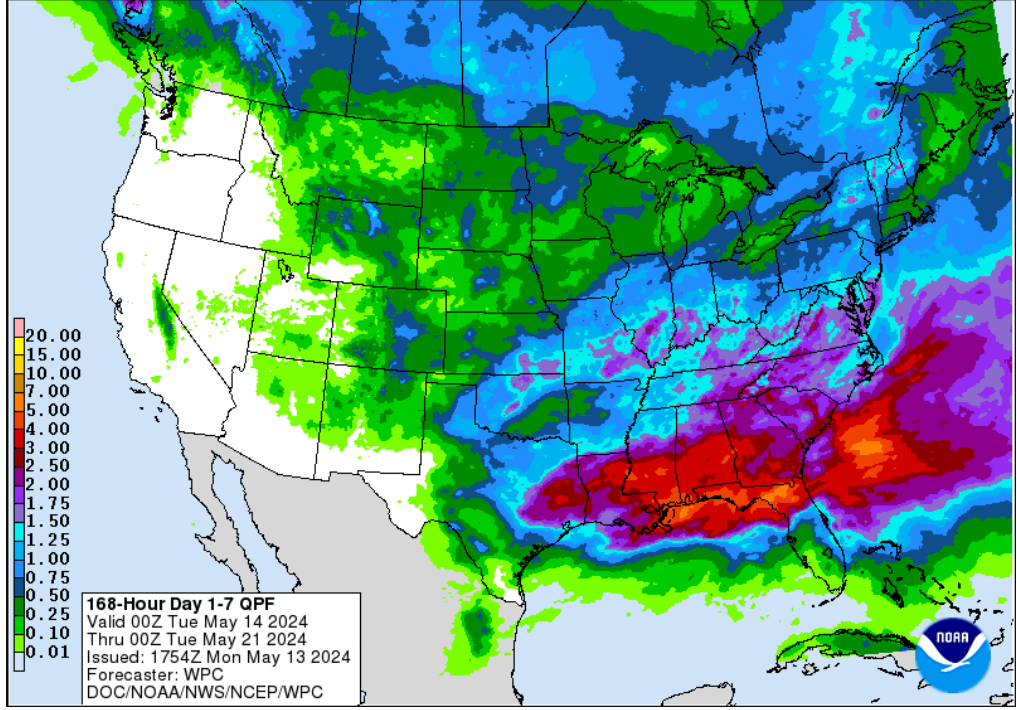
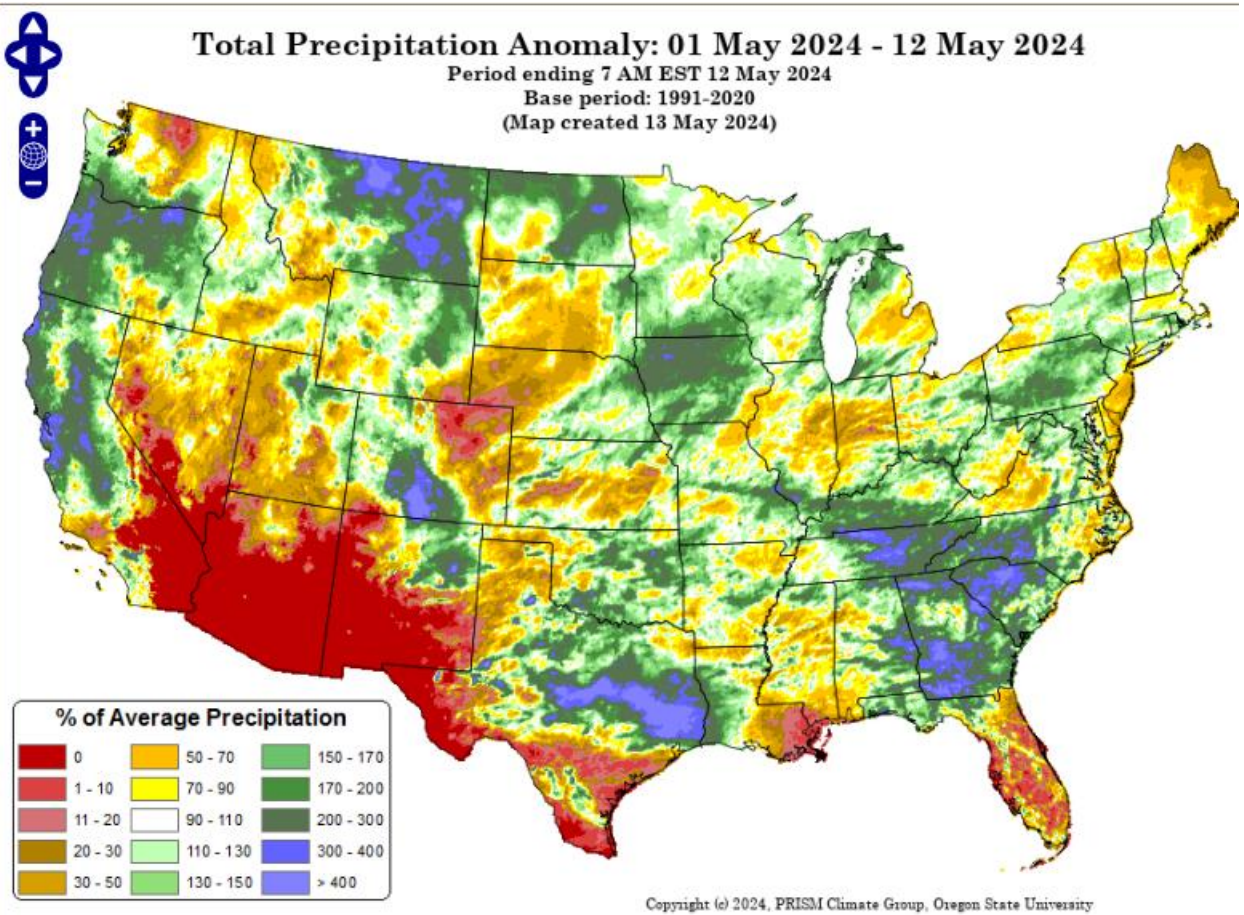
May 13, 2024
Bruneau, Owyhee & Salmon Falls Snow2Flow Update

