

2023 State of the River Meetings Grand County Hydrology & Water Outlook

Neal Misbach
Upper River Lead Water Commissioner

May 22, 2023



COLORADO
Division of Water Resources
Department of Natural Resources

Agenda

- Colorado River Basin Snowpack
- Distribution of Winter Precipitation
- Subbasin Snowpack
- Soil Moisture Conditions
- May 10th CBRFC Water Supply Forecasts
- Current Reservoir Conditions
- Peak Flow Forecasts
- Similar Year Call Scenarios at Shoshone and Cameo
- Seasonal Precipitation Outlook

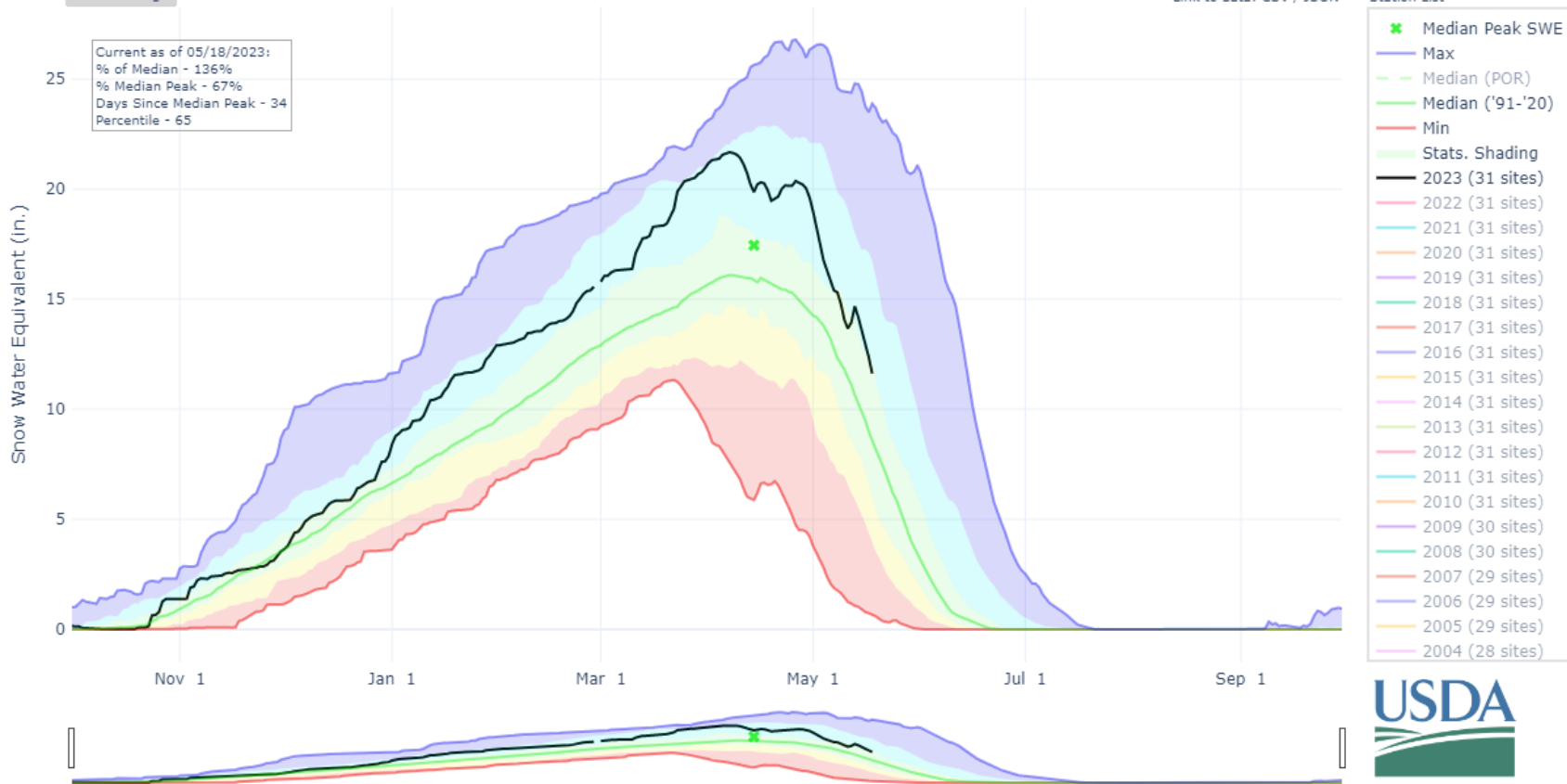


SNOW WATER EQUIVALENT IN COLORADO HEADWATERS

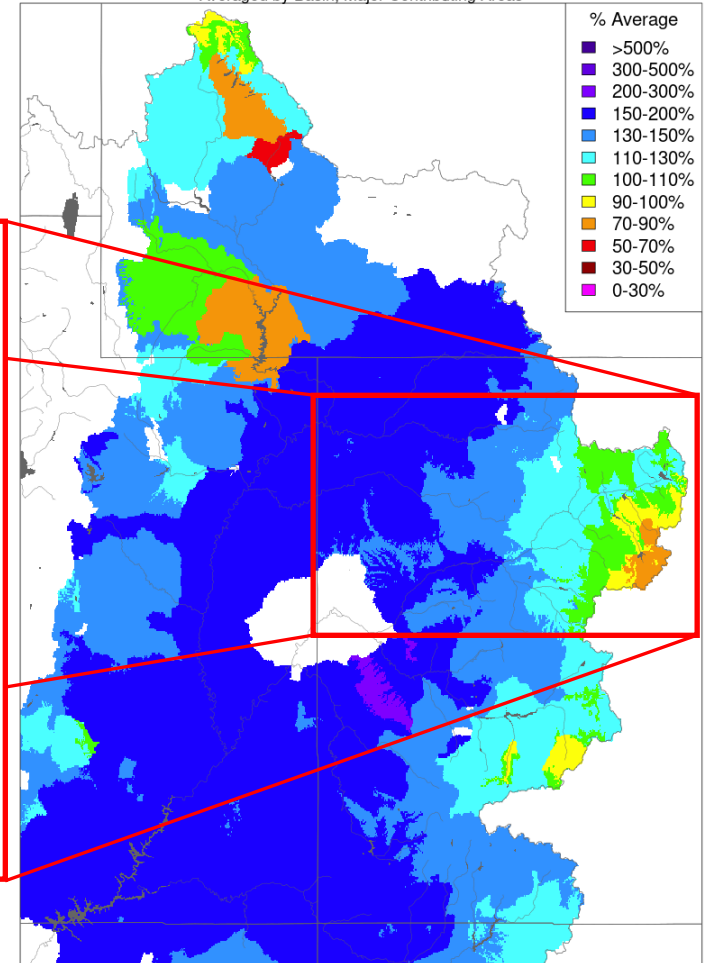
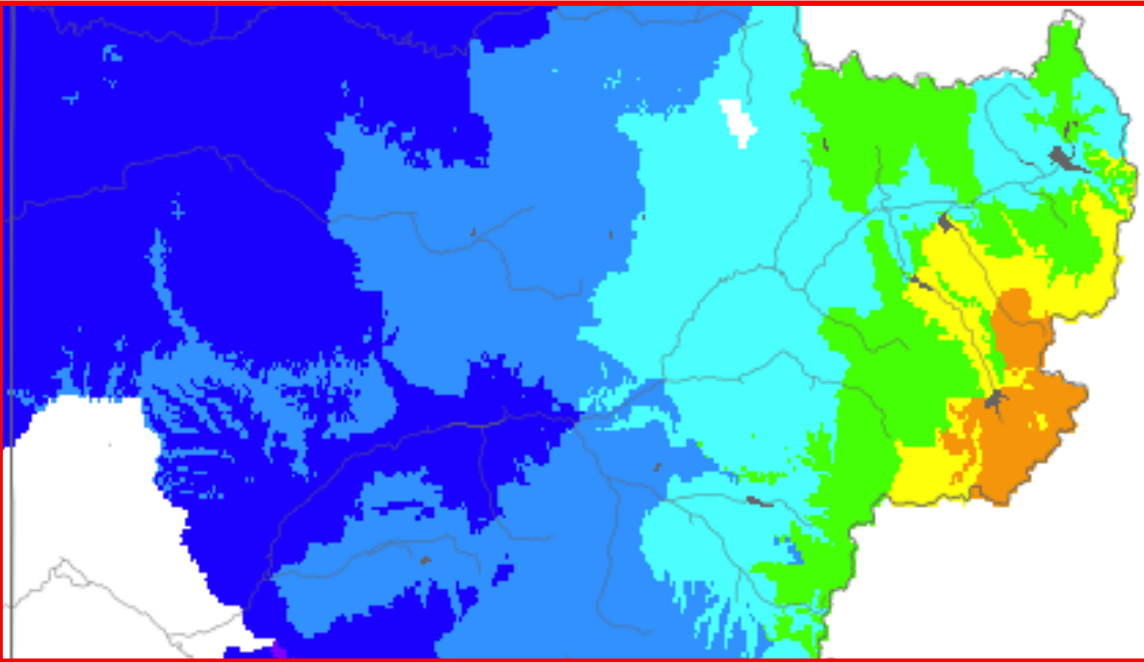
Reset Range

[Link to data: CSV / JSON](#)

