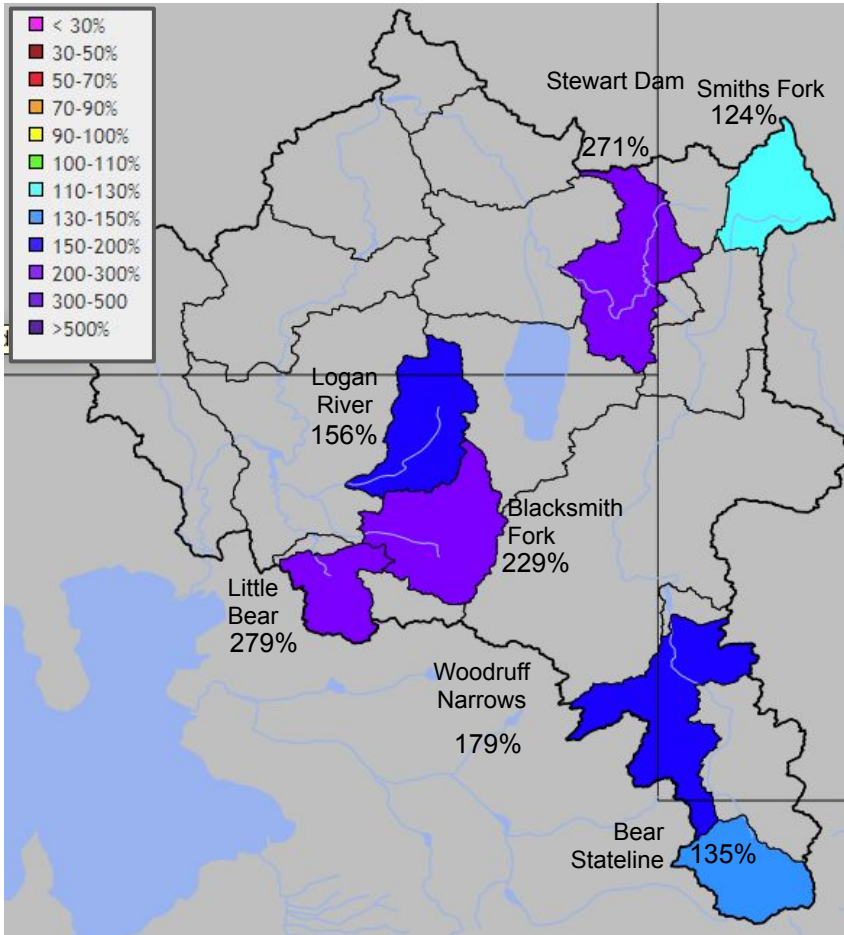


- May 1 forecast for April-July volume
- April-July forecast streamflow volumes are in percent of 1991-2020 average.

Median forecasts by forecast group.

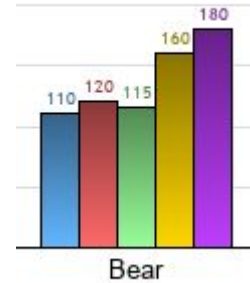
Bear	180
Weber	220
Six Creeks	230
Provo / Utah Lake	245
Sevier	225
Duchesne	160
Virgin	280

Utah Water Supply Forecasts - Bear



May 1 Forecast

- median forecast 180% of avg.
- forecasts range 124% to >200% of avg.

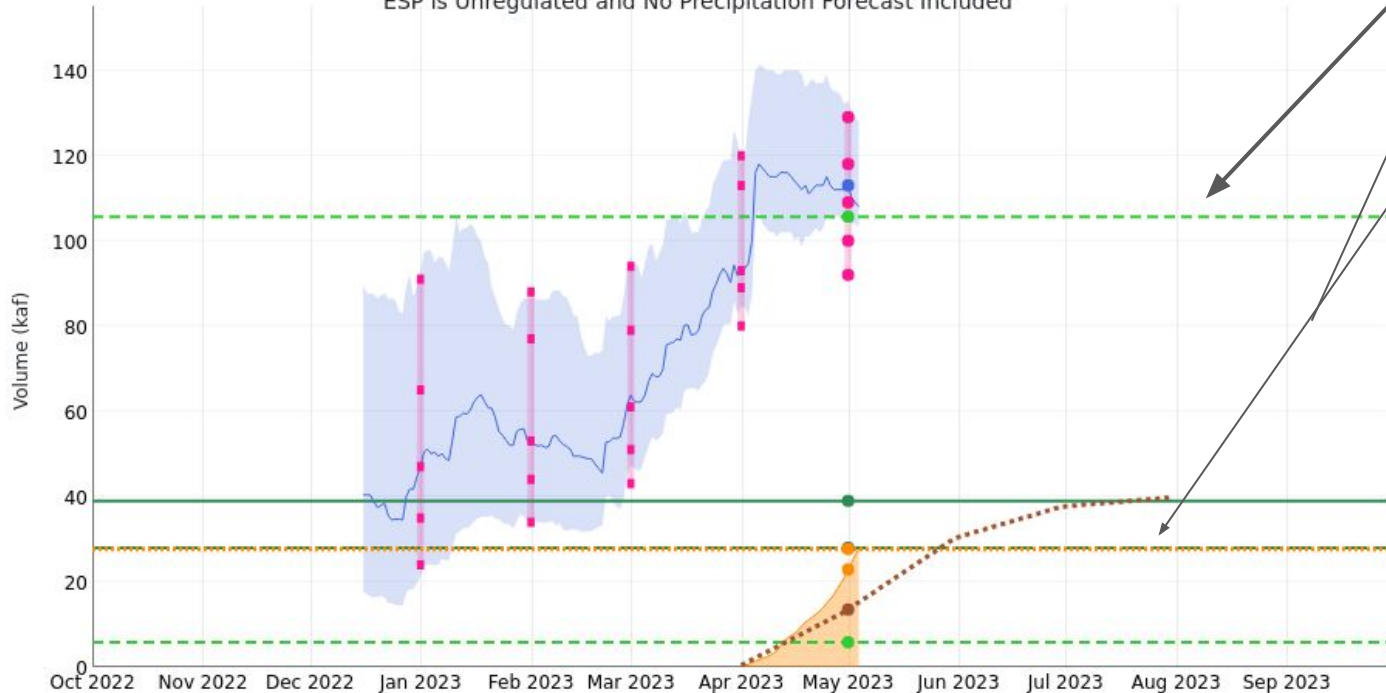


Utah Water Supply Forecasts - Bear

Little Bear - Paradise (PRZU1)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 109 kaf (279% Average, 389% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/05/01:

Max 2011: 105.64

Min 2011: 5.83

Average: 39

Median: 28

Observed Accumulation: 22.9

Observed Total: 27.7

Normal Accumulation: 13.5

ESP: 113

Official 10: 129

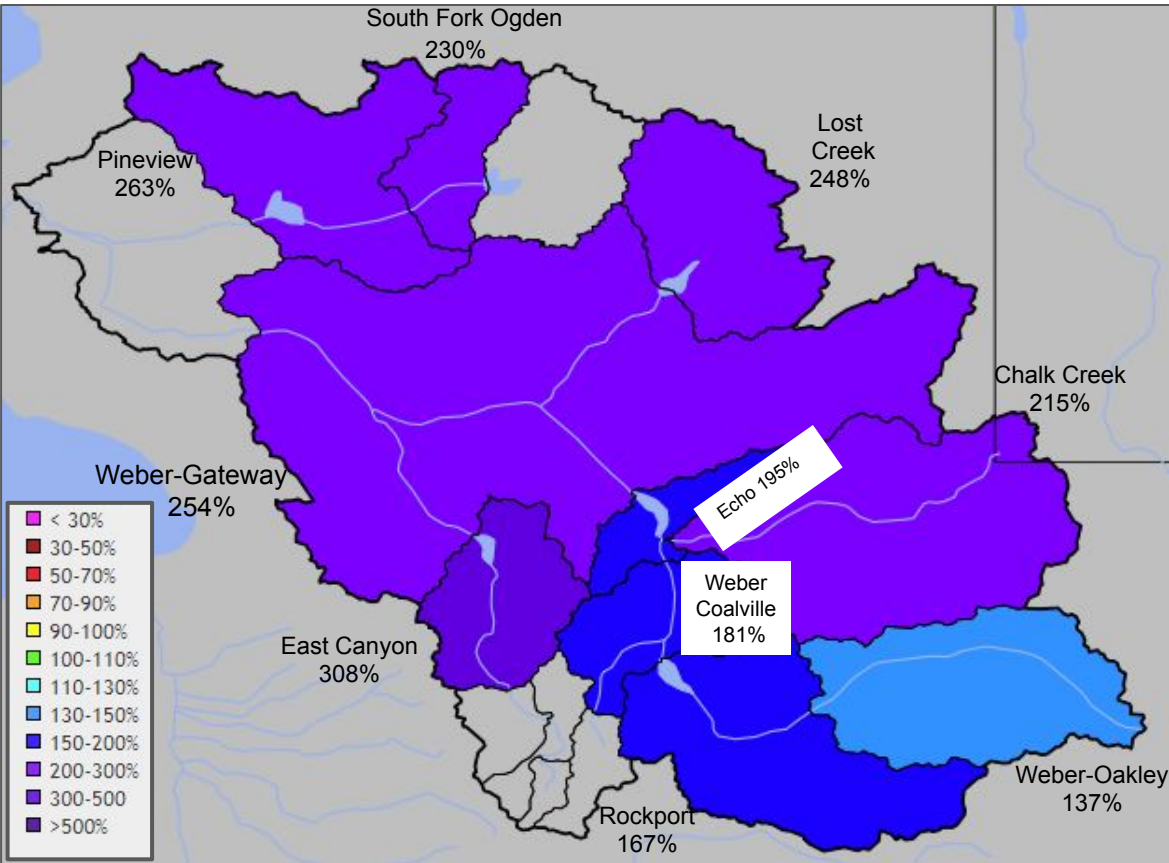
Official 30: 118

Official 50: 109

Official 70: 100

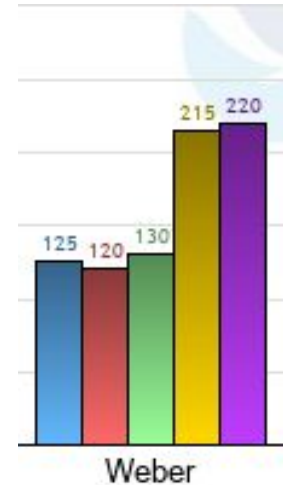
Official 90: 92

Utah Water Supply Forecasts - Weber



May 1 Forecast

- median forecast 220% of avg.
- forecasts range 137% to >200% of avg.