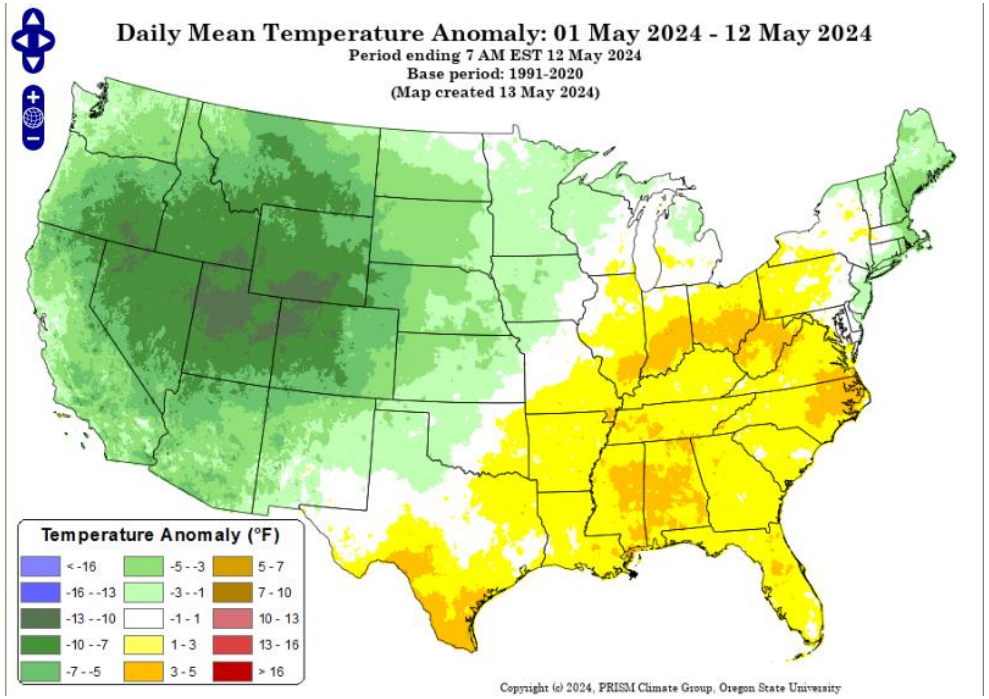
May 14-21 Precip call for mostly dry while some forecasts call for more of the same unsettled weather.



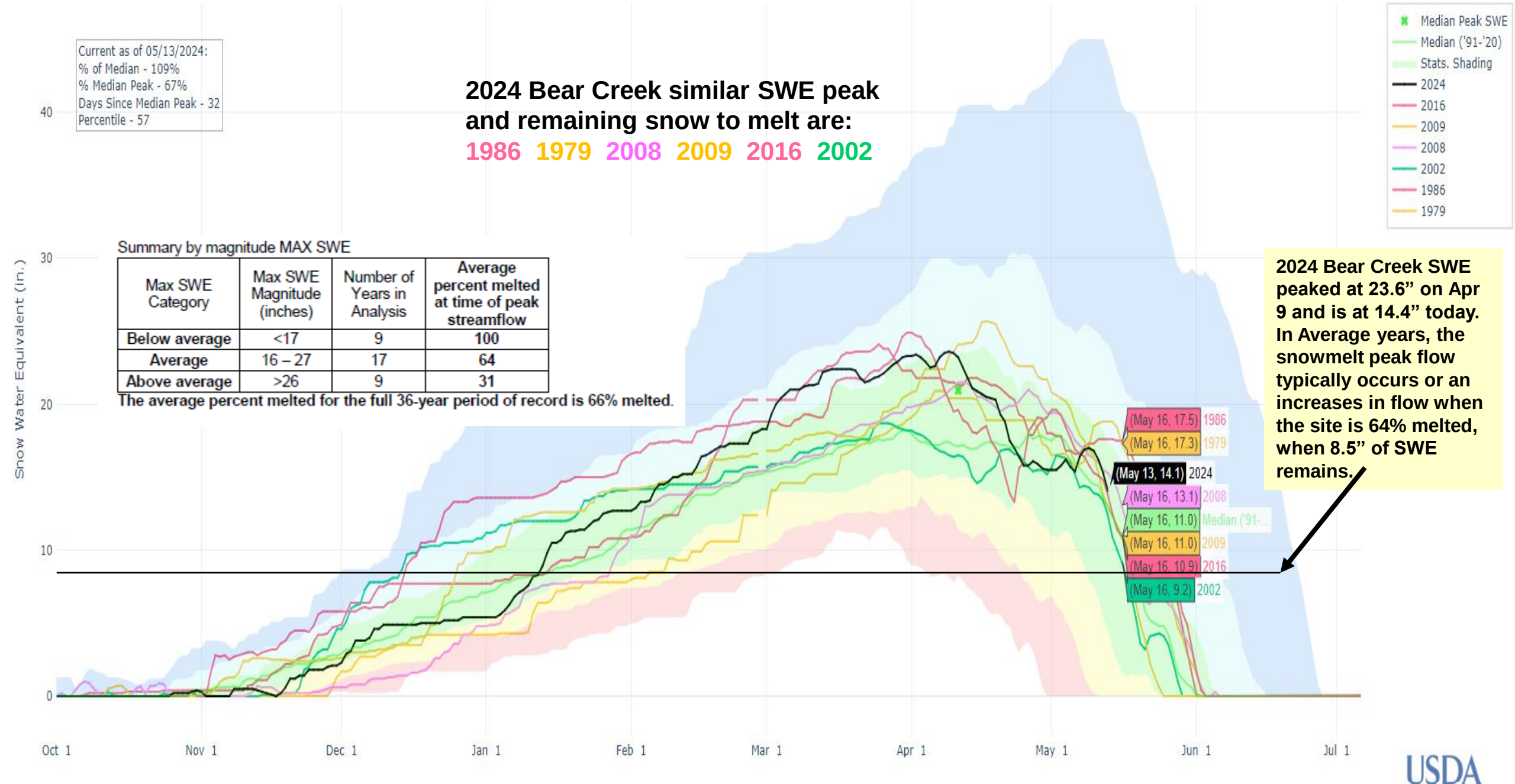
May 1-12 Total Precip has been variable ranging from 50% of normal in north and south to 110% in central Idaho.

