

Colorado River Basin Water Supply & Peak Flow

April 7, 2023

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Colorado Basin
River Forecast Center
National Weather Service



Presentation Overview

March Weather

Snowpack Conditions

April Water Supply Forecasts

April Water Supply Forecast Error

Peak Flow Forecast Information

Recent/Upcoming Weather

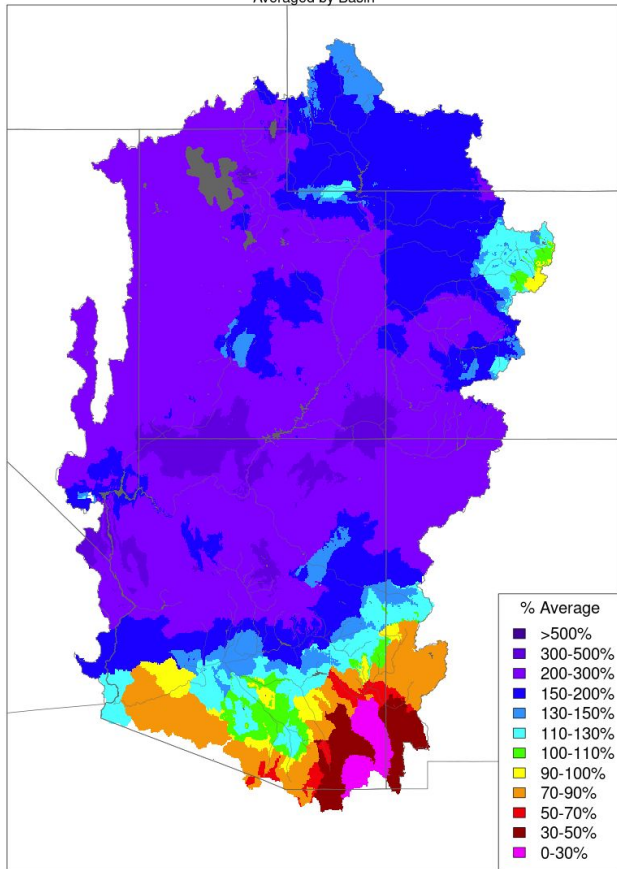
Contacts & Questions

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

March Weather Summary

Monthly Precipitation - March 2023

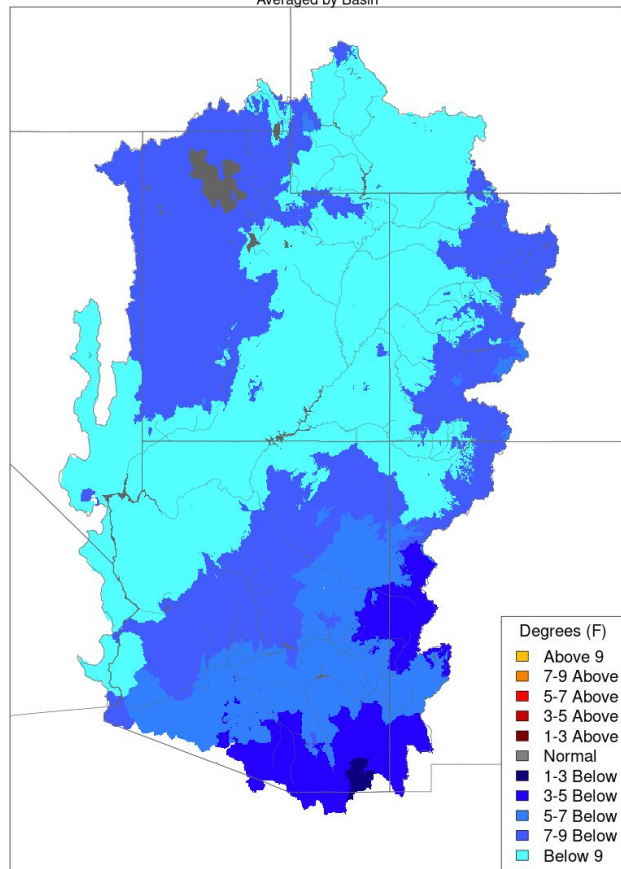
Averaged by Basin



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

Max Temp - Monthly Deviation - March 2023

Averaged by Basin



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

The cold and wet weather pattern that began around mid-February continued through March across the region.

Precipitation continued to favor UT, central AZ, and northwest/southwest CO.

March precipitation was >150% of average across the majority of the Colorado River Basin.

Colder than normal March temperatures across the region led to additional snow accumulation across lower elevations, with minimal snowmelt occurring.


March 2023 Precipitation - SNOTEL Stats

1 month Precipitation Records (POR)
March 1, 2023 through
March 31, 2023

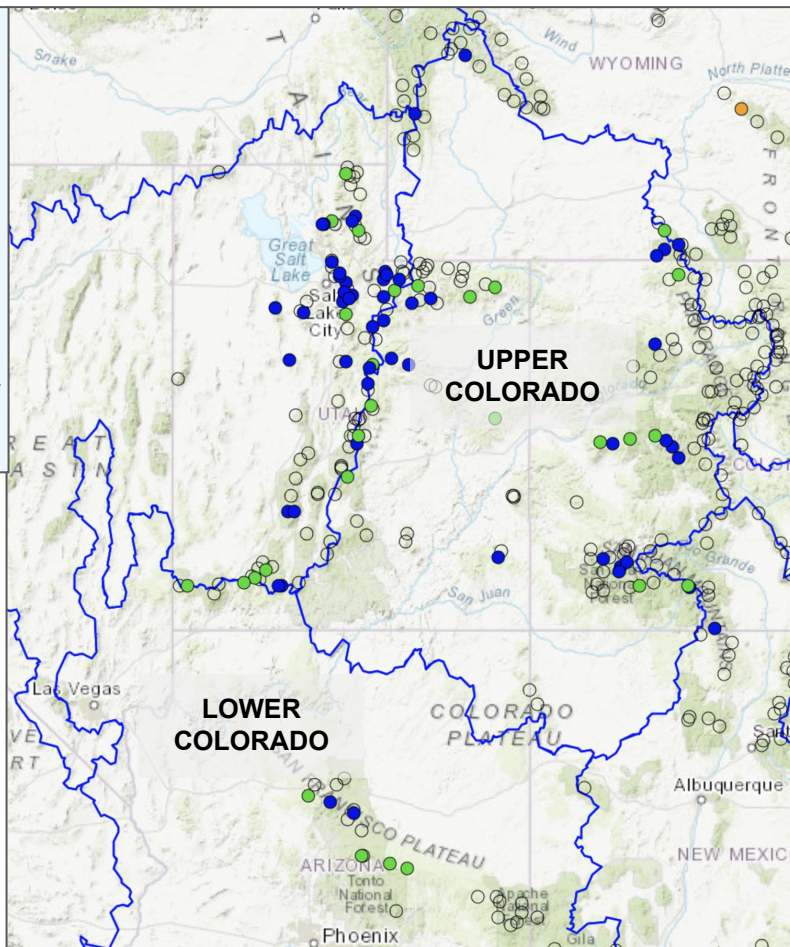
- Highest
- 2nd Highest
- 2nd Lowest
- Lowest

Watershed Boundaries
— Region (2-Digit HUC)

Sites with less than 30 years of data
or low variability excluded



Natural Resources
Conservation Service



Many SNOTEL stations across the Colorado River Basin received March precipitation amounts ranking in the wettest three on record and above the 90th percentile:

Upper Colorado

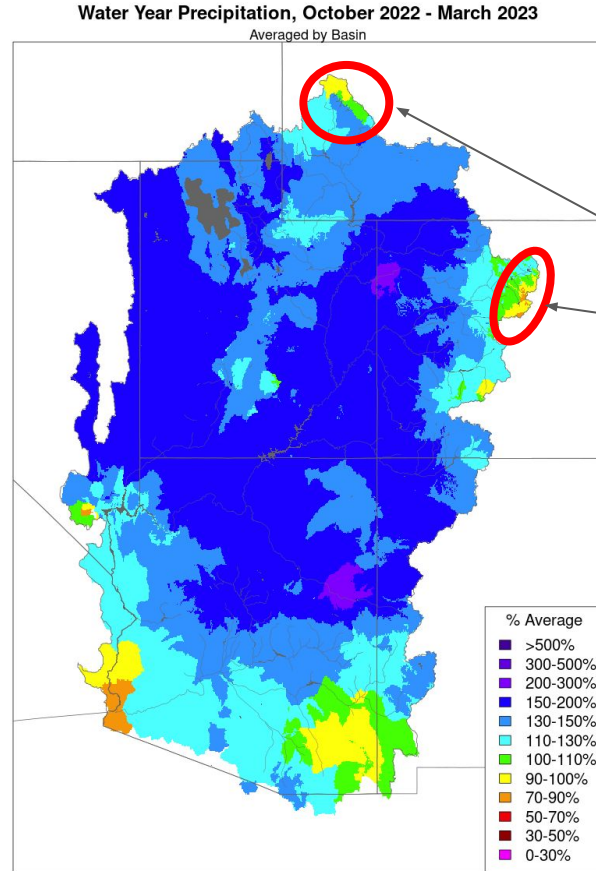
- White/Yampa
- Duchesne
- Lower Green
- Gunnison
- San Juan
- Dolores

Lower Colorado

- Virgin
- Verde
- Salt

Water Year 2023 Precipitation (October-March)

| Water Year 2023 CBRFC Precipitation (Significant Runoff Areas) Percent of 1991-2020 Average | | |
|---|------------|----------------|
| UPPER COLORADO RIVER BASIN | | |
| | Mar | Oct-Mar |
| Above Lake Powell | 180 | 130 |
| Green River Basin | | |
| Above Fontenelle | 145 | 105 |
| Above Flaming Gorge | 147 | 114 |
| Yampa/White | 167 | 135 |
| Duchesne | 210 | 139 |
| Price/San Rafael/Dirty Devil | 219 | 148 |
| Colorado River Headwaters | | |
| Above Kremmling | 107 | 100 |
| Eagle | 114 | 106 |
| Roaring Fork | 170 | 124 |
| Above Cameo | 134 | 113 |
| Southwest Colorado | | |
| Gunnison | 189 | 130 |
| Dolores | 222 | 148 |
| San Juan | 233 | 141 |
| LOWER COLORADO RIVER BASIN | | |
| Virgin | 211 | 169 |
| Little Colorado | 216 | 156 |
| Verde | 271 | 169 |
| Salt | 165 | 137 |
| Upper Gila | 88 | 125 |



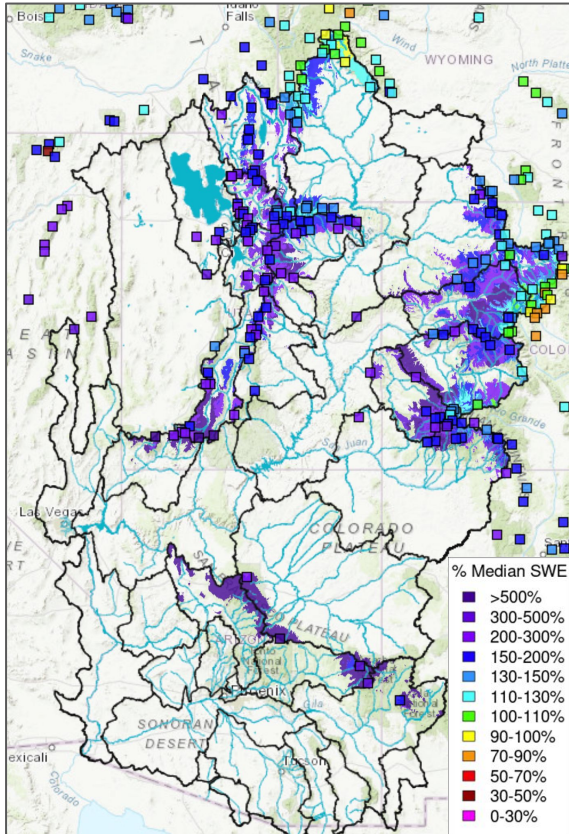
Water year precipitation can be used as a good indicator of water supply conditions, and is above average across most of the region.

Parts of the northern Upper Green River Basin above Fontenelle Reservoir and areas along the Continental Divide have received less precipitation compared to surrounding basins.

Water Year 2023 Snowpack Conditions

April 1 SWE Conditions

NRCS SNOTEL Observed (Squares)
CBRFC Model (Significant Areas)



SWE = Snow Water Equivalent
The amount water in snow.

