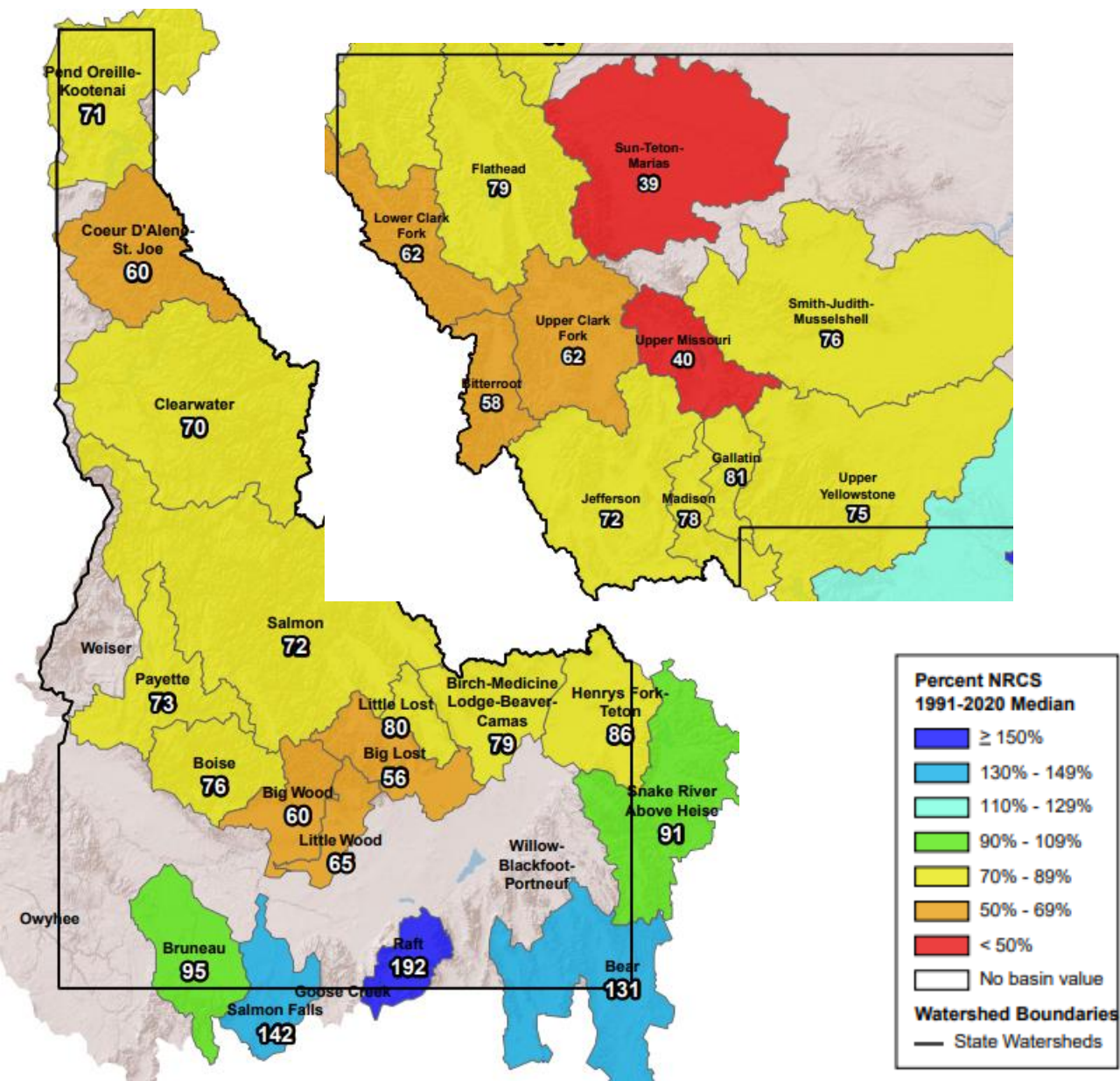


Snow Water Equivalent Maps
May 21, 2024

May 22, 2024
Snow2Flow Update for 4 Rivers Lottery Rivers
MF, Main, Lochsa, Selway,

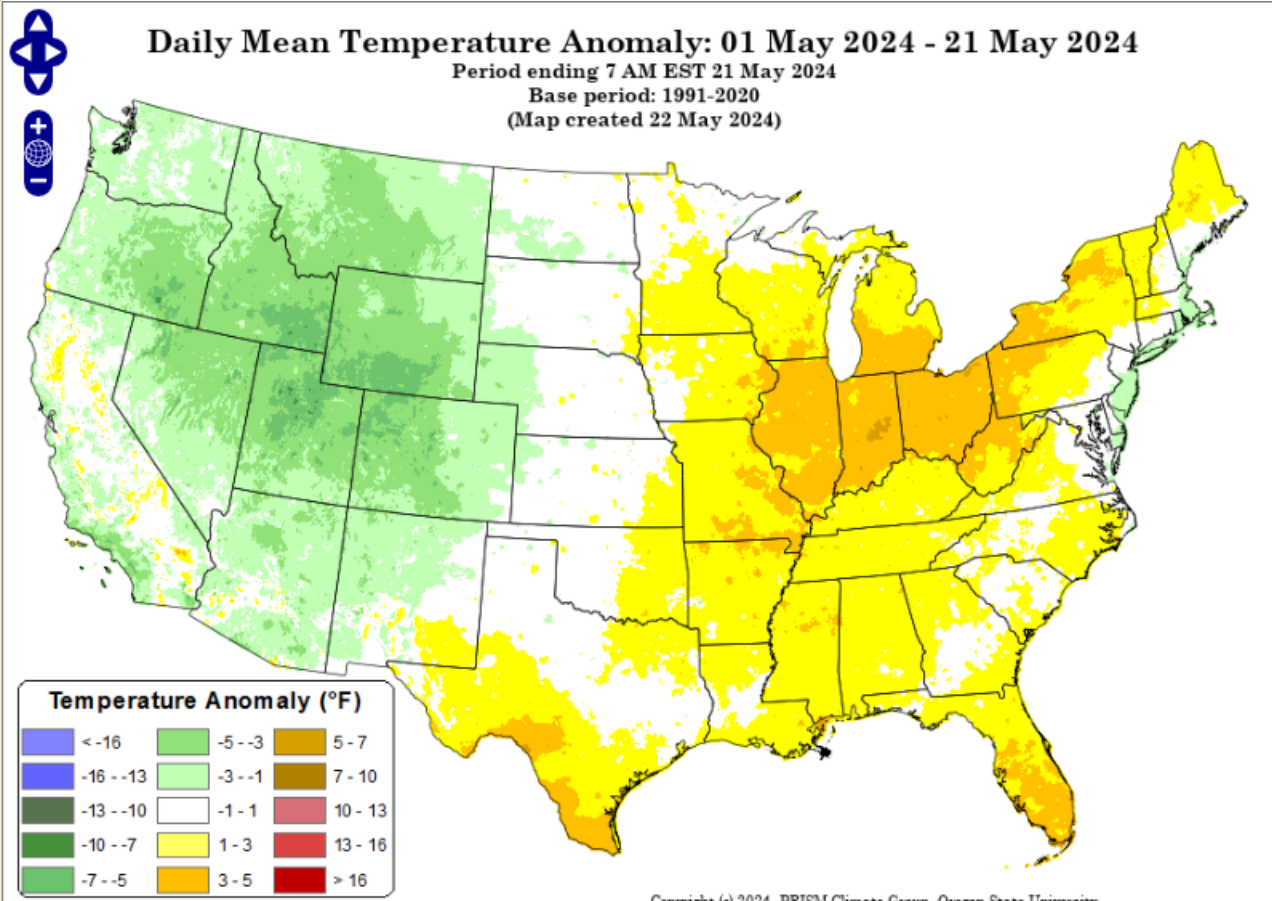
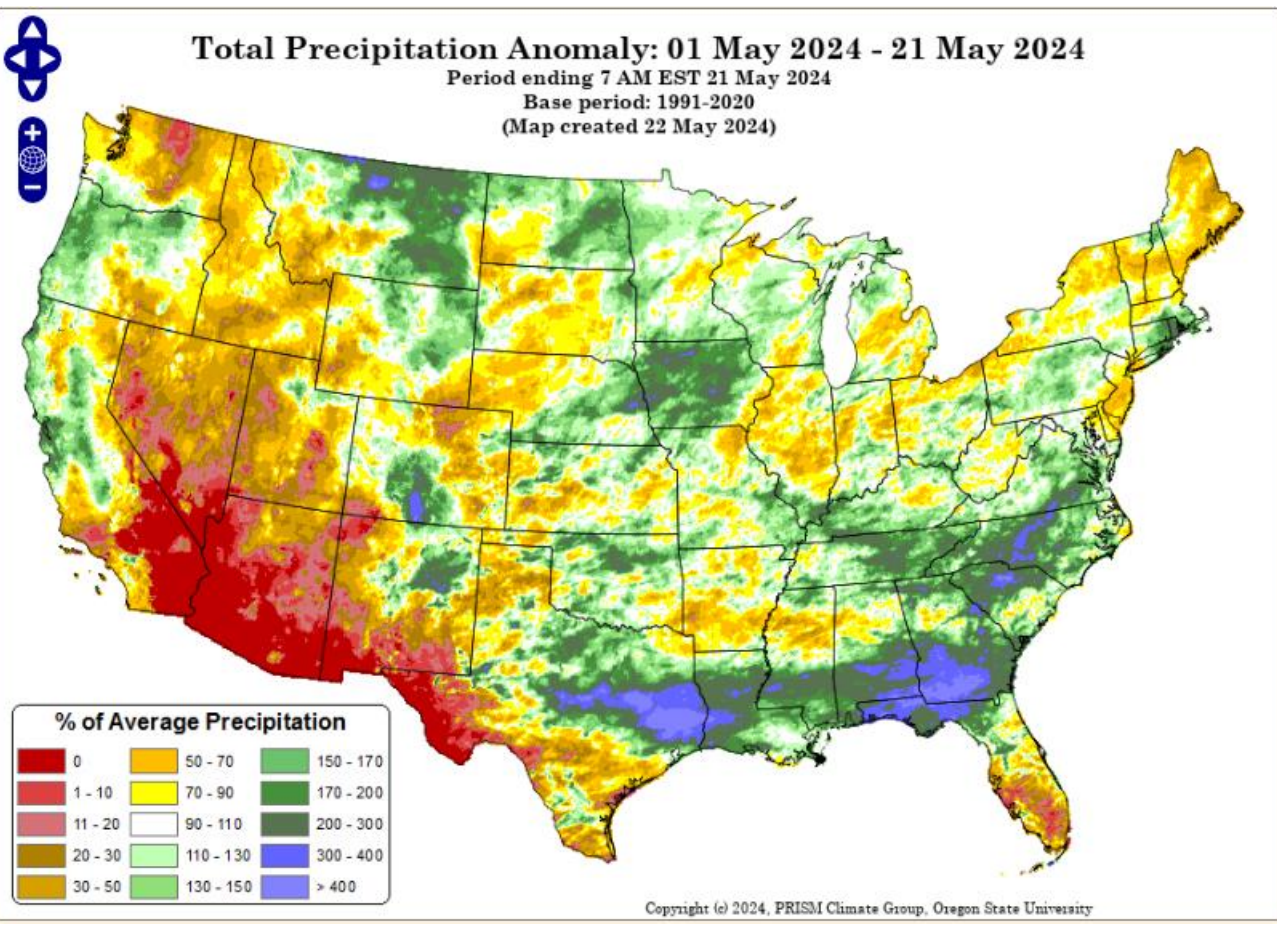
May 1-22 precipitation is about 70% of the normal
Pct of Monthly Total in the Clearwater, Salmon
Boise & Big Wood Basins with 9 more May days.



Idaho SNOTEL Precipitation Summary Update Report							
Based on Mountain Data from NRCS SNOTEL Sites							
Provisional data, subject to revision							
Data based on the first reading of the day (typically 00:00) for Wednesday, May 22, 2024							
Basin Site Name	Elev (ft)	Month to Date Precipitation (in)	Median Monthly Total (in)	Pct of Monthly Total	Water Year to Date Precipitation (in)	Median Annual Total (in)	Pct of Annual Total
NORTHERN PANHANDLE REGION							
Basin Index (%)				39			72
COEUR D'ALENE-ST. JOE RIVER BASIN							
Basin Index (%)				44			65
CLEARWATER BASIN							
Basin Index (%)				72			67
SALMON BASIN							
Basin Index (%)				65			70
WEISER BASIN							
Basin Index (%)				46			74
PAYETTE BASIN							
Basin Index (%)				52			74
BOISE BASIN							
Basin Index (%)				69			79
BIG WOOD BASIN							
Basin Index (%)				67			73
LITTLE WOOD BASIN							
Basin Index (%)				47			70

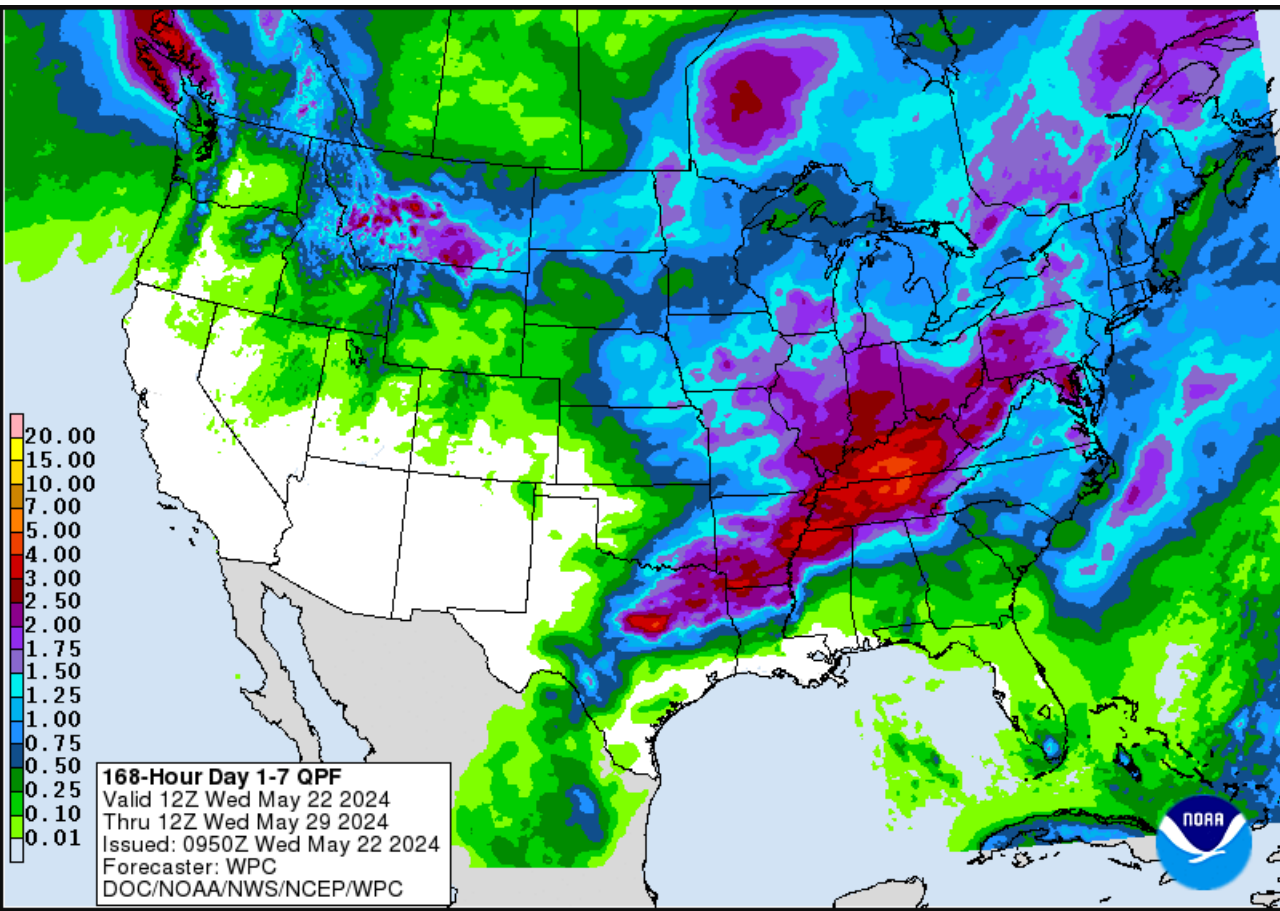
This means the May 1-22 Total Precipitation was only 50-70% of normal across the state.

May 1-22 Daily Mean Temperatures are a few degrees below normal because of the cool wet May weather.



Its always nice to start with future weather to help understand what may happen with the near-term flows since most rivers are not in full recession yet.