Daily Mean Air Temps May 1-12 have been about 10F below normal which slowed melt, decreased rivers and push remaining melt out to 2nd half of May.





BEAR CREEK, NV (321) SNOW WATER EQUIVALENT



2024 Bear Creek similar SWE peak and remaining snow to melt are:
1986 1979 2008 2009 2016 2002

Summary by magnitude MAX SWE

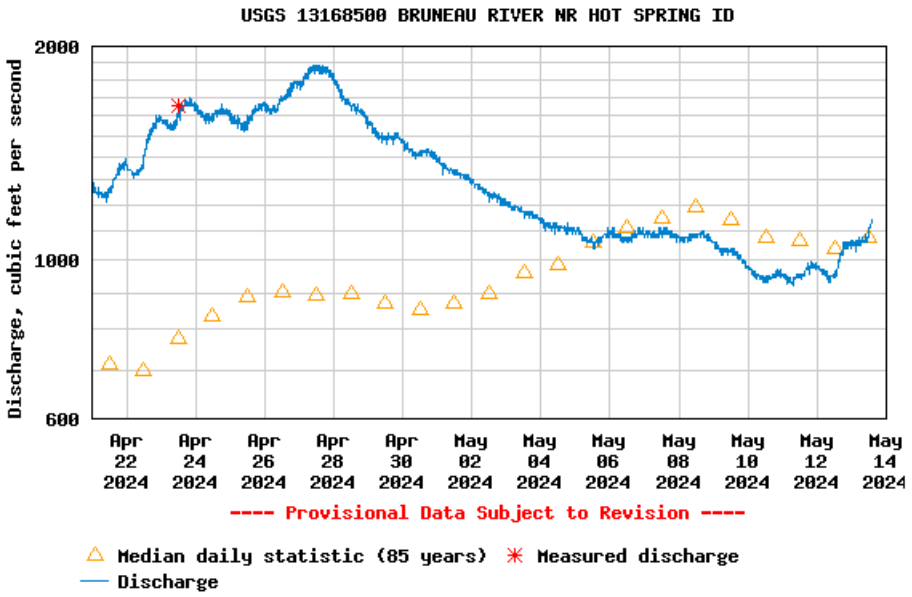
Max SWE Category	Max SWE Magnitude (inches)	Number of Years in Analysis	Average percent melted at time of peak streamflow
Below average	<17	9	100
Average	16 – 27	17	64
Above average	>26	9	31

The average percent melted for the full 36-year period of record is 66% melted.

2024 Bear Creek SWE peaked at 23.6” on Apr 9 and is at 14.4” today. In Average years, the snowmelt peak flow typically occurs or an increases in flow when the site is 64% melted, when 8.5” of SWE remains.

USDA

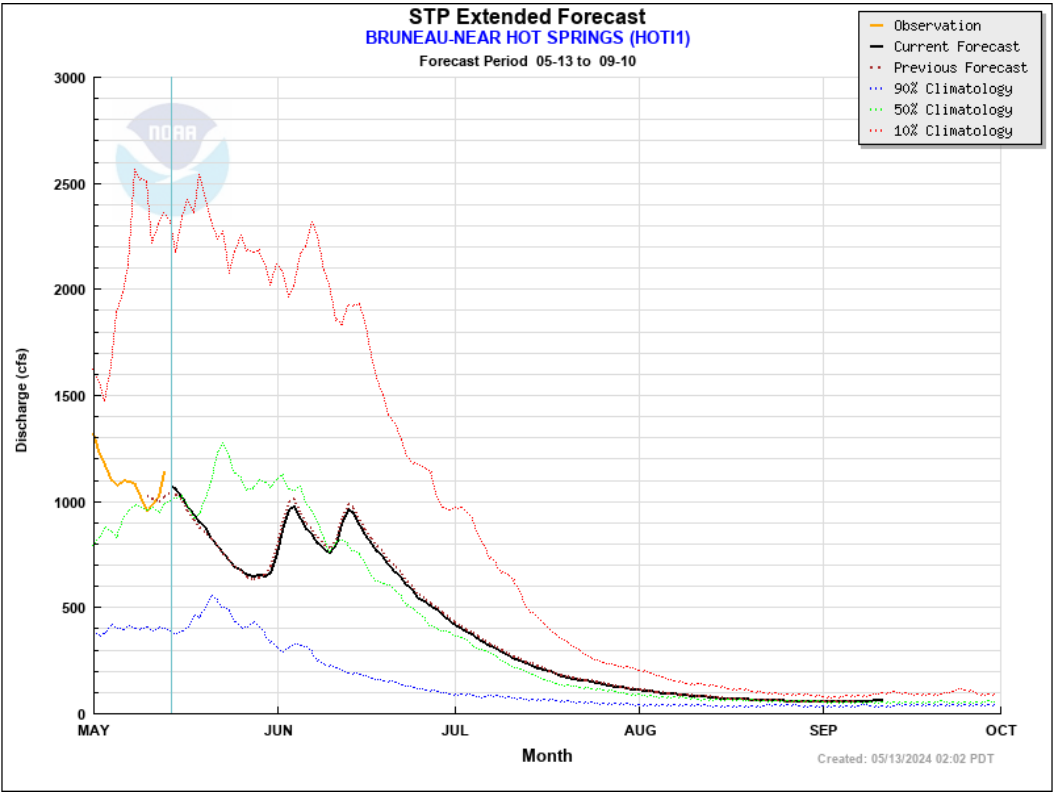
So far, mean daily peak was April 27 at almost 1900 cfs. Flows are increasing on May 13 & 14.