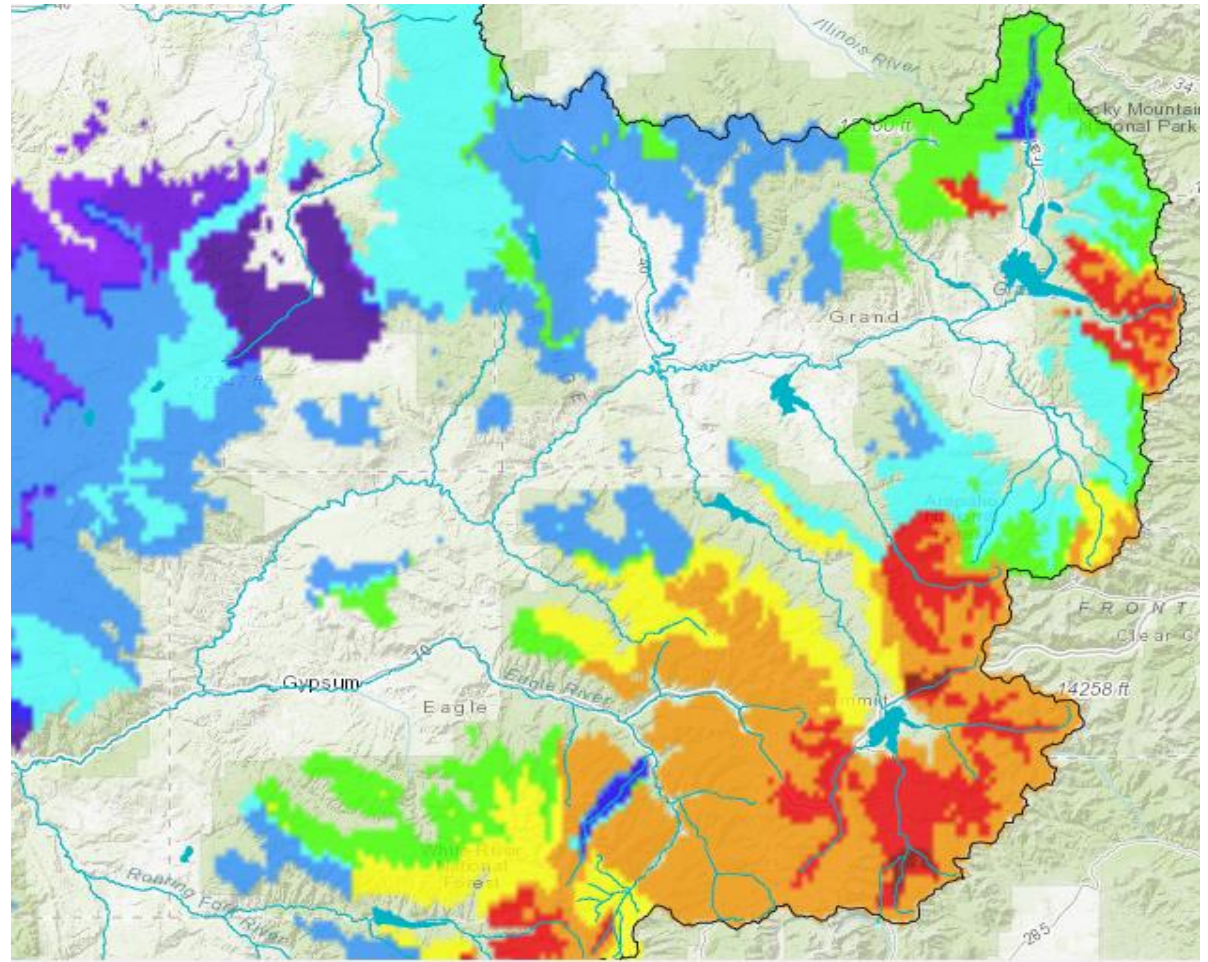
Station List



Precipitation Since 10/1/2022



Snowpack Current Subbasin Disparity



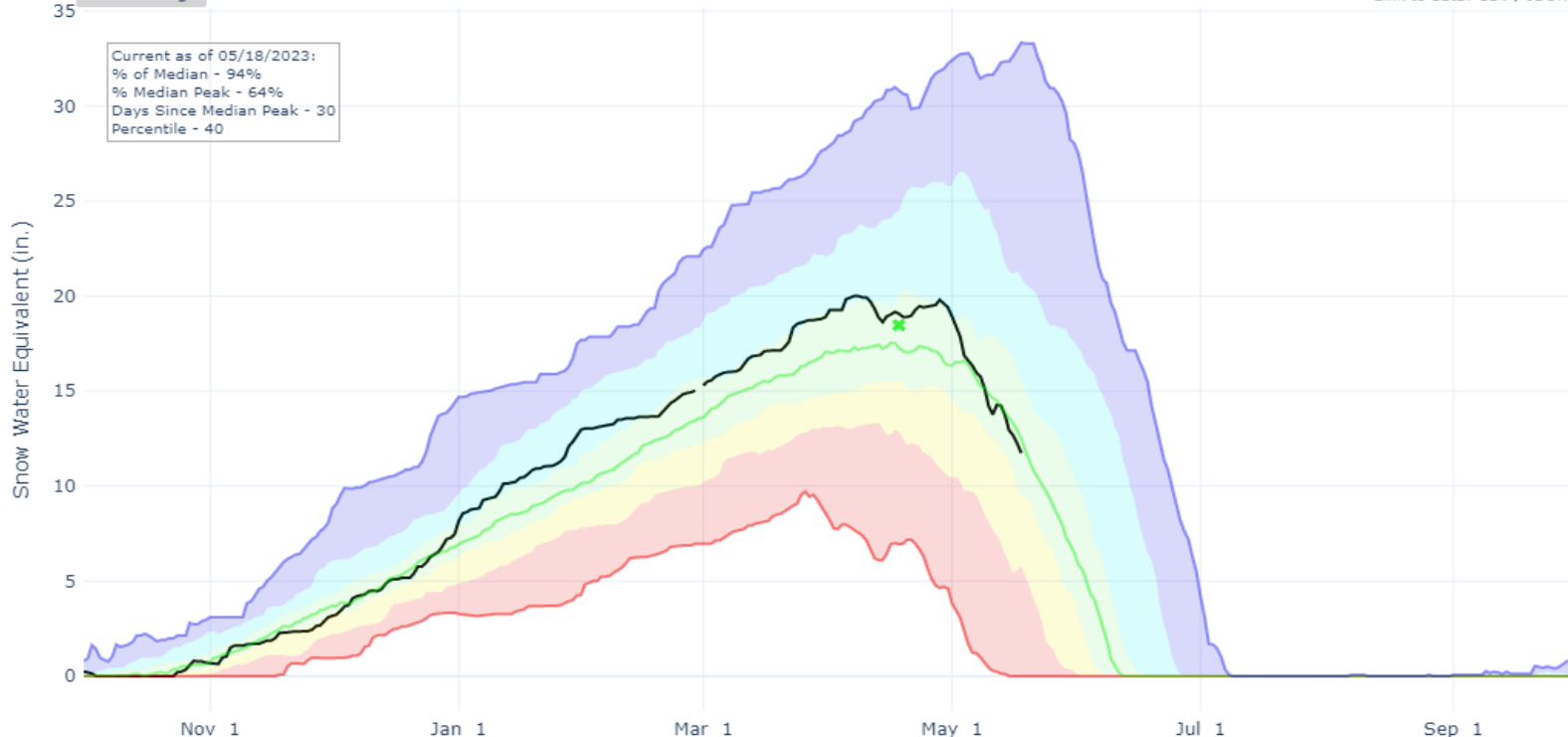
SNOW WATER EQUIVALENT IN HEADWATERS COLORADO

Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 05/18/2023:
% of Median - 94%
% Median Peak - 64%
Days Since Median Peak - 30
Percentile - 40



- ✱ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (3 sites)
- 2022 (3 sites)
- 2021 (3 sites)
- 2020 (3 sites)
- 2019 (3 sites)
- 2018 (3 sites)
- 2017 (3 sites)
- 2016 (3 sites)
- 2015 (3 sites)
- 2014 (3 sites)
- 2013 (3 sites)
- 2012 (3 sites)
- 2011 (3 sites)
- 2010 (3 sites)
- 2009 (3 sites)
- 2008 (3 sites)
- 2007 (3 sites)
- 2006 (3 sites)
- 2005 (3 sites)
- 2004 (3 sites)



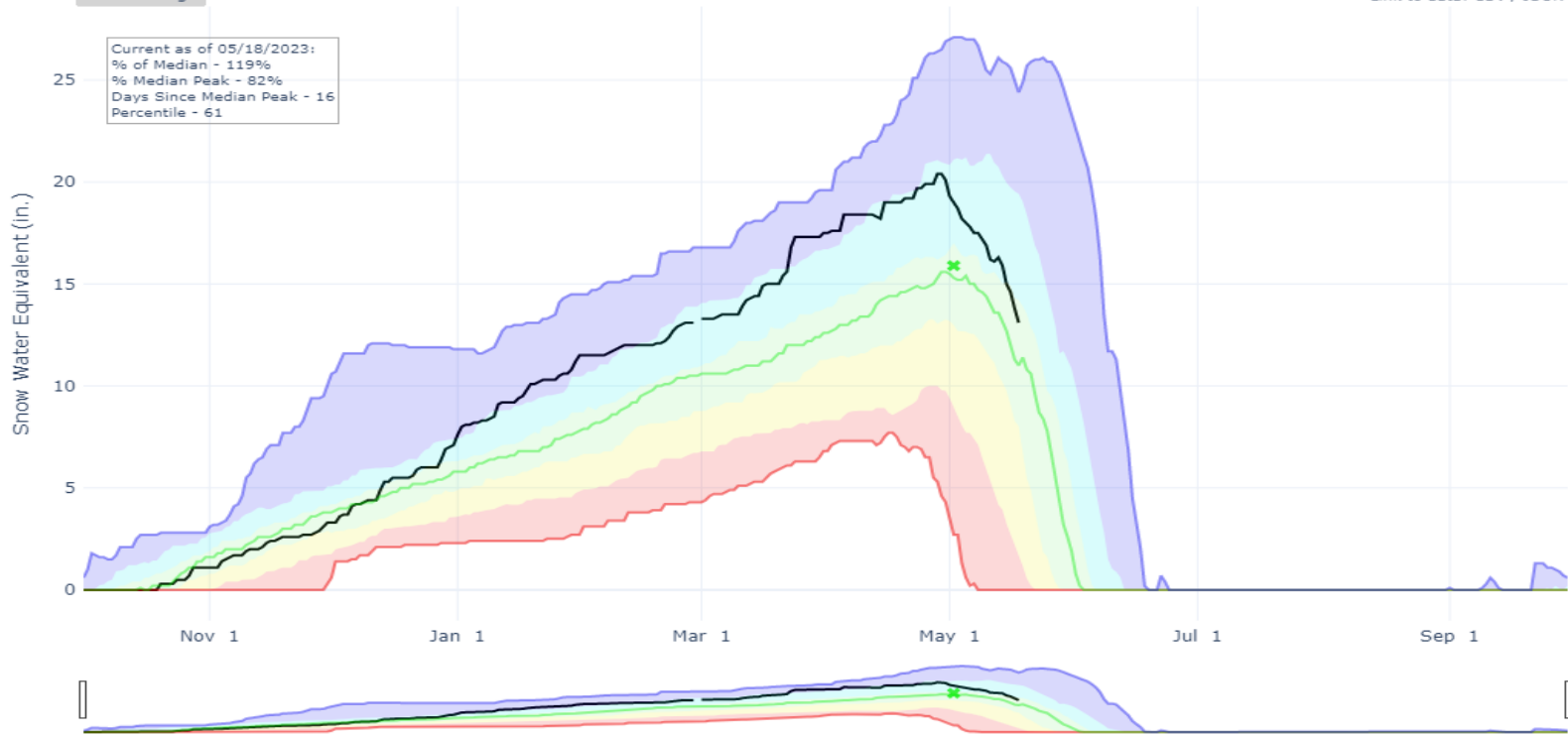
SNOW WATER EQUIVALENT IN WILLOW

Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 05/18/2023:
% of Median - 119%
% Median Peak - 82%
Days Since Median Peak - 16
Percentile - 61



- ✱ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (1 sites)
- 2022 (1 sites)
- 2021 (1 sites)
- 2020 (1 sites)
- 2019 (1 sites)
- 2018 (1 sites)
- 2017 (1 sites)
- 2016 (1 sites)
- 2015 (1 sites)
- 2014 (1 sites)
- 2013 (1 sites)
- 2012 (1 sites)
- 2011 (1 sites)
- 2010 (1 sites)
- 2009 (1 sites)
- 2008 (1 sites)
- 2007 (1 sites)
- 2006 (1 sites)
- 2005 (1 sites)
- 2004 (1 sites)