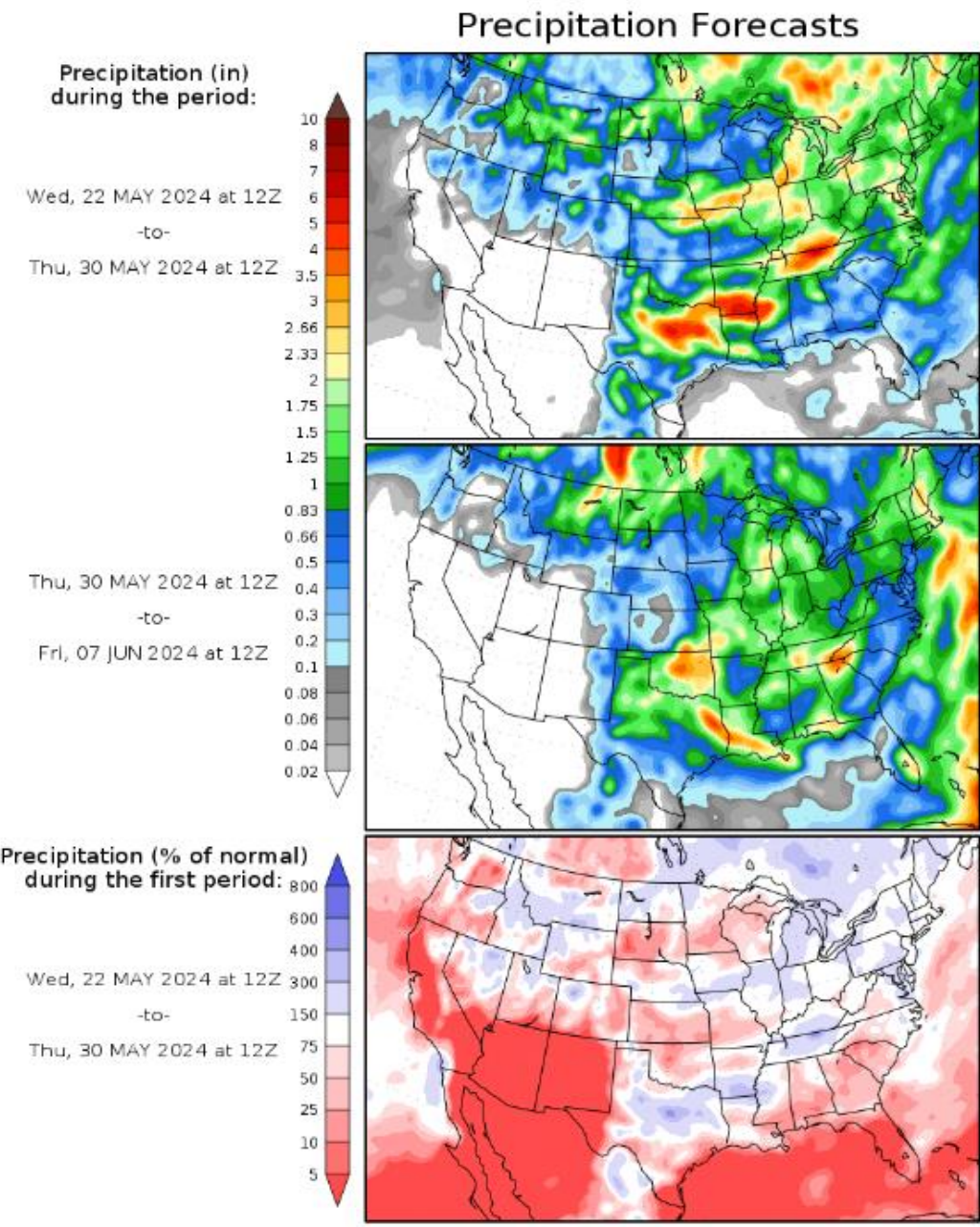
7-Day Total Precipitation Forecast for May 22-29 shows lingering moisture primarily in north Central Idaho.












The 2nd 7-day Precipitation Outlook shows a drying trend May 30-Jun 7, but you can only believe these extended outlooks when the pattern is present for several days in this model, and by that time it may be only 7-Days out.

Precipitation Outlook for the Conterminous U.S.

Related Maps: Climate outlook for [Temperature](#) and [Soil Moisture](#)

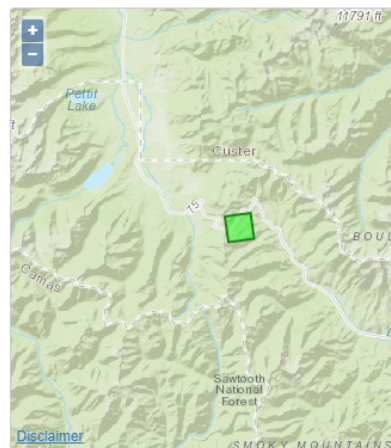


This Afternoon	Tonight	Thursday	Thursday Night	Friday	Friday Night	Saturday	Saturday Night	Sunday
								
100%	50%	40%				50%	20%	
High: 38 °F	Low: 20 °F	High: 42 °F	Low: 25 °F	High: 47 °F	Low: 31 °F	High: 42 °F	Low: 26 °F	High: 47 °F
Snow Showers	Chance Snow Showers	Chance Snow	Partly Cloudy	Mostly Sunny	Mostly Cloudy	Chance Snow	Slight Chance Snow then Partly Cloudy	Sunny

Detailed Forecast

This Afternoon	Snow showers, mainly before 5pm. Some thunder is also possible. High near 38. West southwest wind 11 to 13 mph, with gusts as high as 29 mph. Chance of precipitation is 100%. Total daytime snow accumulation of 1 to 2 inches possible.
Tonight	A chance of snow showers before 10pm, then a chance of snow after 1am. Some thunder is also possible. Mostly cloudy, with a low around 20. West northwest wind 10 to 13 mph, with gusts as high as 28 mph. Chance of precipitation is 50%. New snow accumulation of less than a half inch possible.
Thursday	A 40 percent chance of snow, mainly before 10am. Mostly cloudy, with a high near 42. Northwest wind 8 to 10 mph, with gusts as high as 23 mph. New snow accumulation of less than a half inch possible.
Thursday Night	Partly cloudy, with a low around 25. Northwest wind around 6 mph becoming light and variable in the evening.
Friday	Mostly sunny, with a high near 47. Light and variable wind becoming southwest 5 to 8 mph in the morning. Winds could gust as high as 18 mph.
Friday Night	Mostly cloudy, with a low around 31.
Saturday	A chance of snow before noon, then a chance of snow showers after noon. Some thunder is also possible. Partly sunny, with a high near 42. Chance of precipitation is 50%. New snow accumulation of less than a half inch possible.
Saturday Night	A 20 percent chance of snow before midnight. Partly cloudy, with a low around 26.
Sunday	Sunny, with a high near 47.
Sunday Night	Mostly clear, with a low around 30.
Memorial Day	Sunny, with a high near 55.
Monday Night	Mostly clear, with a low around 36.
Tuesday	Sunny, with a high near 60.

Topographic
Click Map For Forecast



Disclaimer
Forecast Area

ABOUT THIS FORECAST

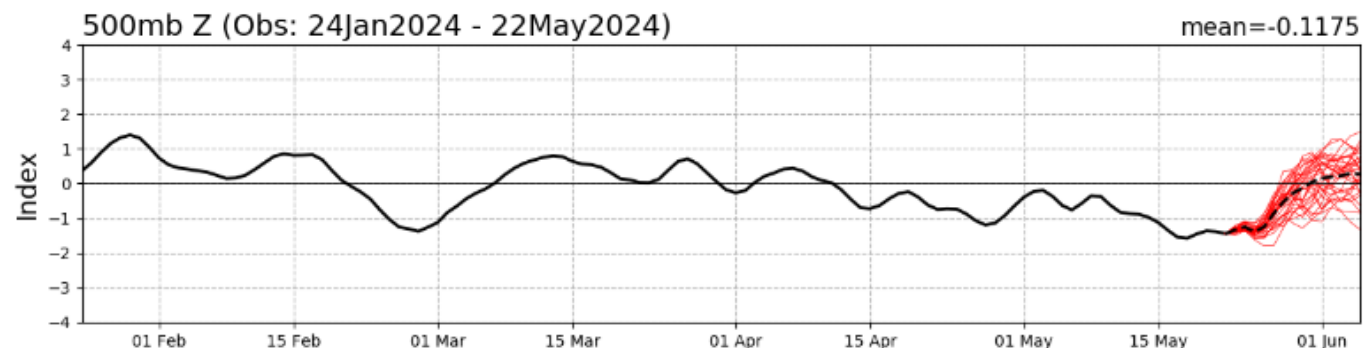
Point Forecast: 21 Miles NW Ketchum ID
43.87°N 114.7°W (Elev. 8363 ft)
Last Update: 11:31 am MDT May 22, 2024

NWS Forecast from noon May 22 for Galena Summit shows moisture (snow & rain) clearing out by next week. Nighttime Temps in mid-20s that slow snow melt gradually increase to above freezing nighttime temps next week.

Temps could be in mid-80s next week in Boise.

PNA is tracking to the positive which also usually means nicer, calmer, high pressure is moving in. Maybe a sign the beginning of summer is arriving.

PNA Index: Observed & GEFS Forecasts



Mf Salmon R at Mf Lodge Snow to Flow Plot



- Flow Median
- SWE Median
- Flow Stats
- SWE Stats
- 2024 (5 sites)

Snow Water Equivalent (in.)

90
80
70
60
50
40
30
20
10
0

Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1

Q (cfs)

16000
14000
12000
10000
8000
6000
4000
2000
0

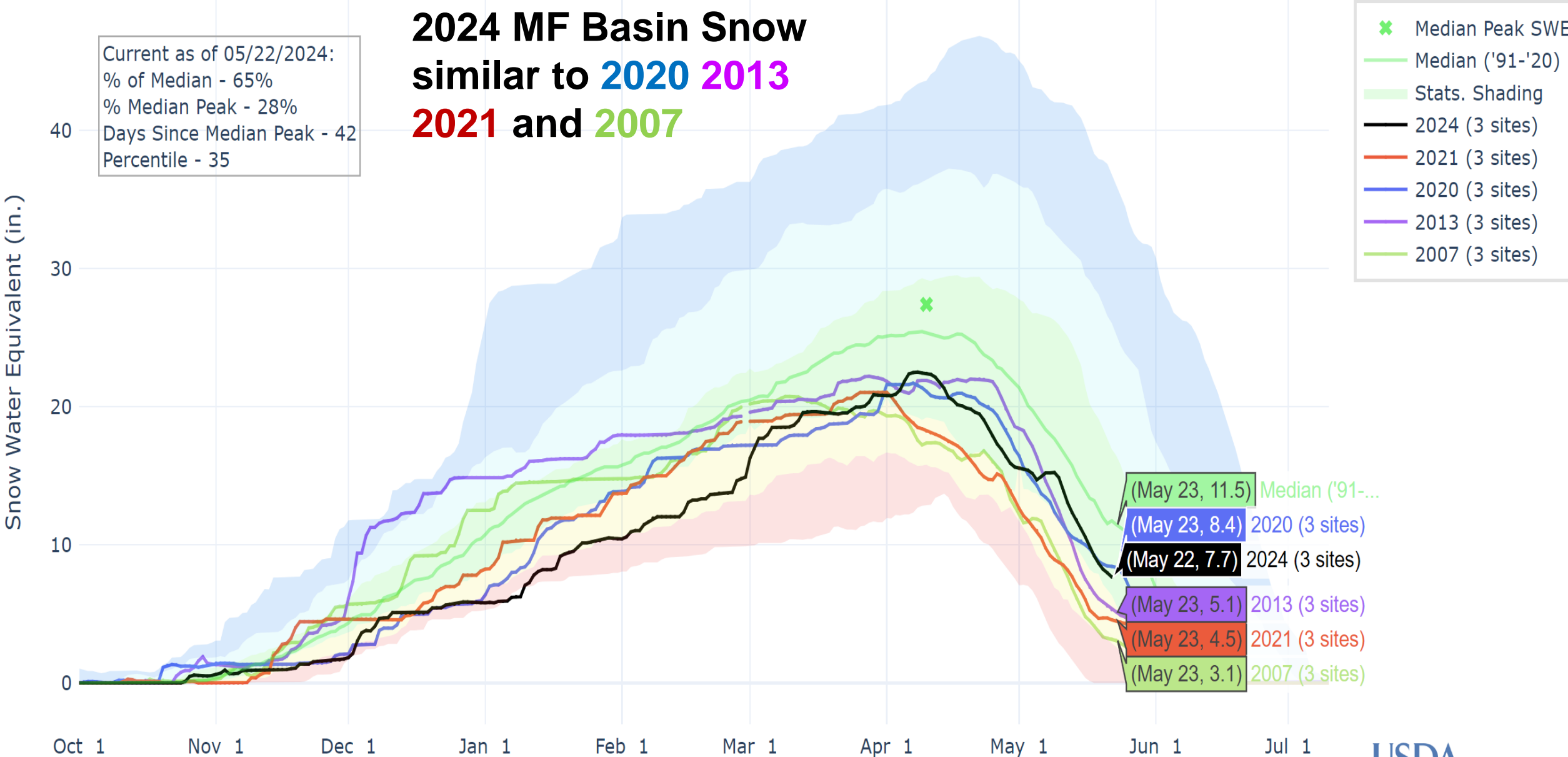
(May 22, 5335.000000) Flow Median
cfs

(May 21, 4340.000000) 2024 (5 sites)
cfs

(May 22, 13.5) SWE Median
in. SWE

(May 22, 9.6) 2024 (5 sites)
in. SWE

SNOW WATER EQUIVALENT IN MIDDLE FORK SALMON



BANNER SUMMIT, ID (312) SNOW WATER EQUIVALENT

Max SWE Category	Max SWE Magnitude (inches)	Number of Years in Analysis	Average percent melted at time of peak streamflow
Below average	<21	9	90
Average	20 – 31	16	61
Above average	>30	9	66

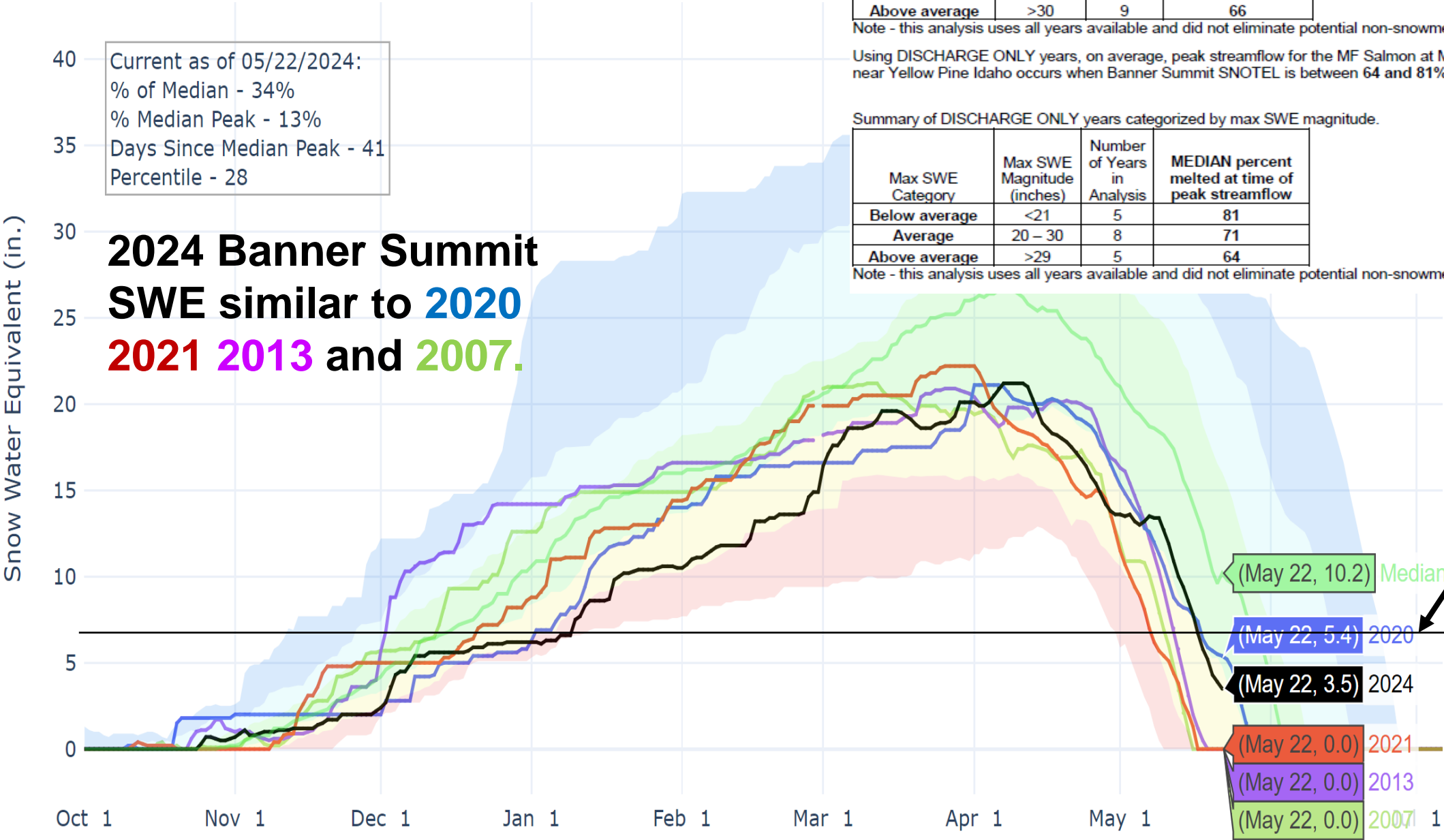
Note - this analysis uses all years available and did not eliminate potential non-snowmelt peaks

Using DISCHARGE ONLY years, on average, peak streamflow for the MF Salmon at MF Lodge near Yellow Pine Idaho occurs when Banner Summit SNOTEL is between 64 and 81% melted.