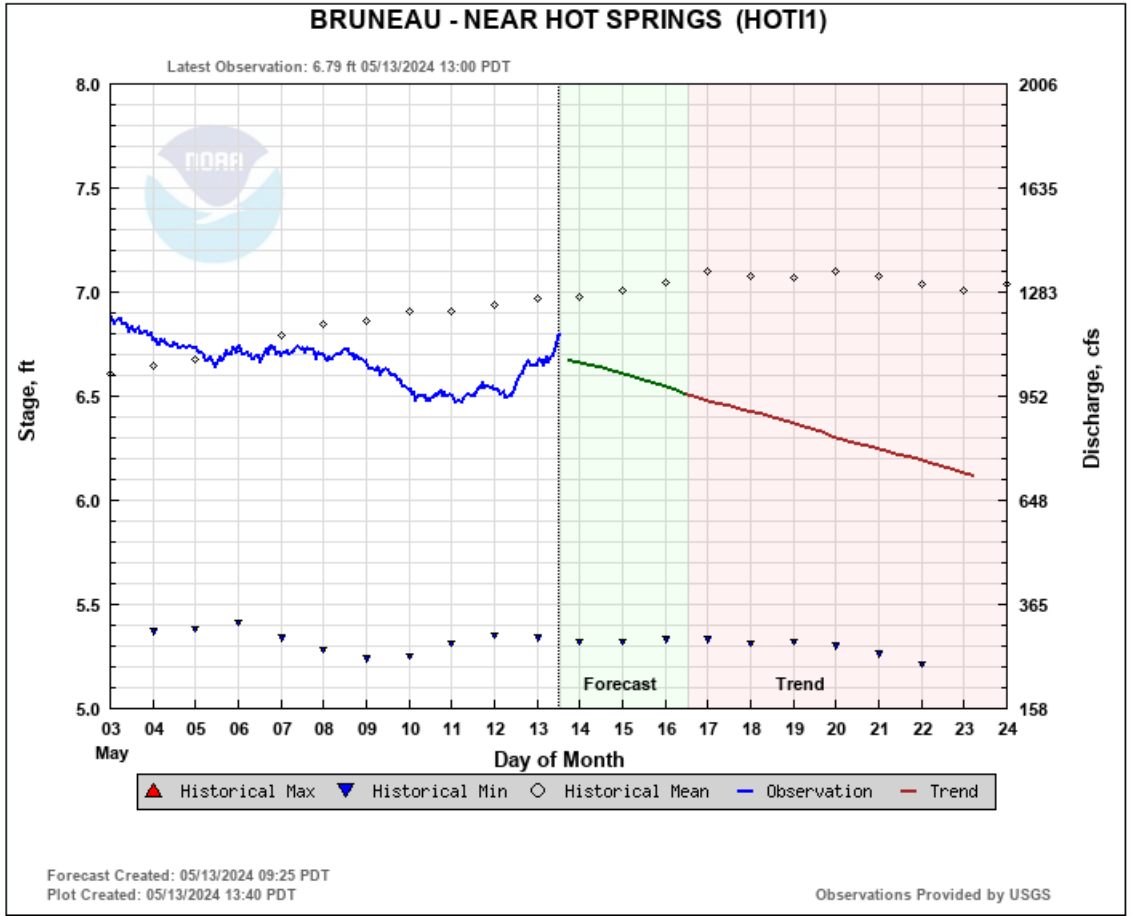
NWS Forecast & Trend below shows steady decrease in flows for next few days. That line looks too straight. The STP Extended Forecasts shows the full picture and peaks pushed out to June.