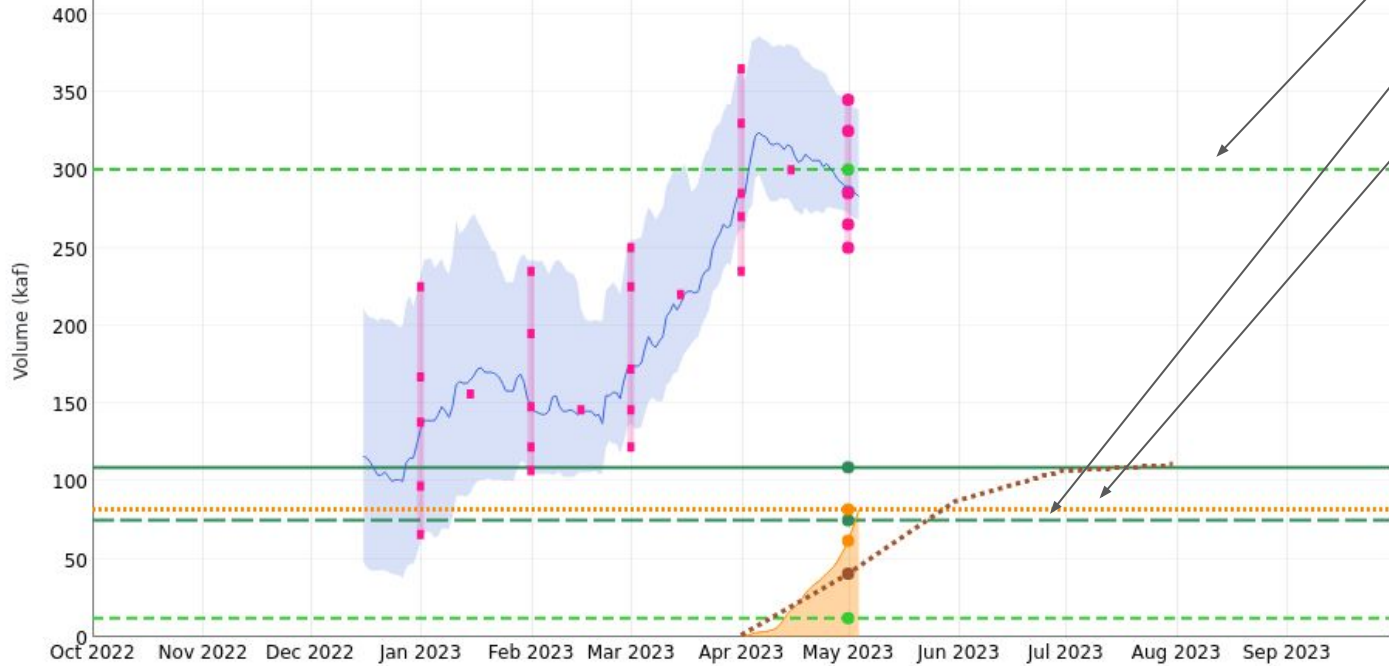


Utah Water Supply Forecasts - Weber

Ogden - Pineview Reservoir, Ogden, Nr (PINU1)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 285 kaf (261% Average, 380% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/05/01:

Max 2011: 300.18

Min 1992: 12.14

Average: 109

Median: 75

Observed Accumulation: 61.9

Observed Total: 82

Normal Accumulation: 40.7

ESP: 286

Official 10: 345

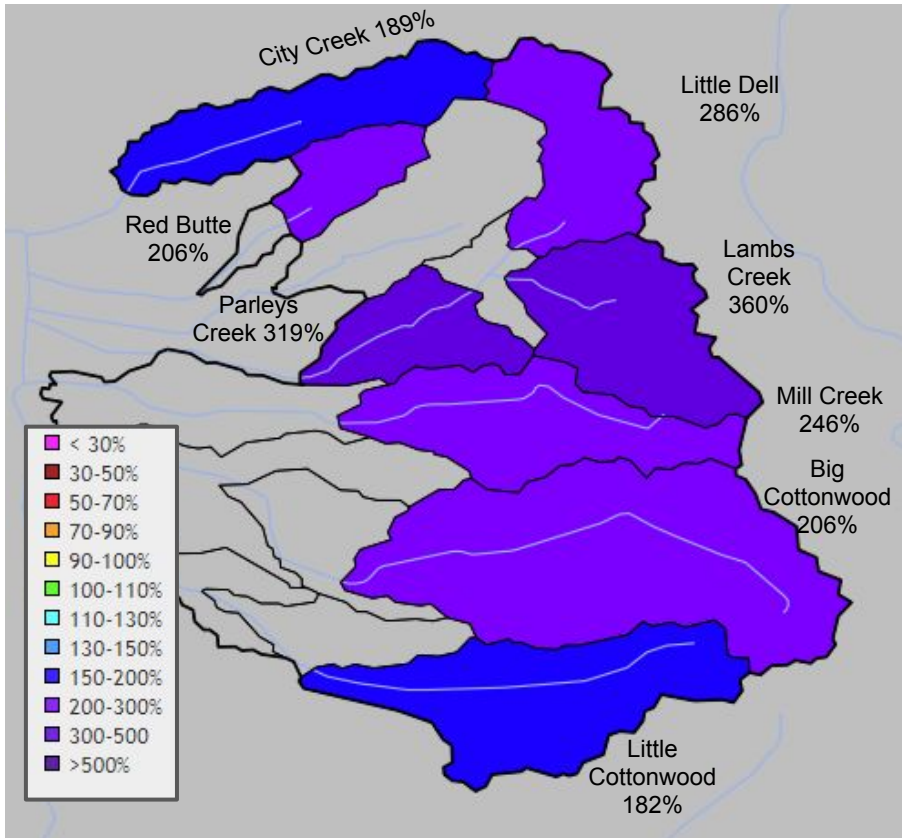
Official 30: 325

Official 50: 285

Official 70: 265

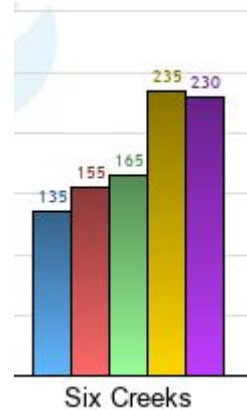
Official 90: 250

Utah Water Supply Forecasts - Six Creeks



May 1 Forecast

- median forecast 230% of avg.
- forecasts range 182% to >200% of avg.



Utah Water Supply Forecasts - Six Creeks

Big Cottonwood Ck - Salt Lake City, Nr (BCTU1)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 70 kaf (206% Average, 241% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/05/01:

Max 2011: 66.61

Min 1934: 11.21

Average: 34

Median: 29

Observed Accumulation: 3.15

Observed Total: 4.02

Normal Accumulation: 4.59

ESP: 70.9

Official 10: 85

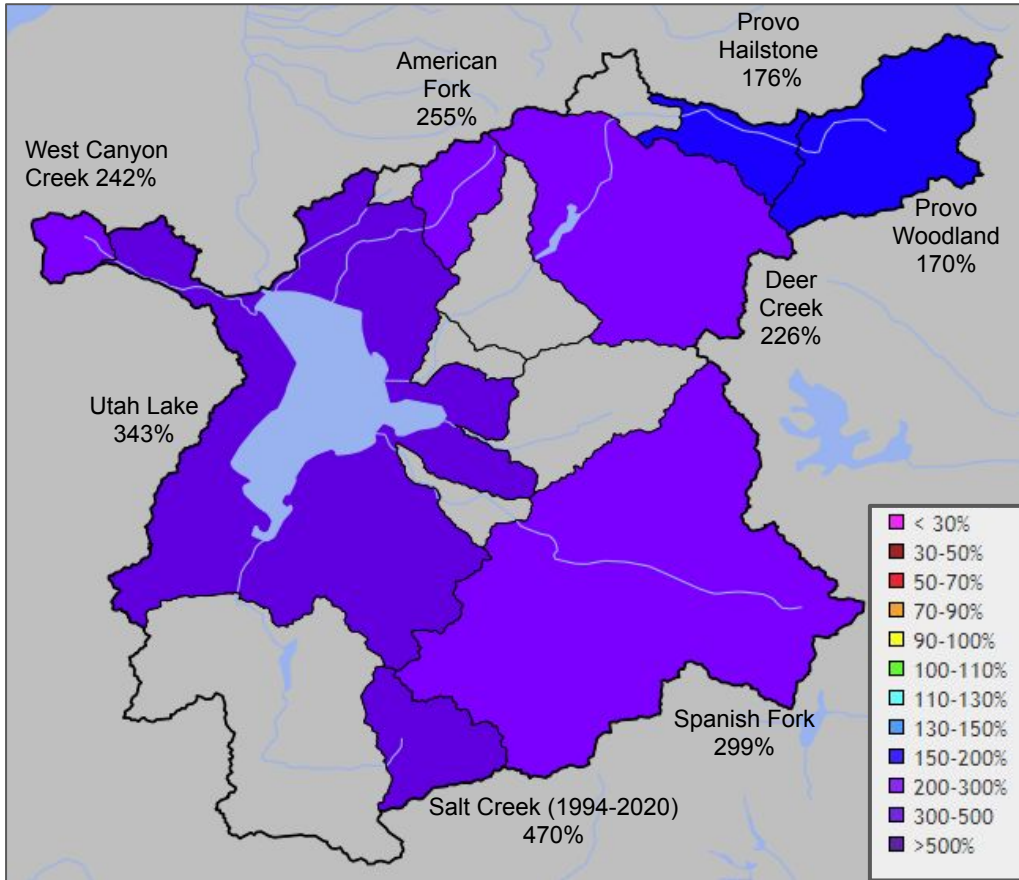
Official 30: 74

Official 50: 70

Official 70: 68

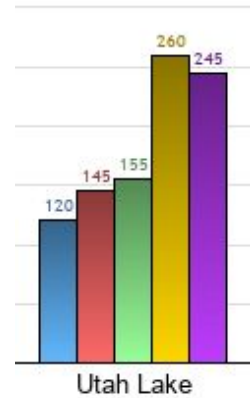
Official 90: 65

Utah Water Supply Forecasts - Provo - Utah Lake Basin

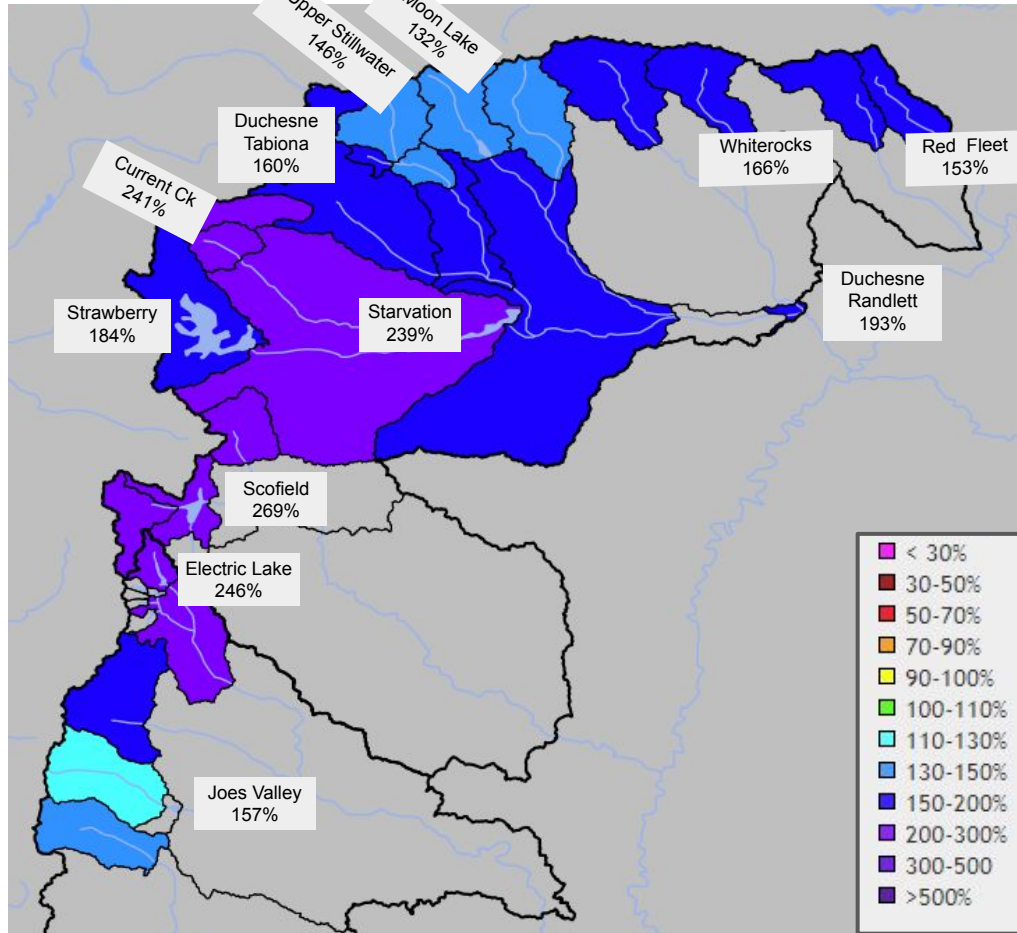


May 1 Forecast

- median forecast 245% of avg.
- forecasts range 170% to >200% of avg.