Summary of DISCHARGE ONLY years categorized by max SWE magnitude.

Max SWE Category	Max SWE Magnitude (inches)	Number of Years in Analysis	MEDIAN percent melted at time of peak streamflow
Below average	<21	5	81
Average	20 – 30	8	71
Above average	>29	5	64

Note - this analysis uses all years available and did not eliminate potential non-snowmelt peaks



2024 Banner Summit peaked at 21.2" on Apr 11 and is at 3.5" today. On average, the snowmelt peak occurs when the site is 61% (or 71%) melted, which was 8.2" (6.1") and occurred May 16-18.

PRECIPITATION ACCUMULATION IN MIDDLE FORK SALMON

Reset Range

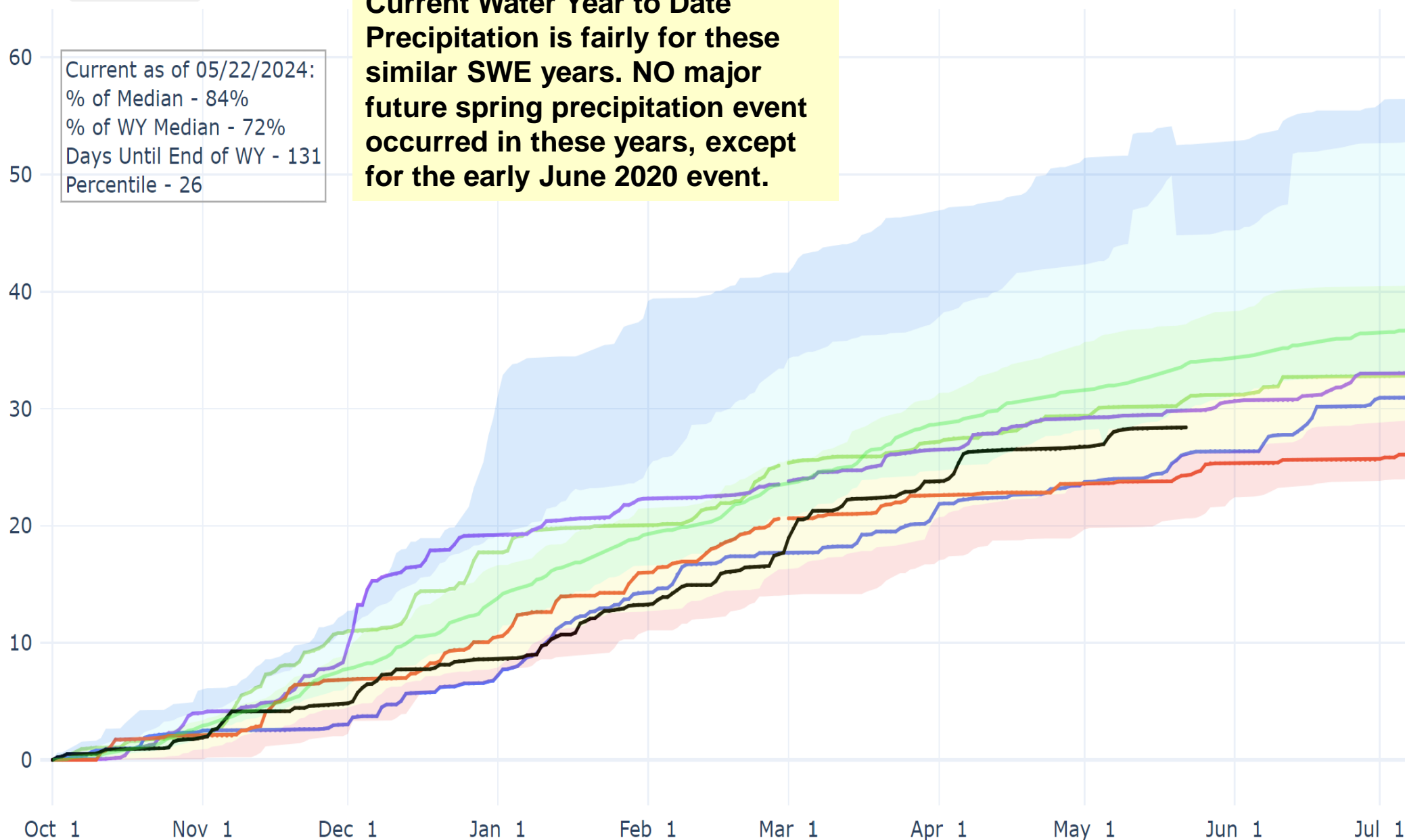
Current as of 05/22/2024:
% of Median - 84%
% of WY Median - 72%
Days Until End of WY - 131
Percentile - 26

**Current Water Year to Date
Precipitation is fairly for these
similar SWE years. NO major
future spring precipitation event
occurred in these years, except
for the early June 2020 event.**

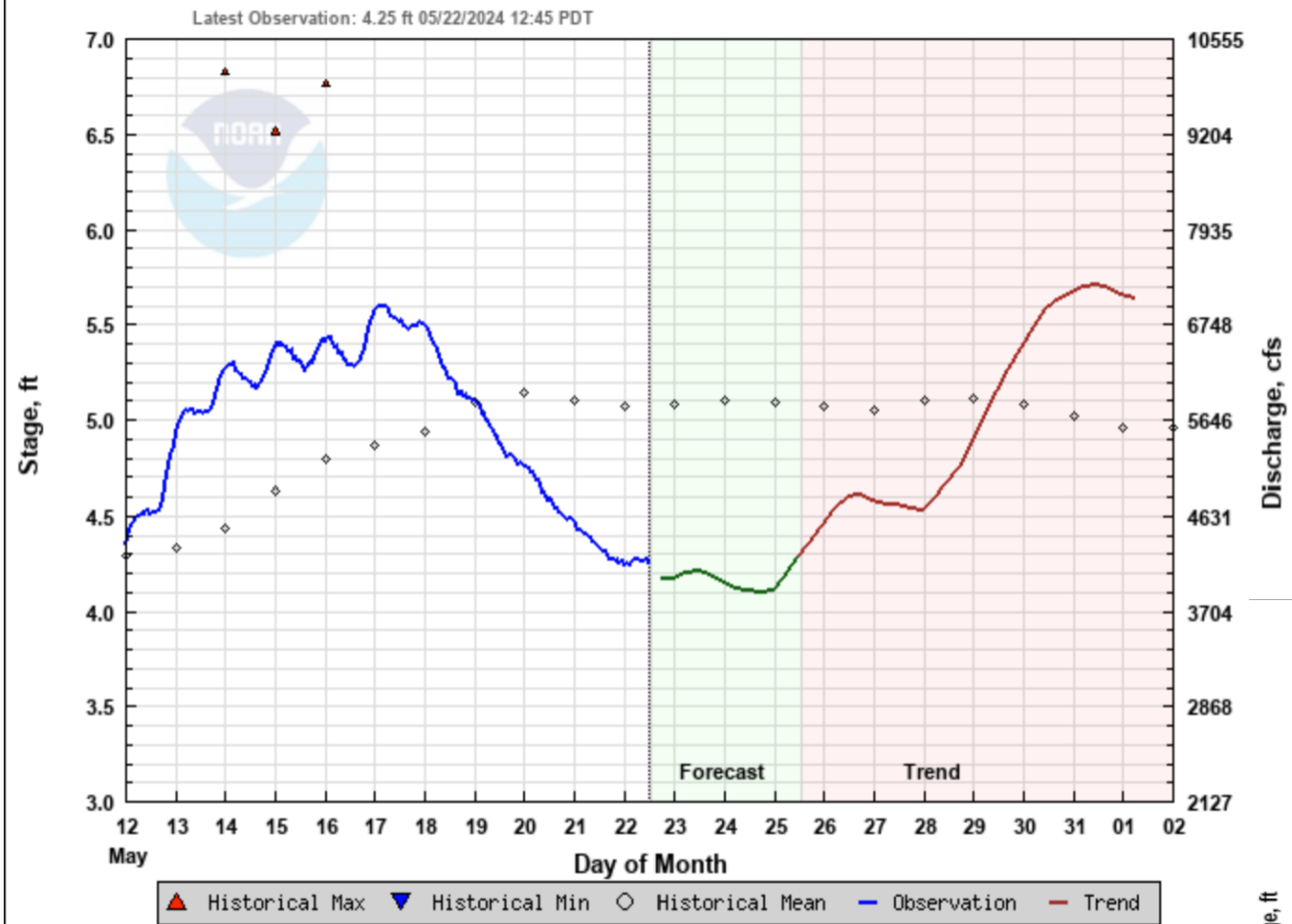
Station List

- Median ('91-'20)
- Stats. Shading
- 2024 (3 sites)
- 2021 (3 sites)
- 2020 (3 sites)
- 2013 (3 sites)
- 2007 (3 sites)

Precipitation Accumulation (in.)



MF SALMON - MIDDLE FORK LODGE (MIDI1)



Forecast Created: 05/22/2024 09:06 PDT
Plot Created: 05/22/2024 13:04 PDT

Keep in mind the Snow2Flow Relationship is based on snowmelt relationship with snowmelt peak flows.

Any given day with rain or hot temps can generate additional peaks or a higher peak for the season.

NWS Forecast & Trend shows flows leveling off and then increasing to similar CFS peak with return of warmer temps.

Banner Summit Snow2Flow relationship shows the snowmelt peak occurred on May 16-18.

There is enough remaining snow to generate another peak. The question is – will next increase be less, equal or greater than the previous peak...

Previous run below from May 18 to show changes.

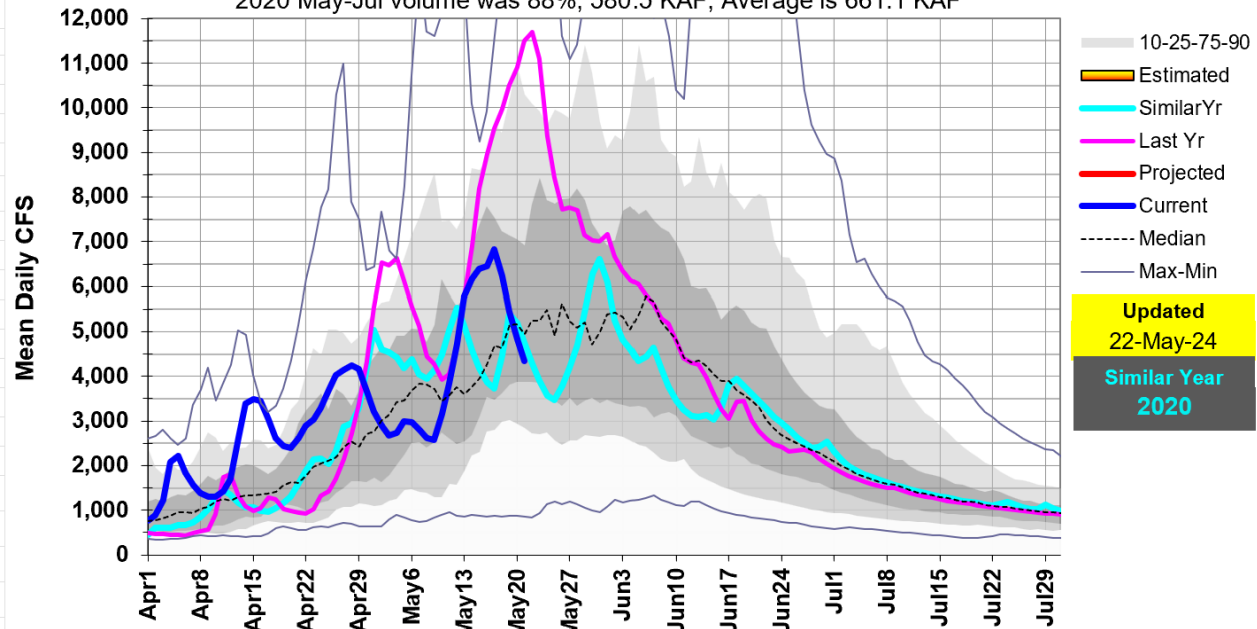
MF SALMON - MIDDLE FORK LODGE (MIDI1)



Forecast Created: 05/18/2024 09:51 PDT
Plot Created: 05/18/2024 12:56 PDT

13309220: MF Salmon R at MF Lodge near Yellow Pine, ID

2020 May-Jul volume was 88%, 580.5 KAF, Average is 661.1 KAF



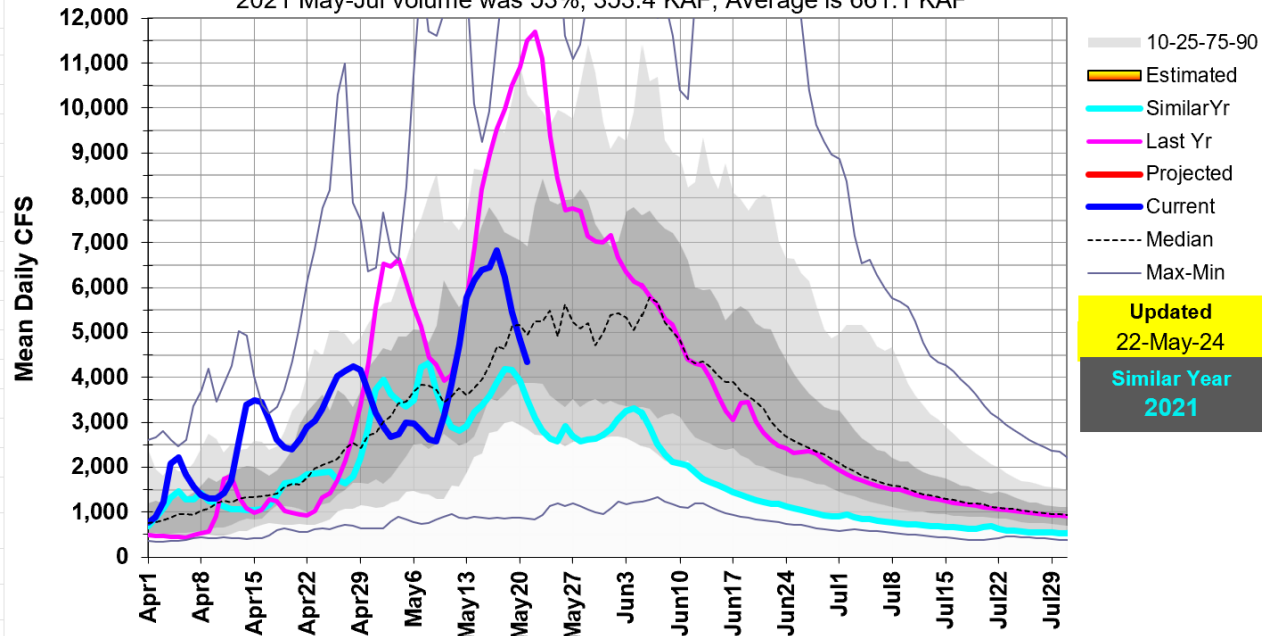
**MF Salmon River Runoff for similar snow years:
2024 May-Jul Volume Runoff Forecast is 495 KAF.**

2020 - the early June precipitation event is responsible for the June 3 peak and helped to increase the May-Jul 2020 Volume to 580 KAF.

With another peak likely, this may be good similar flow pattern to watch.

13309220: MF Salmon R at MF Lodge near Yellow Pine, ID

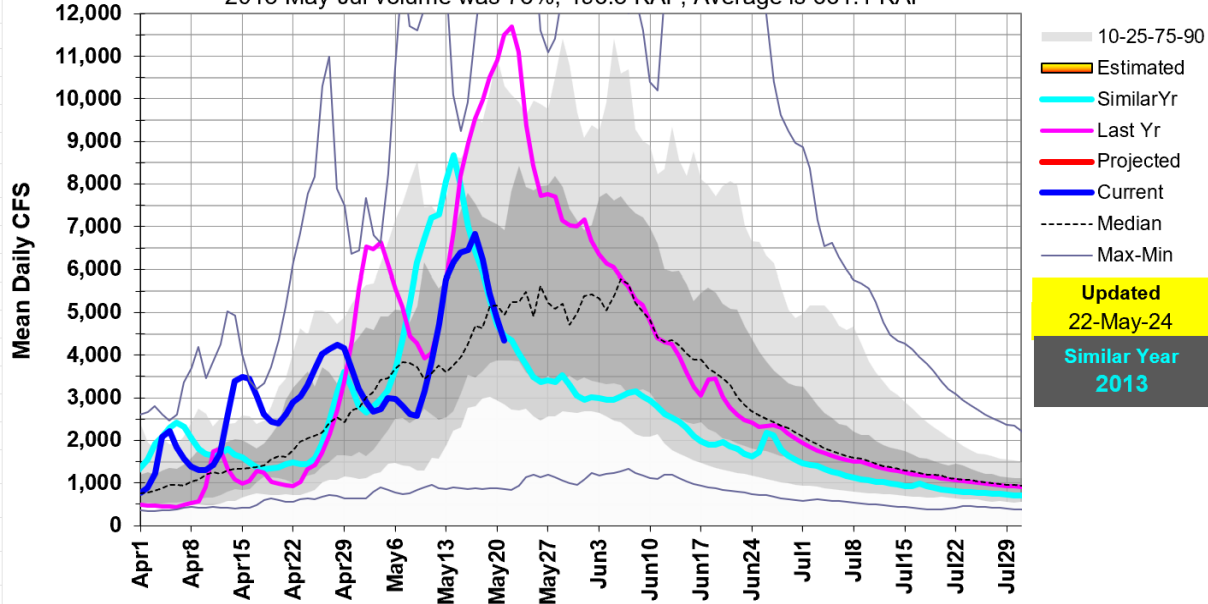
2021 May-Jul volume was 53%, 353.4 KAF, Average is 661.1 KAF



2021 - the dry precipitation trend started in late March 2021 and resulted in the low, fairly flat and multiple peak runoff pattern. May-Jul Volume was 353 KAF, much less than this year's forecast.