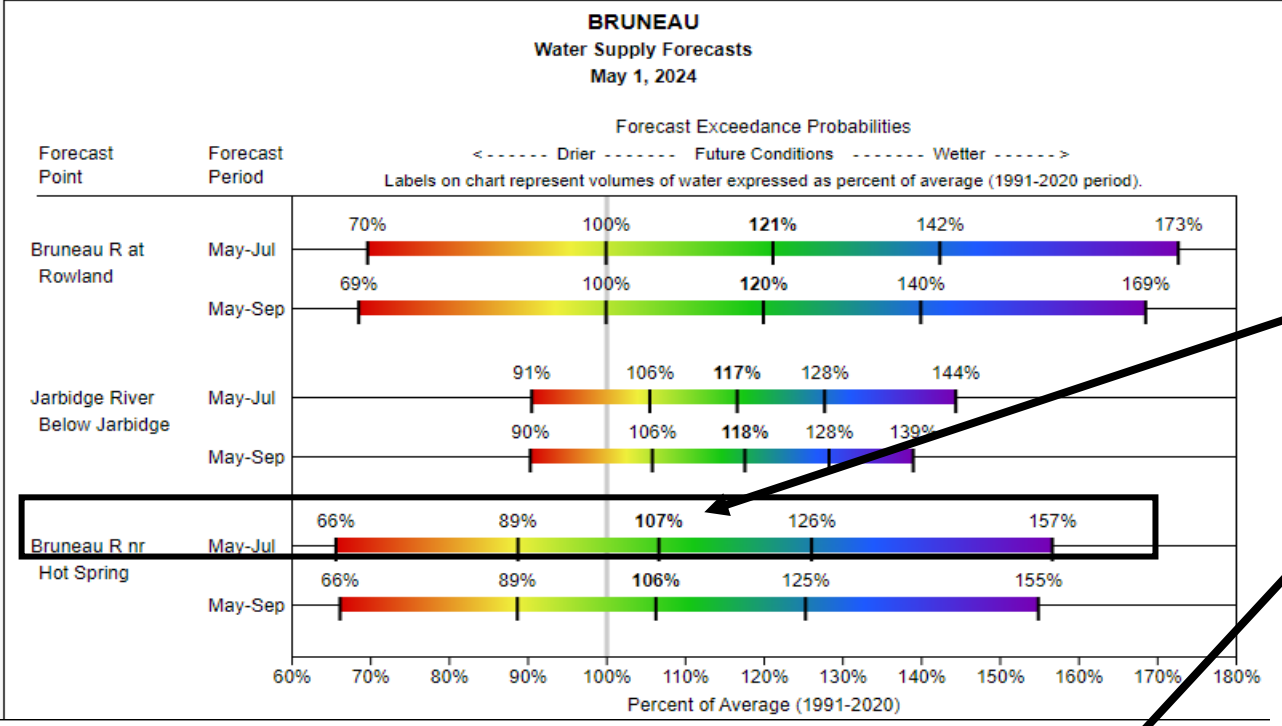
Keep watching to see what happens in next few days as Bear Creek Snow2flow analysis shows another increase is likely from remaining snow to melt. With warm temps and less remaining snow, June peaks seem less likely unless a change in weather happens soon.

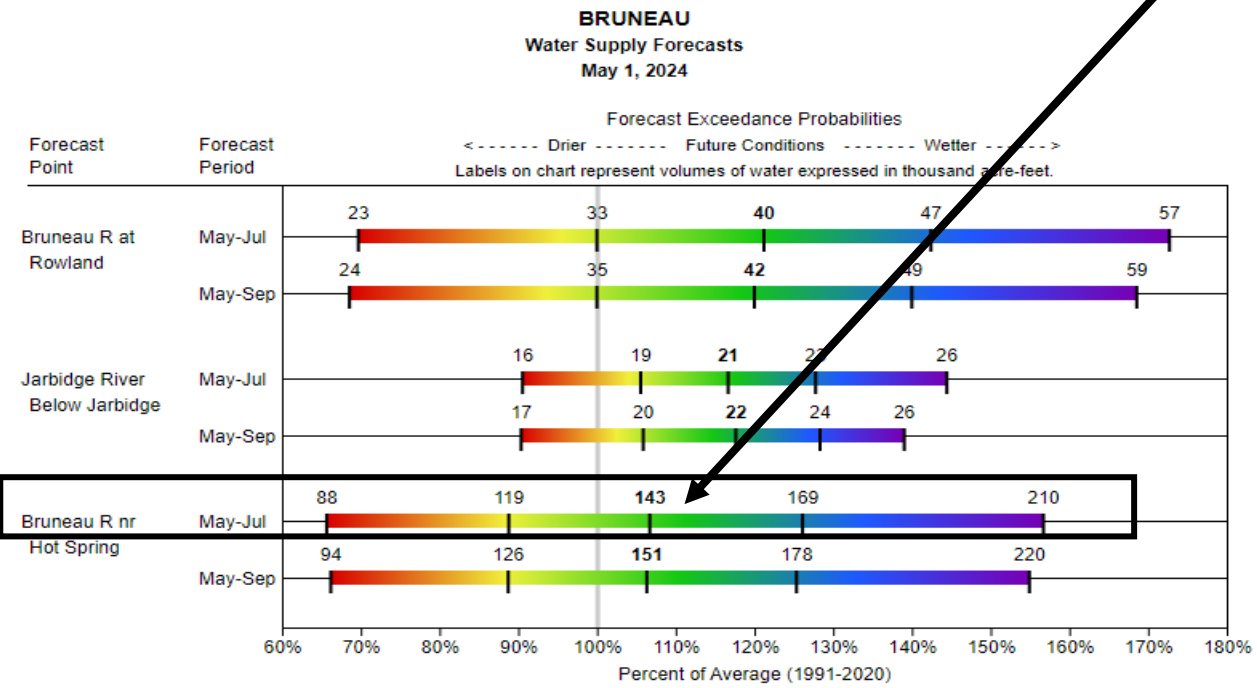
Lessons learned in the Owhyee – flow stayed high for an extended period this year.



The 4-10 Day Trend Forecast is based on model guidance and uncertainty during this period is greater.