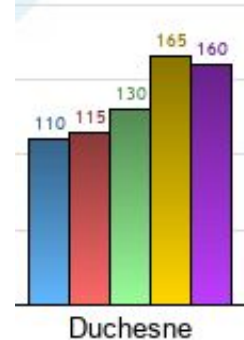


Utah Water Supply Forecasts - Duchesne, Price, and San Rafael

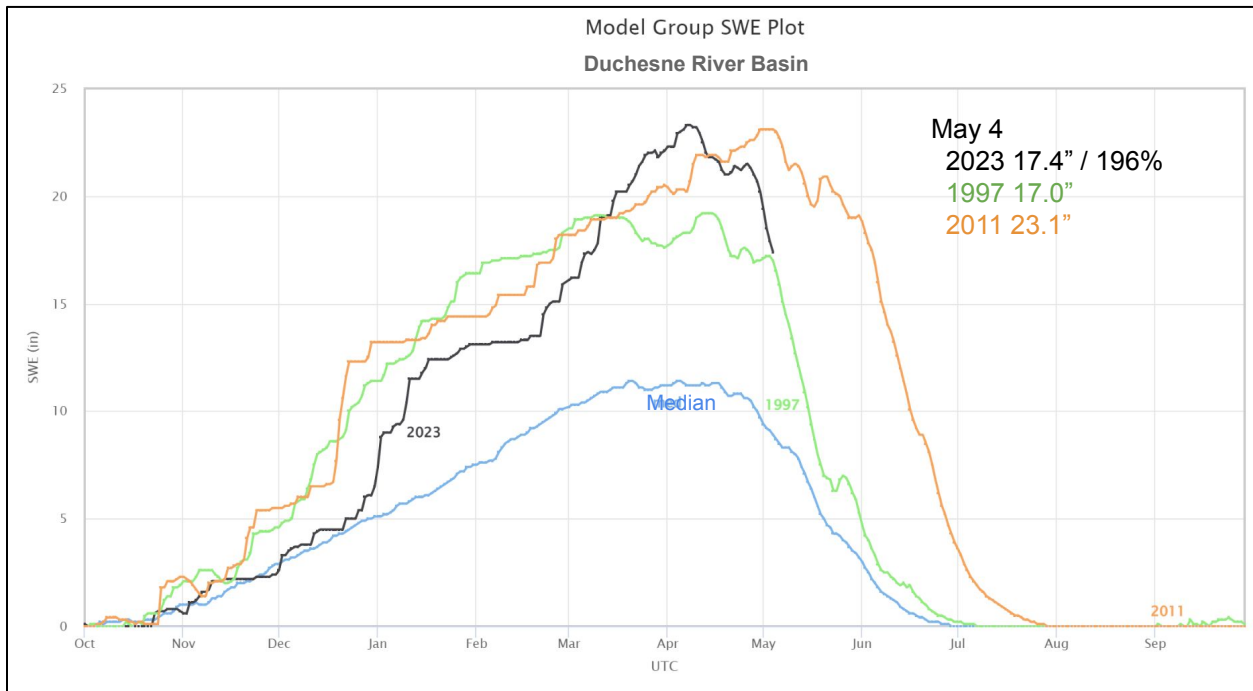


May 1 Forecast

- Duchesne:
 - no change to 10% decreases
 - median forecast 160% of avg.
 - forecast range 130-240%
- Price and San Rafael:
 - 5% to 15% decreases
 - median forecast 205% of avg.
 - forecast range 130-270%



Utah Water Supply Forecasts - Duchesne, Price, and San Rafael



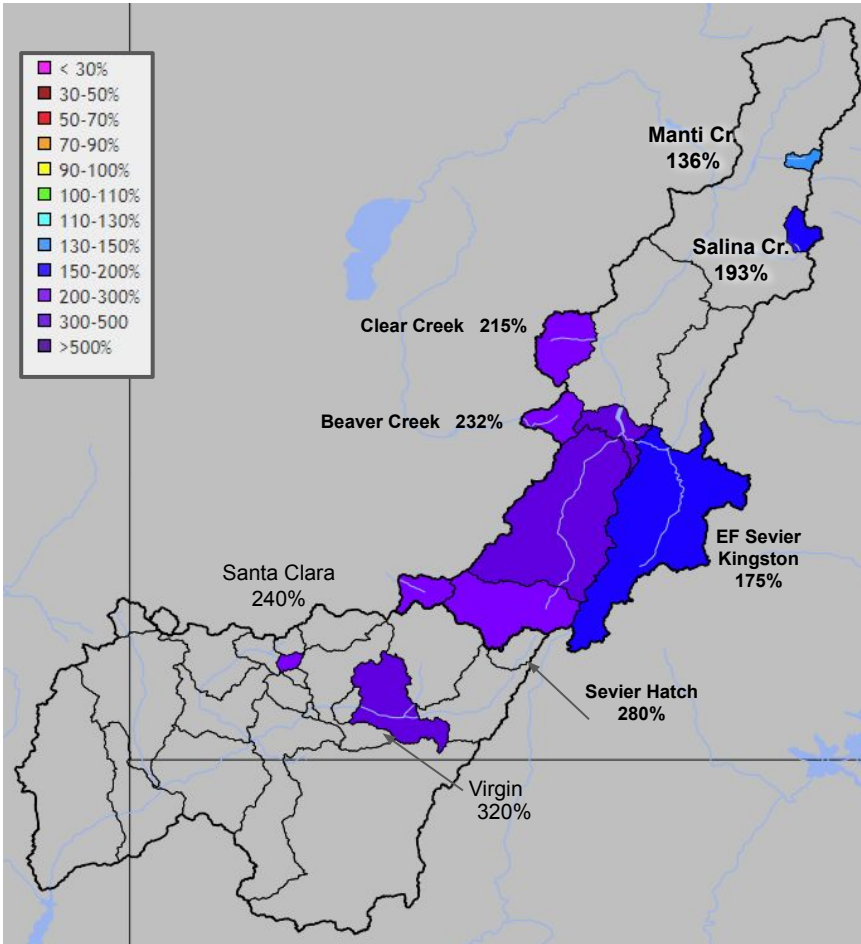
Model snow peaked same as 2011.