13309220: MF Salmon R at MF Lodge near Yellow Pine, ID

2013 May-Jul volume was 75%, 496.3 KAF, Average is 661.1 KAF



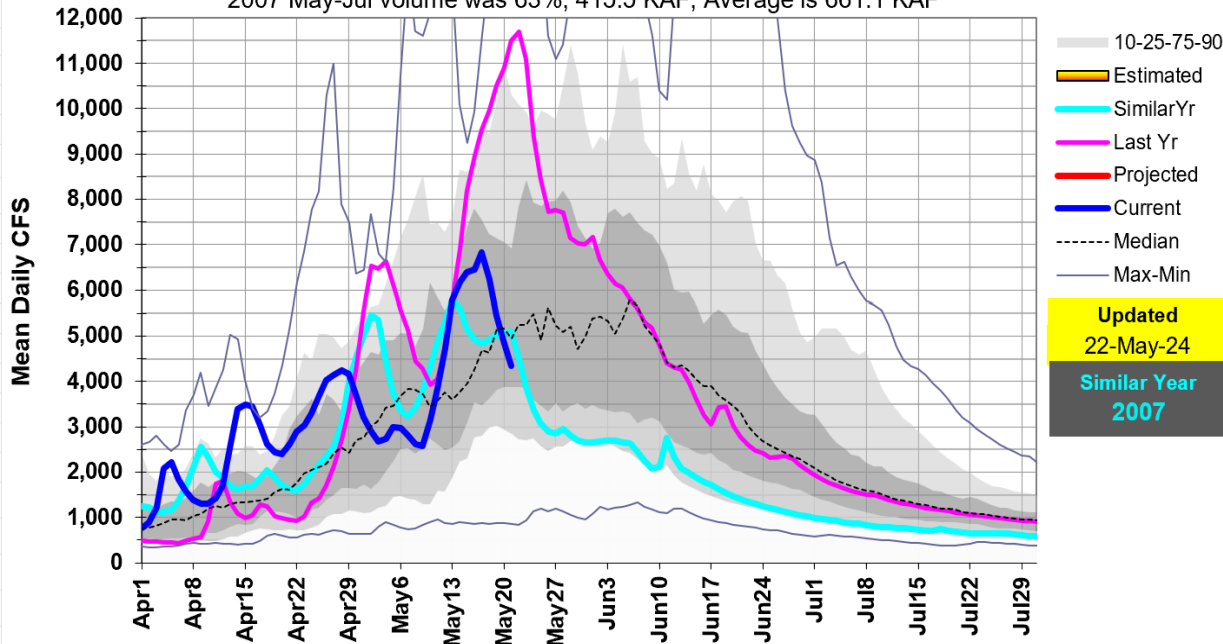
**MF Salmon River Runoff for similar snow years:
2024 May-Jul Runoff Volume Forecast is 495 KAF.**

2024 is currently mirroring the 2013 recession flow pattern. May-Jul 2013 Runoff Volume was 496 KAF, the same as forecast for this year.

2024 is also currently mirroring the 2007 recession flow. 2007 May-Jul Runoff Volume was 415 KAF, less than the 495 KAF forecast this year. Banner Summit melt out date in 2007 was May 16, earlier than this year by about 10 days.

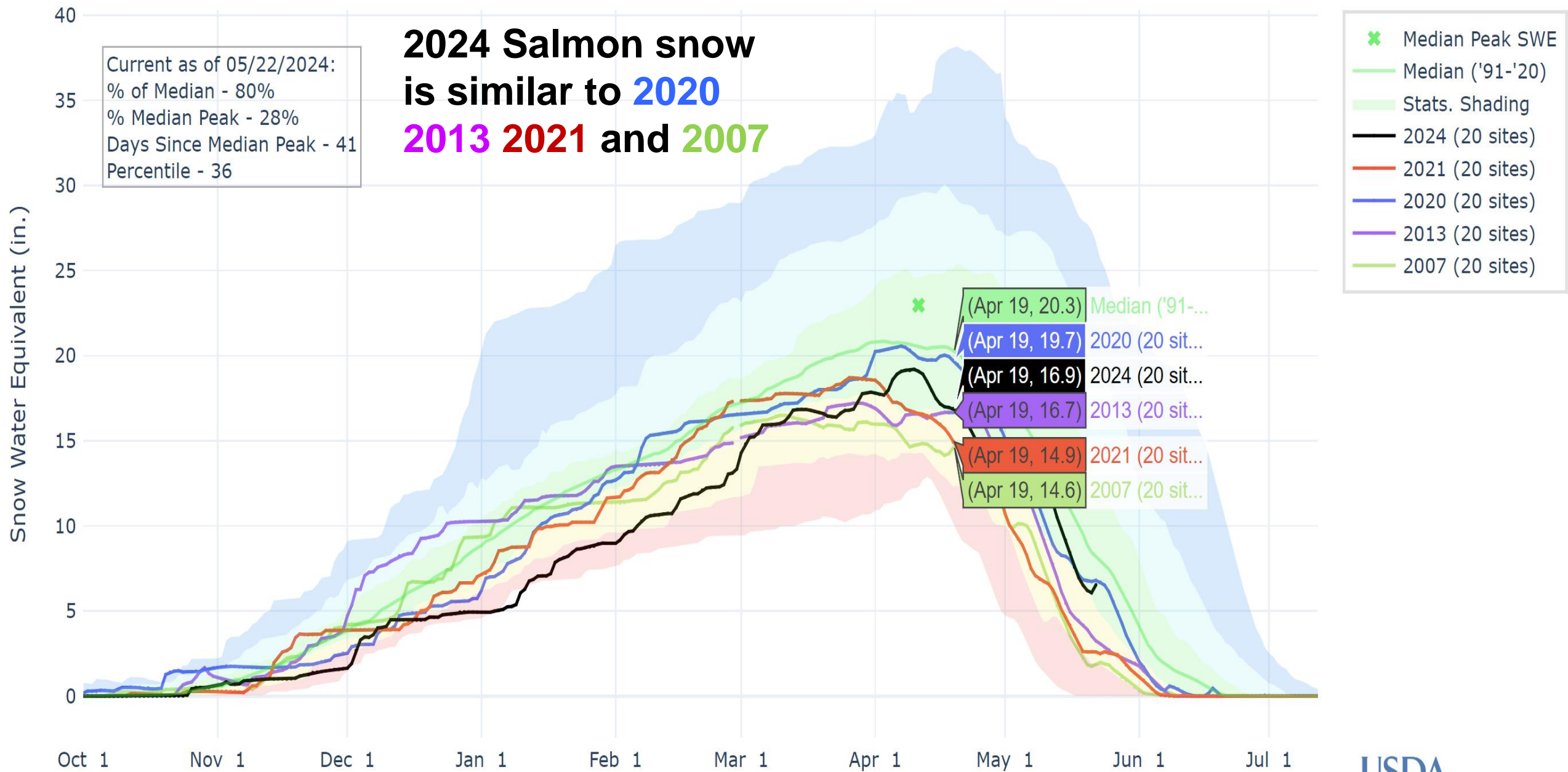
13309220: MF Salmon R at MF Lodge near Yellow Pine, ID

2007 May-Jul volume was 63%, 415.5 KAF, Average is 661.1 KAF



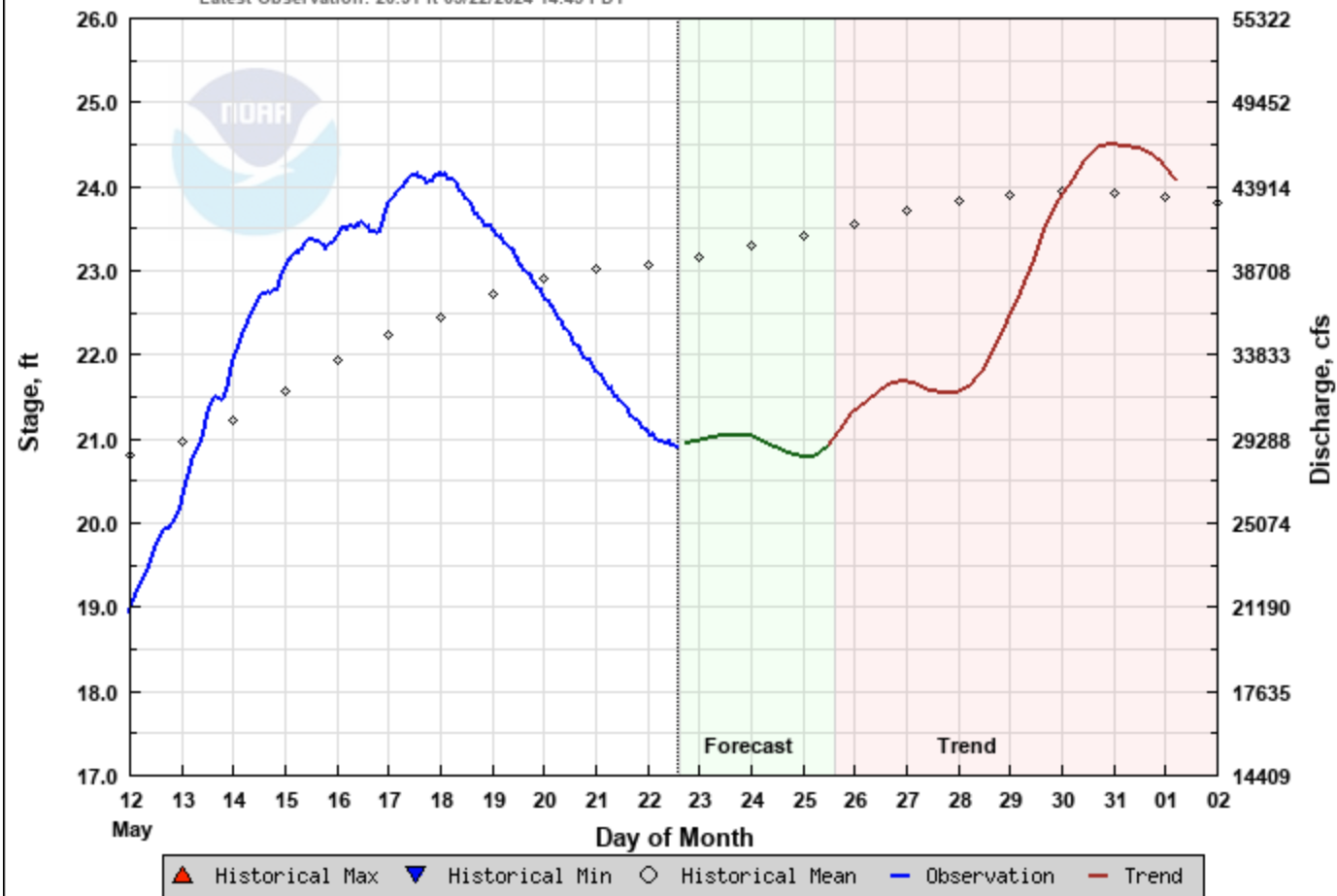
The remaining question for this year is how high the next increase will be, will recession flows plateau in next few weeks like they did/are in the Owyhee River this year, or just continue gradually decreasing.

SNOW WATER EQUIVALENT IN SALMON



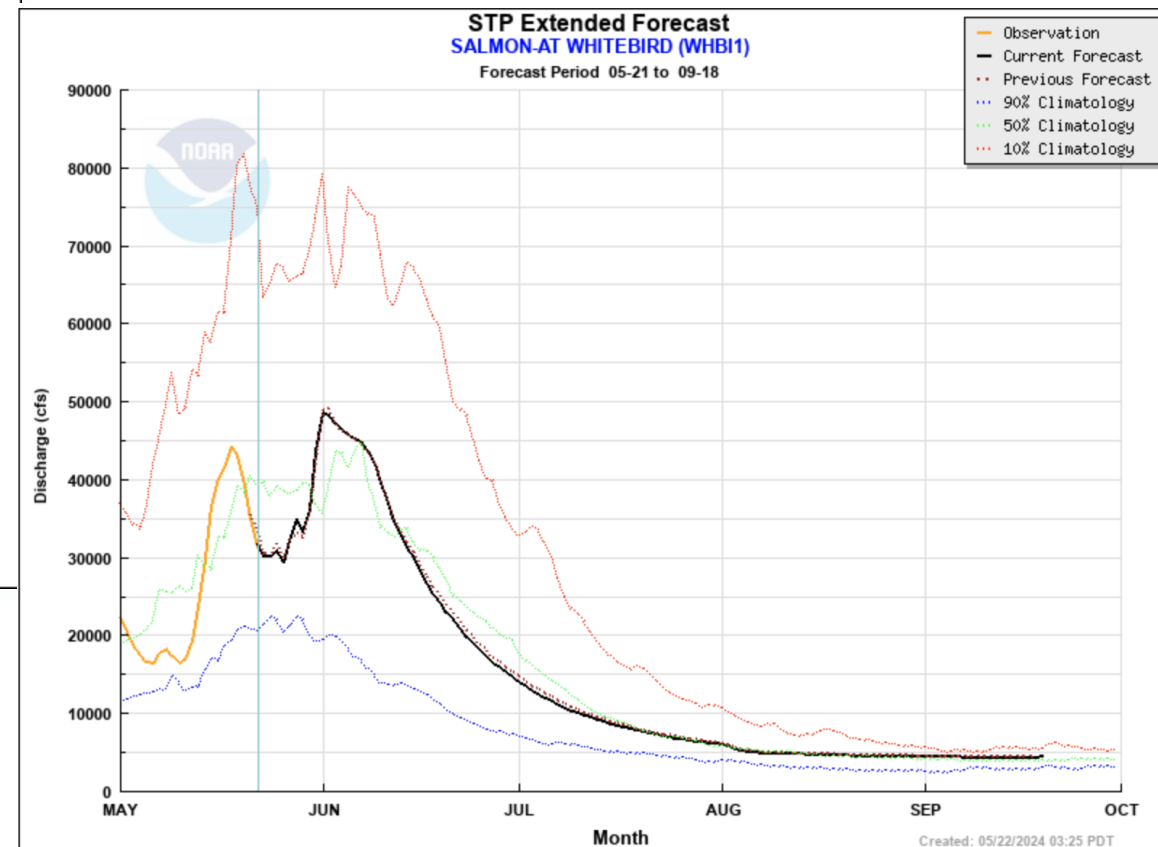
SALMON - AT WHITEBIRD (WHB11)

Latest Observation: 20.91 ft 05/22/2024 14:45 PDT



Forecast Created: 05/22/2024 14:43 PDT
Plot Created: 05/22/2024 15:23 PDT

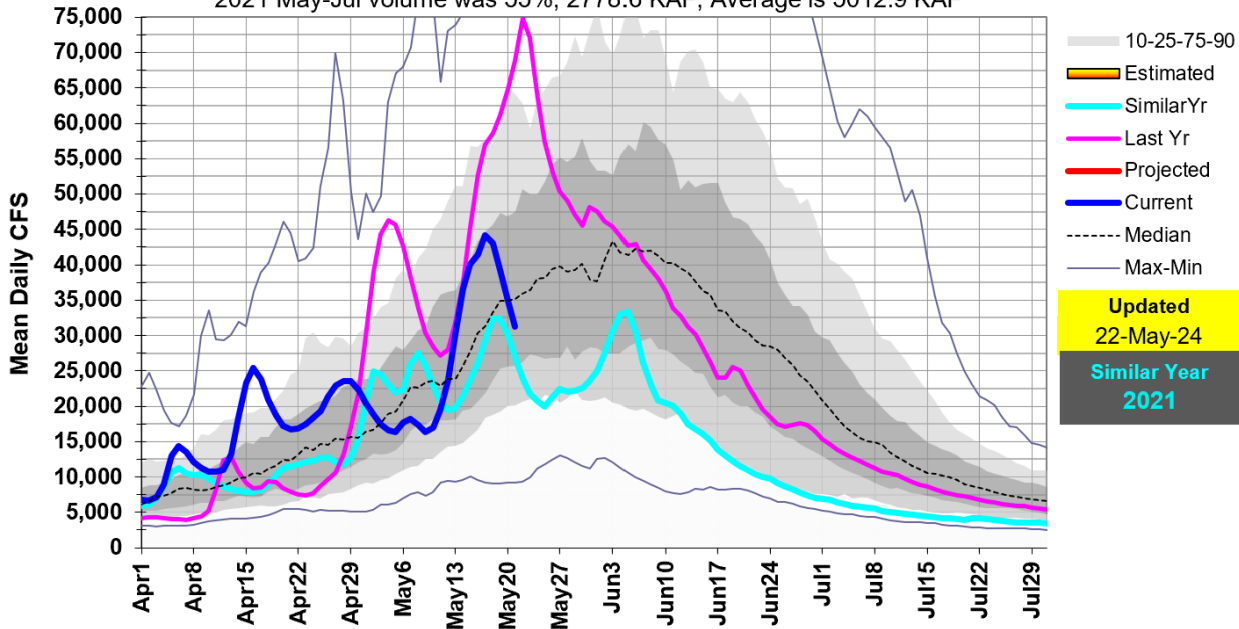
NWS Whitebird Forecast & Trend shows similar trend with next peak similar in magnitude as first peak. The STP Extended Forecast shows a June 1 peak at almost 50,000 cfs.