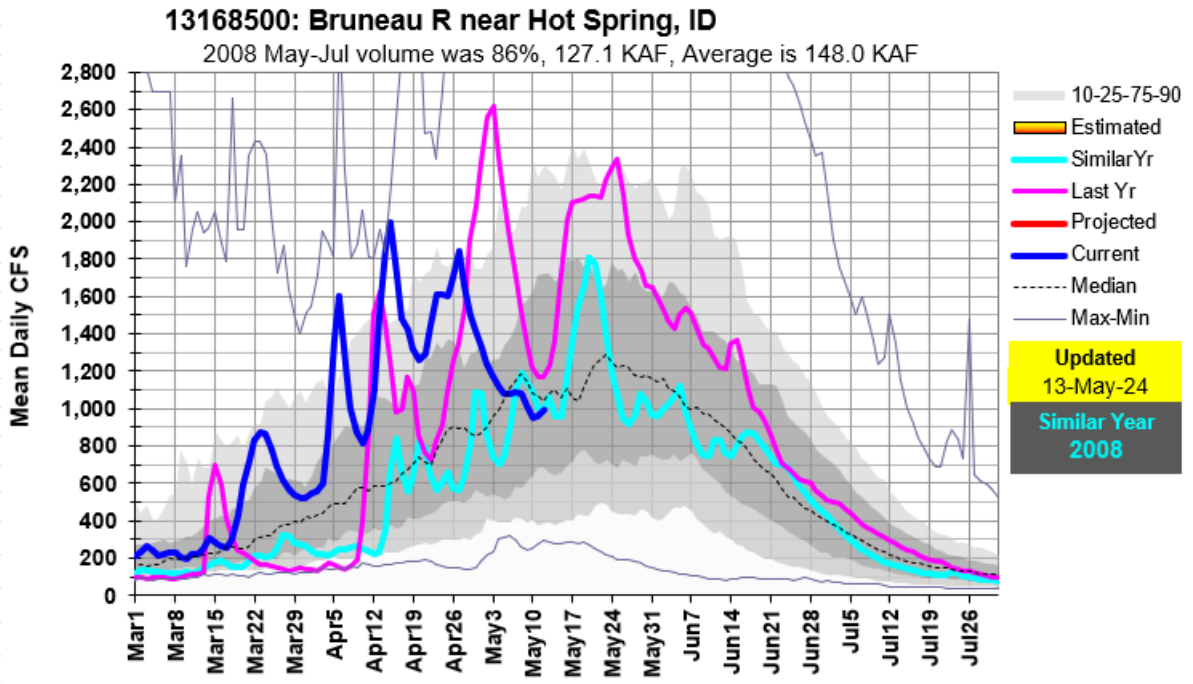
Legend

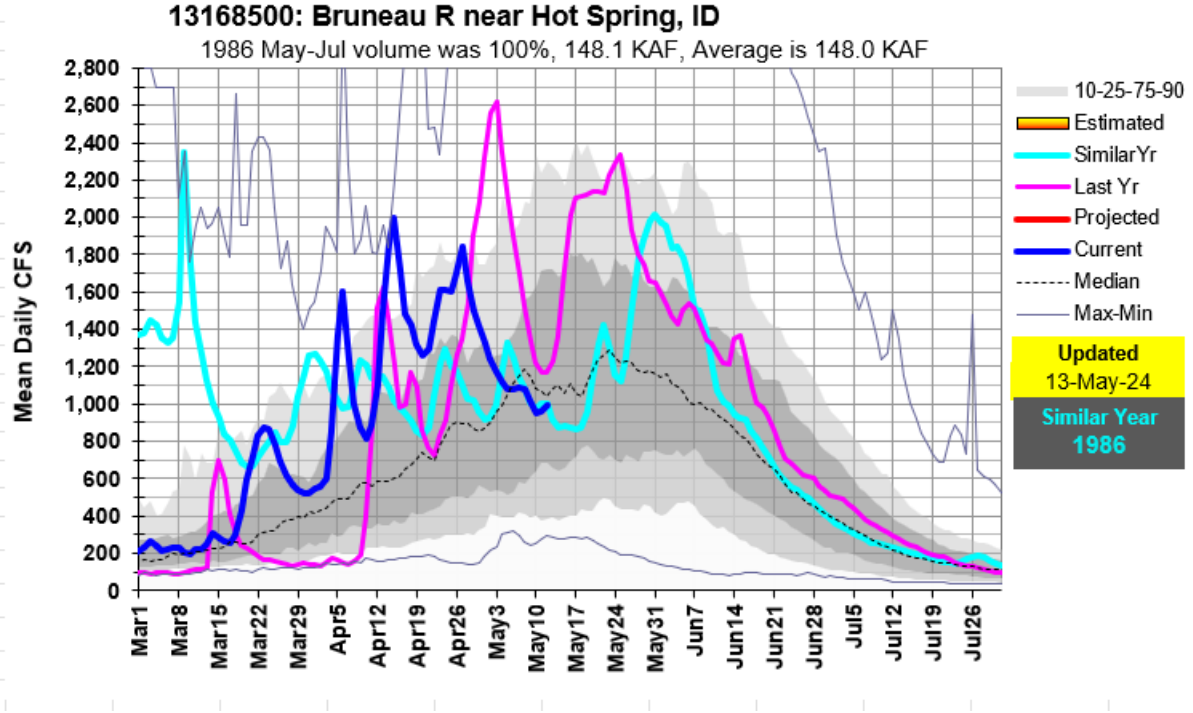
NRCS May 1 May-Jul Volume streamflow forecasts is:

107% of avg

143 KAF with range of 88 to 210 KAF

NWS does not publish a May - Jul volume forecast and neither agency has a current daily water supply volume forecast to see how the forecast may have change since 1st of month.