Early April SWE conditions range from slightly above normal to near/record across the Colorado River Basin.

| Water Year 2023 CBRFC Model SWE (Significant Runoff Areas) Percent of 1991-2020 Median | | | |
|--|------|------|--------|
| UPPER COLORADO RIVER BASIN | | | |
| | Mar1 | Apr1 | Change |
| Above Lake Powell | | | |
| | 135 | 169 | 34 |
| Green River Basin | | | |
| Above Fontenelle | 99 | 114 | 15 |
| Above Flaming Gorge | 116 | 131 | 15 |
| Yampa/White | 148 | 175 | 27 |
| Duchesne | 157 | 199 | 42 |
| Price/San Rafael/Dirty Devil | 183 | 247 | 64 |
| Colorado River Headwaters | | | |
| Above Kremmling | 111 | 124 | 13 |
| Eagle | 109 | 119 | 10 |
| Roaring Fork | 119 | 142 | 23 |
| Above Cameo | 117 | 136 | 19 |
| Southwest Colorado | | | |
| Gunnison | 133 | 167 | 34 |
| Dolores | 157 | 238 | 81 |
| San Juan | 129 | 186 | 57 |
| LOWER COLORADO RIVER BASIN | | | |
| Virgin | 239 | 401 | 162 |
| Little Colorado | 342 | 500 | 158 |
| Verde | 486 | 500 | 14 |
| Salt | 175 | 305 | 130 |
| Upper Gila | 206 | 500 | 294 |

Larger increases in UT & northwest CO basins.
Top 5 wettest; >90th percentile

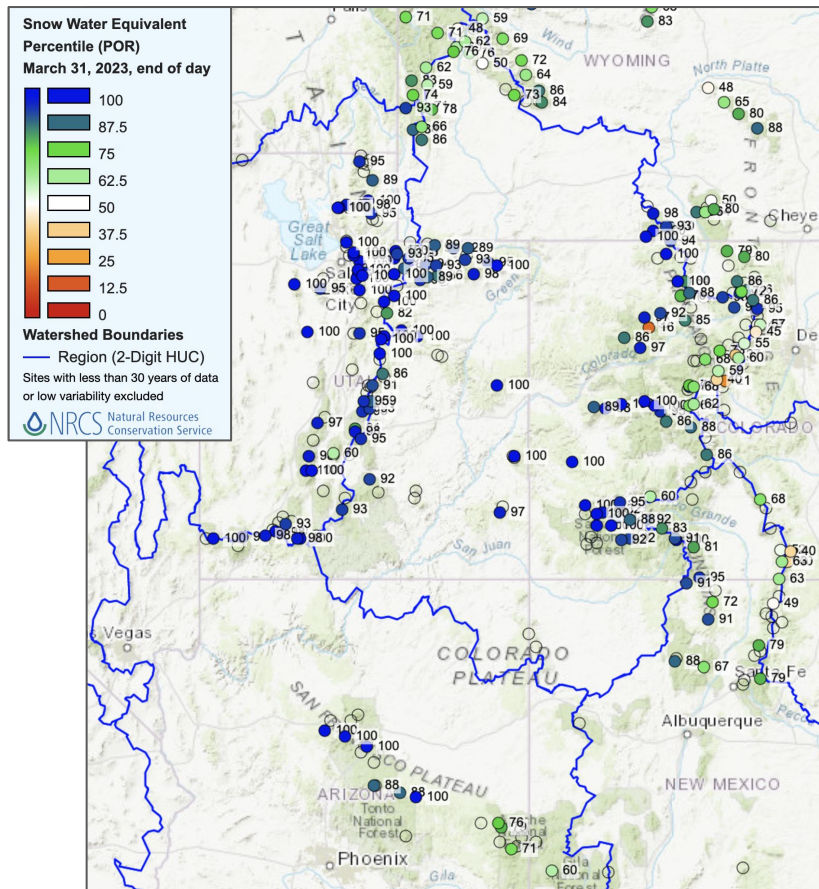
Less March precipitation across west-central CO
Smaller SWE increases

April 1 SWE at most San Juan Mountain Range SNOTELs:
Top 5 wettest; >90th percentile

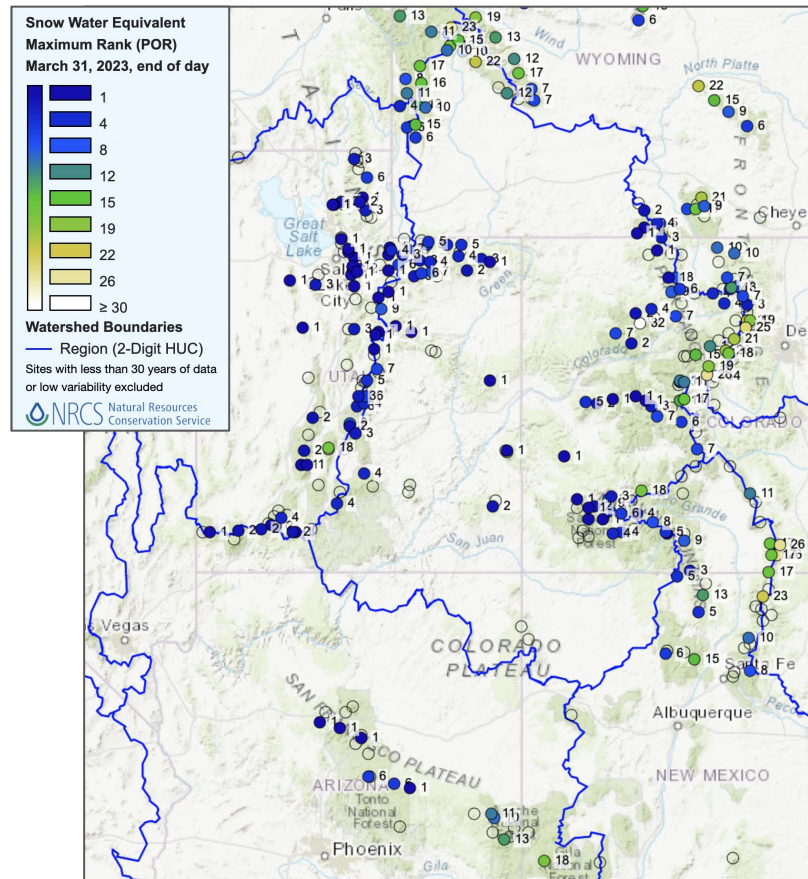
Near/record April 1 SWE in southwest UT & central AZ
*Central AZ SNOTELs typically near melt out (zero) by April 1

April 1, 2023 SNOTEL SWE Stats

Percentile



Ranking



Early April Snow Distribution (High Elevation vs. Low Elevation)

Significant Runoff Areas

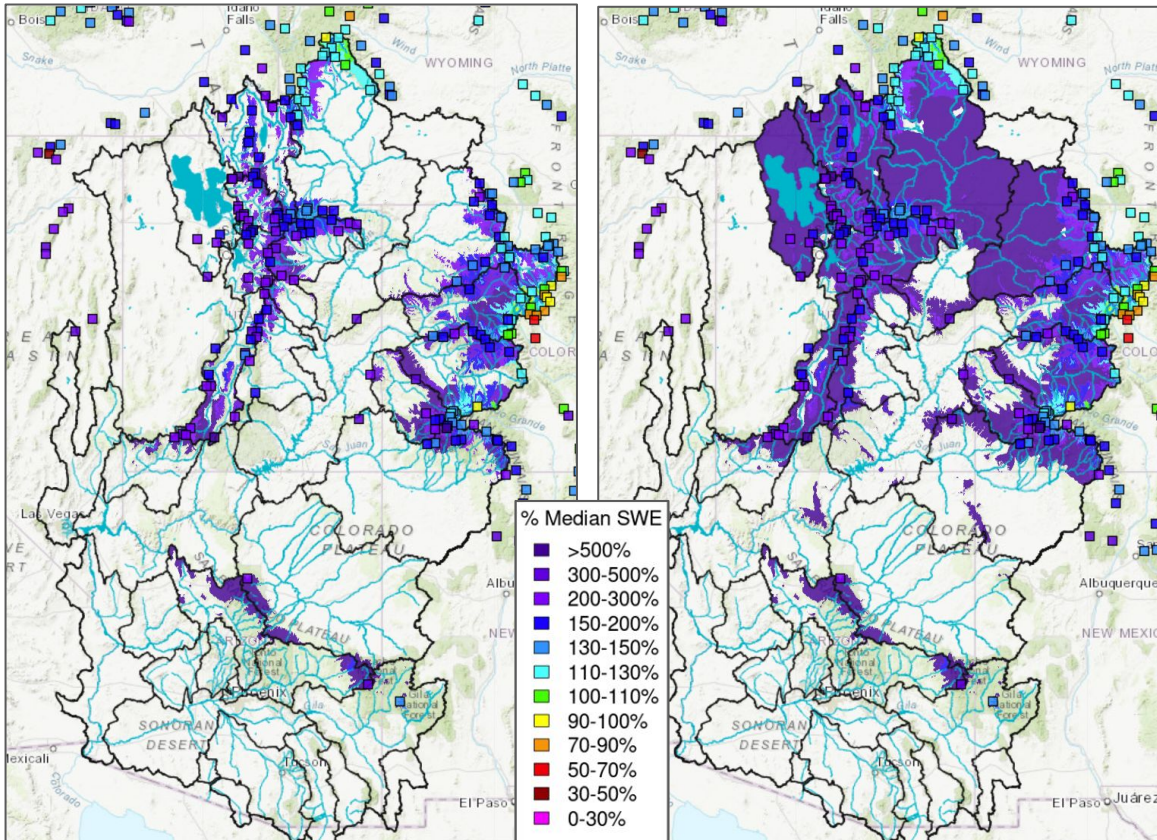
All Runoff Areas

Snow above and below SNOTEL stations is modeled in CBRFC's hydrologic model.

Snow Distribution Implications

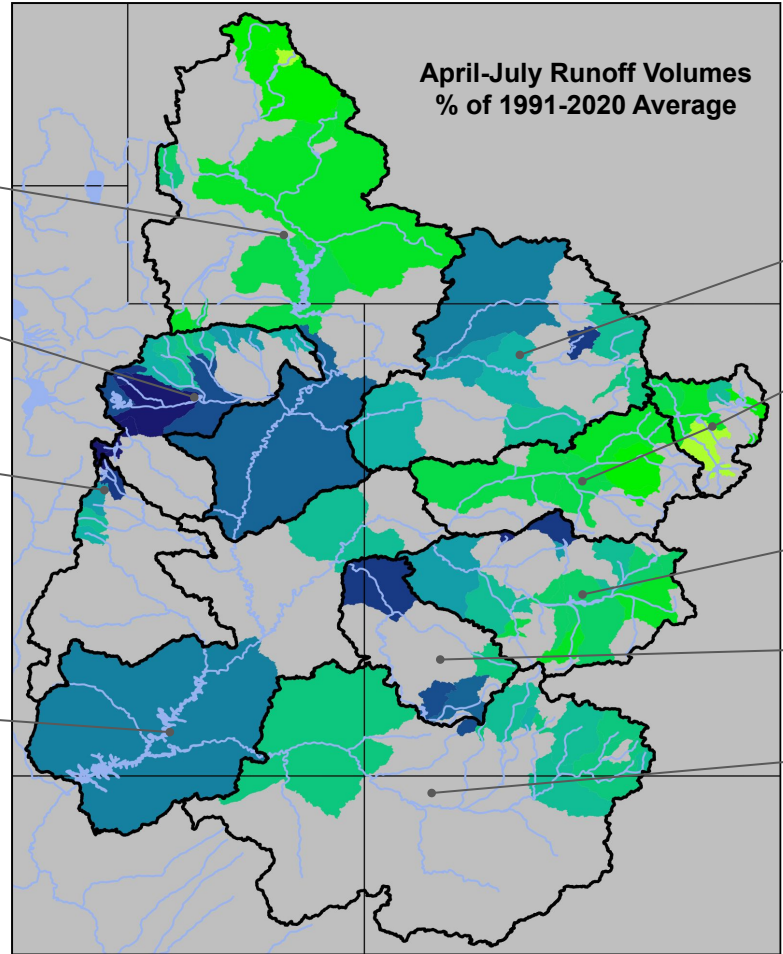
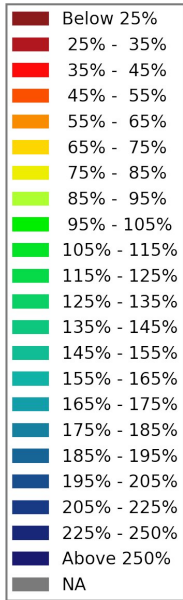
- melt timing
- high elevation reservoir inflows
- peak flows
- impact on AMJJ runoff volumes

**Note: map does not include areas where the median SWE is zero.*



April 1st Water Supply Forecasts: Upper Colorado

Water supply forecast volumes increased over the past month across the Colorado River Basin as a result of above normal March precipitation.



Upper Green: 95-145%

Duchesne: 140-260%

San Rafael/Dirty Devil: 150-305%

Lake Powell: 177%

White/Yampa: 135-210%

Upper CO: 90-150%

Gunnison: 110-225%

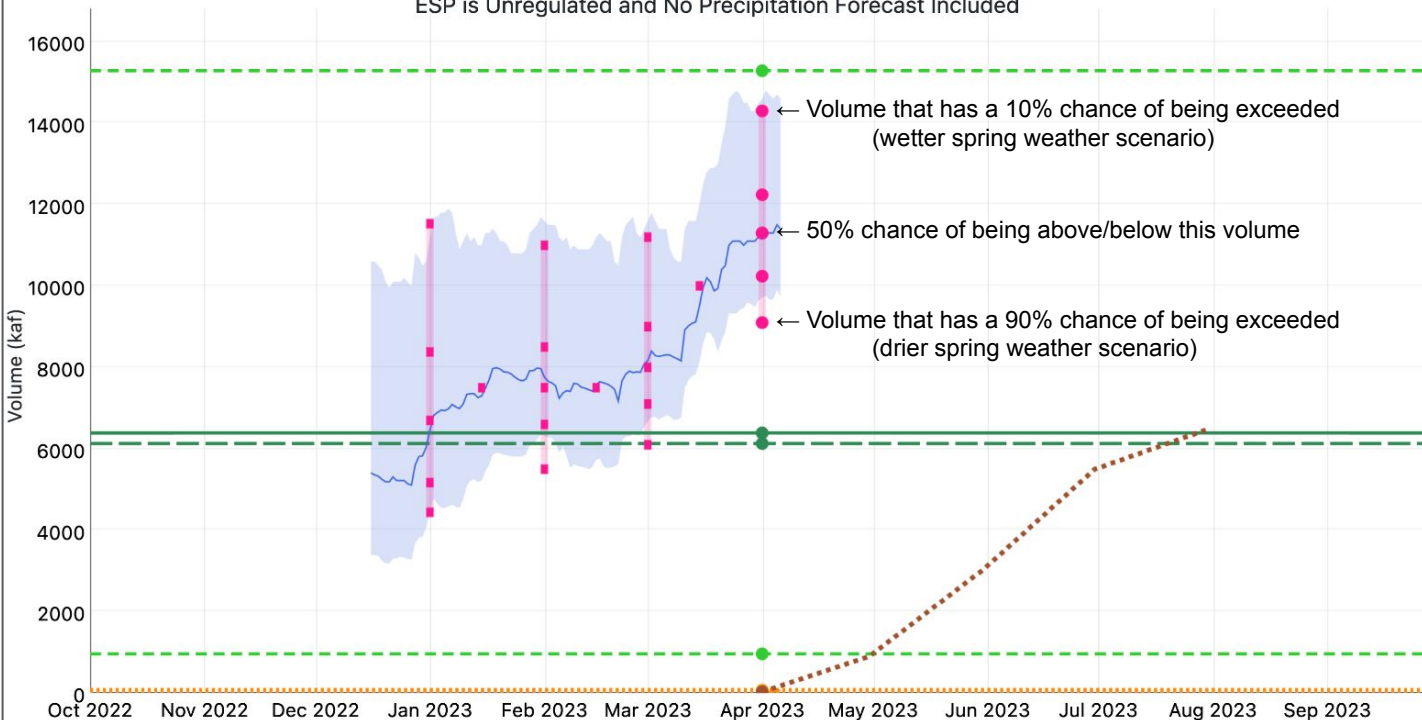
Dolores: 140-210%

San Juan: 135-200%

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

April 1st Water Supply Forecast - Lake Powell

Colorado - Lake Powell, Glen Cyn Dam, At (GLDA3)
Period: Apr-Jul, Official 50% Forecast (2023-04-01): 11300 kaf (177% Average, 184% Median)
ESP is Unregulated and No Precipitation Forecast Included