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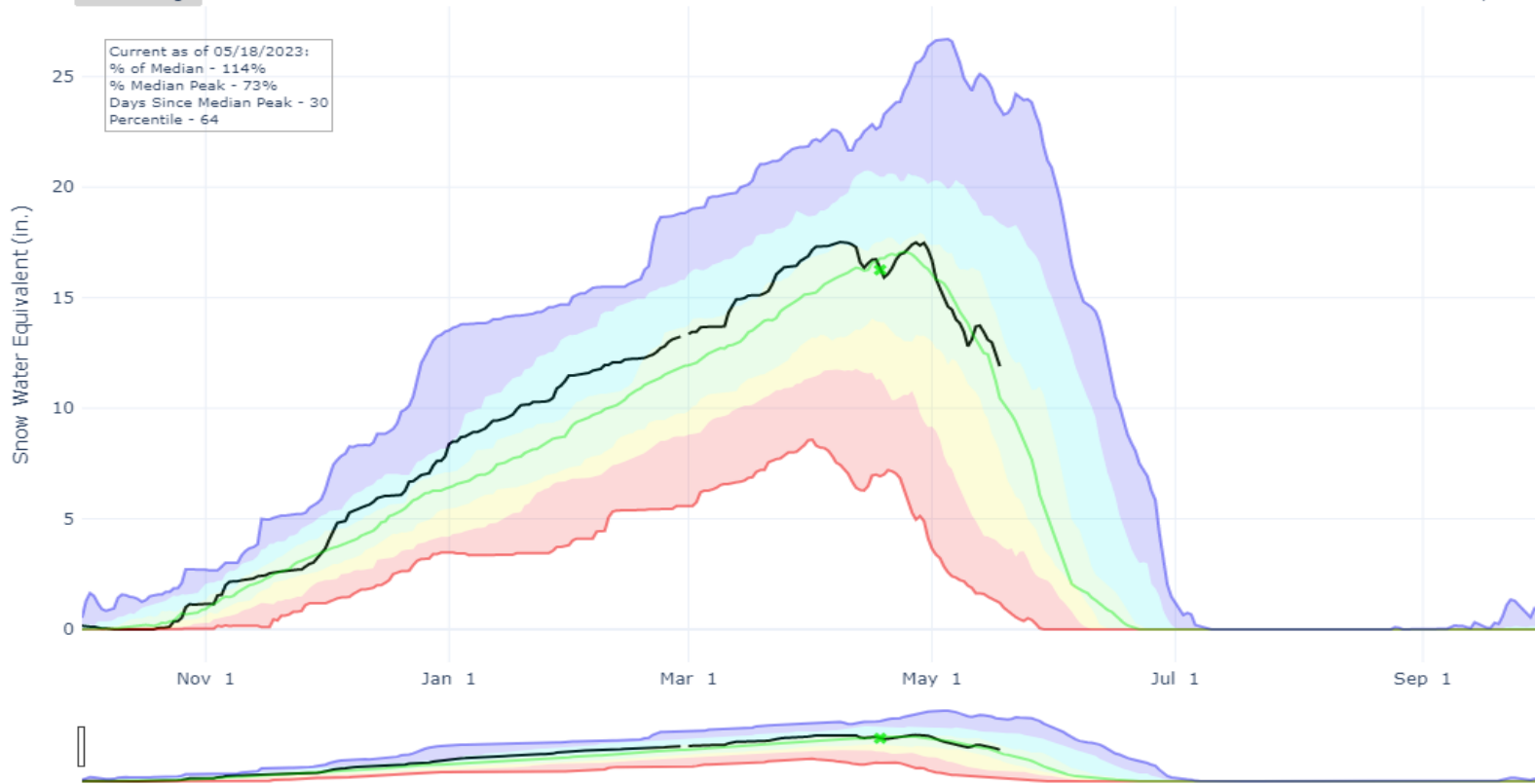
SNOW WATER EQUIVALENT IN BLUE

Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 05/18/2023:
% of Median - 114%
% Median Peak - 73%
Days Since Median Peak - 30
Percentile - 64



- ✱ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (5 sites)
- 2022 (5 sites)
- 2021 (5 sites)
- 2020 (5 sites)
- 2019 (5 sites)
- 2018 (5 sites)
- 2017 (5 sites)
- 2016 (5 sites)
- 2015 (5 sites)
- 2014 (5 sites)
- 2013 (5 sites)
- 2012 (5 sites)
- 2011 (5 sites)
- 2010 (5 sites)
- 2009 (4 sites)
- 2008 (4 sites)
- 2007 (4 sites)
- 2006 (4 sites)
- 2005 (4 sites)
- 2004 (4 sites)



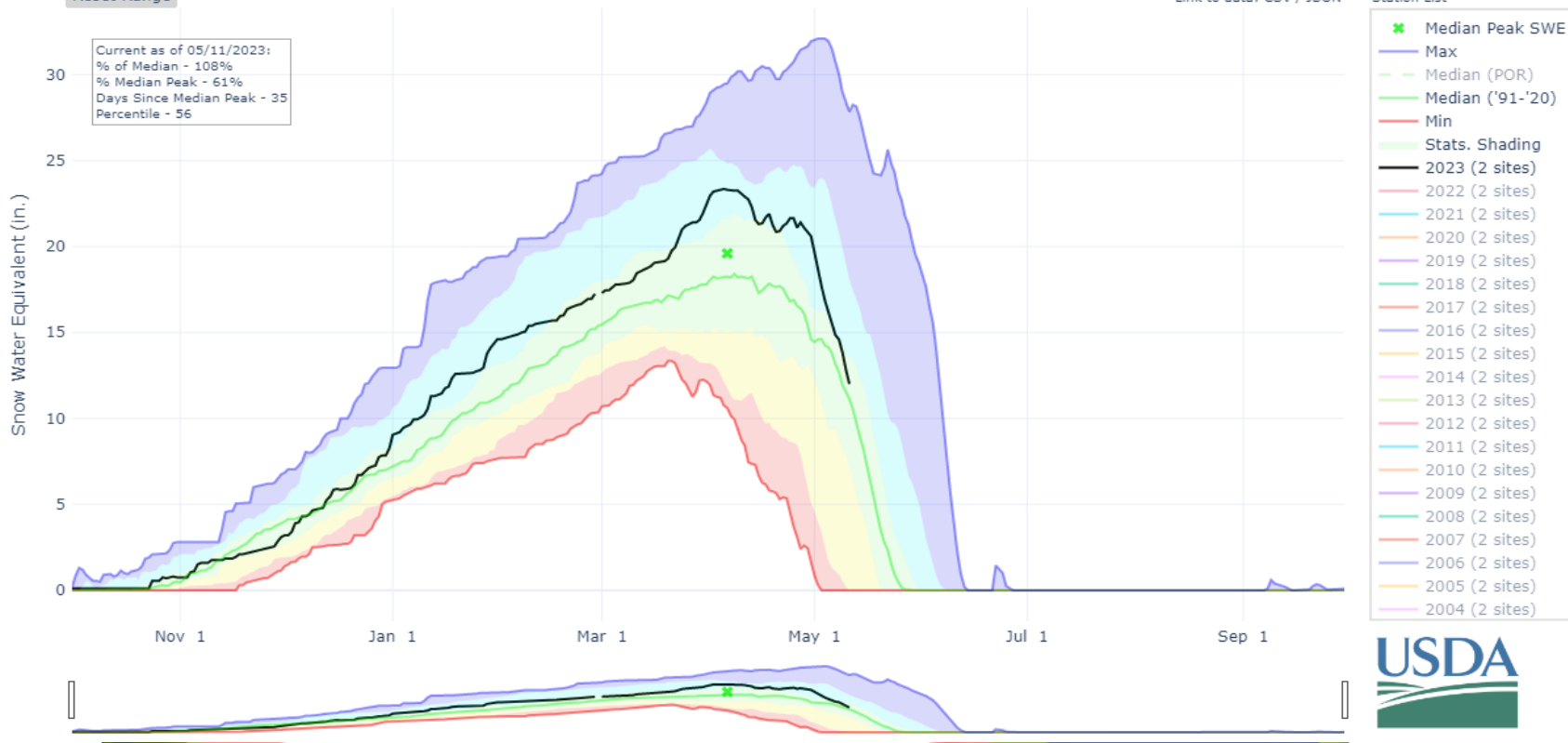
SNOW WATER EQUIVALENT IN MUDDY

Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 05/11/2023:
 % of Median - 108%
 % Median Peak - 61%
 Days Since Median Peak - 35
 Percentile - 56



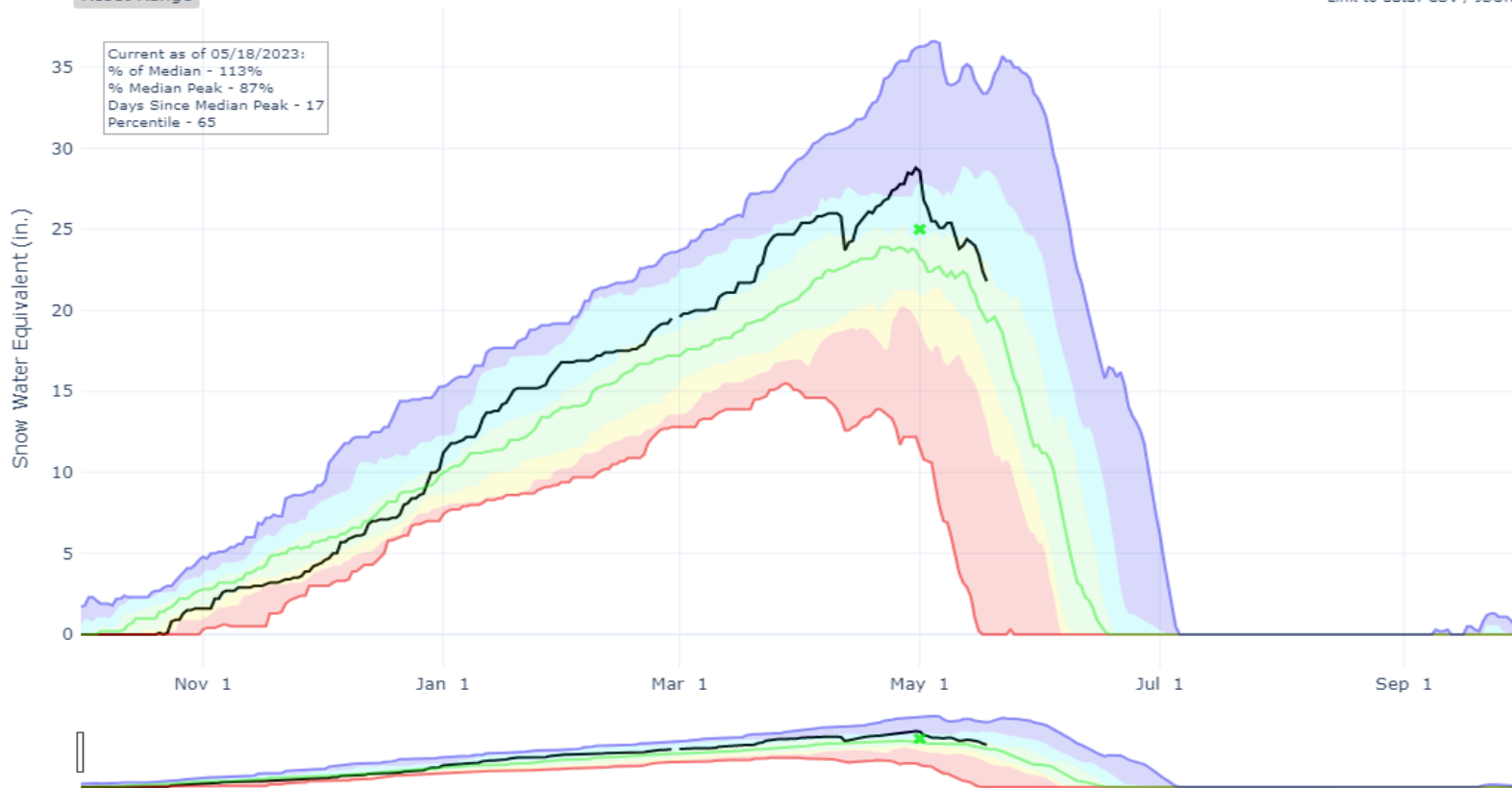
SNOW WATER EQUIVALENT IN TROUBLESOME

Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 05/18/2023:
% of Median - 113%
% Median Peak - 87%
Days Since Median Peak - 17
Percentile - 65