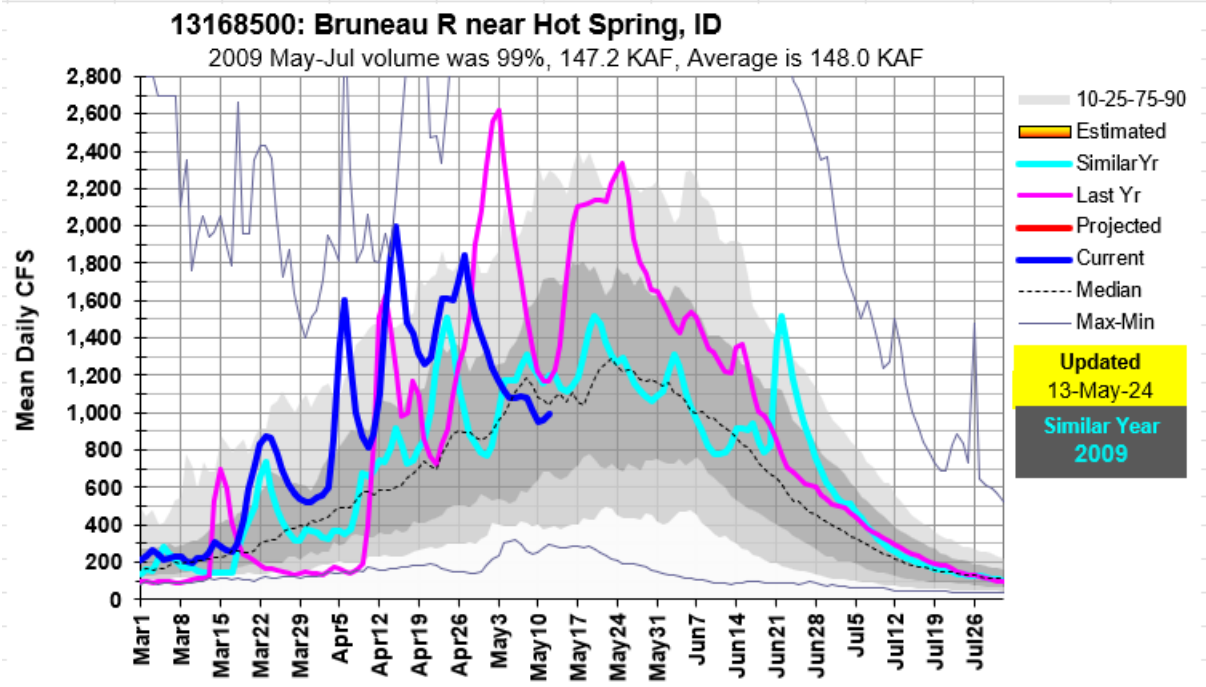


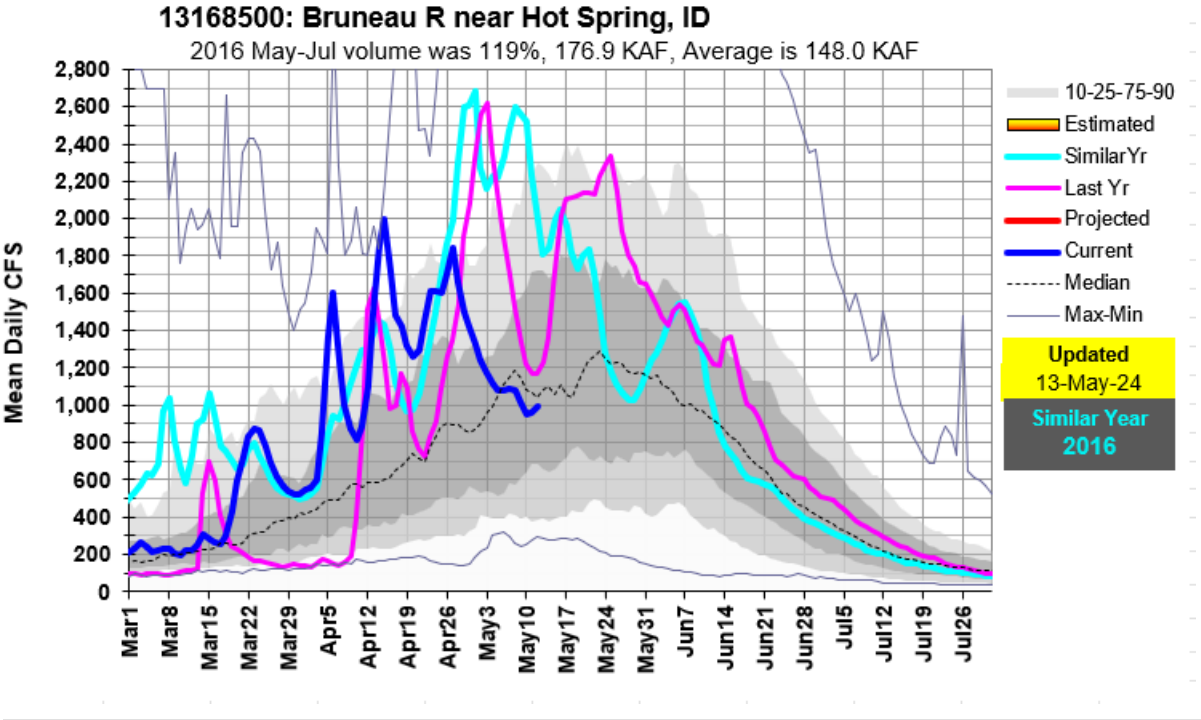


NRCS May 1 May-Jul Volume forecasts of 143 KAF with range of 88 to 210 KAF

2008 May-Jul Volume was 127 KAF
1986 May-Jul Volume was 148 KAF
2009 May-Jul Volume was 147 KAF

These volumes for similar snow years seem reasonable and even the shape of the remaining hydrograph looks reasonable. May future weather will still determine the how the remaining snow melts, additional peaks and when full recession flows start.