2023/04/01:

Max 1984: 15285.64

Min 2002: 963.96

Average: 6390

Median: 6130

Observed Total: 71.4

Normal Accumulation: 30.1

ESP: 11300

Official 10: 14300

Official 30: 12240

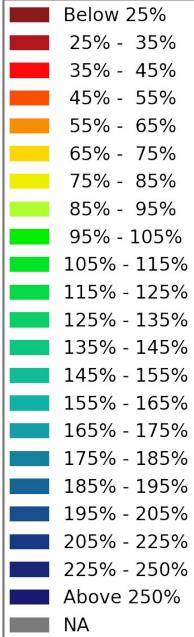
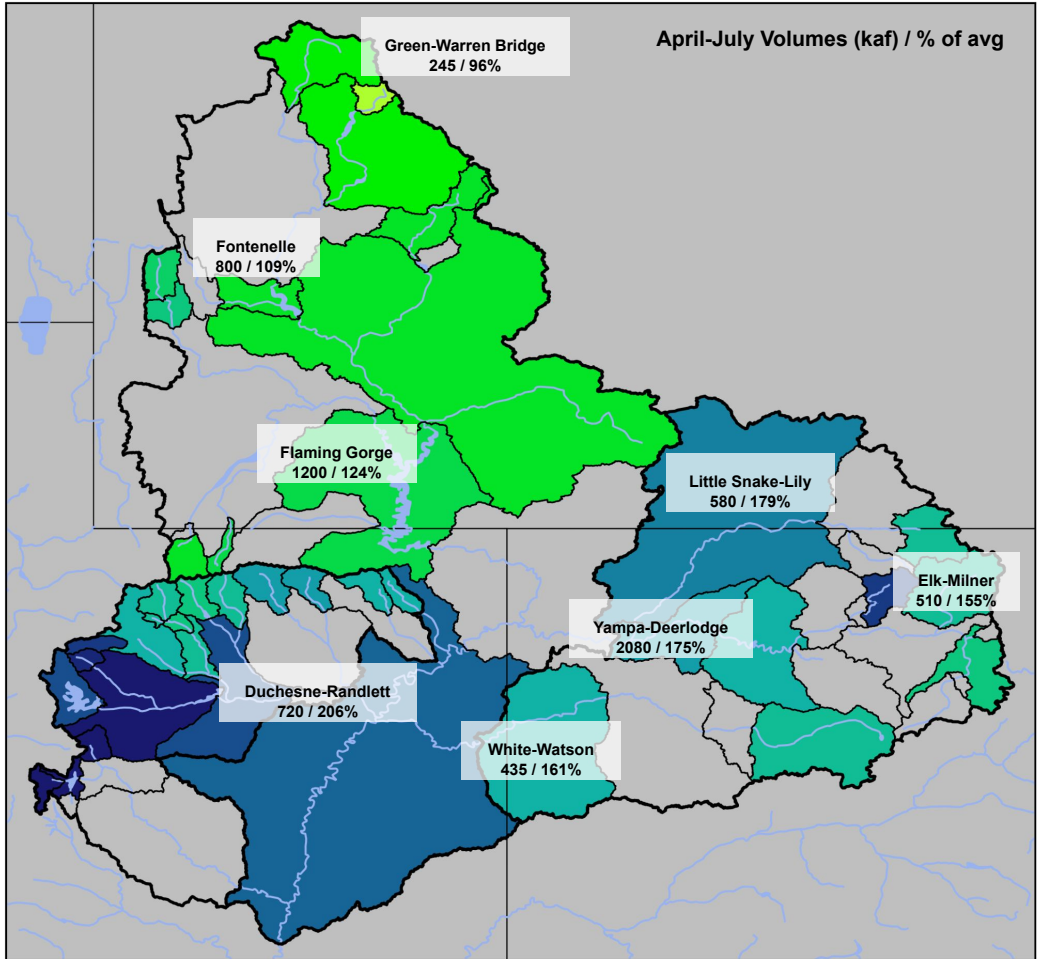
Official 50: 11300

Official 70: 10240

Official 90: 9100

20% chance observed runoff volume could be outside of the 10/90 forecast range.

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



April 1st 2023 Forecasts

Volume (kaf) / % of 1991-2020 avg

Forecast Ranges & (1-month Trend)

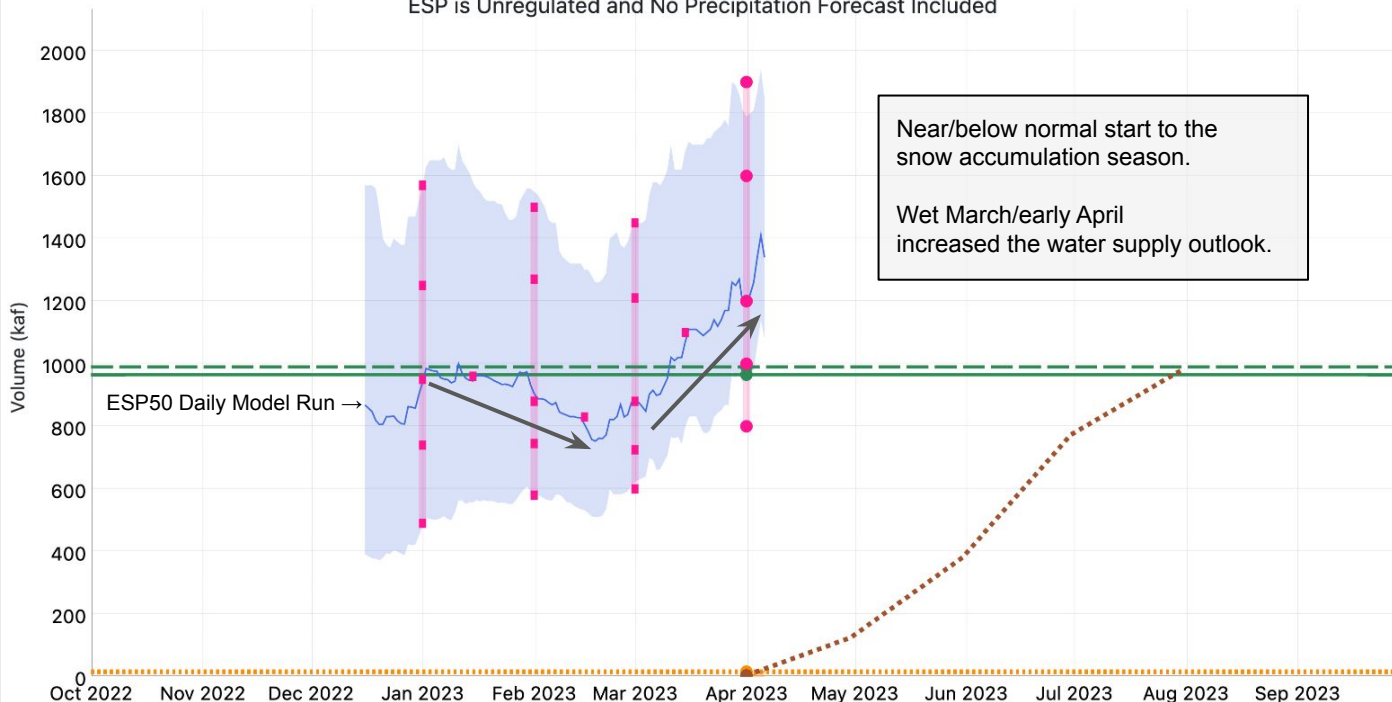
Upper Green: 95 - 145%
(10-40% increase)

Yampa/White: 135 - 210%
(15-40% increase)

Duchesne: 140 - 260%
(25-125% increase)

April 1st Water Supply Forecast - Flaming Gorge Reservoir

Green - Flaming Gorge Reservoir (GRNU1)
Period: Apr-Jul, Official 50th Forecast (2023-04-01): 1200 kaf (124% Average, 121% Median)
ESP is Unregulated and No Precipitation Forecast Included



2023/04/01:

Average: 965

Median: 990

Observed Total: 16

Normal Accumulation: 4.18

ESP: 1200

Official 10: 1900

Official 30: 1600

Official 50: 1200

Official 70: 1000

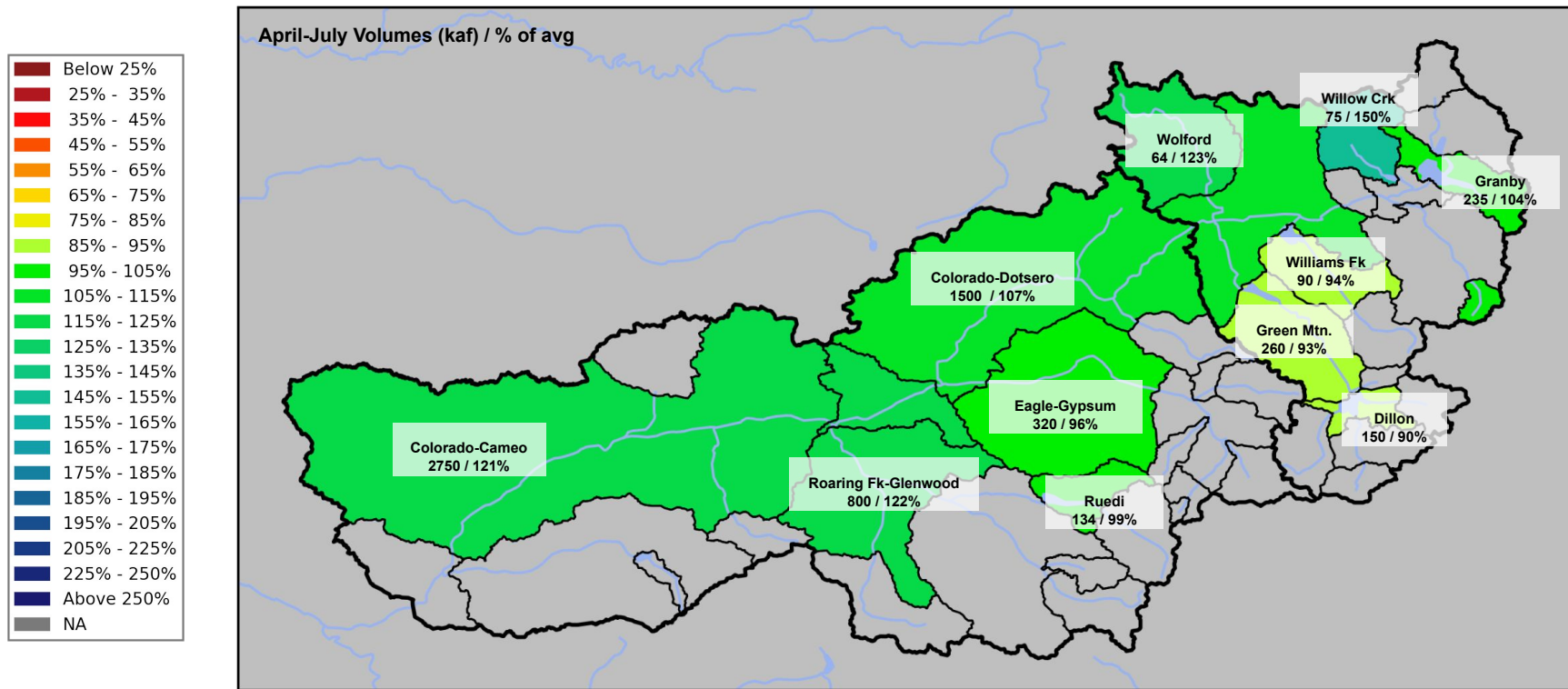
Official 90: 800

April 1st Water Supply Forecasts: Upper Colorado River Mainstem

Forecast Ranges & (1-month Trend):

Granby to Kremmling: 90 - 150% of average (0-20% increase)

Kremmling to Cameo: 95 - 120% of average (0-15% increase)

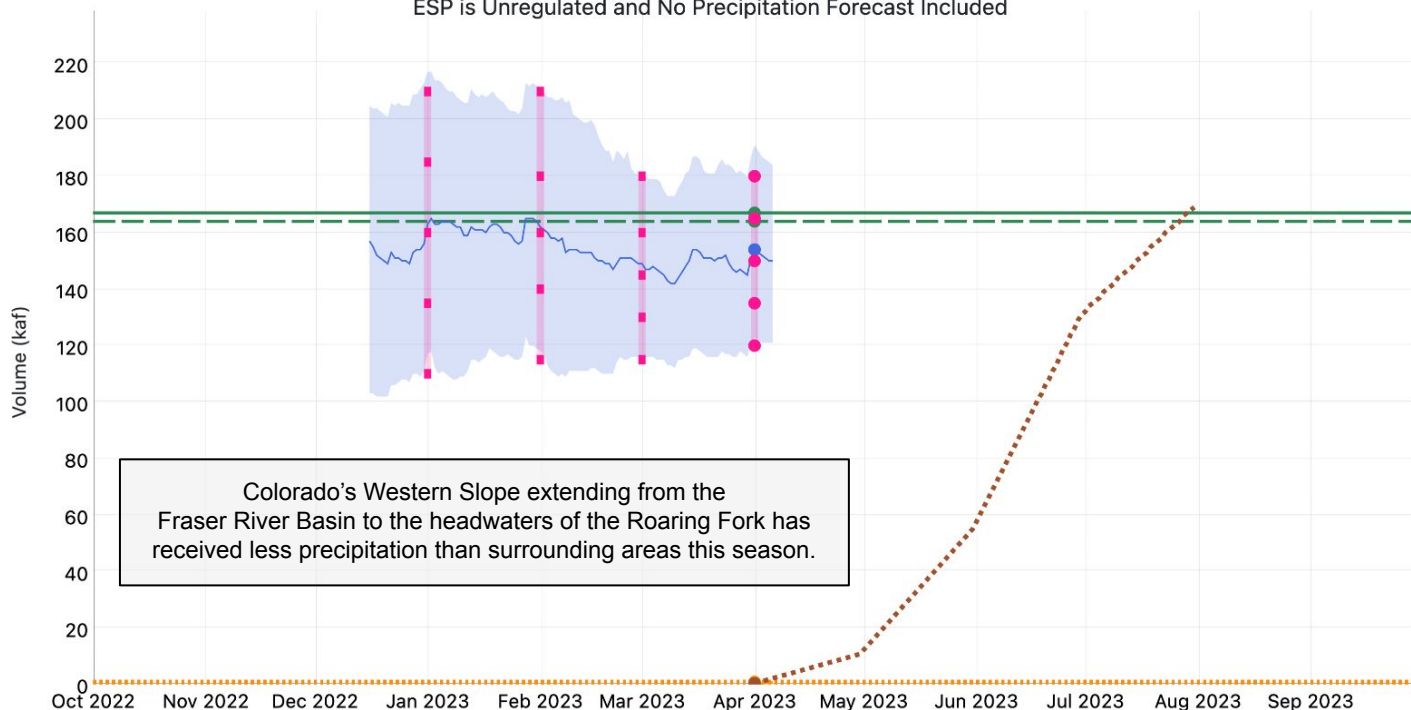


April 1st Water Supply Forecast - Dillon Reservoir

Blue - Dillon Reservoir (DIRC2)