Created: 05/22/2024 03:25 PDT

13317000: Salmon R at White Bird, ID

2021 May-Jul volume was 55%, 2778.6 KAF, Average is 5012.9 KAF

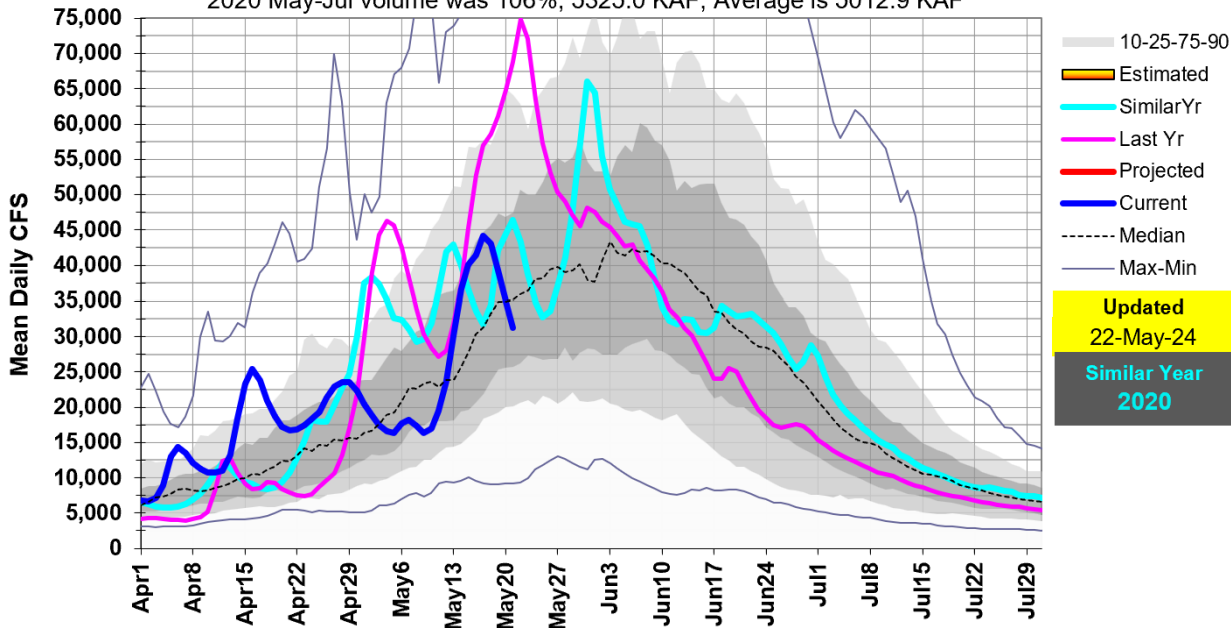


**Salmon River at White Bird Runoff for similar snow years.
2024 May-Jul Runoff Volume Forecast is 3750 KAF.**

2021 May-Jul volume was 2778 KAF.

13317000: Salmon R at White Bird, ID

2020 May-Jul volume was 106%, 5325.0 KAF, Average is 5012.9 KAF

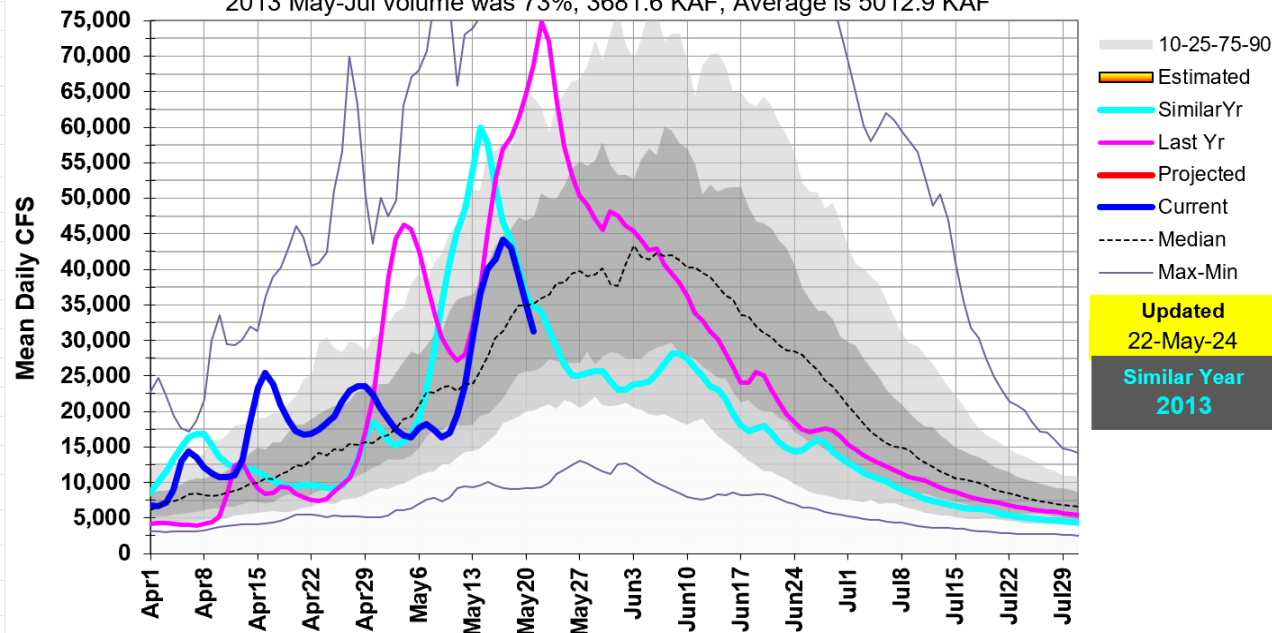


**2020 May-Jul volume was 5325 KAF, wet spring kept flows
higher.**

**Time will tell how high the next increase is at White Bird
before the river starts its annual decent to summer levels.**

13317000: Salmon R at White Bird, ID

2013 May-Jul volume was 73%, 3681.6 KAF, Average is 5012.9 KAF



**Salmon River at White Bird Runoff for similar snow years.
2024 May-Jul Runoff Volume Forecast is 3750 KAF.**

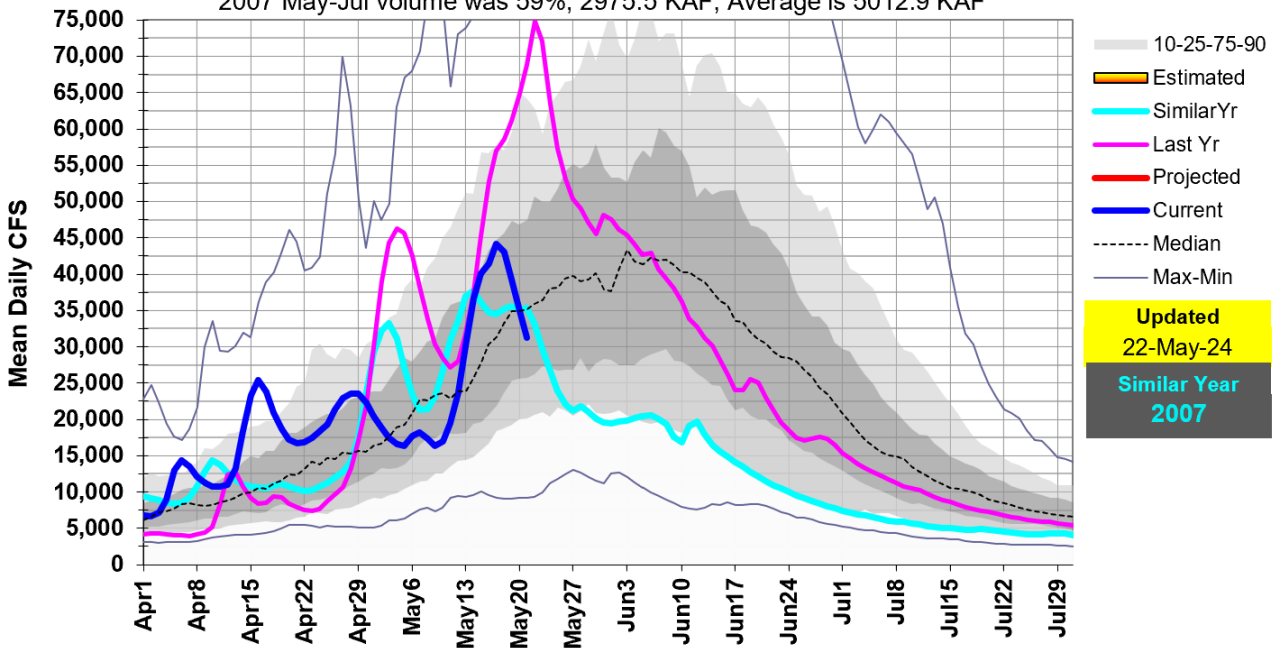
2013 May-Jul Volume was 3681 KAF.

2007 May-Jul volume was 2975 KAF.

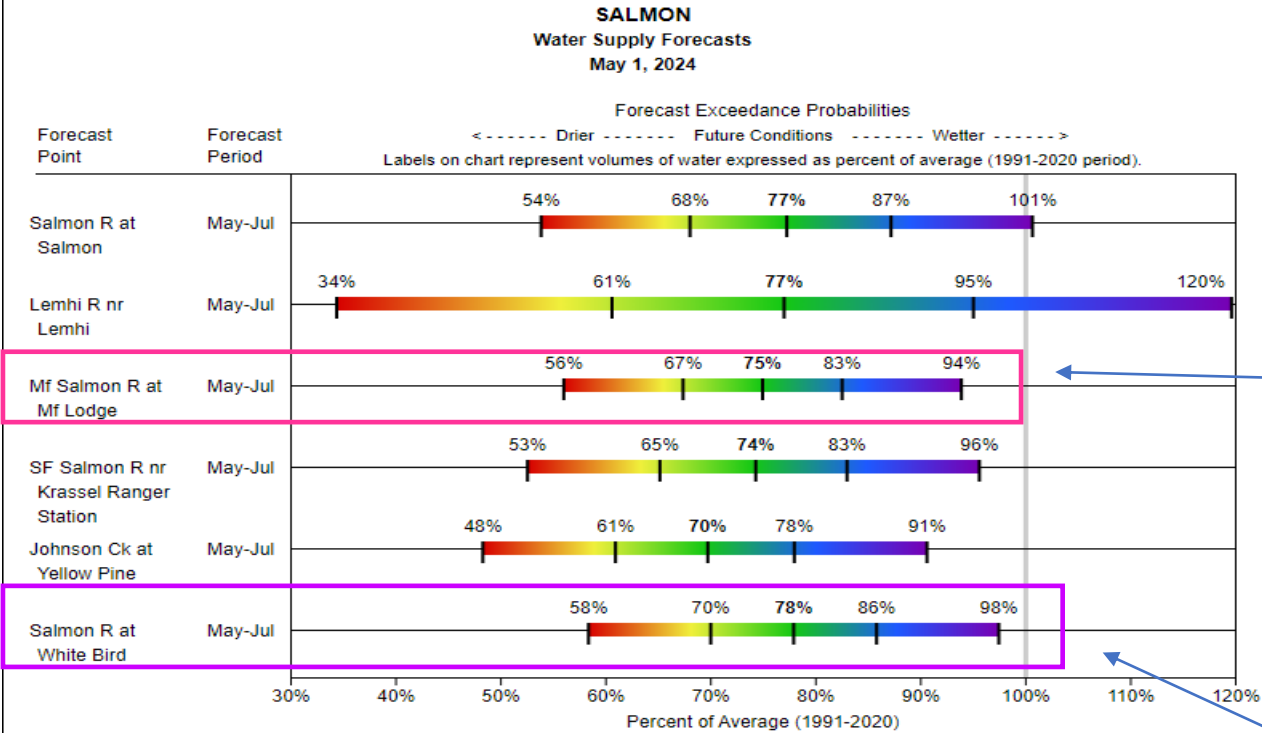
With another increase in next few days from remaining snow, this year's recession flows will be pushed out a bit and hopefully higher than these two years.

13317000: Salmon R at White Bird, ID

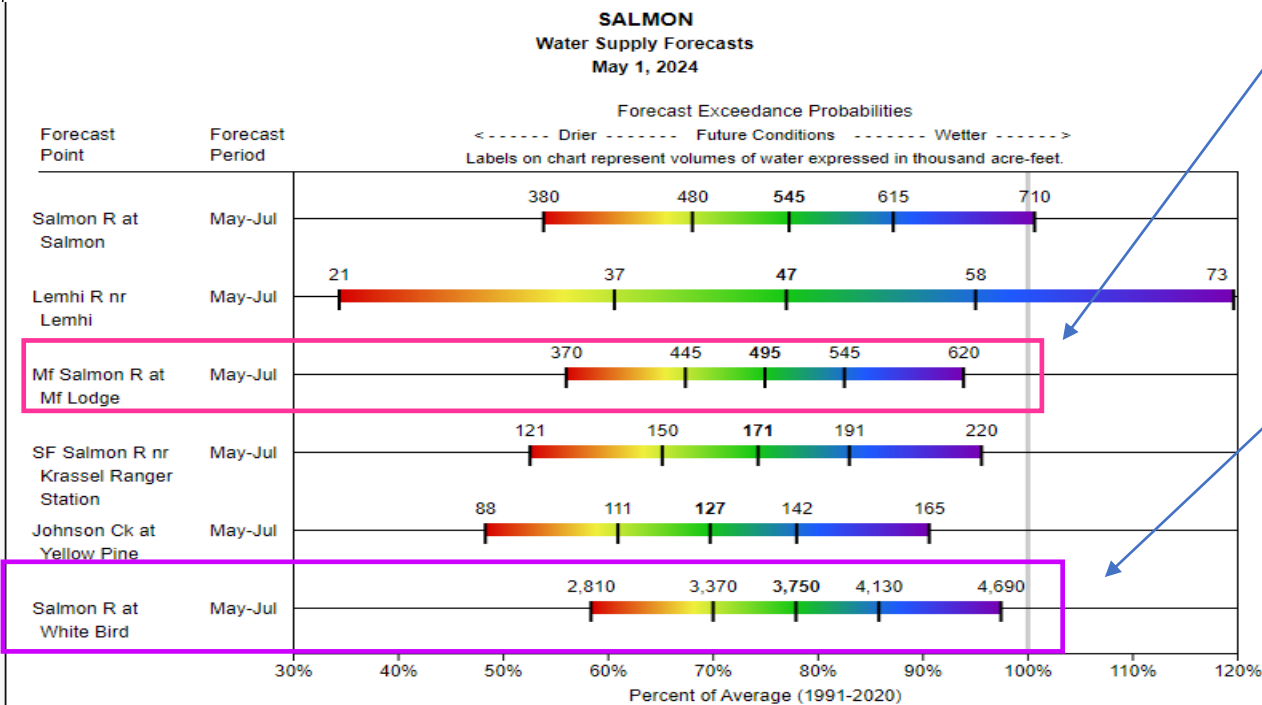
2007 May-Jul volume was 59%, 2975.5 KAF, Average is 5012.9 KAF



May 1, 2004 MF & Salmon Rivers Streamflow Forecasts



MF Salmon River May-Jul Volume Streamflow Forecast 75% of avg, 495 KAF with a range of 370 to 620 KAF



Salmon River at White Bird May-Jul Volume Streamflow Forecast 78% of avg, 3750 KAF with a range of 2810 to 4690 KAF

Extended Forecast for
Lowell ID

[Click here for hazard details and duration](#)

NOW until 12:00pm Thu



Winter Weather Advisory

Winter Weather Advisory

Tonight



100%

Low: 38 °F

Showers and Patchy Fog

Thursday



60 % → 20 %

High: 61 °F

Rain Likely then Slight Chance Rain

Thursday Night



Low: 37 °F

Mostly Clear

Friday



30 %

High: 72 °F

Sunny then Chance Showers

Friday Night



50%

Low: 45 °F

Chance Showers

Saturday



70%

High: 63 °F

Showers Likely

Saturday Night



40%

Low: 43 °F

Chance Rain

Sunday



High: 67 °F

Partly Sunny

Detailed Forecast

Tonight	Rain before 9pm, then showers and possibly a thunderstorm between 9pm and midnight, then rain after midnight. Patchy fog between 2am and 3am. Low around 38. Calm wind. Chance of precipitation is 100%. New precipitation amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.
Thursday	Rain likely, mainly before noon. Cloudy, then gradually becoming mostly sunny, with a high near 61. Calm wind. Chance of precipitation is 60%.
Thursday Night	Mostly clear, with a low around 37. Calm wind.
Friday	A 30 percent chance of showers and thunderstorms after noon. Mostly sunny, with a high near 72. Light and variable wind.
Friday Night	A chance of showers and thunderstorms before midnight, then a chance of rain after midnight. Mostly cloudy, with a low around 45. Calm wind. Chance of precipitation is 50%. New precipitation amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.
Saturday	Rain likely before noon, then showers likely and possibly a thunderstorm after noon. Mostly cloudy, with a high near 63. Chance of precipitation is 70%. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.
Saturday Night	A 40 percent chance of rain, mainly before midnight. Mostly cloudy, with a low around 43.
Sunday	Partly sunny, with a high near 67.
Sunday Night	Mostly clear, with a low around 43.
Memorial Day	Sunny, with a high near 79.
Monday Night	Mostly clear, with a low around 49.
Tuesday	Sunny, with a high near 85.
Tuesday Night	A slight chance of rain. Partly cloudy, with a low around 53.
Wednesday	A slight chance of rain. Mostly sunny, with a high near 77.