1997 model snow similar peak, lower magnitude.

2011 max snow was a month later
2011 some forecast points had record runoff volumes

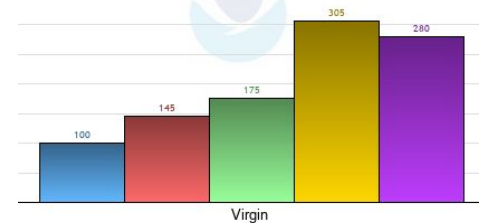
Forecast runoff volumes are not expected to be as high as 2011 but will likely be higher than 1997.

Utah Water Supply Forecasts - Sevier and Virgin



May 1 Forecast

- Sevier median forecast 225% of avg.
 - regulated forecasts
 - range between 136% and >200%
- Virgin median forecast 320% of avg.
 - unregulated forecasts

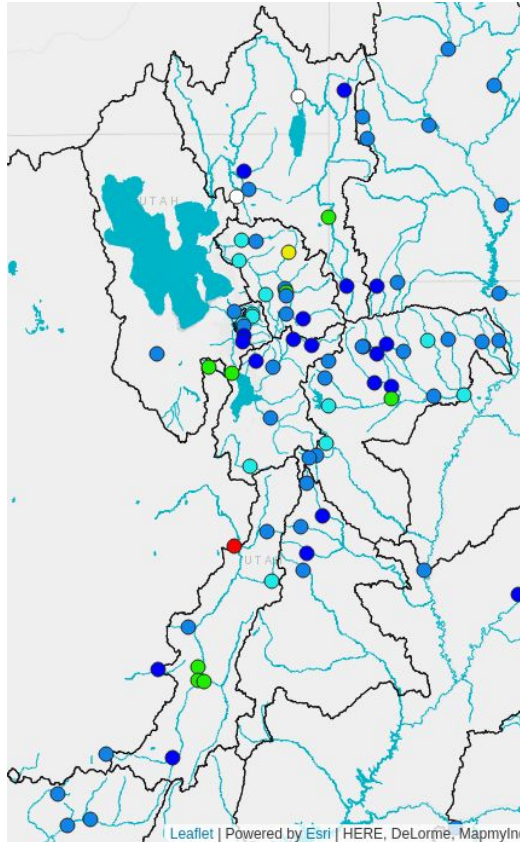


Historical Forecast Verification

May 1 Forecast Error: April-July Volume

Percent Error

- No Data
- < 5%
- 5 - 10%
- 10 - 15%
- 15 - 20%
- 20 - 25%
- 25 - 30%
- 30 - 35%
- 35 - 40%
- > 40%



Location

BEAR - UTAH-WYOMING STATE
 BEAR - WOODRUFF NARROWS
 LOGAN - LOGAN- NR
 WEBER - OAKLEY- NR
 WEBER - ROCKPORT RES
 BIG COTTONWOOD CK
 PROVO - WOODLAND- NR
 PROVO - DEER CK RES
 VIRGIN - VIRGIN

May 1 Forecast Error

13%
 27%
 12%
 11%
 16%
 13%
 14%
 18%
 15%

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

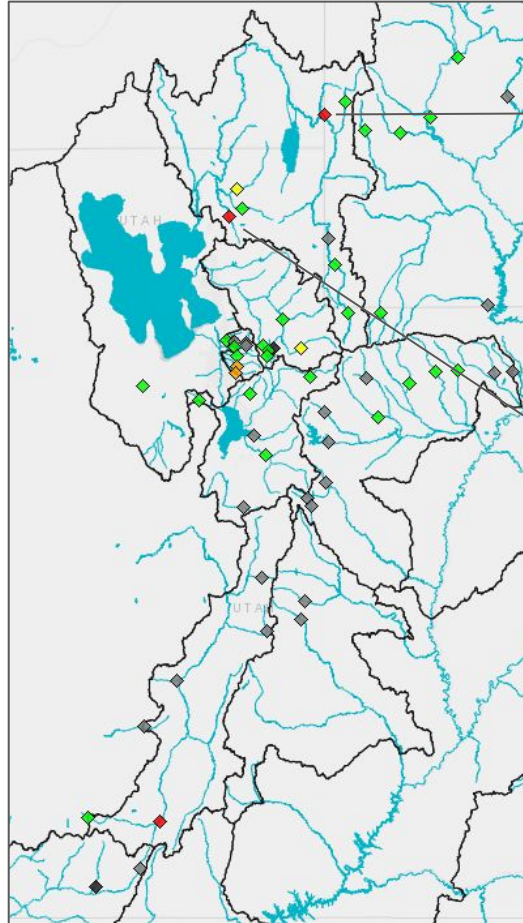
Future weather is a decreasing portion of the May 1 water supply forecast error/uncertainty.

Peak Flow Forecast Information - Map View

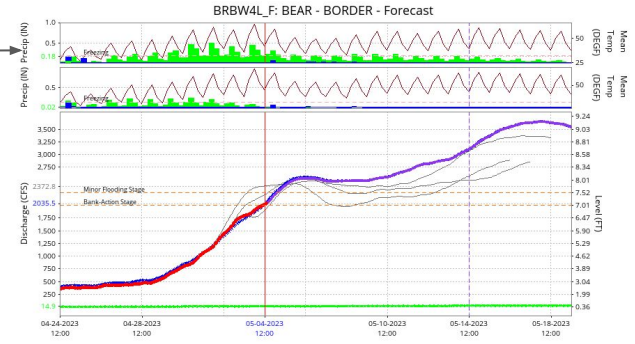
NWS Flood Stage Exceedance Probability

- Mean Daily [?]
- Instantaneous [?]