Period: Apr-Jul, Official 50% Forecast (2023-04-01): 150 kaf (90% Average, 91% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/04/01:

Average: 167

Median: 164

Observed Total: 0.84

Normal Accumulation: 0.36

ESP: 154

Official 10: 180

Official 30: 165

Official 50: 150

Official 70: 135

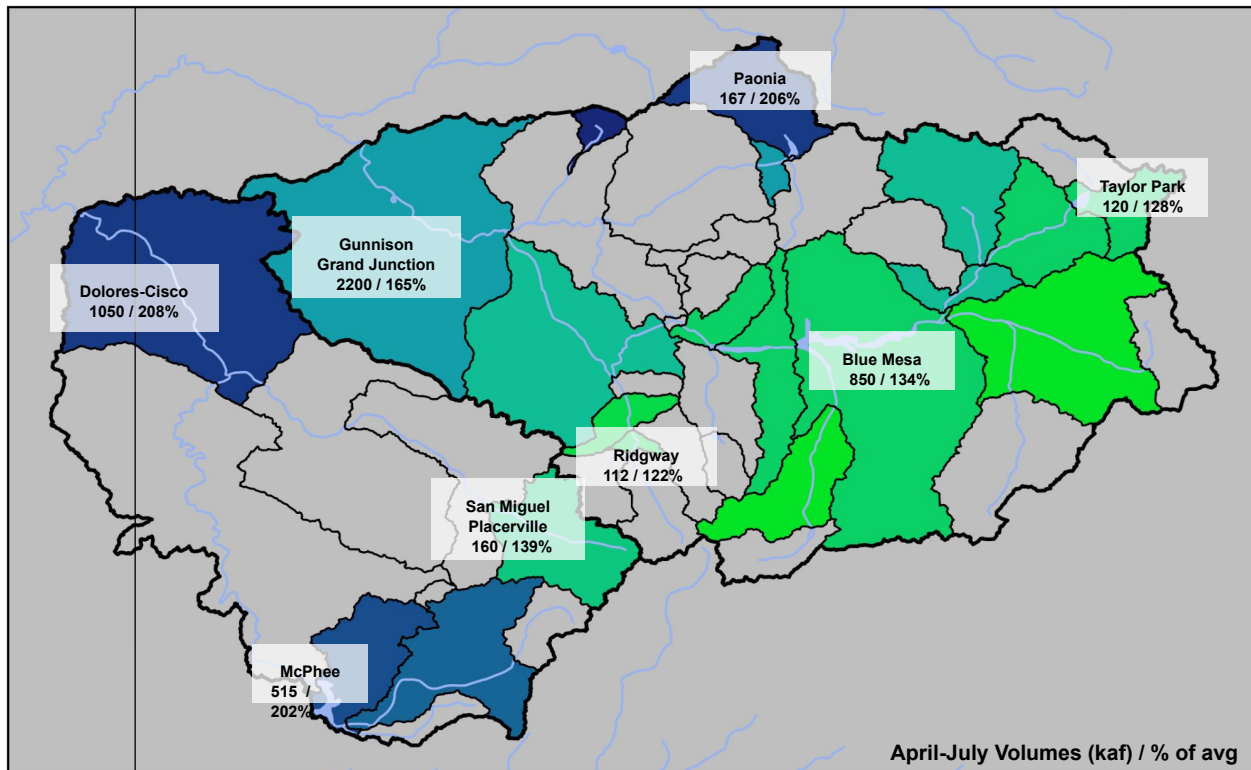
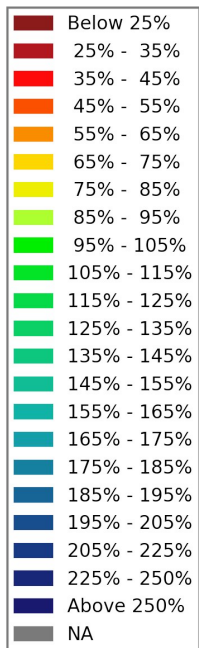
Official 90: 120

April 1st Water Supply Forecasts: Gunnison, Dolores

Forecast Ranges & (1-month Trend):

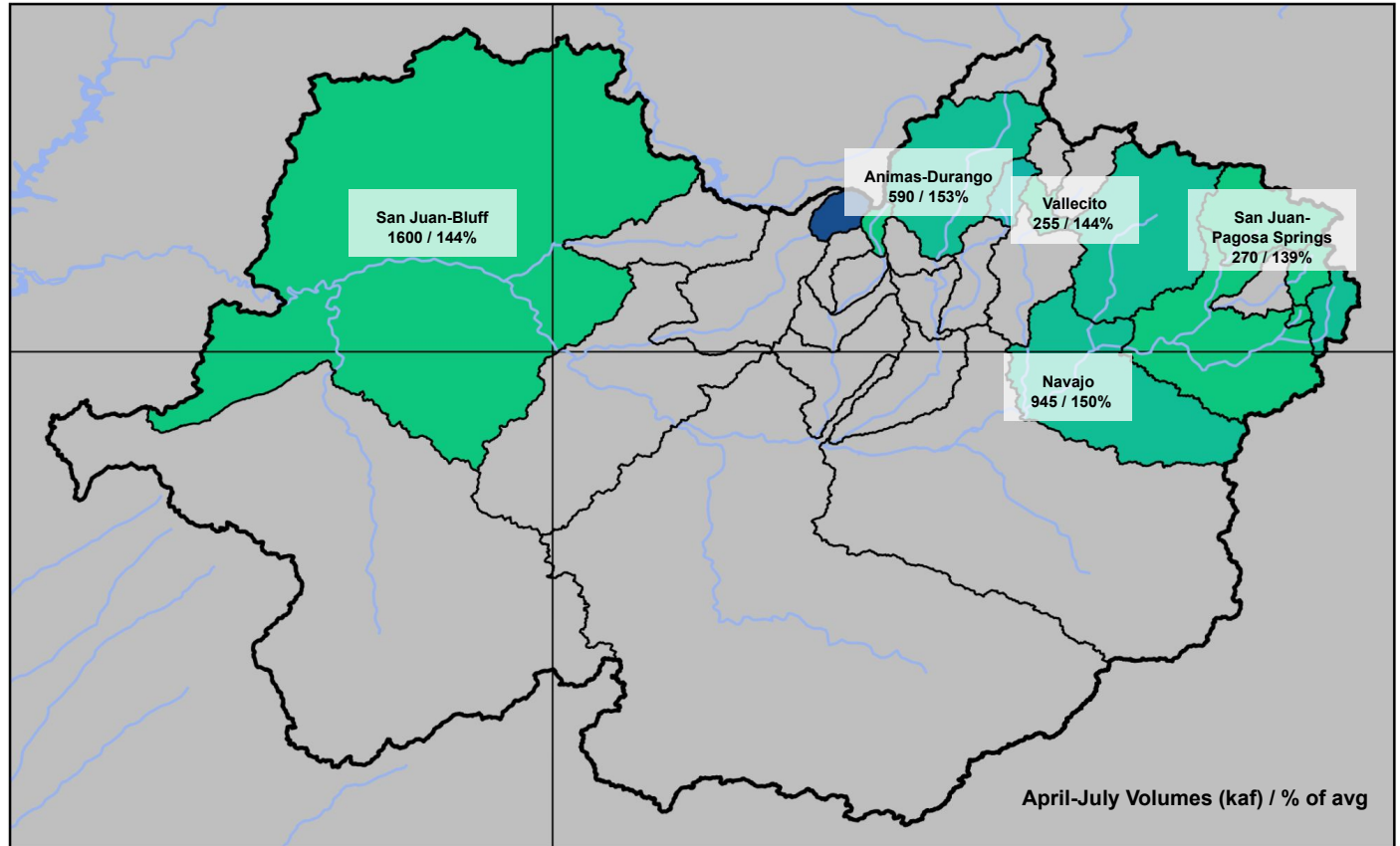
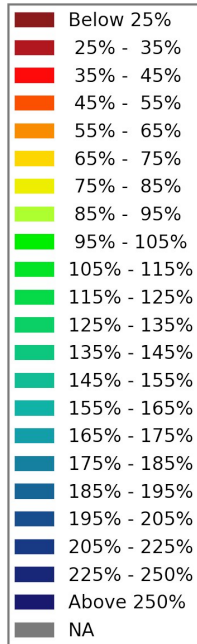
Gunnison: 110 - 225% of average (10-75% increase)

Dolores: 140 - 210% of average (30-75% increase)



April 1st Water Supply Forecasts: San Juan

Forecast Range & (1-month Trend):
135 - 200% of average (25-35% increase)

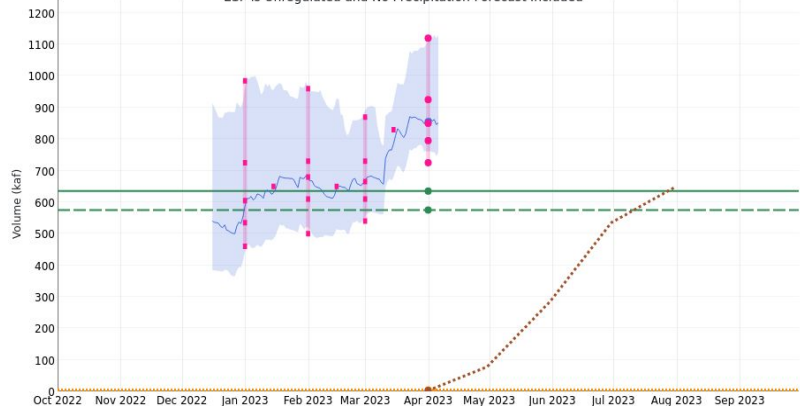


April 1st Water Supply Forecasts & Snow Conditions - Southwest Colorado

Gunnison - Blue Mesa Reservoir (BMDC2)

Period: Apr-Jul, Official 50% Forecast (2023-04-01): 850 kaf (134% Average, 148% Median)

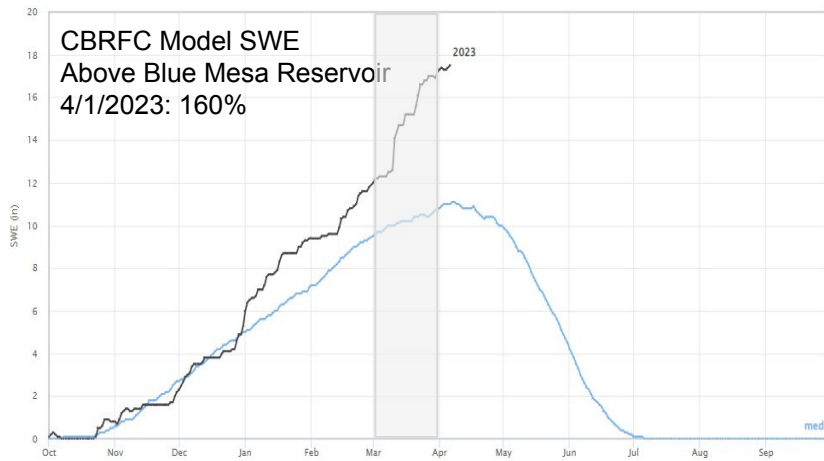
ESP is Unregulated and No Precipitation Forecast Included



2023/04/01:
Average: 635
Median: 575
Observed Total: 4.47
Normal Accumulation: 2.6
ESP: 855
Official 10: 1120
Official 30: 925
Official 50: 850
Official 70: 795
Official 90: 725

CBRFC Model SWE Above Blue Mesa Reservoir

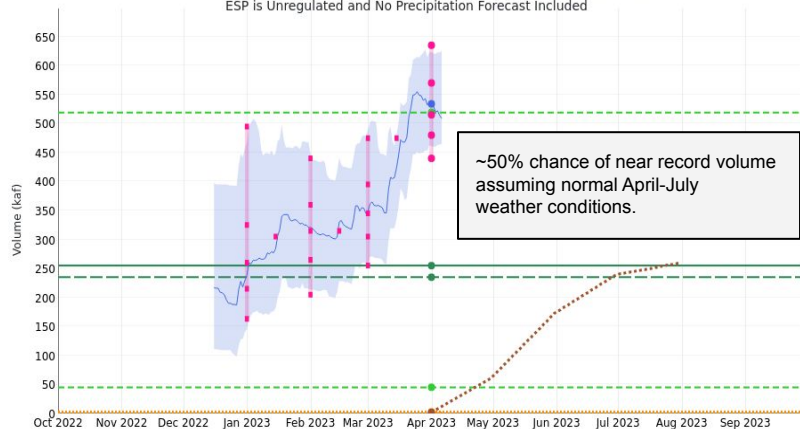
4/1/2023: 160%



Dolores - McPhee Reservoir (MPHC2)

Period: Apr-Jul, Official 50% Forecast (2023-04-01): 515 kaf (202% Average, 219% Median)

ESP is Unregulated and No Precipitation Forecast Included

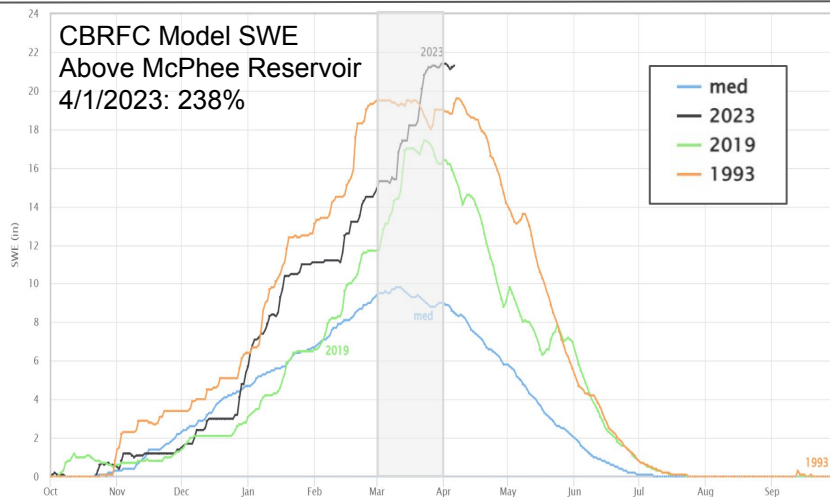


~50% chance of near record volume assuming normal April-July weather conditions.