Topographic

[Click Map For Forecast](#)



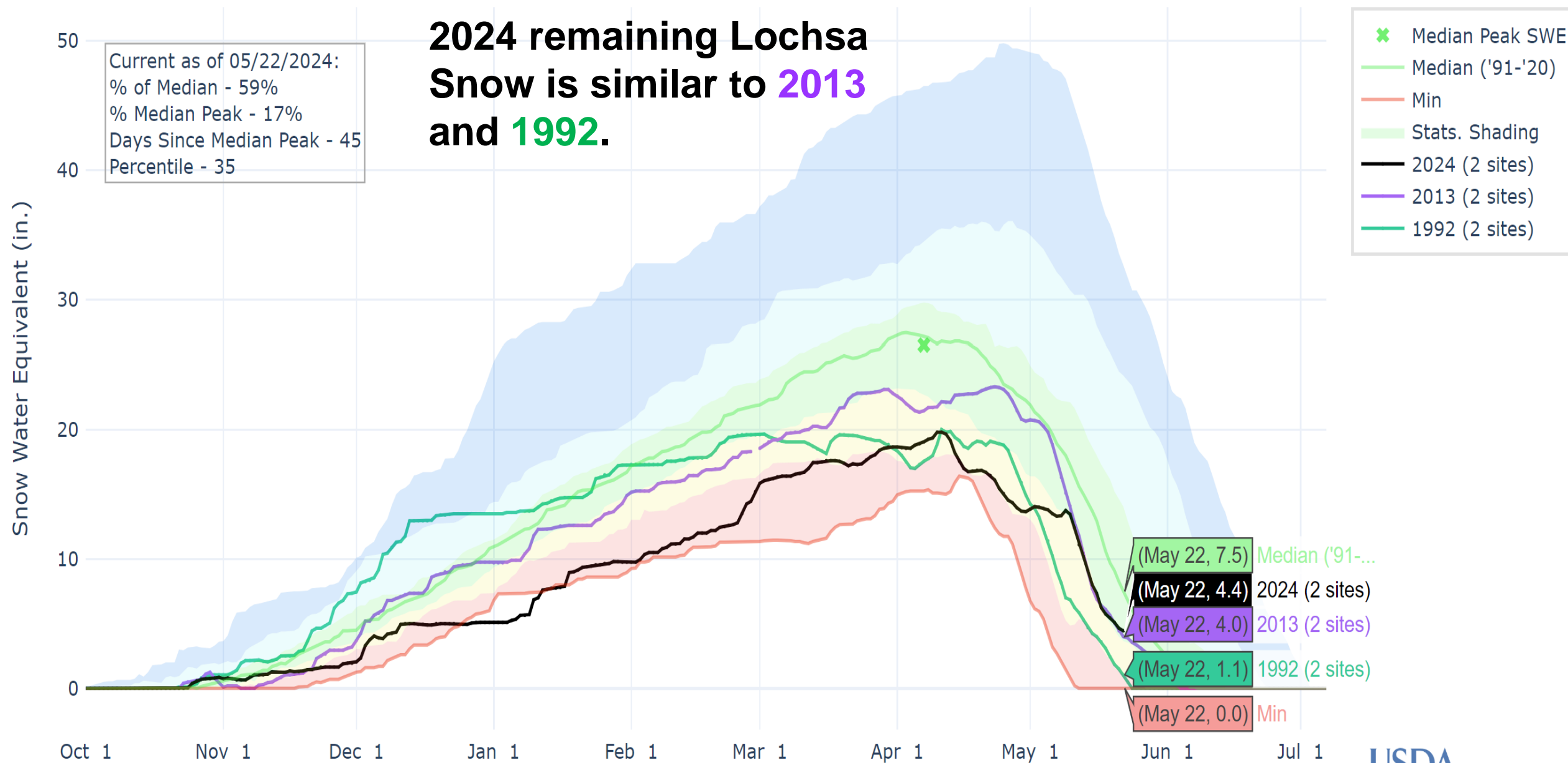
ABOUT THIS FORECAST

Point Forecast: Lowell ID
46.13°N 115.61°W (Elev. 2526 ft)

Last Update: 7:00 pm MDT May 22, 2024

Forecast Valid: 8pm MDT May 22, 2024-8pm MDT May 29, 2024

SNOW WATER EQUIVALENT IN LOCHSA



LOLO PASS, ID (588) SNOW WATER EQUIVALENT

LOC SHA RIVER AND LOLO PASS SNOTEL

On average, peak streamflow for the Lochsa River near Lowell, Idaho occurs when Lolo Pass SNOTEL is between **55 and 80%** melted.

Summary of years using only "snowmelt peak" and categorized by max SWE magnitude.

Max SWE Category	Max SWE Magnitude (inches)	Number of Years in Analysis	Average percent melted at time of peak streamflow
Below average	<22	7	78
Average	21 – 34	13	80
Above average	>33	7	55

Current as of 05/22/2024:
% of Median - 5%
% Median Peak - 1%
Days Since Median Peak - 47
Percentile - 35

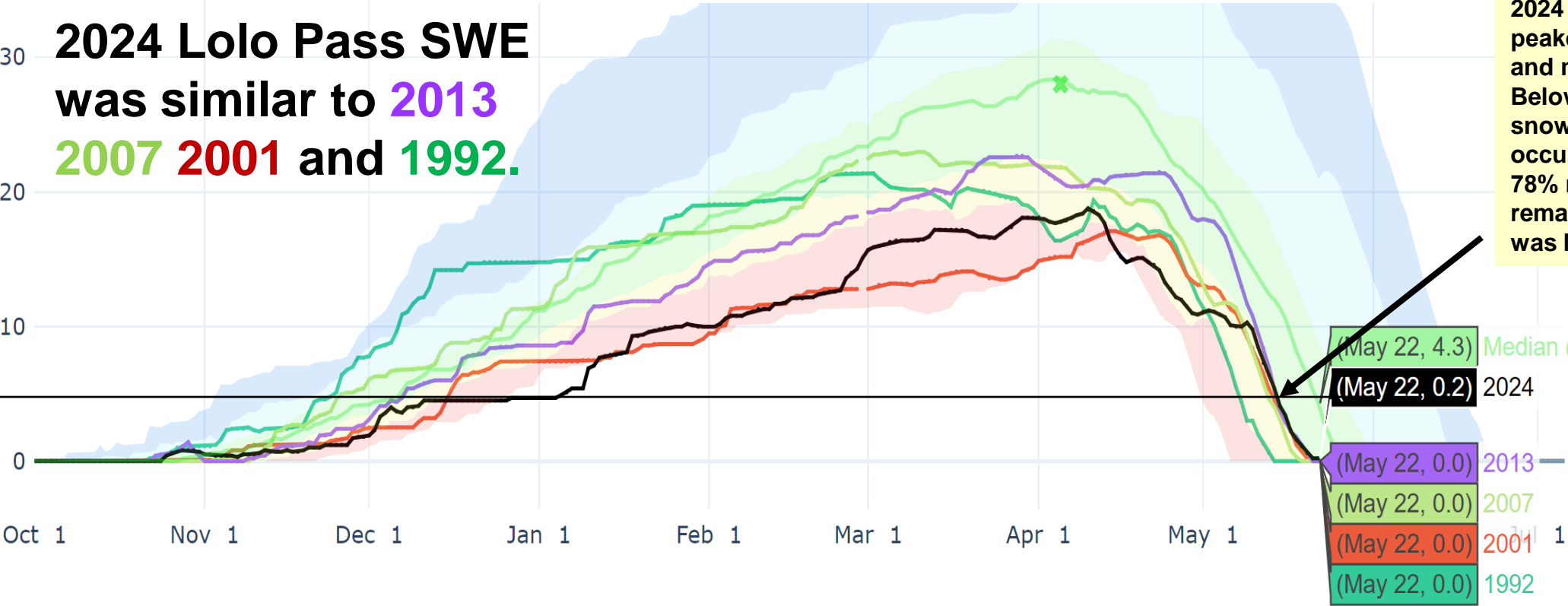
Snow Water Equivalent (in.)

The average percent melted for the full 32-year period of record is 77% melted.

2024 Lolo Pass SWE was similar to 2013 2007 2001 and 1992.

- ✖ Median Peak SWE
- Median ('91-'20)
- Stats. Shading
- 2024
- 2013
- 2007
- 2001
- 1992

2024 Lolo Pass SWE peaked at 18.8" on Apr 10 and melted out May 21. In Below Average years, the snowmelt peak flow occurs when the site is 78% melted, when 4.1" remains this year which was May 15.

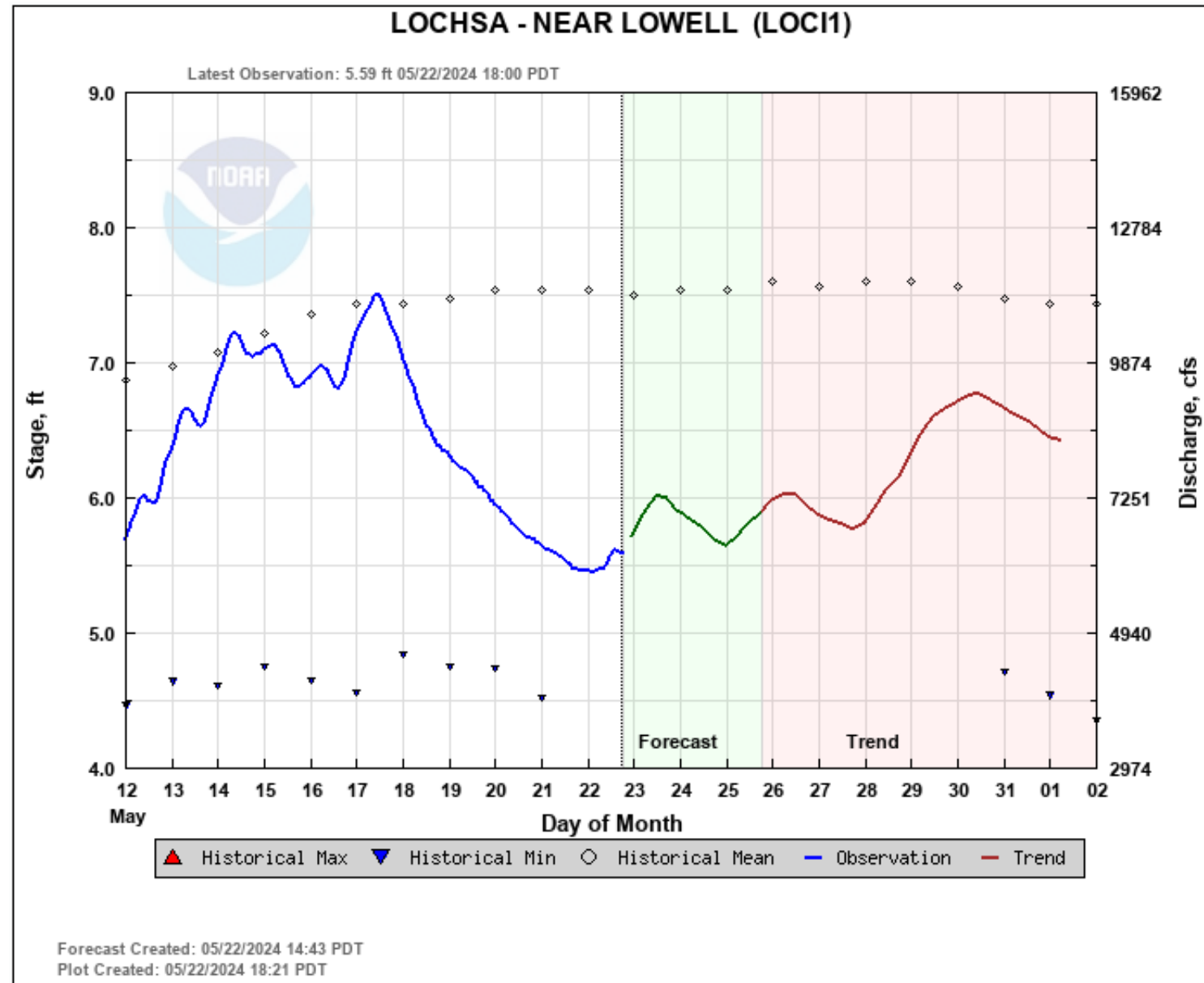


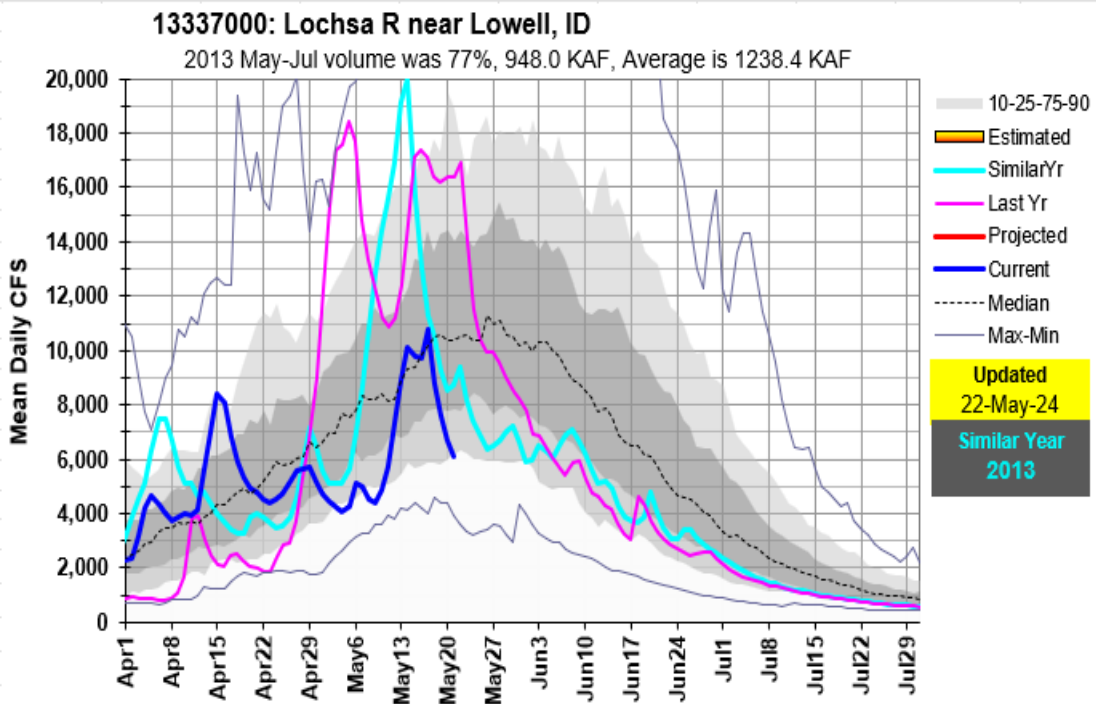
NWS Forecast & Trend shows another increase around the corner but with limited snow input, the increase may not exceed May 17 peak.

Flows should start increasing just in time for Lochsa Memorial Day Fun !

Keep in mind the Snow2Flow Relationship is based on snowmelt relationship with snowmelt peak flows.