- ✕ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (1 sites)
- 2022 (1 sites)
- 2021 (1 sites)
- 2020 (1 sites)
- 2019 (1 sites)
- 2018 (1 sites)
- 2017 (1 sites)
- 2016 (1 sites)
- 2015 (1 sites)
- 2014 (1 sites)
- 2013 (1 sites)
- 2012 (1 sites)
- 2011 (1 sites)
- 2010 (1 sites)
- 2009 (1 sites)
- 2008 (1 sites)
- 2007 (1 sites)
- 2006 (1 sites)
- 2005 (1 sites)
- 2004 (1 sites)



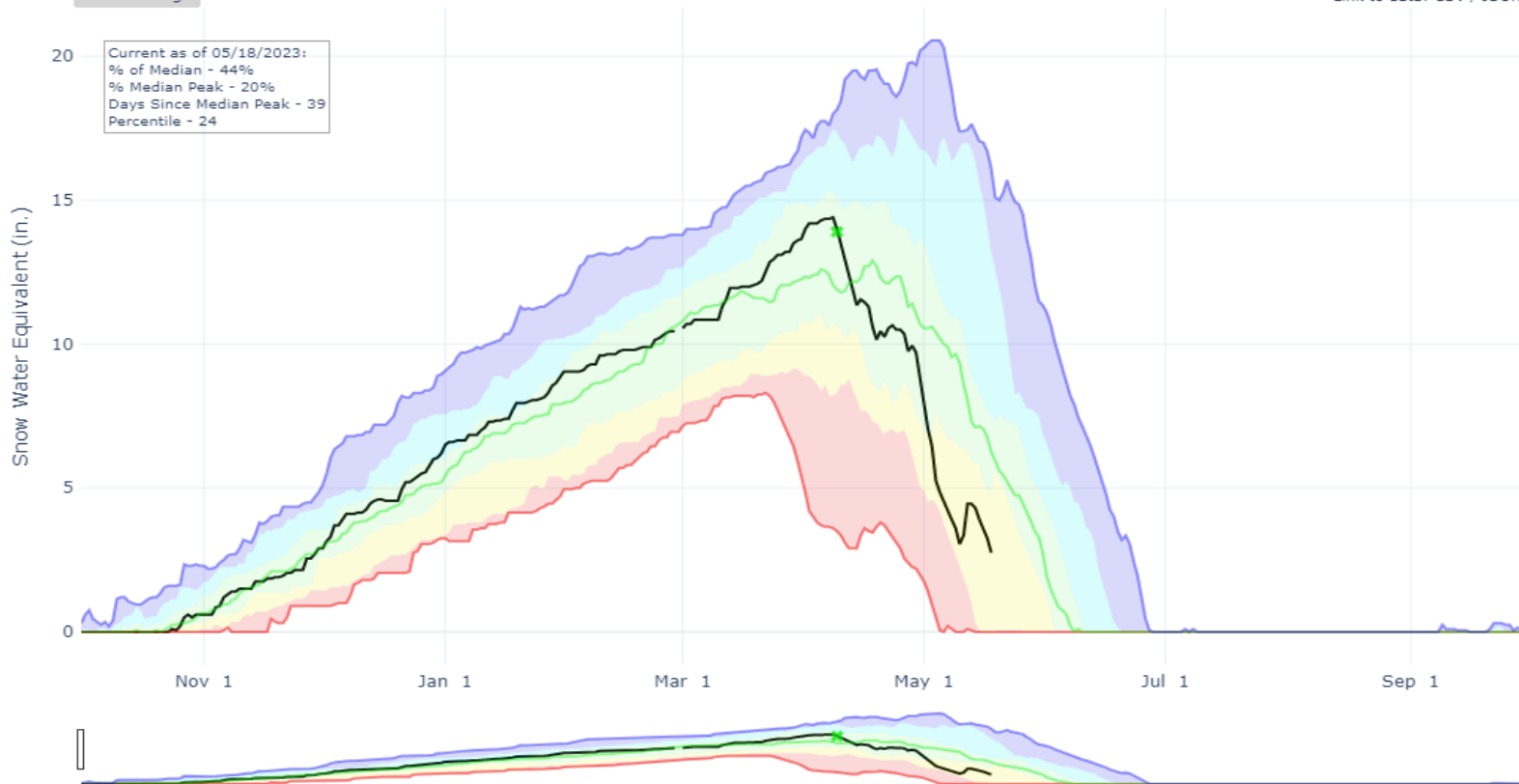
SNOW WATER EQUIVALENT IN WILLIAMS FORK

Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 05/18/2023:
 % of Median - 44%
 % Median Peak - 20%
 Days Since Median Peak - 39
 Percentile - 24



- ✱ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (2 sites)
- 2022 (2 sites)
- 2021 (2 sites)
- 2020 (2 sites)
- 2019 (2 sites)
- 2018 (2 sites)
- 2017 (2 sites)
- 2016 (2 sites)
- 2015 (2 sites)
- 2014 (2 sites)
- 2013 (2 sites)
- 2012 (2 sites)
- 2011 (2 sites)
- 2010 (2 sites)
- 2009 (2 sites)
- 2008 (2 sites)
- 2007 (2 sites)
- 2006 (2 sites)
- 2005 (2 sites)
- 2004 (2 sites)



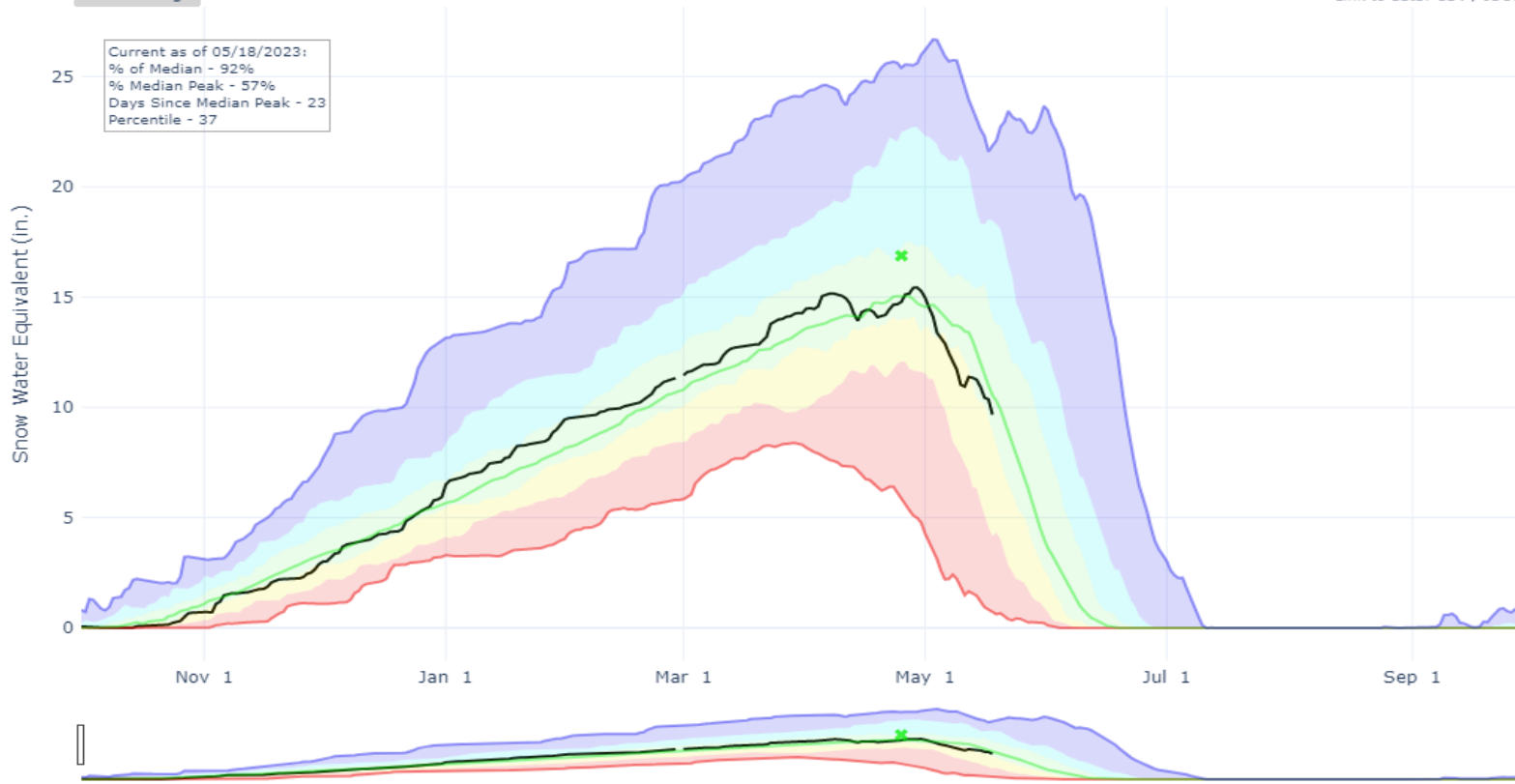
SNOW WATER EQUIVALENT IN SOUTH PLATTE

Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 05/18/2023:
 % of Median - 92%
 % Median Peak - 57%
 Days Since Median Peak - 23
 Percentile - 37



- ✱ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (21 sites)
- 2022 (21 sites)
- 2021 (21 sites)
- 2020 (21 sites)
- 2019 (21 sites)
- 2018 (21 sites)
- 2017 (21 sites)
- 2016 (21 sites)
- 2015 (21 sites)
- 2014 (21 sites)
- 2013 (21 sites)
- 2012 (21 sites)
- 2011 (21 sites)
- 2010 (20 sites)
- 2009 (19 sites)
- 2008 (18 sites)
- 2007 (18 sites)
- 2006 (18 sites)
- 2005 (17 sites)
- 2004 (17 sites)