2023/04/01:
Max 1993: 519.12
Min 2002: 45.16
Average: 255
Median: 235
Observed Total: 2.62
Normal Accumulation: 2.02
ESP: 534
Official 10: 635
Official 30: 570
Official 50: 515
Official 70: 480
Official 90: 440

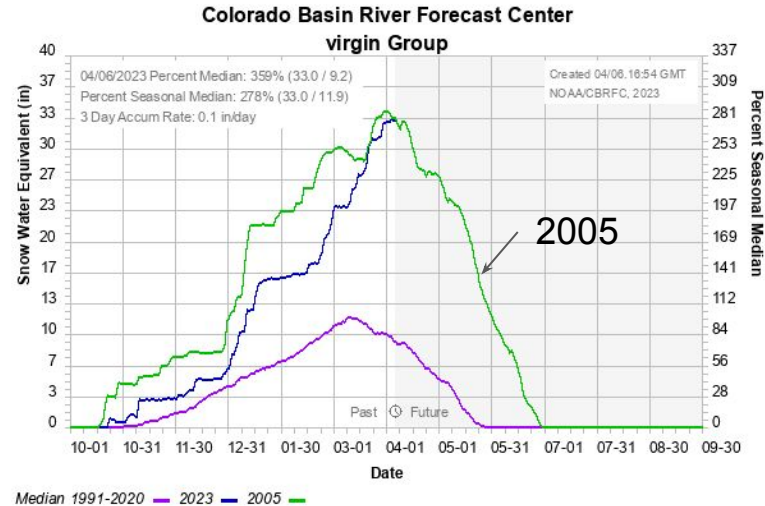
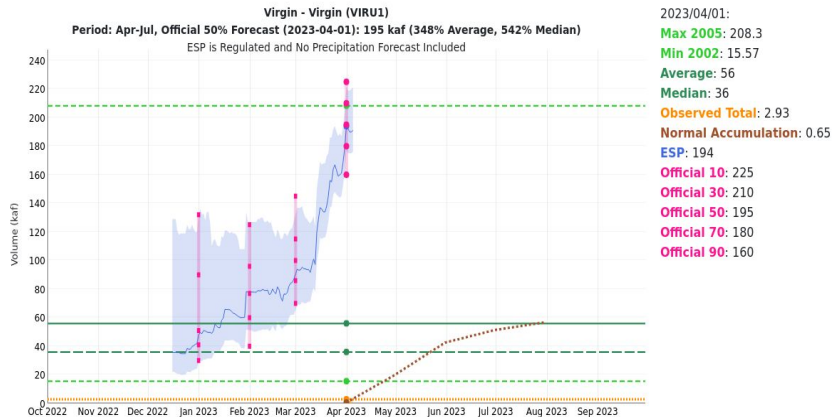
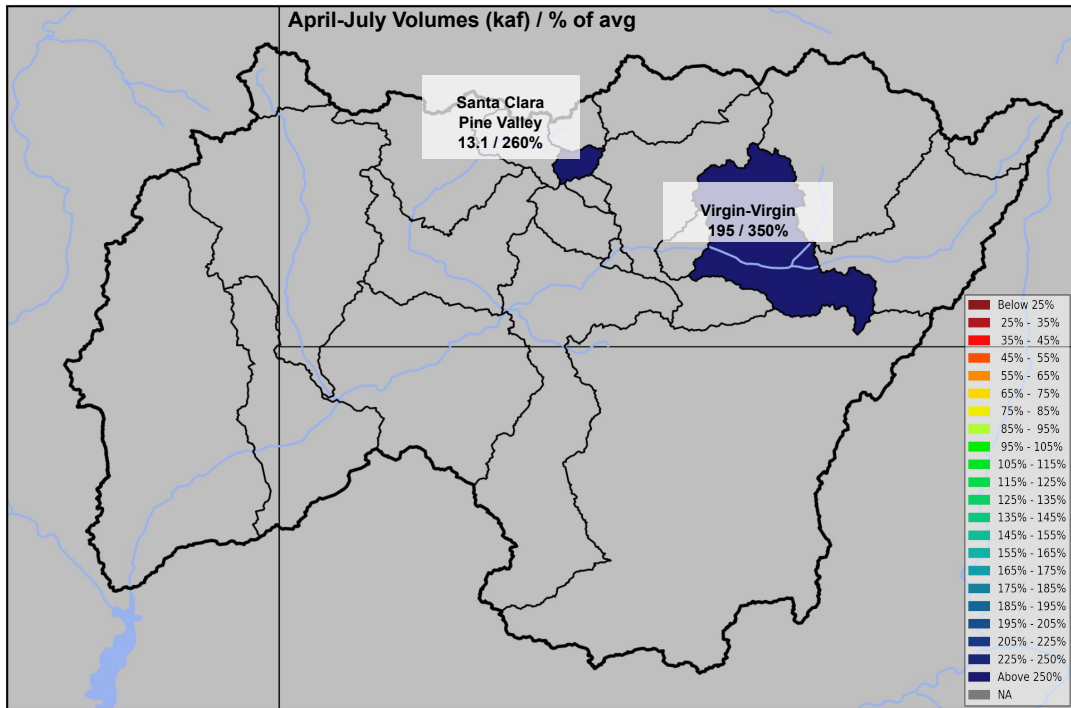
CBRFC Model SWE Above McPhee Reservoir

4/1/2023: 238%

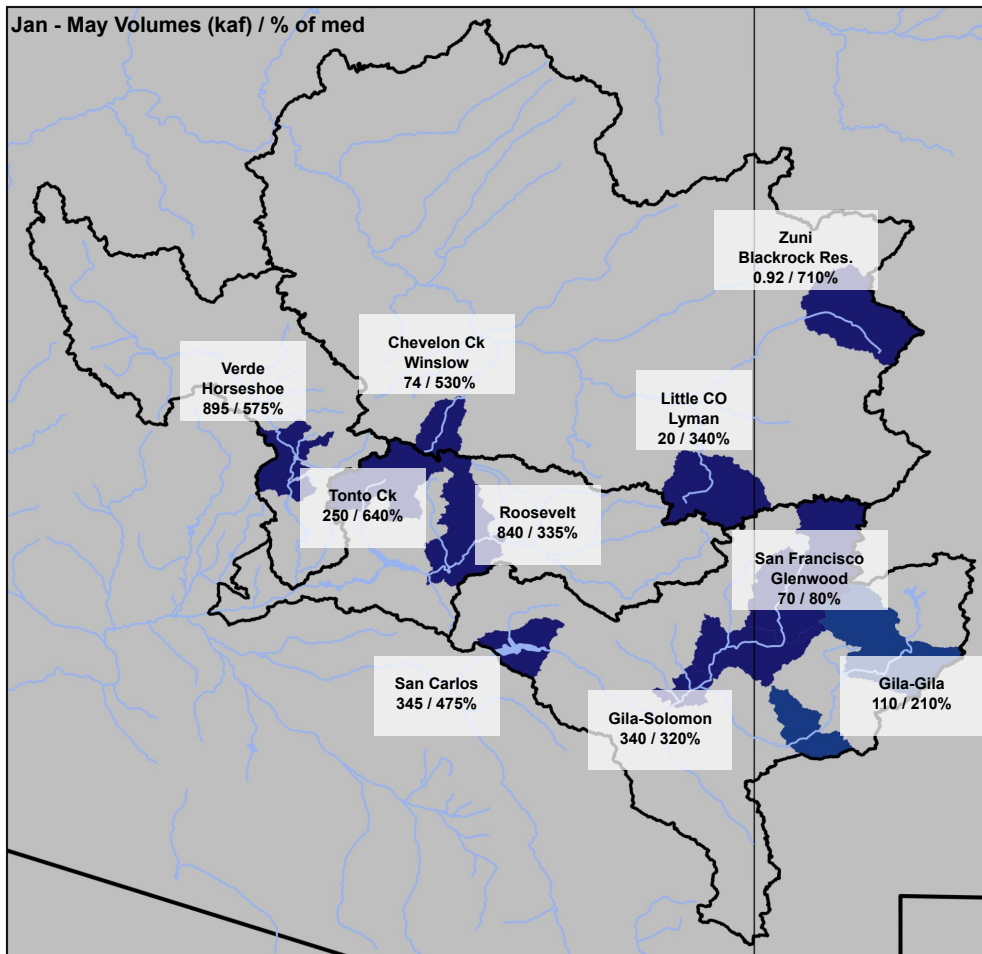


April 1st Water Supply Forecasts: Virgin River Basin

Forecast Range & (1-month Trend):
260 - 350% avg



April 1st Water Supply Forecasts: Lower Colorado River Basin



January - May Forecast Period
% of 1991-2020 Median

Forecast Ranges

Little Colorado: 340% - 710%

Upper Gila: 210% - 475%

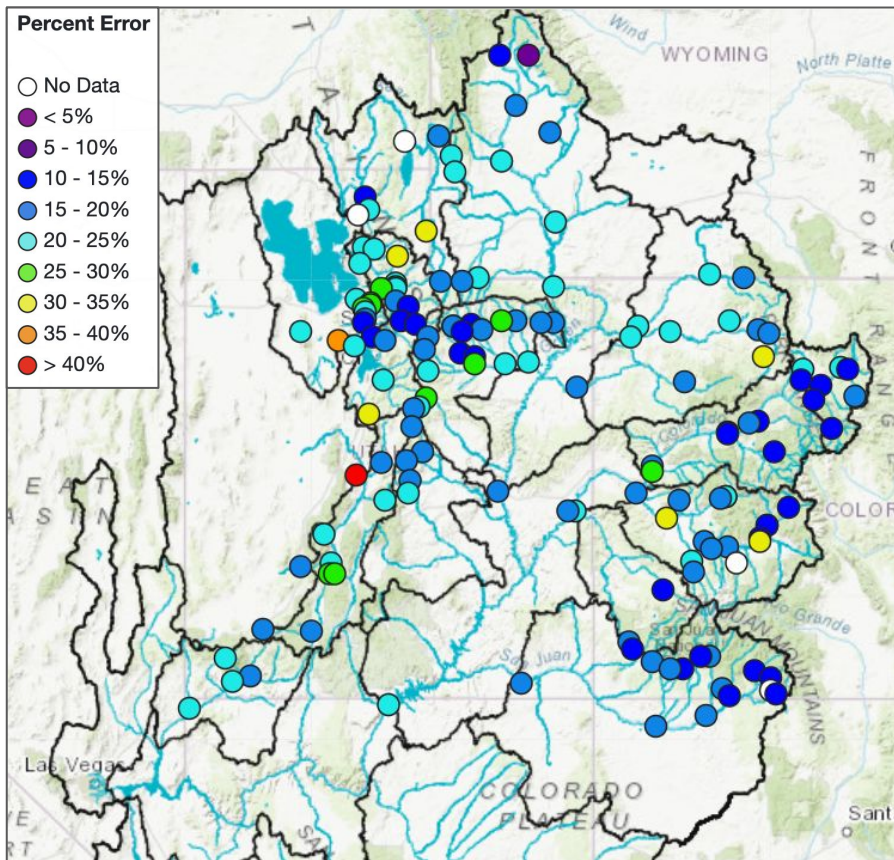
Salt: 335% - 635%

Verde: 575%

Multiple atmospheric rivers led to well above average precipitation across many locations.

Historical Forecast Verification

April Forecast Error: April-July Volume



Location

Avg Apr Forecast Error

| | |
|--------------------------------|-----|
| Green River - Warren Bridge | 12% |
| Fontenelle Reservoir | 21% |
| Yampa River - Deerlodge | 20% |
| Blue River - Dillon Reservoir | 14% |
| Colorado River - Cameo | 16% |
| Blue Mesa Reservoir (Gunnison) | 15% |
| McPhee Reservoir (Dolores) | 16% |
| Navajo Reservoir (San Juan) | 18% |
| Lake Powell | 20% |

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 the primary source of water supply forecast error/uncertainty.

CBRFC Peak Flow Forecast Background Information

- Mean daily peak flow forecast points are a subset of our daily river forecast points.
 - Peak flow forecasts represent a long range outlook of peak flows due to snowmelt
- Many of these sites have established flood stages and therefore provide some flood threat information.
- Peak flow forecasts have a high level of uncertainty and are highly dependent on Spring weather.
- Do not forecast a specific date of peak
 - *Typically only have a 5-10 day forecast lead time for timing the peak*
 - Normal peak flow timing (window) information is provided
- Instantaneous Peak Flow Forecasts
 - Relationship between observed mean daily peak and instantaneous peak in each year
 - Only available for locations with strong correlations and long historical record
 - Sites with frequent heavy rain have poor relationships
- **Peak flow forecast points alone are not a comprehensive summary of any flood threat.**

Peak Flow Forecast Information - Map View


- Forecast Map**
- Forecast List
- Special Forecast Map
- Special Forecast List

Map view of peak flow forecast points that are issued daily.