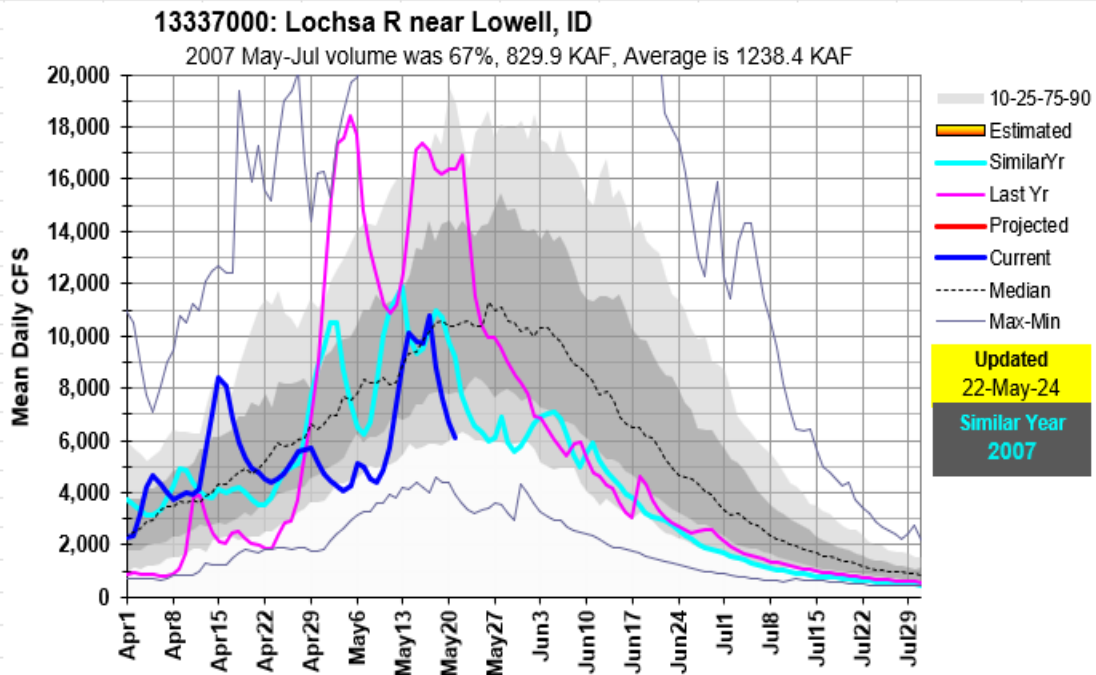
Any given day with rain or hot temps can generate additional peaks or a higher peak for the season.





Runoff for similar snow years.
2024 May-Jul Runoff Volume Forecast is 790 KAF.

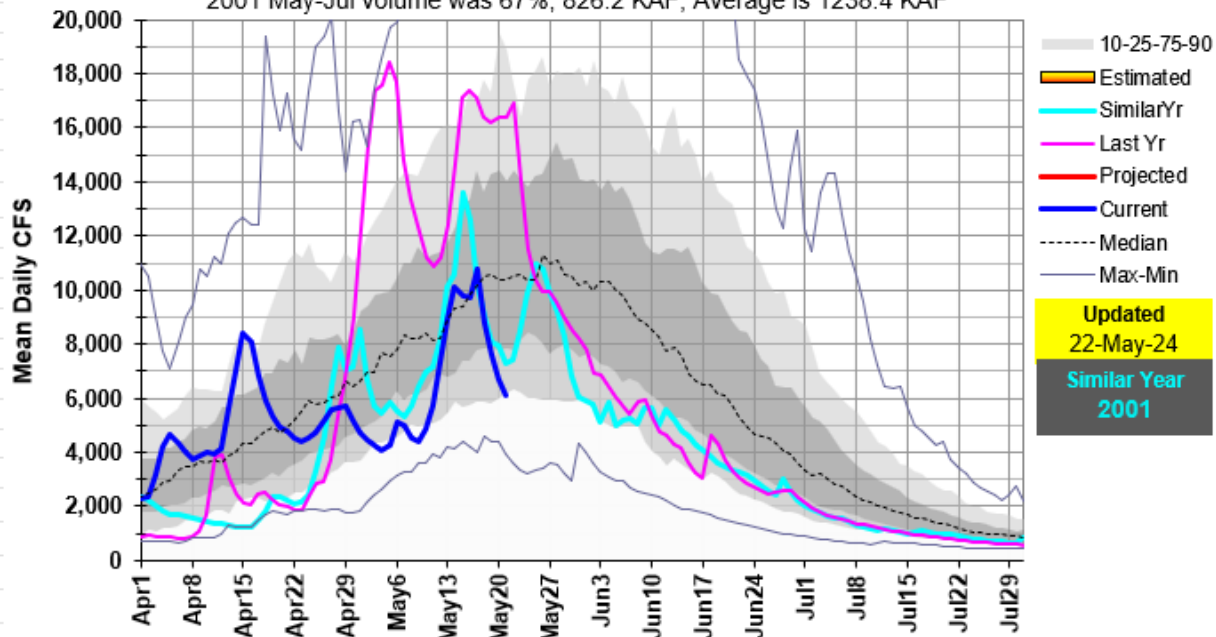
2013 May-Jul volume was 948 KAF, much more than amount predicted this year.



2007 May-Jul volume was 829 KAF, which is similar to amount predicted this year along with the flow pattern.

13337000: Lochsa R near Lowell, ID

2001 May-Jul volume was 67%, 826.2 KAF, Average is 1238.4 KAF



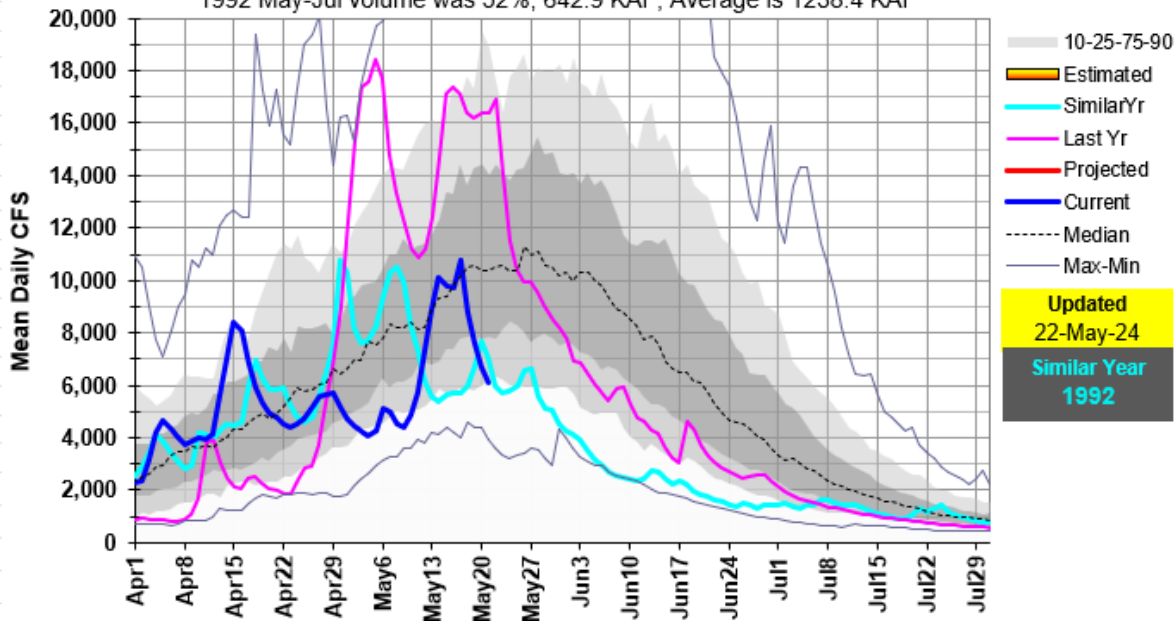
Runoff for similar snow years.

2024 May-Jul Runoff Volume Forecast is 790 KAF.

2001 May-Jul volume was 826 KAF similar to amount predicted this year and similar flow patterns, especially with the next peak.

13337000: Lochsa R near Lowell, ID

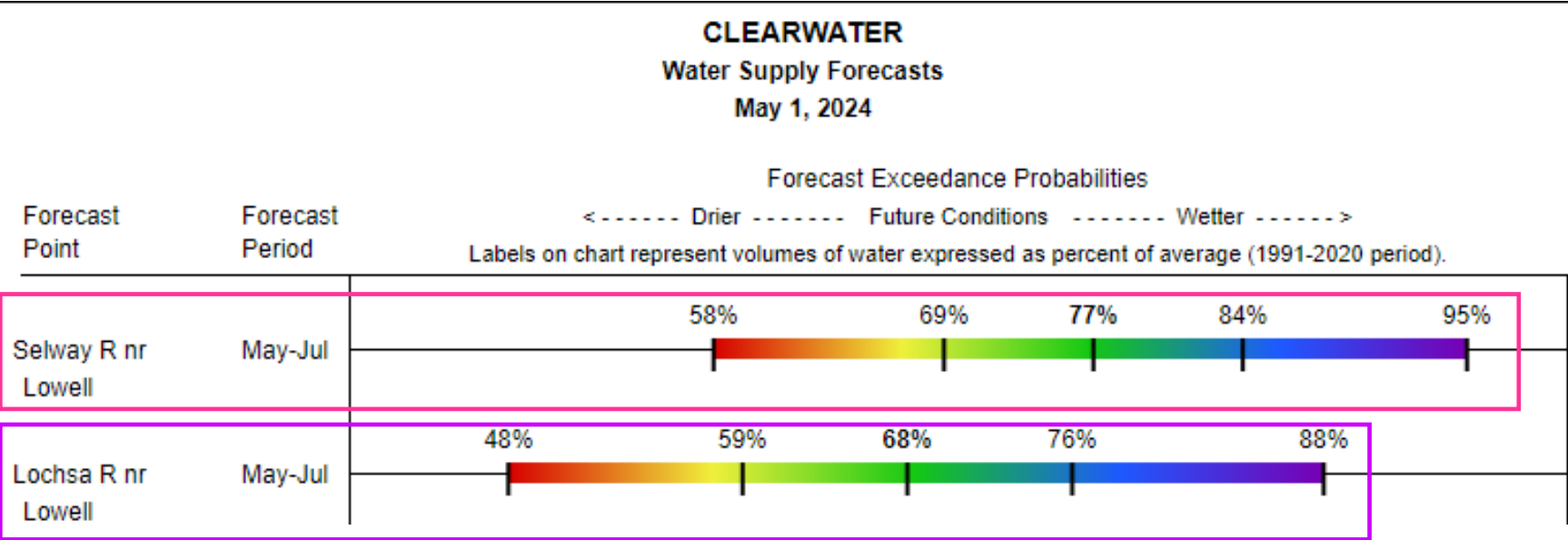
1992 May-Jul volume was 52%, 642.9 KAF, Average is 1238.4 KAF



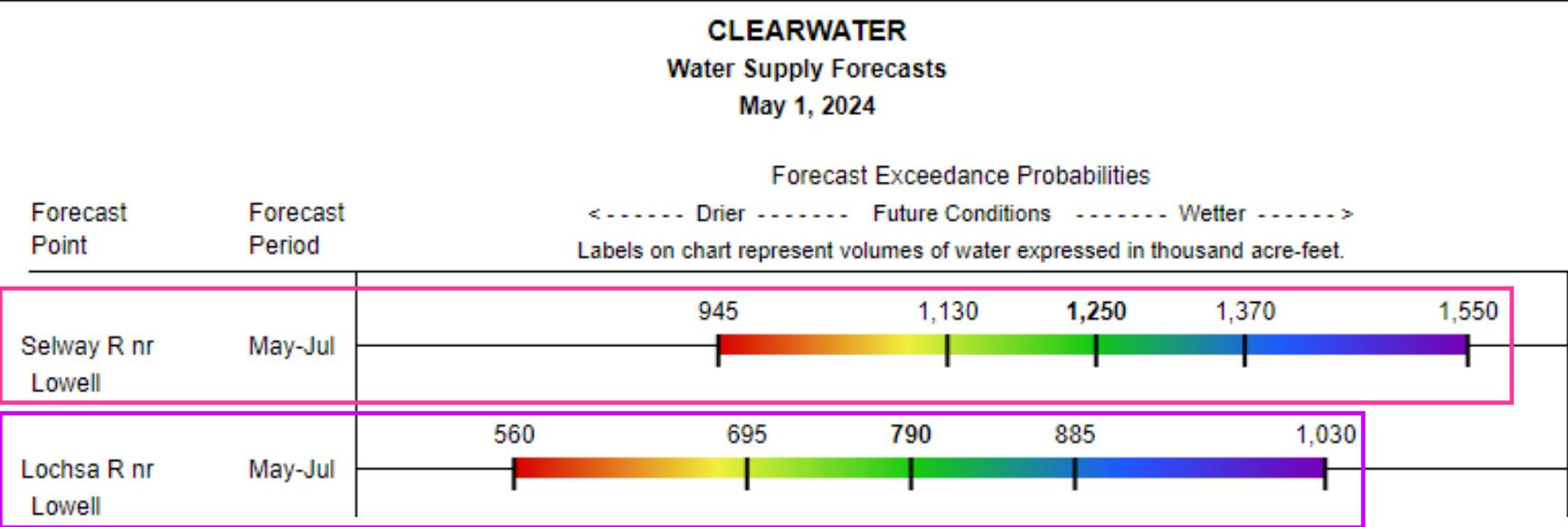
1992 May-Jul volume was 642 KAF, much less than amount predicted this year.

May 1, 2004

Lochsa & Selway Rivers Streamflow Forecasts



Lochsa River May-Jul Volume
Streamflow Forecast 76% of avg,
790 KAF
with a range of 560 to 1030 KAF



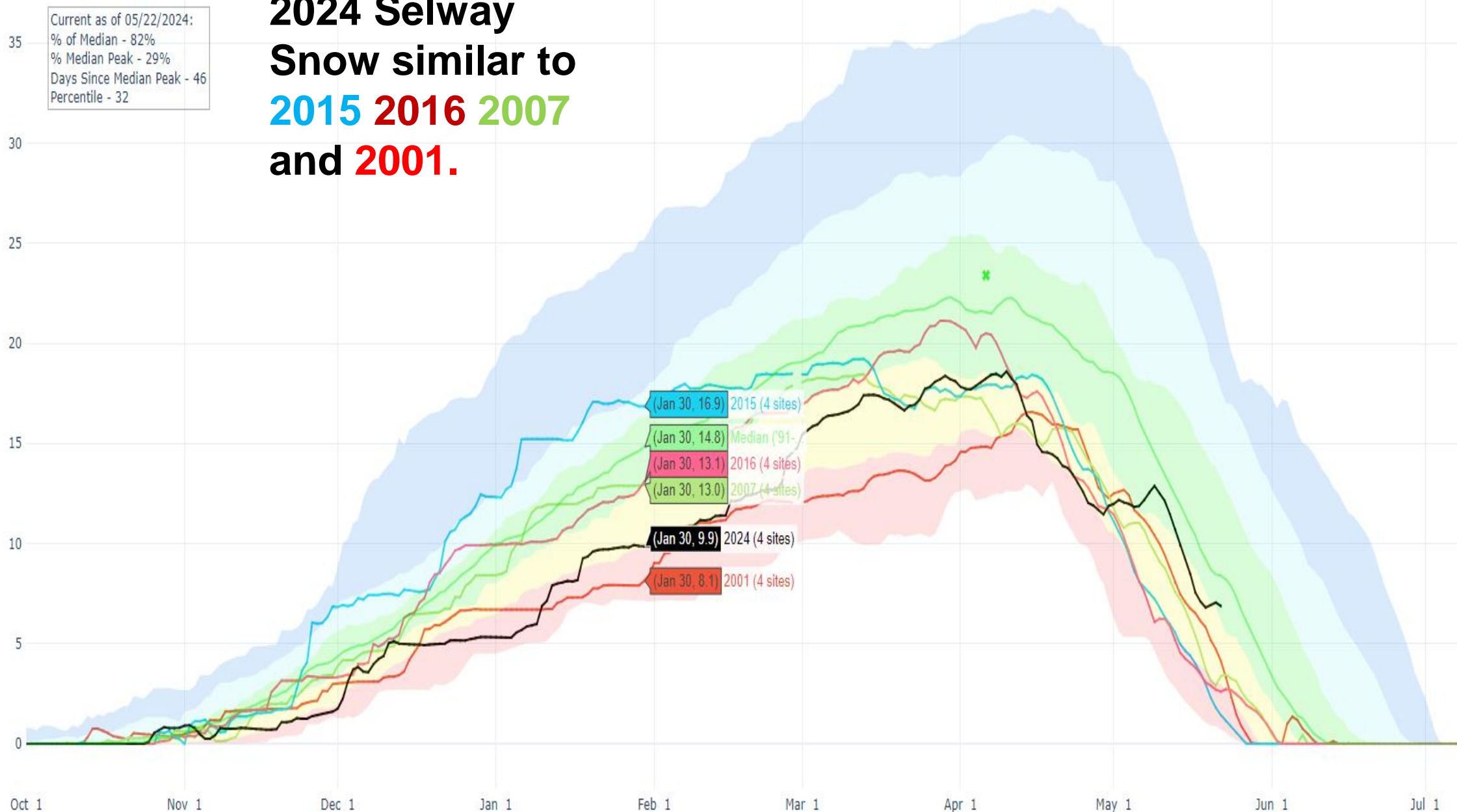
Selway River May-Jul Volume
Streamflow Forecast 77% of avg,
1250 KAF
with a range of 945 to 1550 KAF

Current as of 05/22/2024:
 % of Median - 82%
 % Median Peak - 29%
 Days Since Median Peak - 46
 Percentile - 32

**2024 Selway
 Snow similar to
 2015 2016 2007
 and 2001.**

Snow Water Equivalent (in.)

✱ Median Peak SWE
 — Median ('91-'20)
 Stats. Shading
 — 2024 (4 sites)
 — 2016 (4 sites)
 — 2015 (4 sites)
 — 2007 (4 sites)
 — 2001 (4 sites)



On average, peak streamflow for the Selway River near Lowell, Idaho occurs when Twin Lakes SNOTEL is between **26 and 33%** melted.