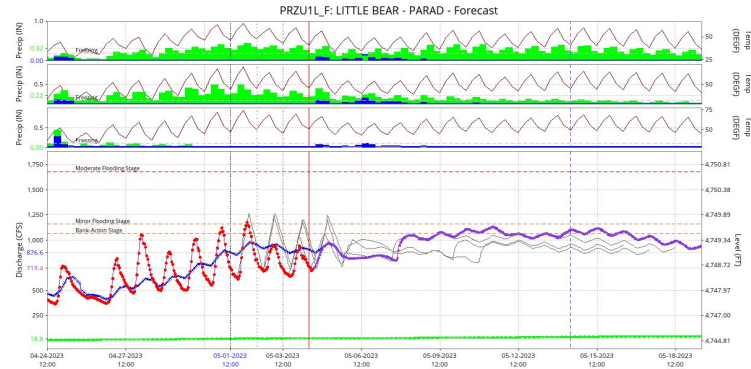
- ◇ No Forecast
- ◆ No Flood Stage
- ◆ Already Peak(ed)ing
- ◆ <10%
- ◆ >10-25%
- ◆ >25-50%
- ◆ >50%



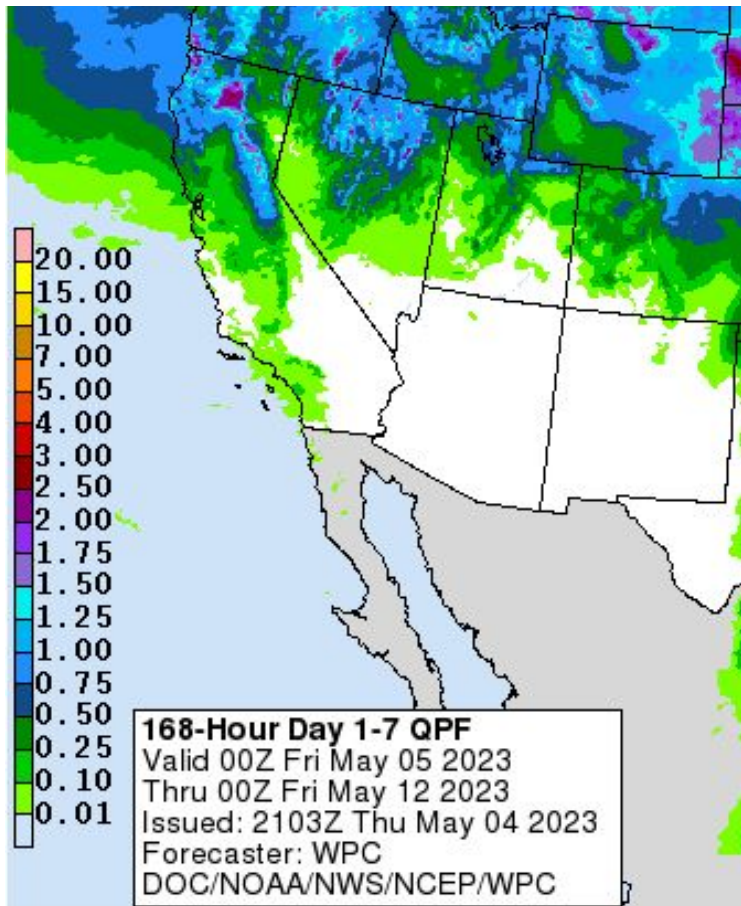
Bear Border



Little Bear Paradise



WPC May 5-12 Precipitation Outlook & Upcoming Weather



- A low pressure system will cross the area from southwest to northeast over the next few days bringing a sharp transition from above normal temperatures to below normal temperatures and will result in periods of precipitation across the northern half of the area.
- A cool, wet pattern will remain in place through early next week.
- Expected 7-day precipitation totals:
 - 0.75" to 1.25" in the higher elevations of UT and CO
 - 0.25-0.75" range across mid and lower elevations
- Weather models diverge next week in regard to the overall weather pattern.
 - The most likely scenario is that cool, unsettled weather will continue into next week.
 - However, there is about a 30% chance that high pressure will develop next week which would lead to above normal temperatures and below normal precipitation.

Upcoming Weather: 8-14 Day Outlook (May 12-18)

Normal to elevated odds of above average precipitation across most of UT.

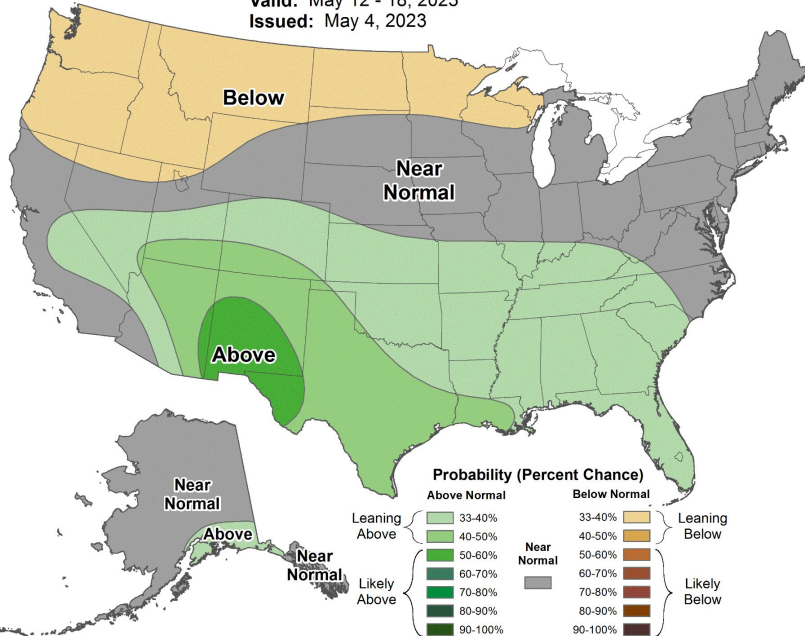
Above average temperatures favored across the Western US.