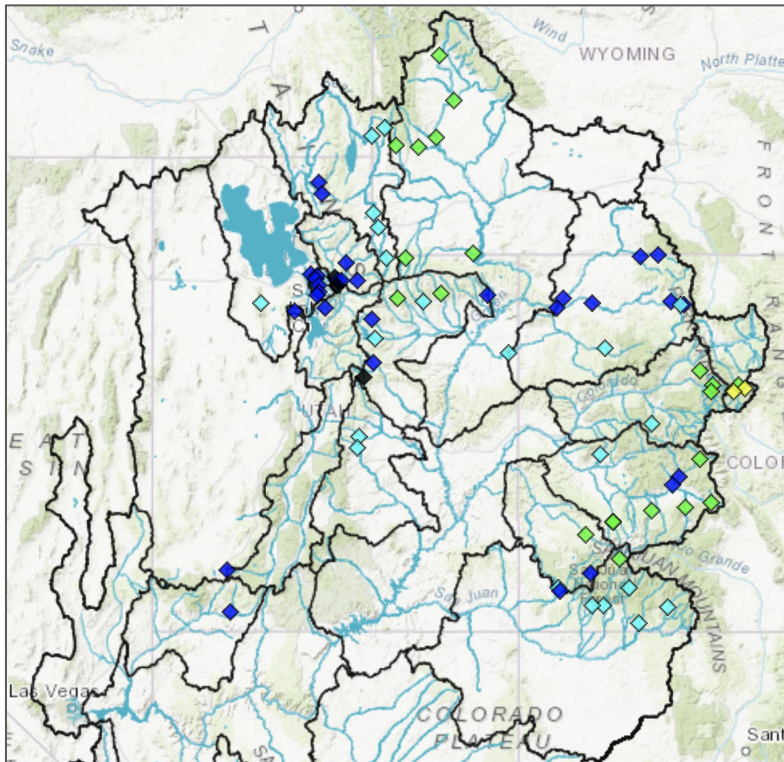
Locations with minimal upstream regulation.

3 Map Layers/Variables:

- Percentile
- Percent Average
- NWS Flood Stage Exceedance Probability

Help and documentation available through  buttons.

Clicking on a point takes you to the site's peak flow dashboard page.




▾ Peak Flow Forecasts

Forecast Date: 2023-04-06 

Show

Daily Forecasts

- Percentile 
- Percent Average 
- NWS Flood Stage Exceedance Probability 

- ◇ No Forecast
- ◆ No Data
- ◆ Low
- ◆ <10
- ◆ 10-25
- ◆ 25-75
- ◆ 75-90
- ◆ >90
- ◆ High

Peak Flow Forecast - Percentile

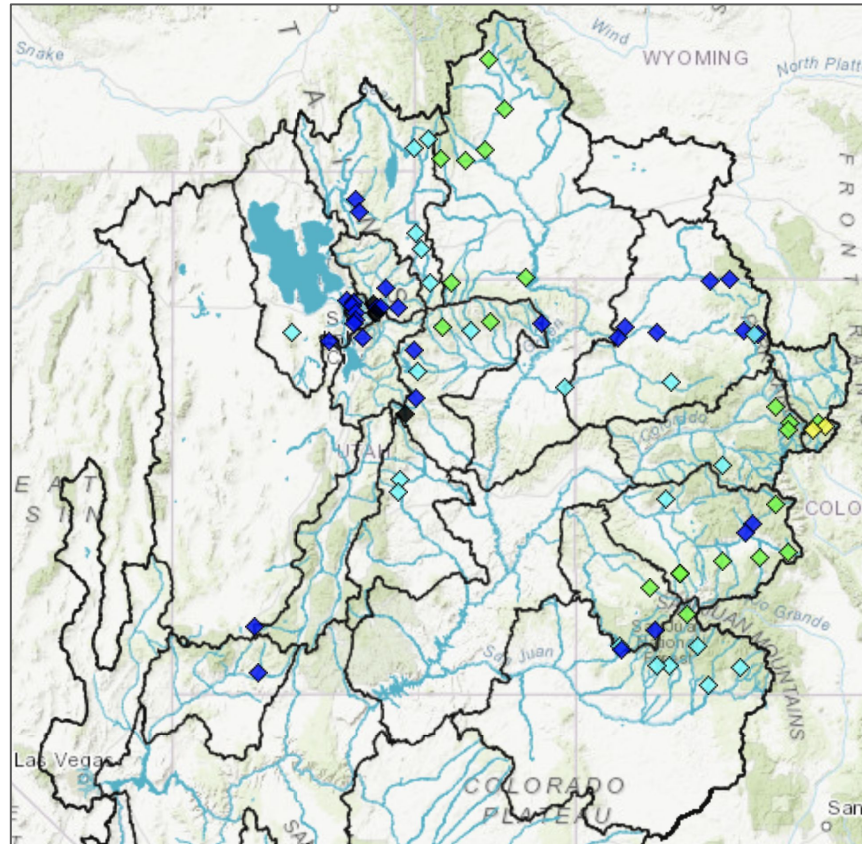
Percentile: the percent of historical annual peak flow values that are below the current peak flow forecast.

Legend: Percentile Categories

Peak flow forecasts with a higher percentile correspond to locations with better snowpack conditions.

Peak flow forecasts >90th percentile:

- White/Yampa
- Duchesne
- Lower Green
- Gunnison
- Dolores
- San Juan
- Virgin



Peak Flow Forecasts

Forecast Date: 2023-04-06

Show Hide Other Types

Daily Forecasts

- Percentile
- Percent Average
- NWS Flood Stage Exceedance Probability
- No Forecast
- No Data
- Low
- <10
- 10-25
- 25-75
- 75-90
- >90
- High

Peak Flow Forecast - Percent of Average

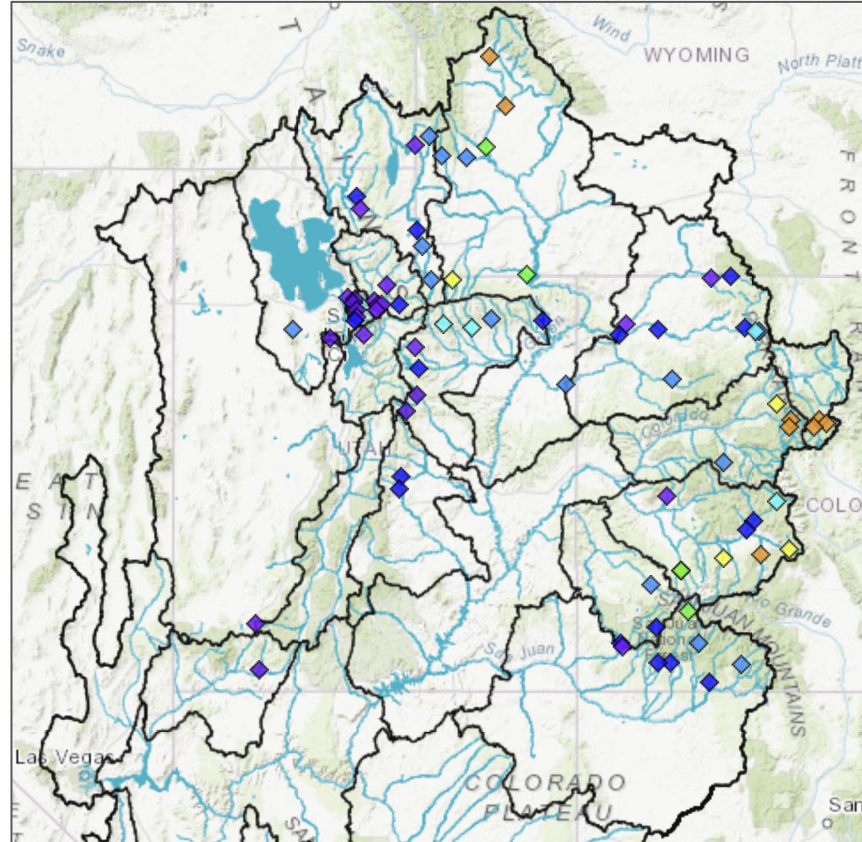
Percent of Average: the peak flow forecast percent of the 1991-2020 average peak flow.

Legend: Percent of Average

Peak flow forecasts with a higher percent of average correspond to locations with better snowpack conditions.

Peak flow forecasts >150% of average:

- White/Yampa
- Duchesne
- Lower Green
- Gunnison
- Dolores
- San Juan
- Virgin



Peak Flow Forecasts

Forecast Date: 2023-04-06

Show Hide Other Types

Daily Forecasts

- Percentile
- Percent Average
- NWS Flood Stage Exceedance Probability

◇ No Forecast

◆ No Data

◆ < 30%

◆ 30-50%

◆ 50-70%

◆ 70-90%

◆ 90-100%

◆ 100-110%

◆ 110-130%

◆ 130-150%

◆ 150-200%

◆ 200-300%

◆ 300-500%

◆ >500%

Peak Flow Forecast - Flood Stage Exceedance Probability

NWS Flood Stage Exceedance Probability: the probability of the peak flow forecast exceeding flood stage.

Legend: Exceedance Probability

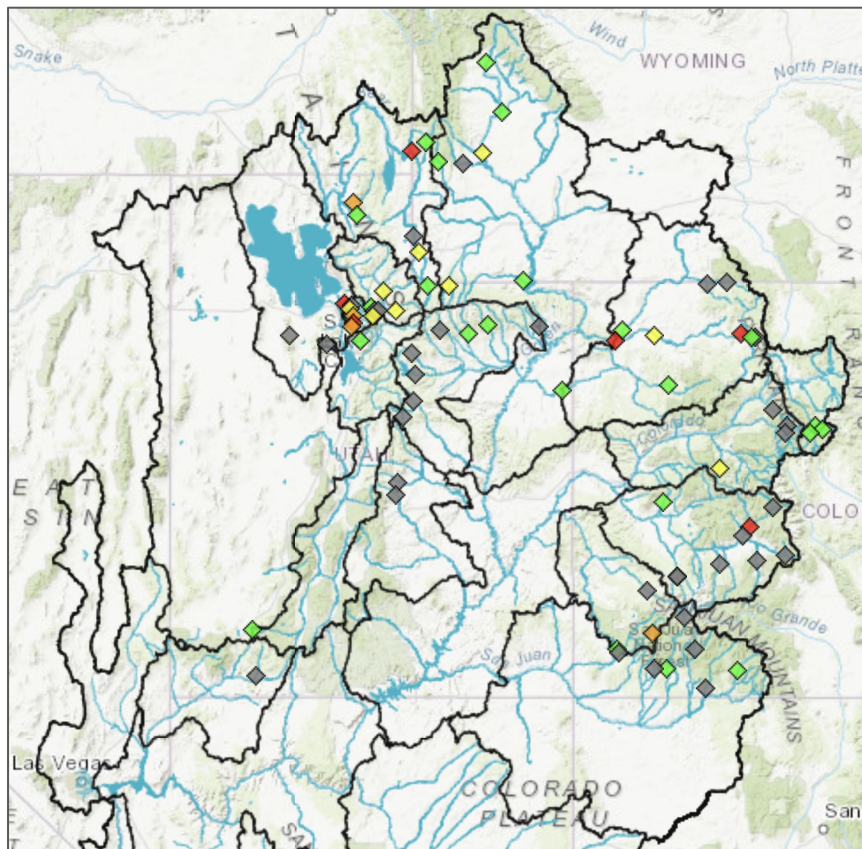
Peak flow forecasts with a higher exceedance probability correspond to locations with increased flood potential.

Peak flow forecasts >50%:

- White/Yampa
- Gunnison

**Note: flood stage not established at all peak flow forecast locations.*

Clicking on a point takes you to the site's peak flow dashboard page.



Peak Flow Forecasts

Forecast Date: 2023-04-06

Show Hide Other Types

Daily Forecasts

- Percentile
- Percent Average
- NWS Flood Stage Exceedance Probability

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

Peak Flow Forecast Information - Peak Flow Dashboard Pages

Daily Peak Flow Forecast - ALEC2 - East - Almont

| | |
|-----------------------------|---|
| Model Run Date | 2023-04-06 (Incl 7 Day Precip Forecast) |
| Flood Flow | 3100 cfs |
| 50% Forecast | 3399 cfs |
| Rank of 50% Forecast | 8th Highest Flow / 100 Total Years |
| Percentile | 93% of Years Below Forecast |
| Peak to Date | |
| Average Peak | 1949 cfs |
| Percent Average | 174% |
| Normal Time of Peak | 05-21 - 06-09 |
| Last Year's Peak | 1660 cfs, on 2022-05-20 |



- As the time of peak nears, transition from using probabilistic peak flow guidance to using the daily 10-day deterministic streamflow forecasts.
- 10-day streamflow forecasts use:
 - 7-day precipitation forecast
 - 10-day temperature forecast

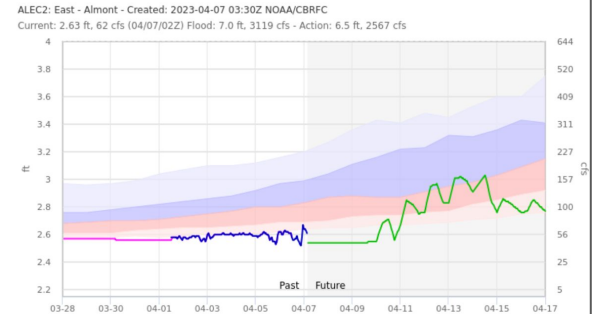


Latest 10 day Streamflow Forecast Table

| Date | Time | Flow |
|-----------|------|------|
| 4/7/2023 | 12Z | 46 |
| 4/8/2023 | 12Z | 45 |
| 4/9/2023 | 12Z | 45 |
| 4/10/2023 | 12Z | 57 |
| 4/11/2023 | 12Z | 81 |
| 4/12/2023 | 12Z | 112 |
| 4/13/2023 | 12Z | 133 |
| 4/14/2023 | 12Z | 149 |
| 4/15/2023 | 12Z | 113 |
| 4/16/2023 | 12Z | 98 |

Daily Average Forecast Flow, CFSD (ending at date/time)

Latest 10 Day Streamflow Forecast Plot



Peak Flow Forecast Information - Peak Flow Dashboard Pages

Daily Peak Flow Forecast Tables

- Probability of peak magnitude
- Probability of peak date
 - Likelihood for date of peak whatever the magnitude

| Daily Peak Flow Forecast Magnitude | | Daily Peak Flow Forecast Timing | |
|------------------------------------|-----------------------|---------------------------------|--------------|
| Exceedance Probability | Mean Daily Flow (cfs) | Exceedance Probability | Date of Peak |
| Maximum | 5143 | Latest | 2023-06-26 |
| 10% | 4676 | 10% | 2023-06-18 |
| 25% | 4162 | 25% | 2023-06-13 |
| 50% | 3399 | 50% | 2023-06-06 |
| 75% | 2934 | 75% | 2023-06-01 |
| 90% | 2772 | 90% | 2023-05-26 |
| Minimum | 2513 | Earliest | 2023-05-21 |