Summary of all years by max SWE magnitude

Max SWE Category	Range of Max SWE Magnitude (inches)	Number of Years in Analysis	Average percent melted at time of peak streamflow
Below average	<35	11	33
Average	34 – 49	25	33
Above average	>48	12	26

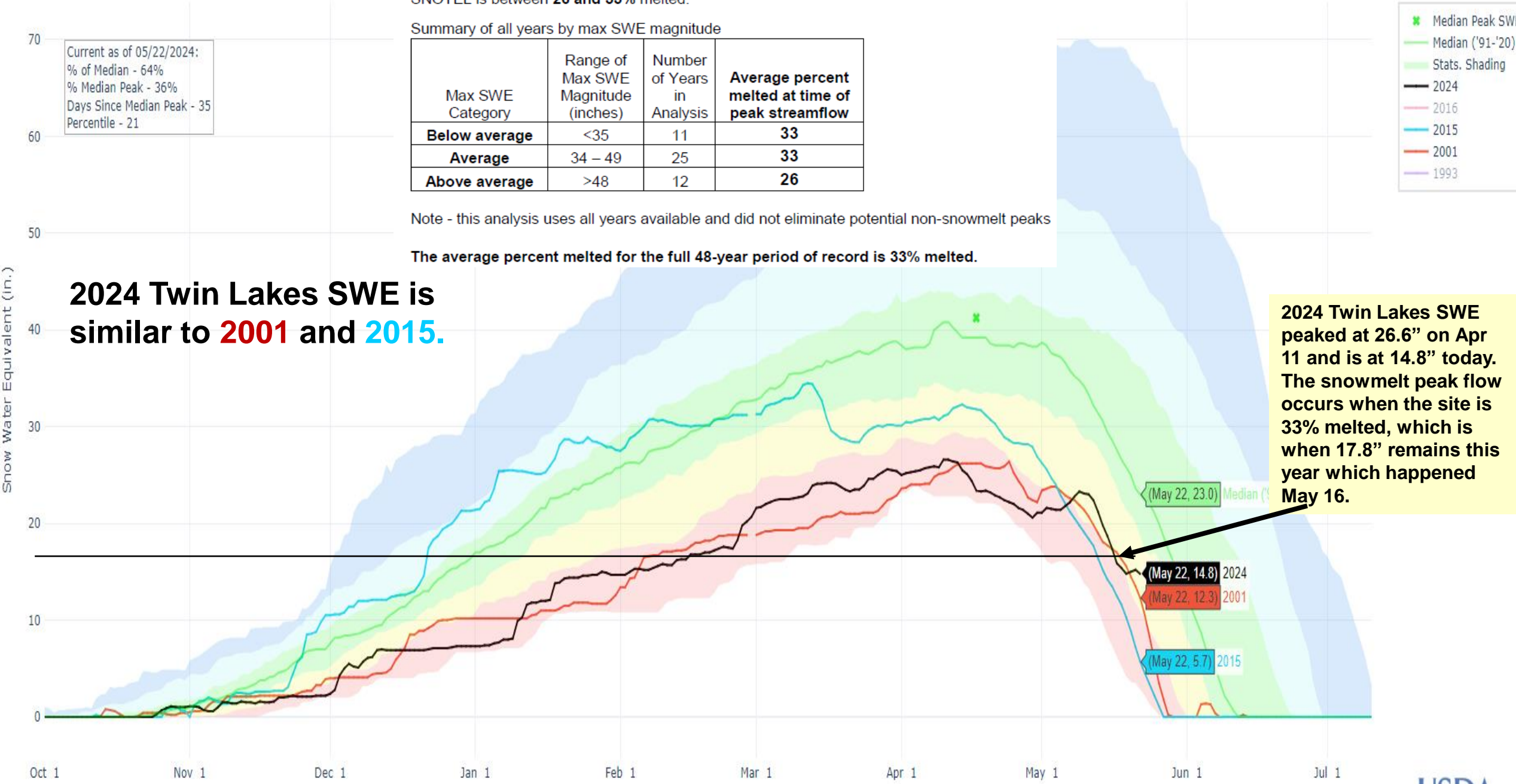
Note - this analysis uses all years available and did not eliminate potential non-snowmelt peaks

The average percent melted for the full 48-year period of record is 33% melted.

Current as of 05/22/2024:
 % of Median - 64%
 % Median Peak - 36%
 Days Since Median Peak - 35
 Percentile - 21

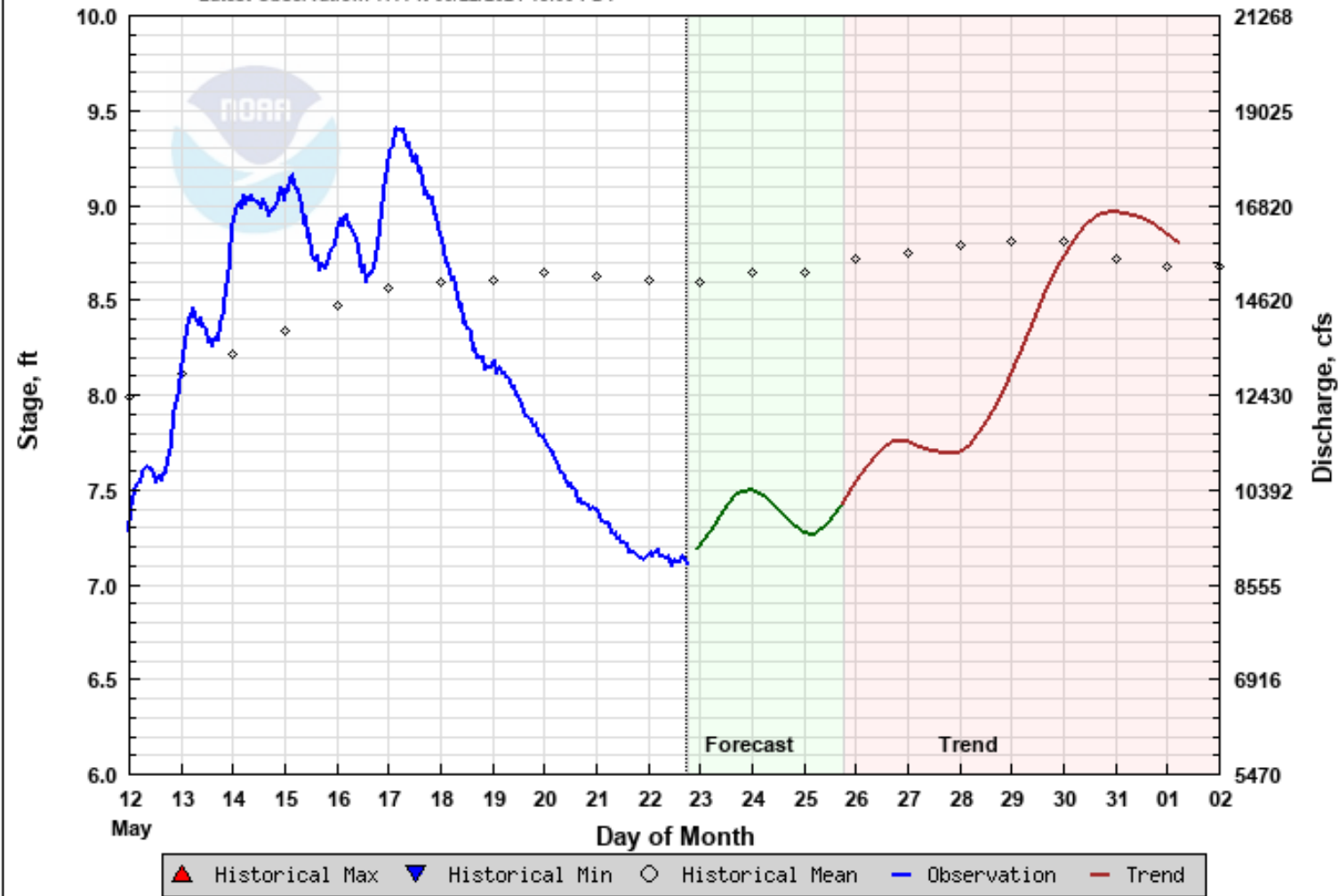
2024 Twin Lakes SWE is similar to **2001** and **2015**.

2024 Twin Lakes SWE peaked at 26.6” on Apr 11 and is at 14.8” today. The snowmelt peak flow occurs when the site is 33% melted, which is when 17.8” remains this year which happened May 16.



SELWAY - NEAR LOWELL (SEL11)

Latest Observation: 7.11 ft 05/22/2024 18:00 PDT



Forecast Created: 05/22/2024 14:43 PDT
Plot Created: 05/22/2024 18:53 PDT

NWS Forecast & Trend shows flows rebounding and another peak around the corner.

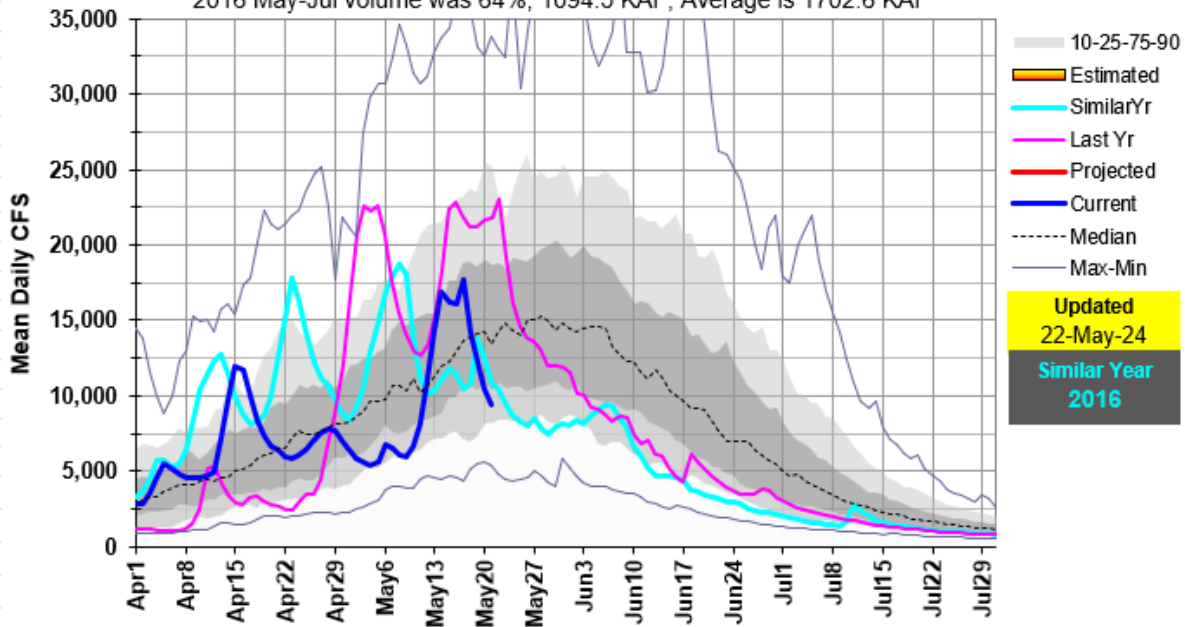
Based on Twin Lakes Snow2Flow relationship, the snowmelt peak flow occurred around May 16 which it probably did unless next week's peak exceeds it. Though it would be nice to extend flows a bit longer.

Keep in mind the Snow2Flow Relationship is based on snowmelt relationship with snowmelt peak flows.

Any given day with rain or hot temps can generate additional peaks or a higher peak for the season.

13336500: Selway R near Lowell, ID

2016 May-Jul volume was 64%, 1094.5 KAF, Average is 1702.6 KAF



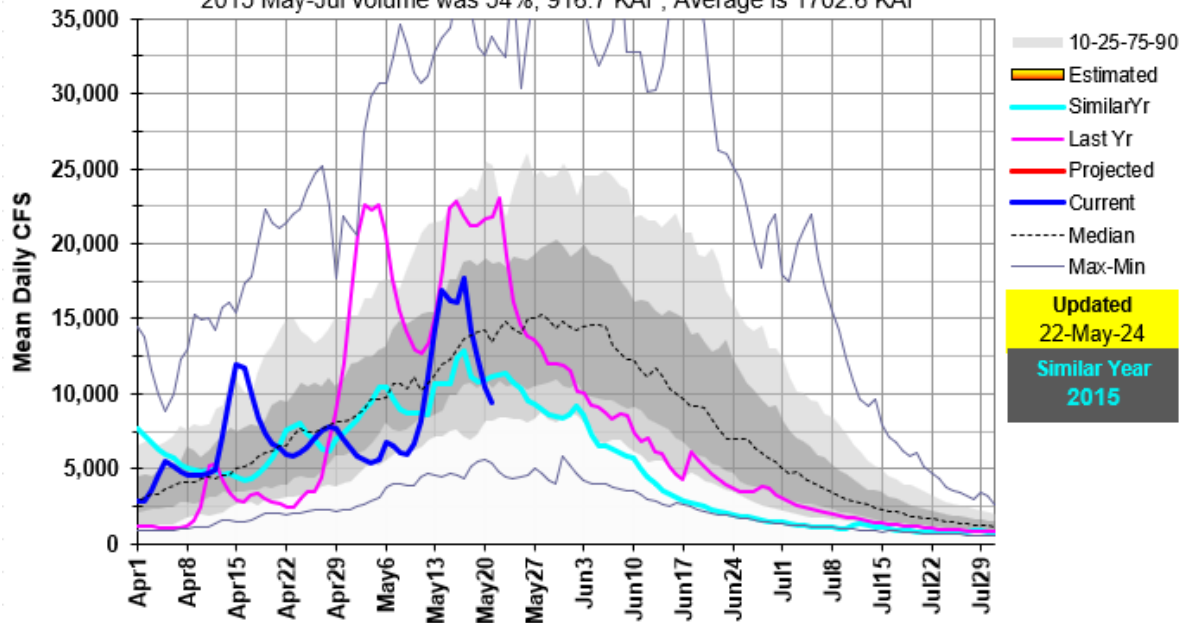
Runoff for similar snow years.

2024 May-Jul Runoff Volume Forecast is 1250 KAF.

2016 May-Jul volume was 1094 KAF

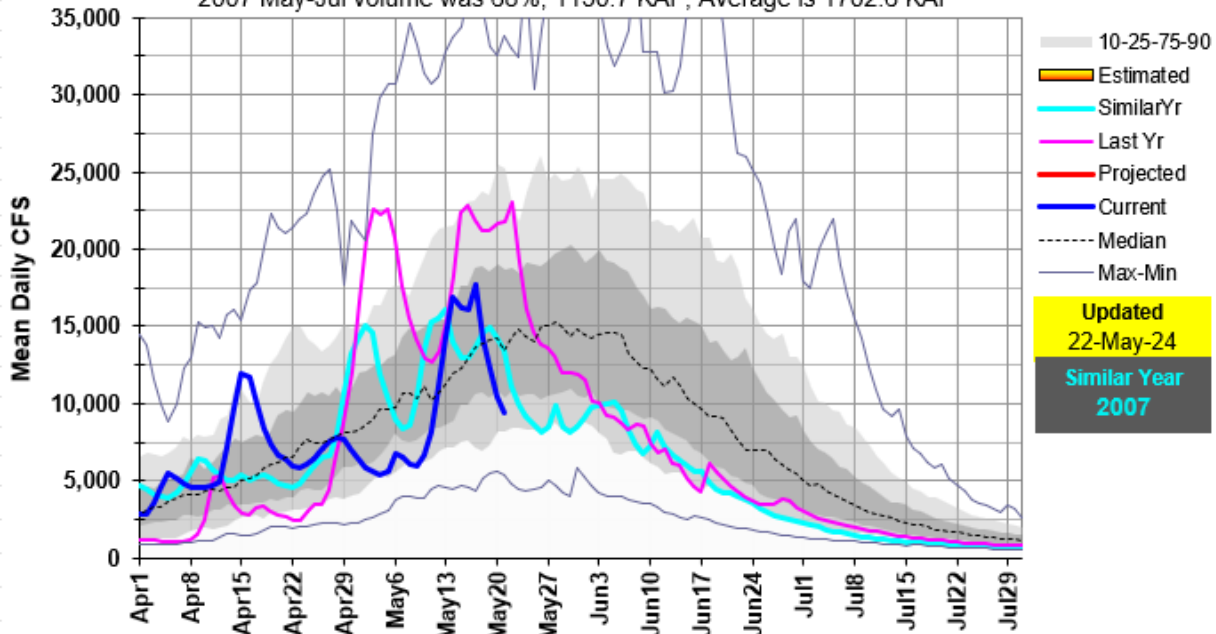
13336500: Selway R near Lowell, ID

2015 May-Jul volume was 54%, 916.7 KAF, Average is 1702.6 KAF



2015 May-Jul volume was 916 KAF

13336500: Selway R near Lowell, ID
 2007 May-Jul volume was 68%, 1150.7 KAF, Average is 1702.6 KAF



Runoff for similar snow years.
2024 May-Jul Runoff Volume Forecast is 1250 KAF.

2007 May-Jul volume was 1150 KAF

2001 May-Jul volume was 1131 KAF, similar to this year's forecast 1250 KAF. The flow patterns are also similar with another peak likely in next few days.

13336500: Selway R near Lowell, ID
 2001 May-Jul volume was 66%, 1131.2 KAF, Average is 1702.6 KAF