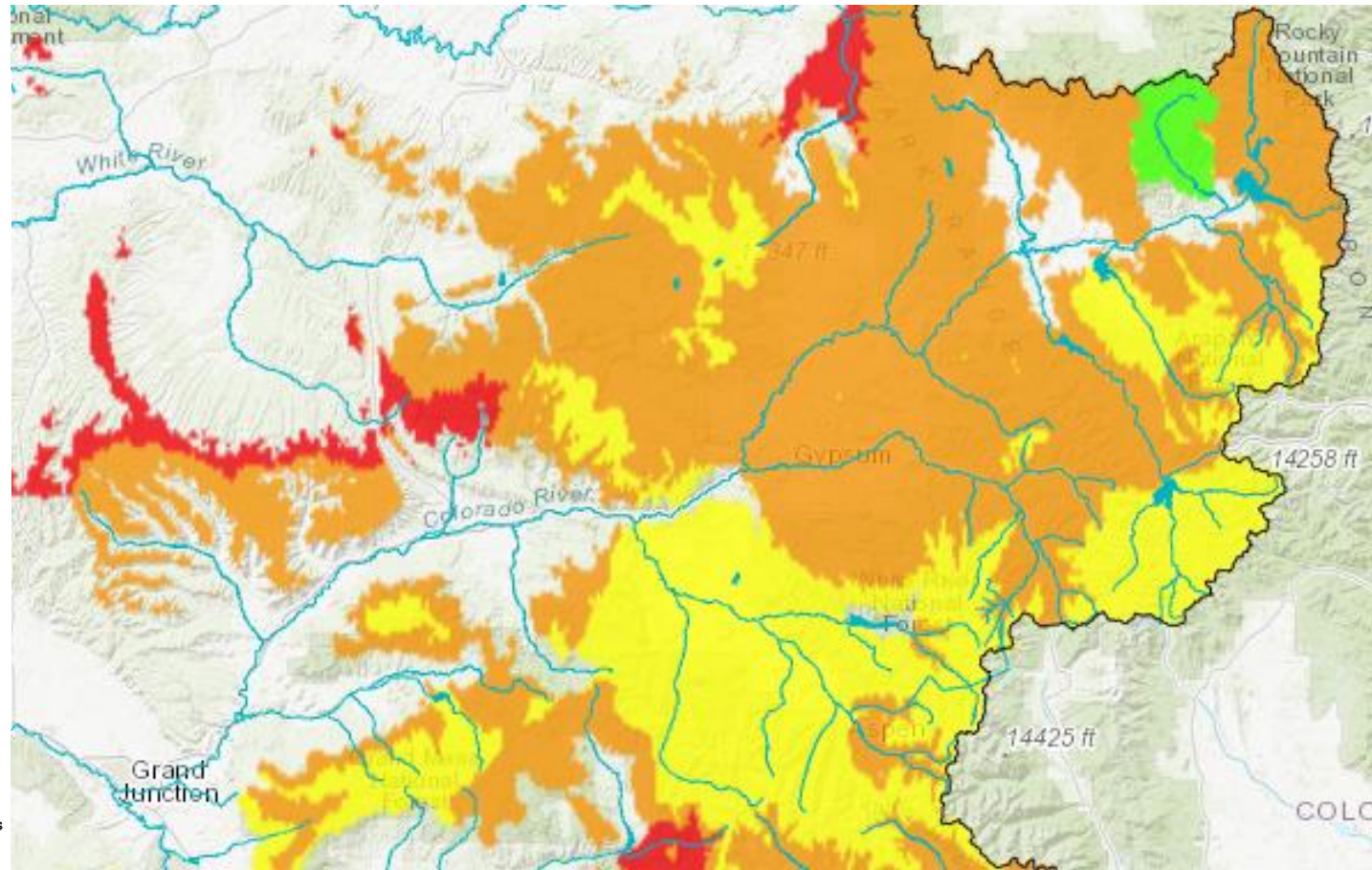
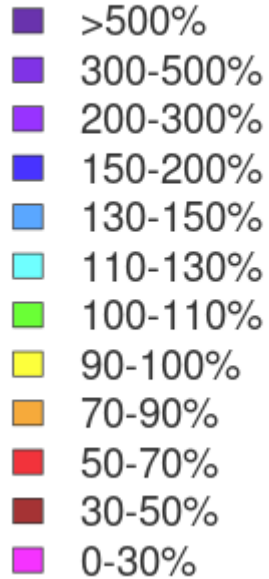
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Soil Moisture Conditions



11/2/2022 CBRFC Modeled Soil Moisture Conditions

% Average



May 10 CBRFC Water Supply Forecasts

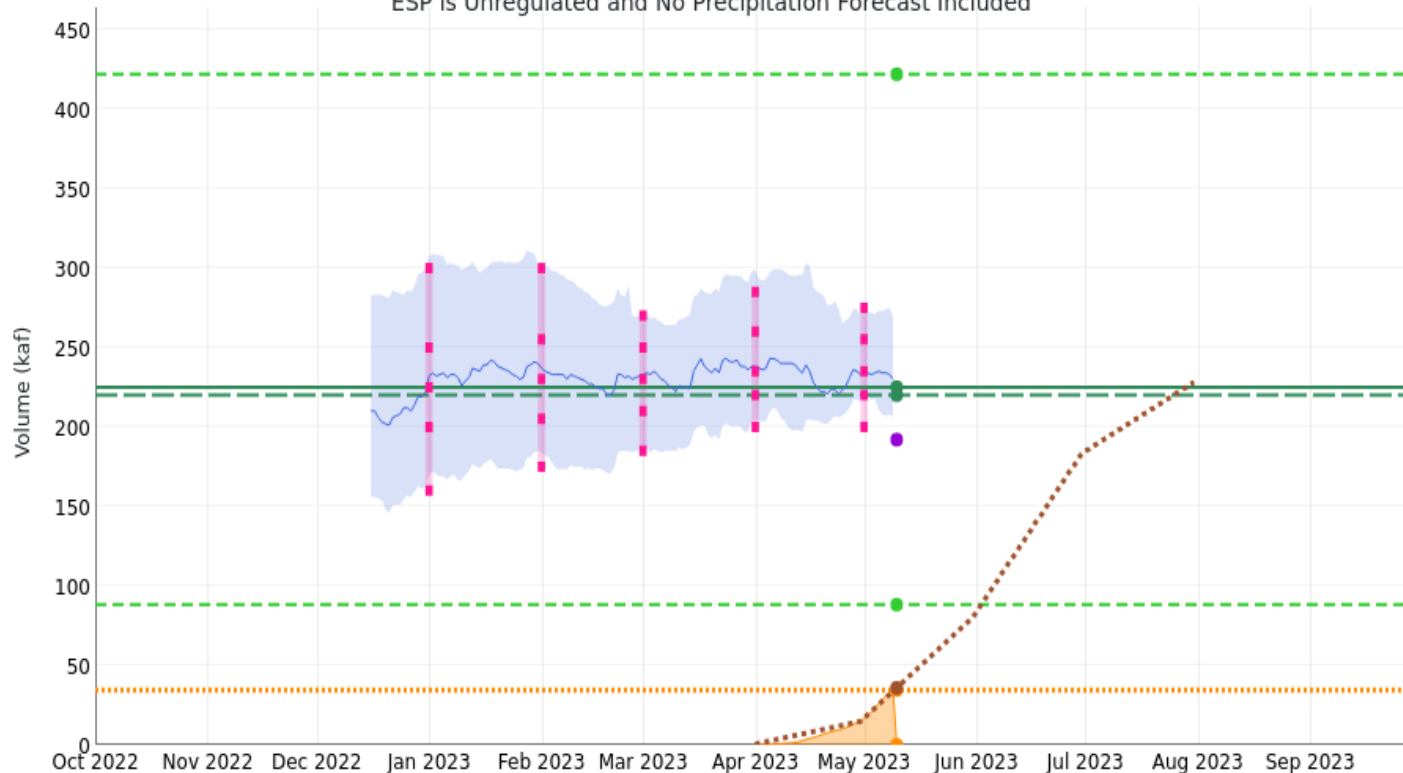




Colorado - Lake Granby, Granby, Nr (GBYC2)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 235 kaf (104% Average, 107% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/05/10:

Max 2011: 421.85

Min 2002: 88.2

Average: 225

Median: 220

Observed Accumulation: 0

Observed Total: 34.5

Normal Accumulation: 35.9

ESP (wo Obs): 192



Fraser - Winter Park (FRWC2)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 18.5 kaf (99% Average, 97% Median)

ESP is Unregulated and No Precipitation Forecast Included

2023/05/10:

Max 1984: 33.77

Min 2012: 8.19

Average: 18.6

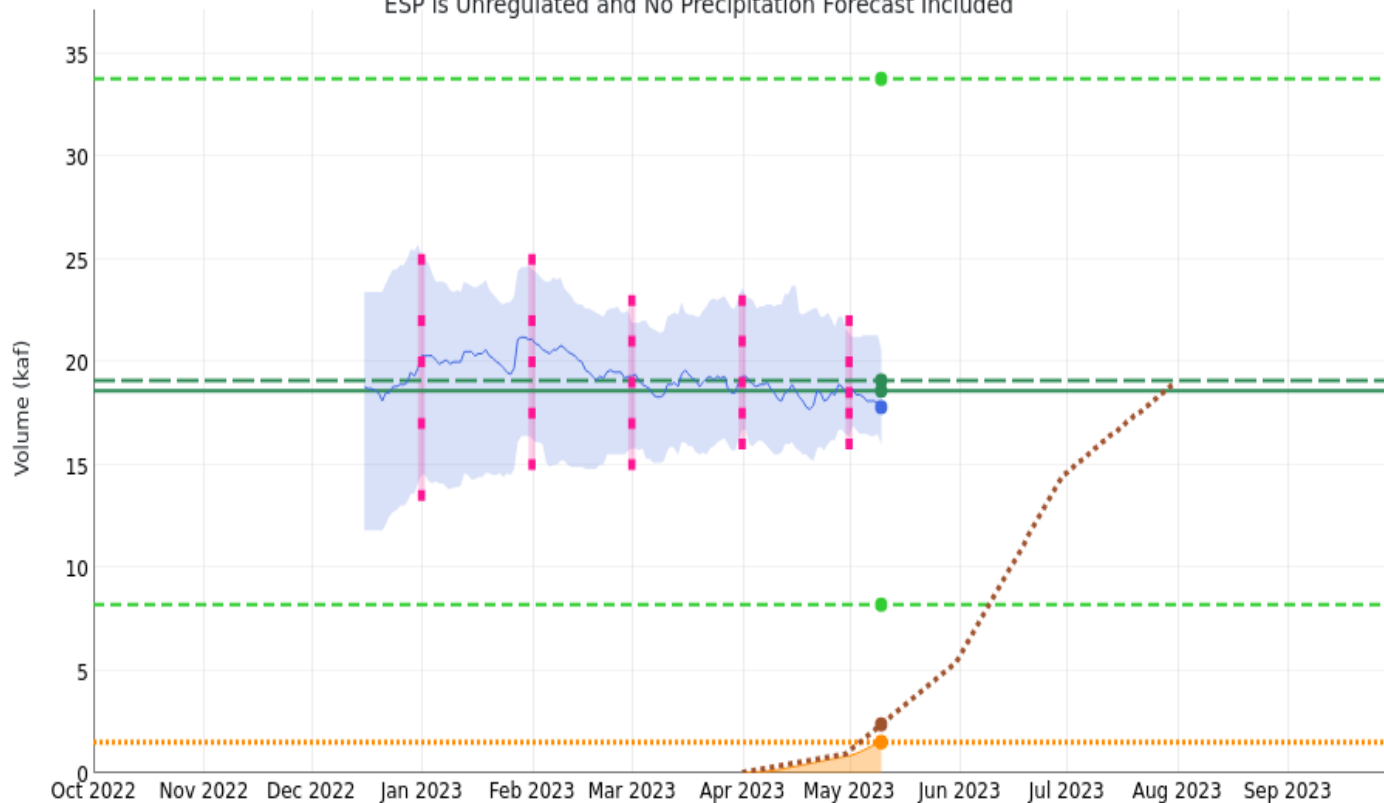
Median: 19.1

Observed Accumulation: 1.51

Observed Total: 1.51

Normal Accumulation: 2.37

ESP: 17.8



Williams Fork - Williams Fork Reservoir, Parshall (WFDC2)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 86 kaf (90% Average, 96% Median)