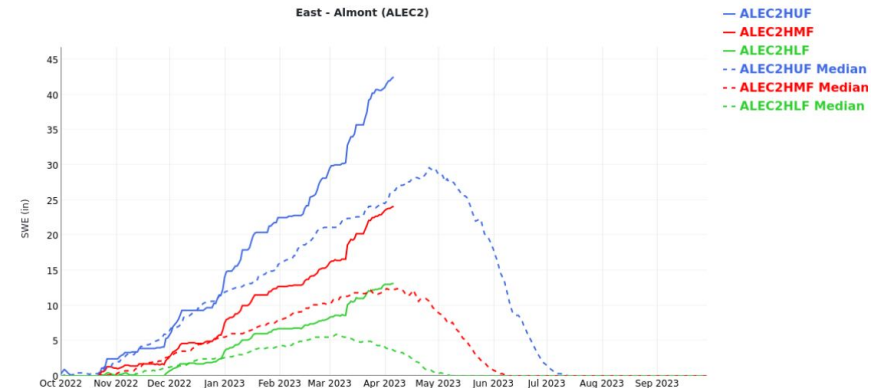
Magnitude and Timing are independent forecasts.

| Apr-Jul Historical Peaks | | | |
|--------------------------|------|------|------|
| Rank | Year | Peak | Date |
| 1 | 1918 | 5000 | 6/13 |
| 2 | 1995 | 4020 | 6/19 |
| 3 | 1920 | 3870 | 6/10 |
| 4 | 1957 | 3820 | 6/30 |
| 5 | 1984 | 3700 | 5/26 |
| 6 | 1917 | 3540 | 6/19 |
| 7 | 1952 | 3410 | 6/9 |
| 8 | 1914 | 3340 | 6/2 |
| 9 | 1912 | 3160 | 6/6 |

[CSV file](#)

Snow conditions driving peak flow forecasts

2023 Model Snow



Peak Flow Forecast Information - List View



Daily Peak Flow Forecasts - Colorado - Latest - Sorted by Area

Choose Area Sort By Show/Hide Forecast Month Forecast Year Legend CSV Data

- CBRFC
- Green ←
- Colorado
- San Juan
- Great
- Sevier
- Virgin
- Lower Colorado

- Forecast Map
- Forecast List**
- Special Forecast Map
- Special Forecast List

Data filter/sorting options available.
Clicking on a point → site's peak flow dashboard page.

| Sub Area | NWS ID | River | Location | ESP Date | ESP 50 | ESP 25 | ESP 10 | Percentile Cond | Percentile | Rank | Total Years | Percent Average Cond | Percent Average | Average Peak | Flood Cond | Flood Flow | Observed Peak to Date | Observed Date | Historic Peak | Hist Peak Date | Normal Earliest Date | Normal Latest Date | Last Year Peak | Last Year Date |
|-------------|------------------------|--------------|--------------------------------|------------|--------|--------|--------|-----------------|------------|------|-------------|----------------------|-----------------|--------------|------------|------------|-----------------------|---------------|---------------|----------------|----------------------|--------------------|----------------|----------------|
| Upper | WBRW4 | Green | Daniel; Nr; Warren Bridge; At | 2023-04-06 | 2577 | 2962 | 3209 | ◆ | 38 | 56 | 90 | ◆ | 89 | 2891 | ◆ | 8609 | | | 5620 | 1997-06-12 | 05-27 | 06-24 | 3520 | 2022-06-15 |
| Upper | BPNW4 | New Fork | Big Piney; Nr | 2023-04-06 | 4297 | 5379 | 6233 | ◆ | 32 | 47 | 68 | ◆ | 87 | 4898 | ◆ | 8835 | | | 9110 | 1986-06-08 | 05-25 | 06-23 | 4700 | 2022-06-15 |
| Upper | LABW4 | Green | La Barge; Nr | 2023-04-06 | 8802 | 10392 | 11421 | ◆ | 57 | 26 | 59 | ◆ | 104 | 8415 | ◆ | 10693 | | | 18800 | 1986-06-10 | 05-26 | 06-22 | 7900 | 2022-06-16 |
| Upper | HMEFW4 | Hams Fork | Frontier; Nr; Pole Ck; Blo | 2023-04-06 | 959 | 1204 | 1349 | ◆ | 68 | 23 | 70 | ◆ | 143 | 667 | ◆ | 1889 | | | 2000 | 1986-06-06 | 05-10 | 06-05 | 321 | 2022-05-20 |
| Upper | HFMW4 | Henrys Fork | Manila; Nr | 2023-04-06 | 769 | 1112 | 1464 | ◆ | 58 | 37 | 87 | ◆ | 100 | 762 | ◆ | 2524 | | | 3780 | 1965-06-14 | 05-08 | 06-20 | 423 | 2022-07-02 |
| Yampa/White | STM2 | Yampa | Steamboat Springs | 2023-04-06 | 3890 | 4341 | 4905 | ◆ | 76 | 28 | 115 | ◆ | 125 | 3093 | ◆ | 5923 | | | 5870 | 1921-06-15 | 05-16 | 06-07 | 2720 | 2022-05-20 |
| Yampa/White | ENMC2 | Elk | Milner; Nr | 2023-04-06 | 6460 | 7258 | 7651 | ◆ | 98 | 2 | 53 | ◆ | 163 | 3946 | ◆ | 5916 | | | 7000 | 2011-06-08 | 05-16 | 06-06 | 4190 | 2022-05-19 |
| Yampa/White | MBLC2 | Yampa | Maybell; Nr | 2023-04-06 | 17184 | 18175 | 21677 | ◆ | 97 | 4 | 107 | ◆ | 169 | 10155 | ◆ | 21200 | | | 24400 | 1984-05-18 | 05-11 | 06-06 | 8810 | 2022-05-21 |
| Yampa/White | LILC2 | Little Snake | Lily; Nr | 2023-04-06 | 8369 | 9848 | 11550 | ◆ | 97 | 4 | 101 | ◆ | 213 | 3924 | ◆ | 15271 | | | 13400 | 1984-05-19 | 05-07 | 06-05 | 2780 | 2022-05-21 |
| Yampa/White | YDLC2 | Yampa | Deerlodge Park | 2023-04-06 | 25176 | 26625 | 31748 | ◆ | 94 | 3 | 38 | ◆ | 197 | 12758 | ◆ | 20744 | | | 32300 | 1984-05-19 | 05-13 | 06-06 | 11300 | 2022-05-21 |
| Yampa/White | WRMC2 | White | Meeker; Nr | 2023-04-06 | 3915 | 4284 | 4728 | ◆ | 83 | 20 | 118 | ◆ | 139 | 2811 | ◆ | 8906 | | | 6320 | 1984-05-26 | 05-15 | 06-09 | 1930 | 2022-05-21 |
| Yampa/White | WATU1 | White | Watson; Nr | 2023-04-06 | 4091 | 4468 | 4837 | ◆ | 89 | 11 | 94 | ◆ | 148 | 2756 | ◆ | 9559 | | | 8160 | 1929-07-16 | 05-16 | 06-11 | 1750 | 2022-05-22 |
| Duchesne | BRUU1 | Big Brush Ck | Vernal; Nr; Red Fleet Res; Abv | 2023-04-06 | 389 | 431 | 571 | ◆ | 97 | 2 | 43 | ◆ | 174 | 223 | ◆ | | | | 414 | 2005-05-24 | 05-05 | 06-01 | 142 | 2022-05-18 |

CBRFC Peak Flow Forecast Information - Special Forecasts



Home Rivers ▾ Snow ▾ Water Supply ▾ Peak Flow ▾ Reservoirs ▾ Weather ▾ Climate ▾ Help ▾ About ▾ News ▾

- Forecast Map
- Forecast List
- Special Forecast Map**
- Special Forecast List

Legend: Flood Stage Exceedance Probability

Includes mainstem river locations

Upstream water management impacts downstream flows:
-reservoirs
-diversions

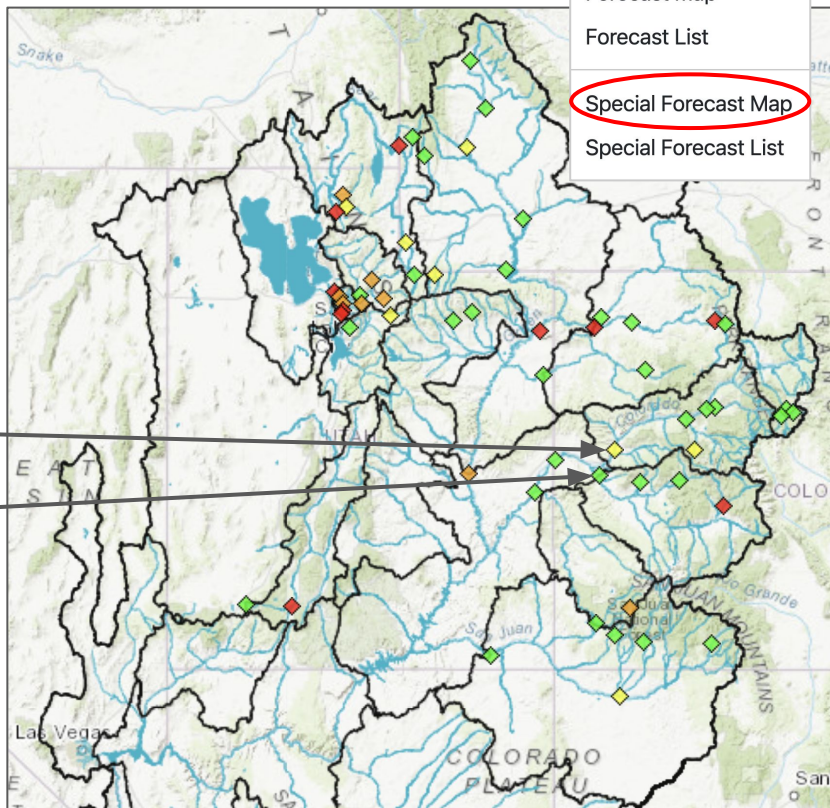
Requires more forecaster involvement
-updated ~2x/month

Examples

Colorado River Mainstem
-peak flow augmentation

Gunnison River Basin
-downstream peak flow targets
-magnitude/duration
-based on type of hydrologic year
-dry/avg/wet

~Real-time multi-agency coordination



▾ Peak Flow Forecasts

Forecast Date: 2023-04-06 [?](#)

Show Hide Other Types

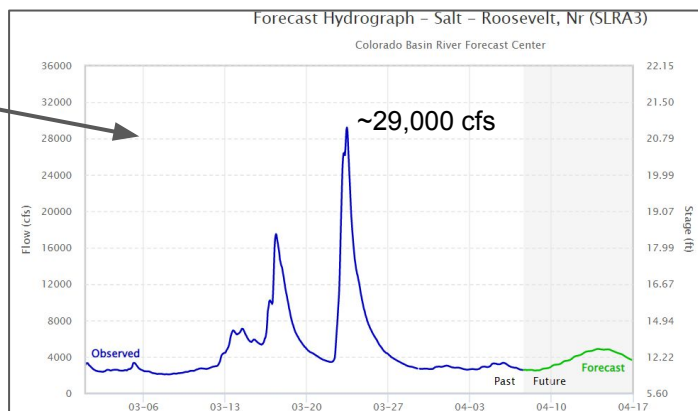
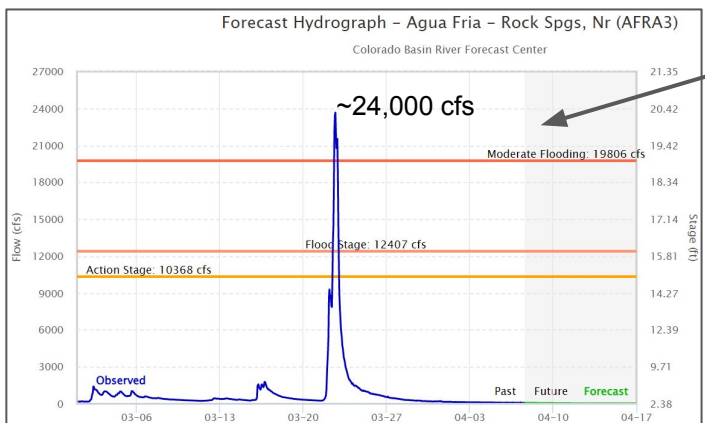
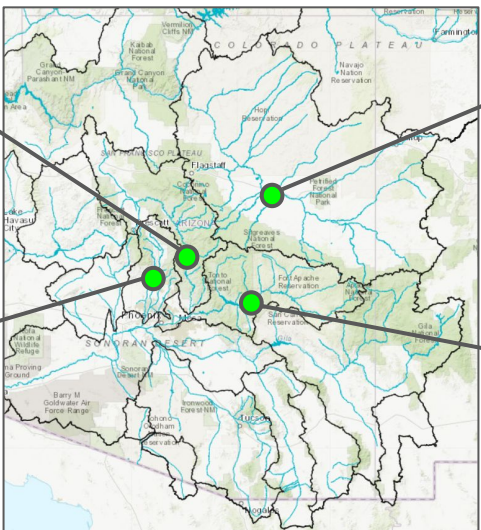
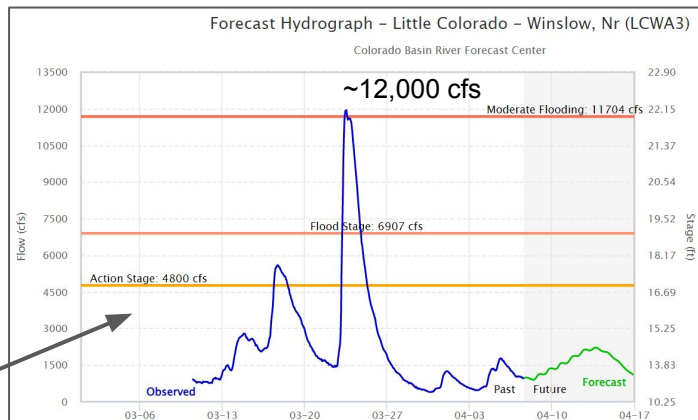
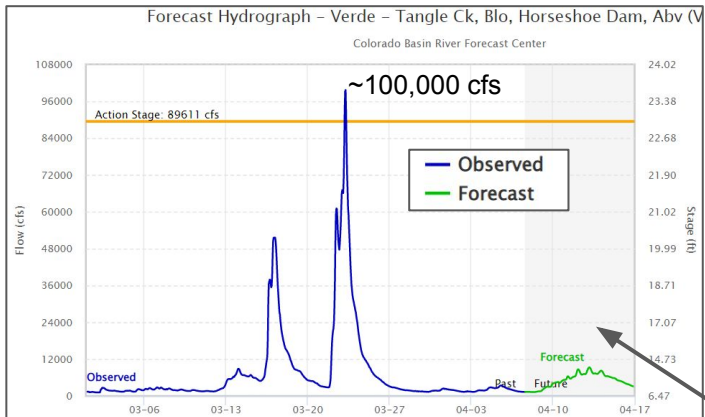
Daily Forecasts