8-14 Day Precipitation Outlook



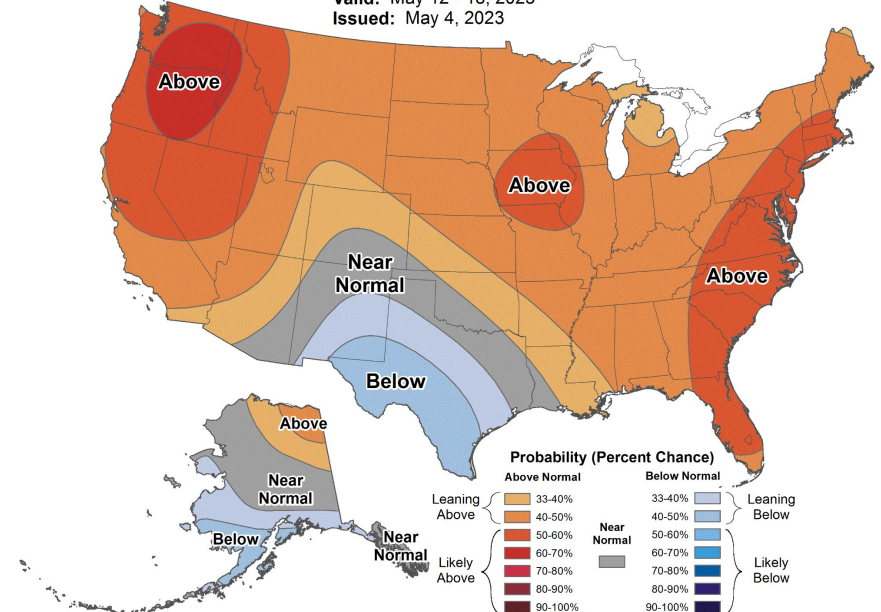
Valid: May 12 - 18, 2023
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8-14 Day Temperature Outlook

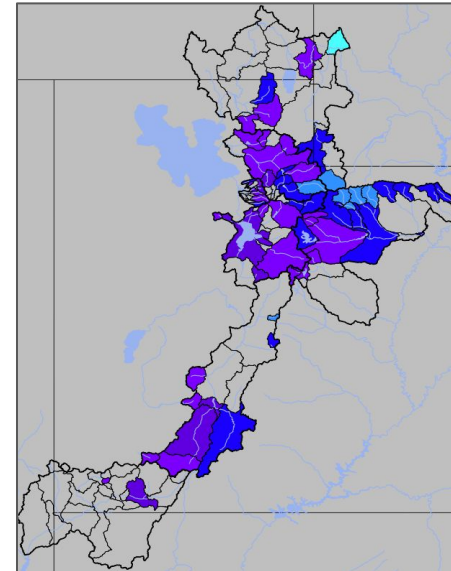
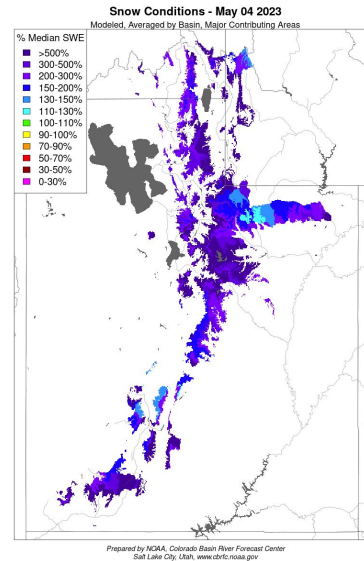
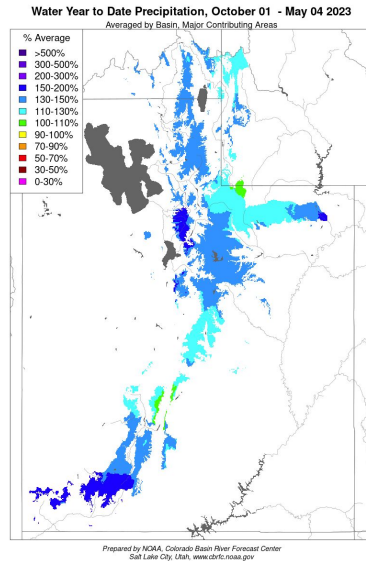
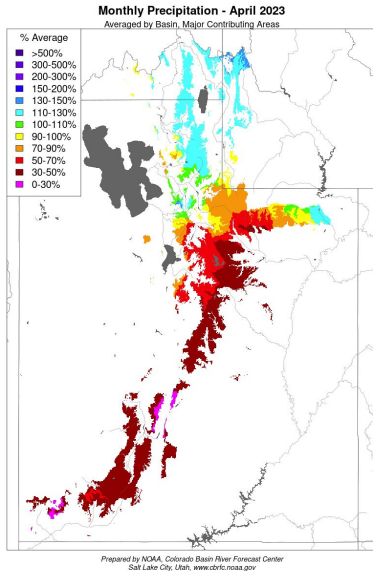


Valid: May 12 - 18, 2023
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Summary

- April precipitation was above normal in the north and below normal to the south in Utah.
- Water year precipitation is still much above average across Utah.
- April temperatures have been below normal across Utah.
- Current snowpack is much above normal across Utah.
- Water supply forecasts are much above average across Utah.



2023 Water Supply Webinar Schedule

**All Times Mountain Time (MT)*

Colorado River Basin

Monday	Jan 9th	10 am
Tuesday	Feb 7th	10 am
Tuesday	Mar 7th	10 am
Friday	Apr 7th	10 am
Friday	May 5th	10 am

Utah/Great Basin

Monday	Jan 9th	11:30 am
Tuesday	Feb 7th	11:30 am
Tuesday	Mar 7th	11:30 am
Friday	Apr 7th	11:30 am
Friday	May 5th	11:30 am

Additional briefings scheduled as needed

Webinar schedule & registration information has been posted to the CBRFC web page

CBRFC Contacts & WY23 Basin Focal Points

Basin Focal Points (Forecasters)

Brenda Alcorn - Green, Duchesne, White/Yampa
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Ashley Nielson – Gunnison, San Juan, Dolores, Lake Powell
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Cody Moser – Upper Colorado Mainstem
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Patrick Kormos – Great Basin/Sevier
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Trevor Grout - Virgin, Lower Colorado
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Tracy Cox - Hydrometeorologist
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Nanette Hosenfeld - Senior Hydrometeorologist
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Michelle Stokes – Hydrologist In Charge
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John Lhotak – Development and Operations Hydrologist
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CBRFC Webpage
<https://www.cbrfc.noaa.gov/>

CBRFC Water Supply Presentations
<https://www.cbrfc.noaa.gov/presentation/presentation.php>

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