ESP is Unregulated and No Precipitation Forecast Included

2023/05/10:

Max 1984: 162.01

Min 1957: 25.83

Average: 96

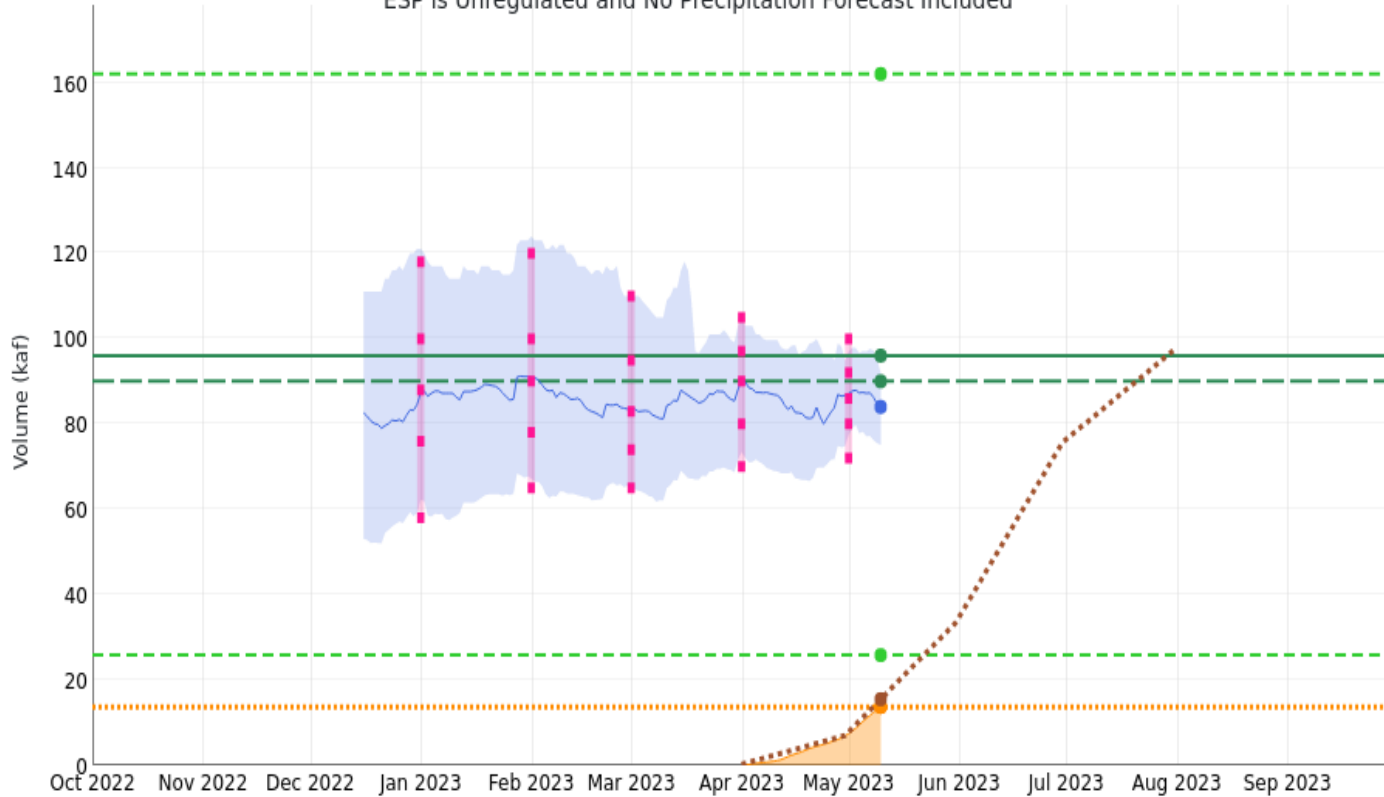
Median: 90

Observed Accumulation: 13.7

Observed Total: 13.7

Normal Accumulation: 15.5

ESP: 84



Willow Ck - Willow Ck Reservoir, Granby, Nr (WCRC2)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 75 kaf (150% Average, 156% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/05/10:

Max 2011: 124.82

Min 2002: 9.52

Average: 50

Median: 48

Observed Accumulation: 27.1

Observed Total: 27.1

Normal Accumulation: 12.8

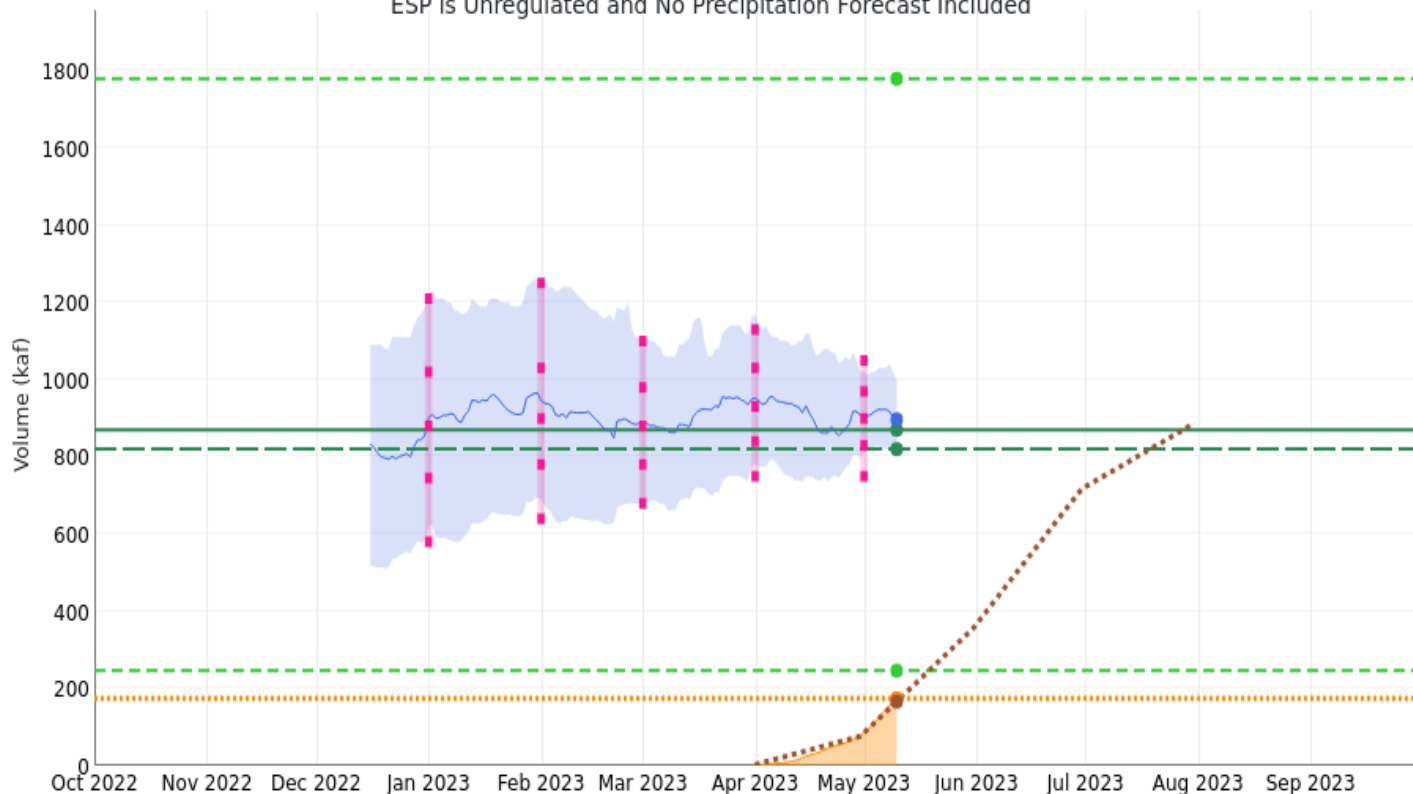
ESP: 80.4



Colorado - Kremmling, Nr (KRMC2)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 900 kaf (103% Average, 110% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/05/10:

Max 2011: 1779.44

Min 2002: 246.03

Average: 870

Median: 820

Observed Accumulation: 174

Observed Total: 174

Normal Accumulation: 166

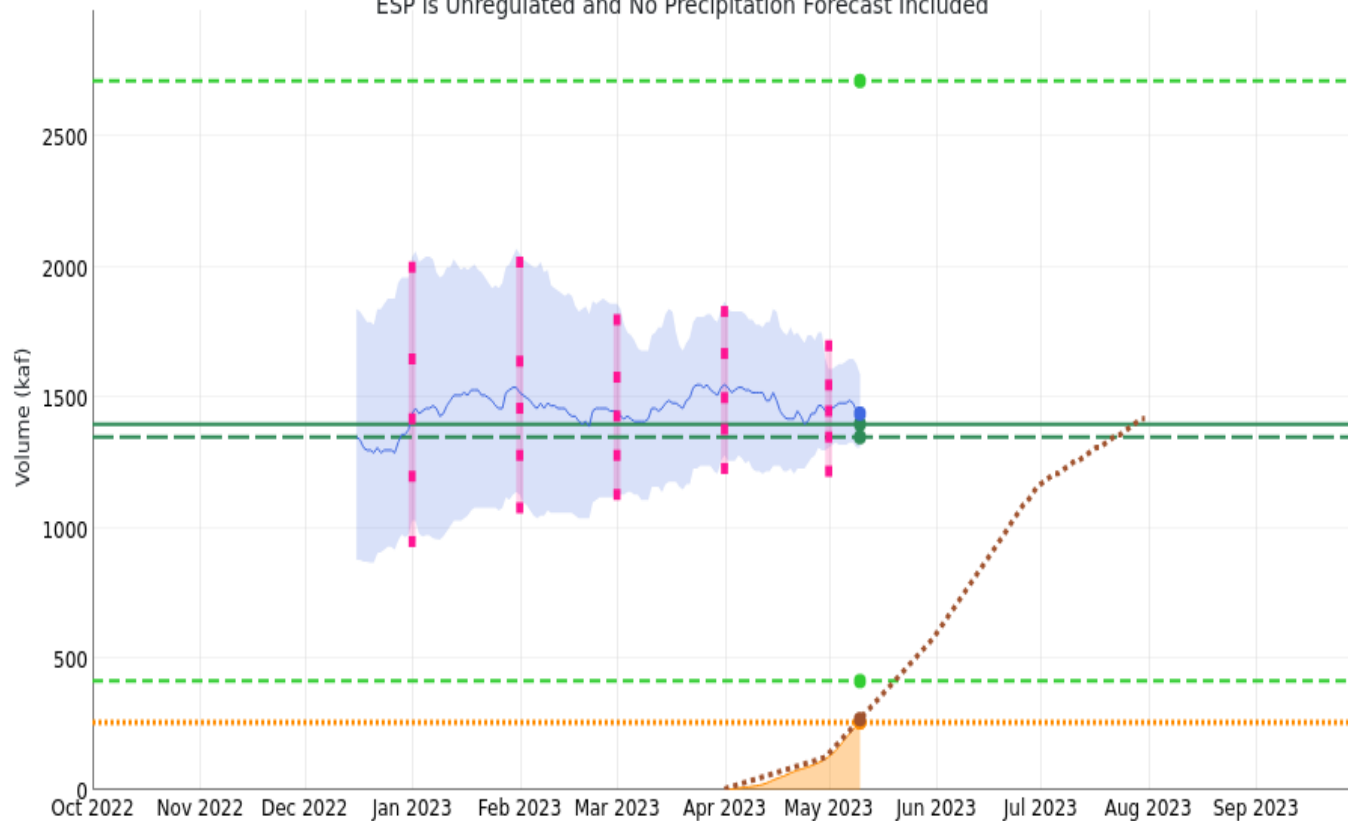
ESP: 897



Colorado - Dotsero, Nr (EGLC2)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 1450 kaf (104% Average, 107% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/05/10:

Max 2011: 2712.61

Min 2002: 416.7

Average: 1400

Median: 1350

Observed Accumulation: 259

Observed Total: 259

Normal Accumulation: 271

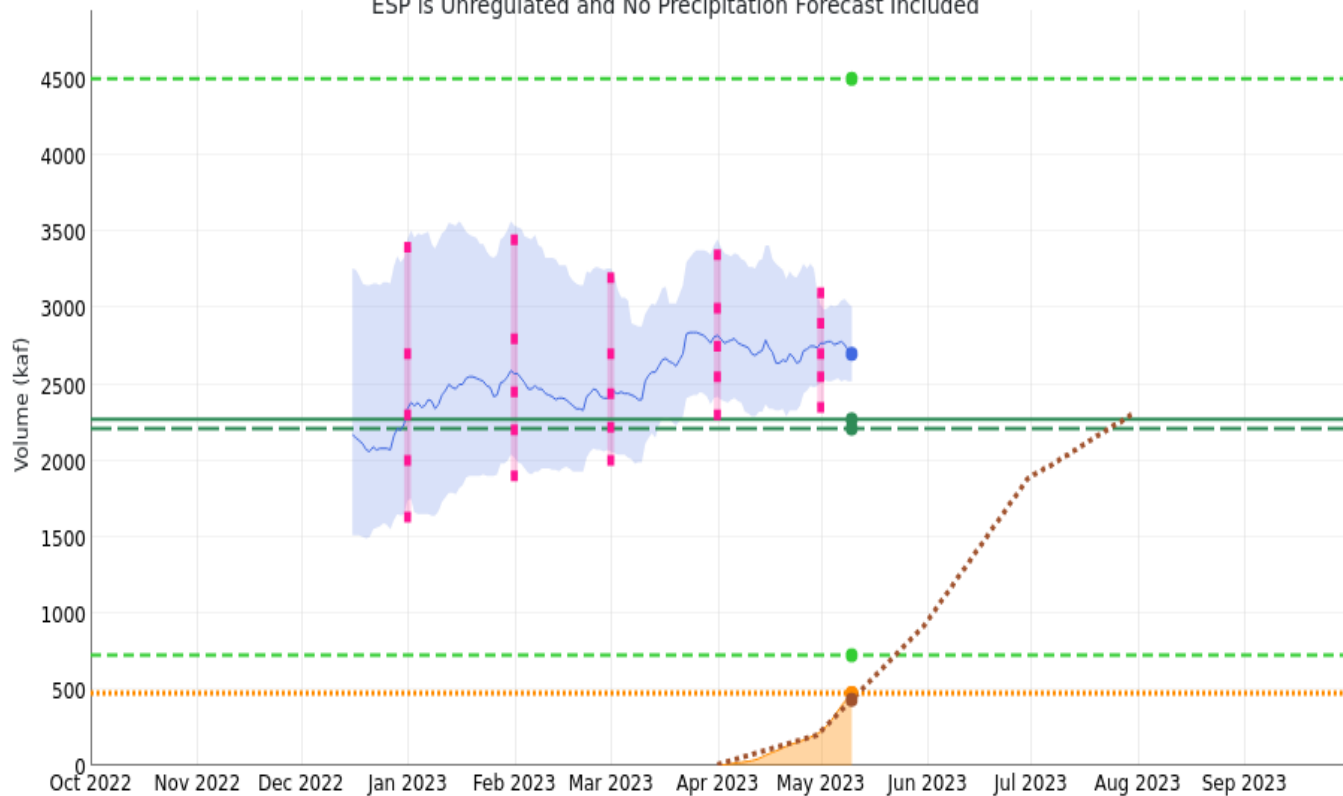
ESP: 1440



Colorado - Cameo, Nr (CAMC2)

Period: Apr-Jul, Official 50% Forecast (2023-05-01): 2700 kaf (119% Average, 122% Median)

ESP is Unregulated and No Precipitation Forecast Included



2023/05/10:

Max 1984: 4503.5

Min 2002: 723.88

Average: 2270

Median: 2210

Observed Accumulation: 476

Observed Total: 476

Normal Accumulation: 432

ESP: 2700

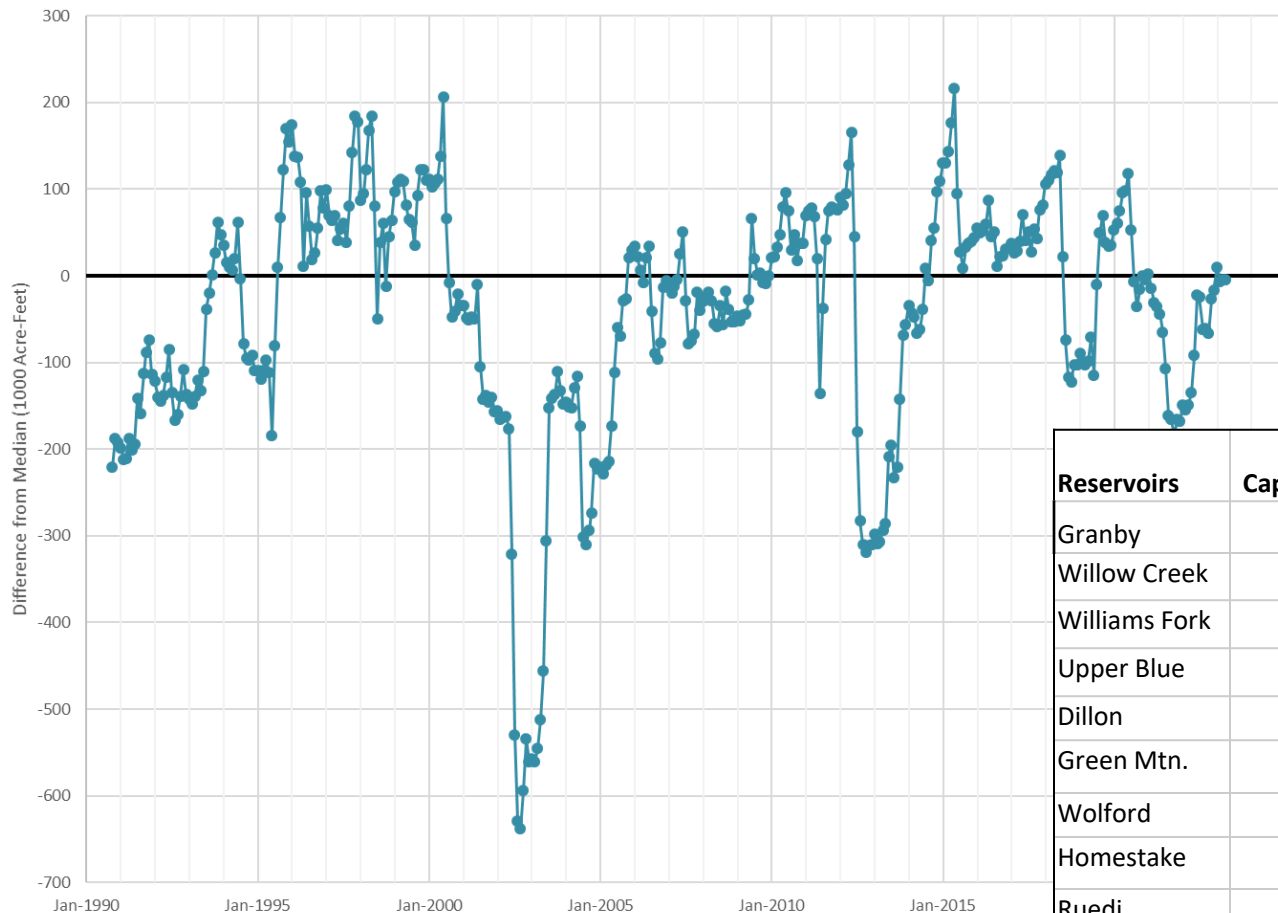


Current Reservoir Conditions



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Departure from Median



Reservoirs	Decreed Capacity (acft)	Current Storage (acft)	Available Capacity (acft)	Percent Full
Granby	543,758	430,980	112,778	79.26%
Willow Creek	10,553	8,970	1,583	85.00%
Williams Fork	93,637	62,065	31,572	66.28%
Upper Blue	2,140	151	1,989	7.06%
Dillon	252,678	211,800	40,878	83.82%
Green Mtn.	154,645	94,924	59,721	61.38%
Wolford	65,993	55,210	10,783	83.66%
Homestake	43,505	15,701	27,804	36.09%
Ruedi	102,369	74,697	27,672	72.97%
Vega	33,500	26,150	7,350	78.06%
Total	1,302,778	980,648	322,130	75.27%