- Percentile [?](#)
- Percent Average [?](#)
- NWS Flood Stage Exceedance Probability [?](#)

Special Forecasts: 2023-04-01

- Mean Daily [?](#)
- Instantaneous [?](#)
- ◇ No Forecast
- ◆ No Flood Stage
- ◆ Already Peak(ed/ing)
- ◆ <10%
- ◆ >10-25%
- ◆ >25-50%
- ◆ >50%

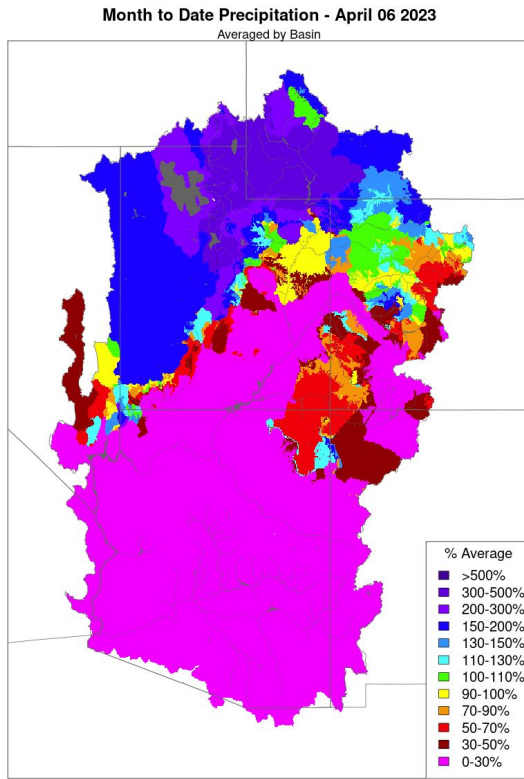
LCRB March Observed Peak Flows



April 2023 Month-To-Date Precipitation

Early April precipitation has favored:

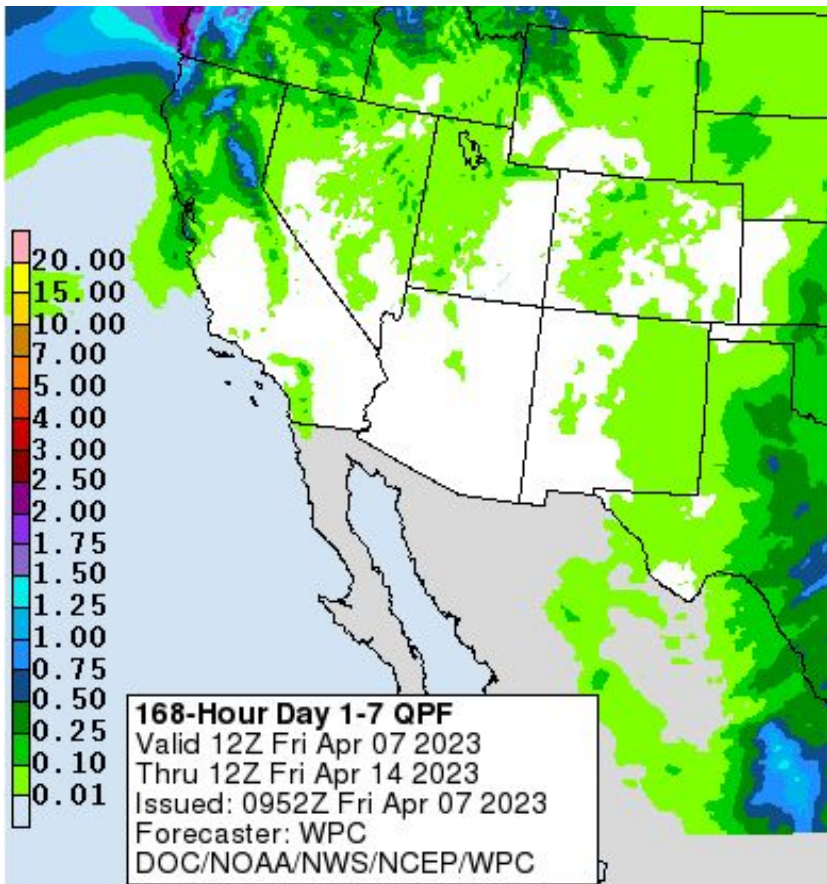
- Northern UT (Duchesne)
- Southwest WY (Upper Green)
- Northwest CO
 - White/Yampa
 - Colorado River headwaters
- Southwest UT (Virgin)



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

| Water Year 2023 CBRFC Model SWE (Significant Runoff Areas) Percent of 1991-2020 Median | | | |
|--|------|------|--------|
| UPPER COLORADO RIVER BASIN | | | |
| | Apr1 | Apr6 | Change |
| Above Lake Powell | | | |
| | 169 | 172 | 3 |
| Green River Basin | | | |
| Above Fontenelle | 114 | 121 | 7 |
| Above Flaming Gorge | 131 | 140 | 9 |
| Yampa/White | 175 | 181 | 6 |
| Duchesne | 199 | 204 | 5 |
| Price/San Rafael/Dirty Devil | 247 | 252 | 5 |
| Colorado River Headwaters | | | |
| Above Kremmling | 124 | 124 | 0 |
| Eagle | 119 | 119 | 0 |
| Roaring Fork | 142 | 141 | -1 |
| Above Cameo | 136 | 137 | 1 |
| Southwest Colorado | | | |
| Gunnison | 167 | 166 | -1 |
| Dolores | 238 | 250 | 12 |
| San Juan | 186 | 185 | -1 |
| LOWER COLORADO RIVER BASIN | | | |
| Virgin | 401 | 450 | 49 |
| Little Colorado | 500 | 500 | 0 |
| Verde | 500 | 500 | 0 |
| Salt | 305 | 279 | -26 |
| Upper Gila | 500 | 405 | -95 |

Upcoming Weather: April 7-14 Precipitation Outlook



- A ridge of high pressure over the Western US will bring a period of dry and warming conditions to the region.
 - Temperatures will approach seasonal normals by this weekend, and should be 5-10 degrees above normal for the start of next week.
 - Little to no precipitation is expected through the middle of next week.
- During the second half of next week, the ridge will begin to break down as a trough moves into the Western US.
 - High forecast uncertainty in the depth and timing of the trough.
 - Current weather model ensemble guidance favors precipitation over the GB and UCRB, with lower chances of precipitation in the LCRB.
- Ensemble models favor another ridge building in after the passage of the trough.

Upcoming Weather: 8-14 Day Outlook (April 14-20)

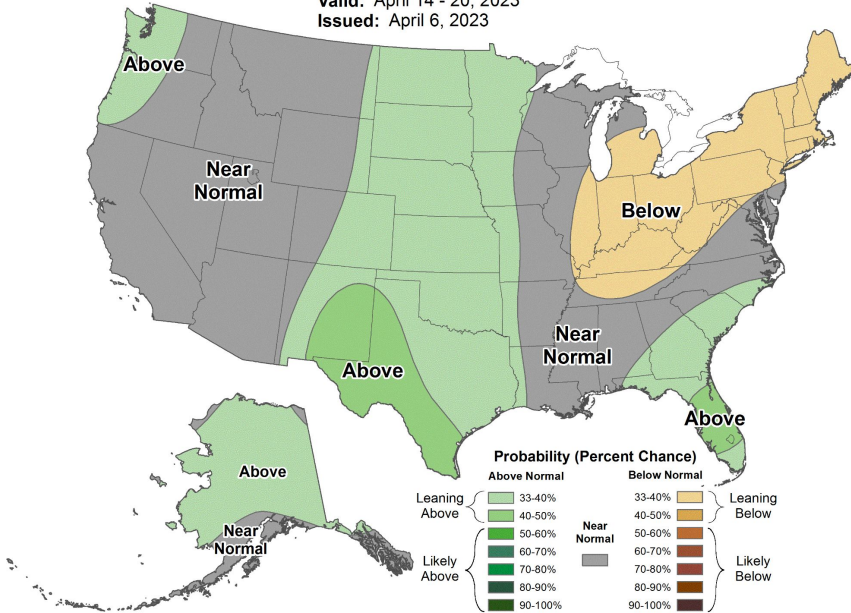
Near normal precipitation and temperatures are favored.



8-14 Day Precipitation Outlook



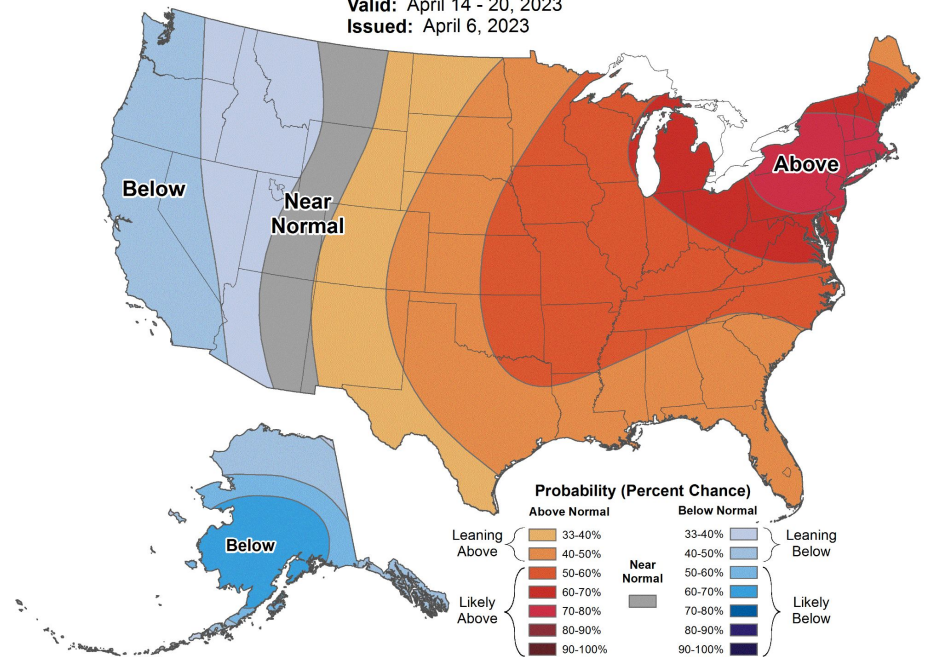
Valid: April 14 - 20, 2023
Issued: April 6, 2023



8-14 Day Temperature Outlook



Valid: April 14 - 20, 2023
Issued: April 6, 2023



Summary

- CBRFC Model Soil Moisture Conditions
 - UCRB (Fall 2022) - near to below normal across many of the major runoff producing areas
 - LCRB (Current) - above average
- March Weather
 - Cold and wet
 - March precipitation >150% of average across the majority of the Colorado River Basin.
 - Additional snow accumulation across lower elevations, minimal snowmelt occurred
- Current (April 6) CBRFC Model SWE Conditions (%Normal)
 - Upper Colorado: 120-250%
 - Lower Colorado: >250%
- April 1 Water Supply Forecasts (%Normal)
 - Upper Colorado: (Apr-Jul): 90-260%; Lake Powell = 177%
 - Lower Colorado: (Jan-May): 210-575%
- Peak Flow Forecasts
 - Well above average peak flows expected across the majority of the UCRB
 - Elevated flood potential
- Weather Outlook
 - Warm/dry weather expected through mid/late next week
 - Cooler/wetter weather expected across northern basins late next week/weekend

2023 Water Supply Webinar Schedule

**All Times Mountain Time (MT)*

Colorado River Basin

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

Utah/Great Basin

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

Additional briefings scheduled as needed

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



- Home
- Rivers ▾
- Snow ▾
- Water Supply ▾
- Reservoirs ▾
- Weather ▾
- Climate ▾
- Help ▾
- About ▾
- News ▾**

- Webinars
- Email Updates

Email Updates

Available Email Lists

- General Stakeholders
- USBR Water Year and MTOM Forecasts
- Lake Mead Local Forecasts
- Green River Basin Forecasts
- Upper Colorado Mainstem Forecast
- San Juan, Gunnison and Dolores River Basins Forecasts
- Weber Basin PAO
- Special forecasts for the Dolores River Basin
- Special forecasts for the San Juan River Basin
- Special forecasts for CUWCD
- Utah reservoir forecasts
- CRFS
- Eastern Great Basin Water Supply
- Upper Basin Reclamation Reservoirs

Addition Requests

- [Request](#) to be on one of our lists by emailing cbrfc.webmasters@noaa.gov

CBRFC Water Supply Forecast Webinar Schedule & Registration - Water Year 2023

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

Follow the links below to register for a webinar.

Early Season Water Supply Outlook Webinar
[Wednesday, December 14 @ 10:00 am MT](#)

Colorado River Basin Water Supply Webinars
[Monday, January 9 @ 10:00 am MT](#)
[Tuesday, February 7 @ 10:00 am MT](#)
[Tuesday, March 7 @ 10:00 am MT](#)
[Friday, April 7 @ 10:00 am MT](#)
[Friday, May 5 @ 10:00 am MT](#)

Utah Water Supply Webinars
[Monday, January 9 @ 11:30 am MT](#)
[Tuesday, February 7 @ 11:30 am MT](#)
[Tuesday, March 7 @ 11:30 am MT](#)
[Friday, April 7 @ 11:30 am MT](#)
[Friday, May 5 @ 11:30 am MT](#)

Peak Flow Webinar
[Monday, March 20 @ 10:00 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 on the [CBRFC presentations page](#) soon after each briefing.

2023 Presentations

2023 Early Season Water Supply Outlook

- [Slides \(.pdf\)](#) | [Recording \(.mp4\)](#) | [YouTube](#)

January 2023

- Colorado River Basin [Slides \(.pdf\)](#) | [Recording \(.mp4\)](#) | [YouTube](#)
- Utah / Great Basin [Slides \(.pdf\)](#) | [Recording \(.mp4\)](#) | [YouTube](#)

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