Storage as of 5/18/2023

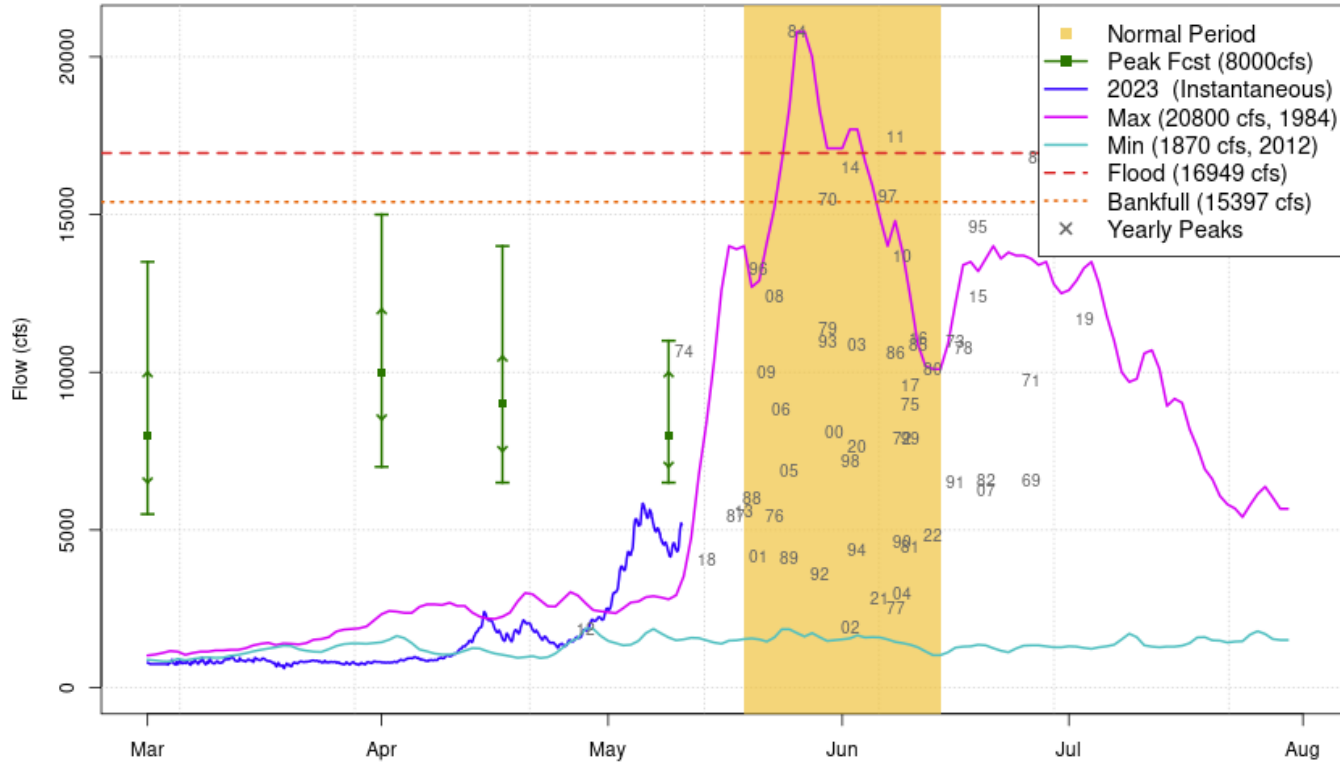


Peak Flow Forecasts



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2023 Mean Daily Peak Flow Forecast Colorado - Dotsero- Nr (EGLC2)



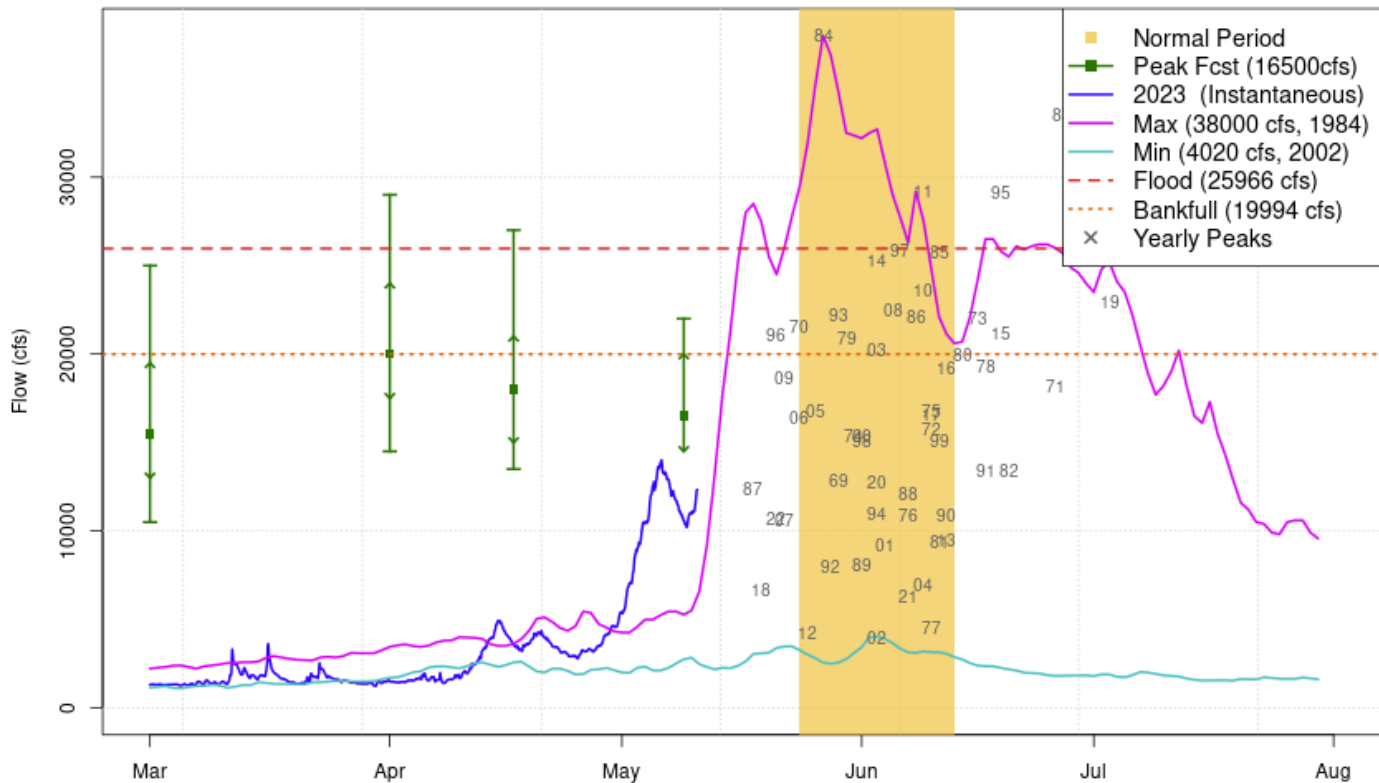
These graphics are updated approximately every two weeks between 3/1 and 5/1

Plot Created 2023-05-10 18:33:48

CBRFC / NWS / NOAA



2023 Mean Daily Peak Flow Forecast Colorado - Cameo- Nr (CAMC2)



These graphics are updated approximately every two weeks between 3/1 and 5/1

Plot Created 2023-05-10 18:33:55

CBRFC / NWS / NOAA



Similar Year Call Scenarios at Shoshone and Cameo

Similar Year Call Scenarios at Shoshone and Cameo

- Similar recent years for water supply and peak forecasts:
 - 2015
 - 2017
 - 2019

- Shoshone Call – Mid to late August
- Cameo Call – Late August to early September



Seasonal Precipitation Outlook

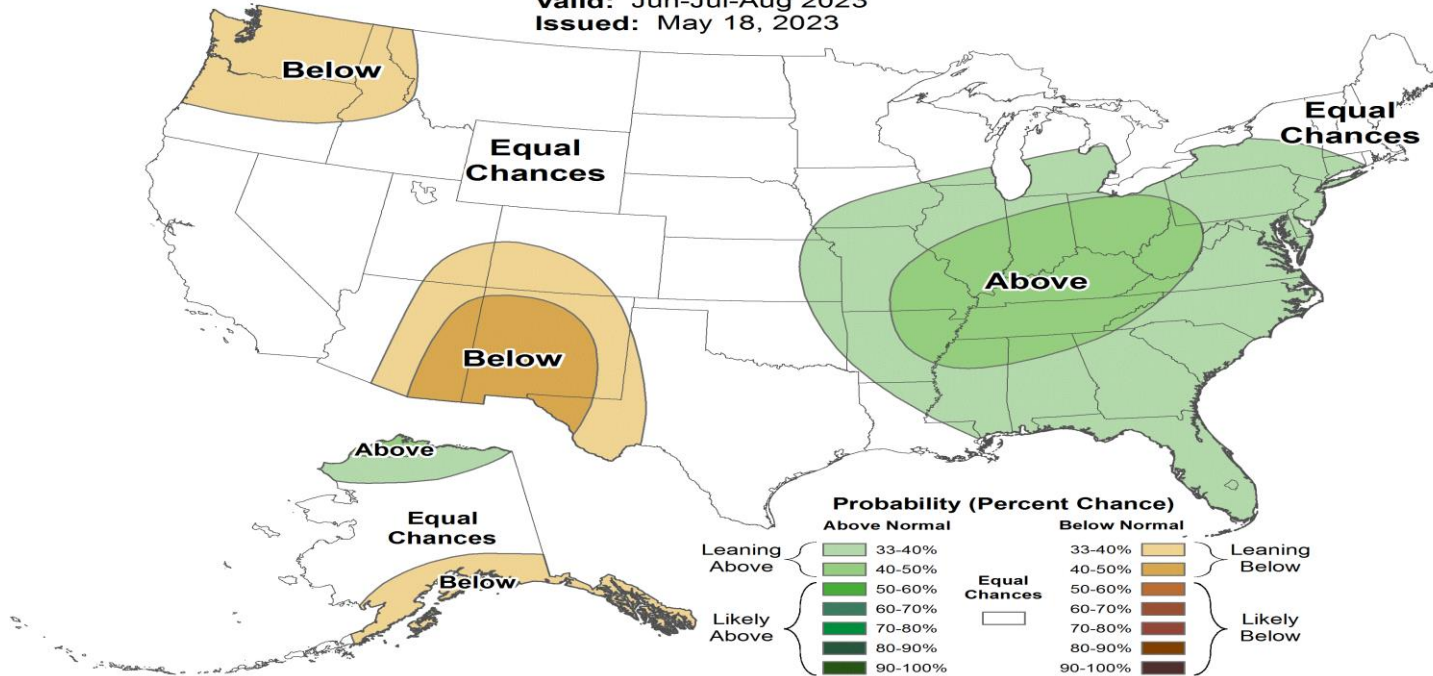


Seasonal Precipitation Outlook



Valid: Jun-Jul-Aug 2023

Issued: May 18, 2023



Questions?



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Winter Park Ski Area from the Grand River Ditch

Reference Slides

- [AWS Plot \(usda.gov\)](https://usda.gov) Colorado headwaters
- [AWS Plot \(usda.gov\)](https://usda.gov) blue
- [AWS Plot \(usda.gov\)](https://usda.gov) eagle
- [AWS Plot \(usda.gov\)](https://usda.gov) roaring fork
- [AWS Plot \(usda.gov\)](https://usda.gov) Colorado headwaters-plateau
- [AWS Plot \(usda.gov\)](https://usda.gov) Entire Div 5

Water Supply Forecasts

- Colorado River – Cameo
- Roaring Fork – Glenwood Springs
- Colorado River – Dotsero
- Eagle River – Gypsum
- Colorado River – Kremmling
- Blue River – Green Mountain Reservoir
- Blue River – Dillon Reservoir
- Colorado River – Lake Granby
- Fraser River – Winter Park