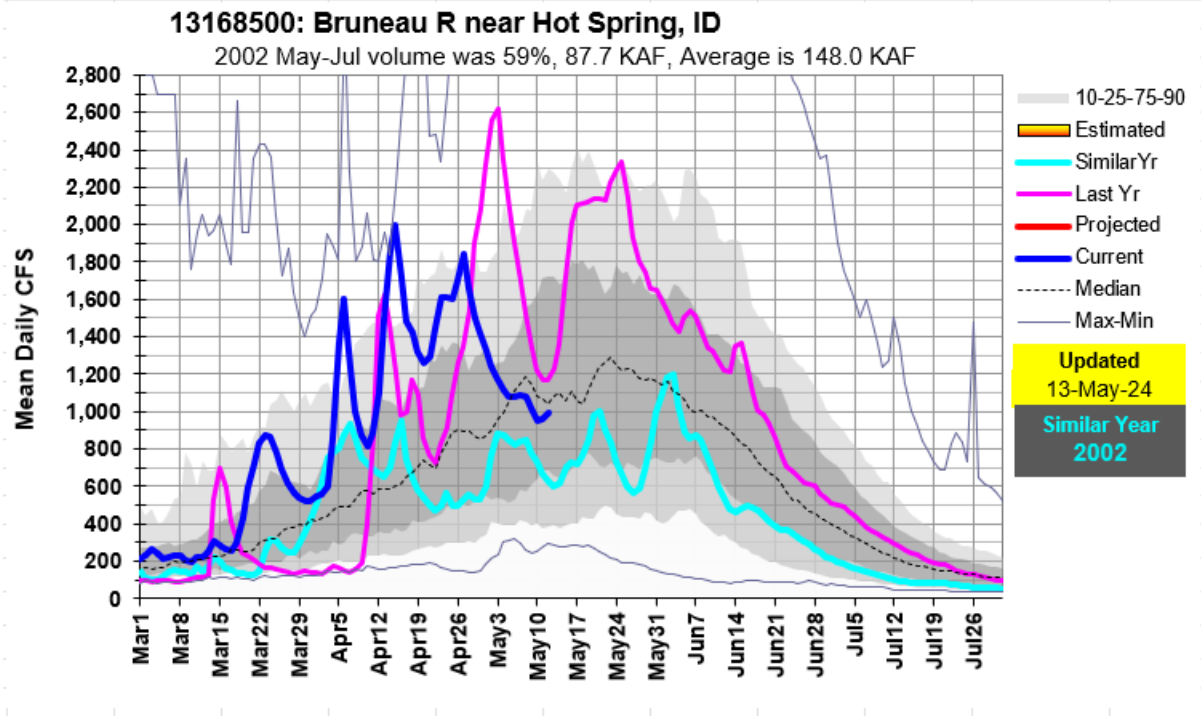


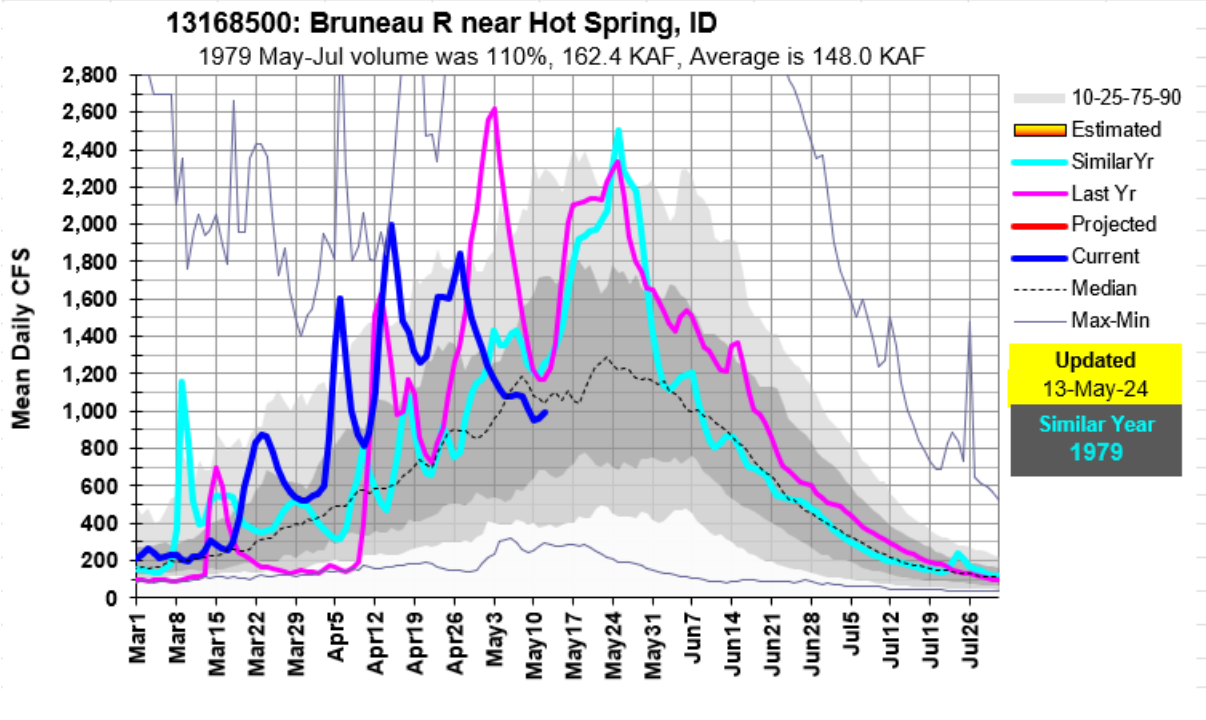


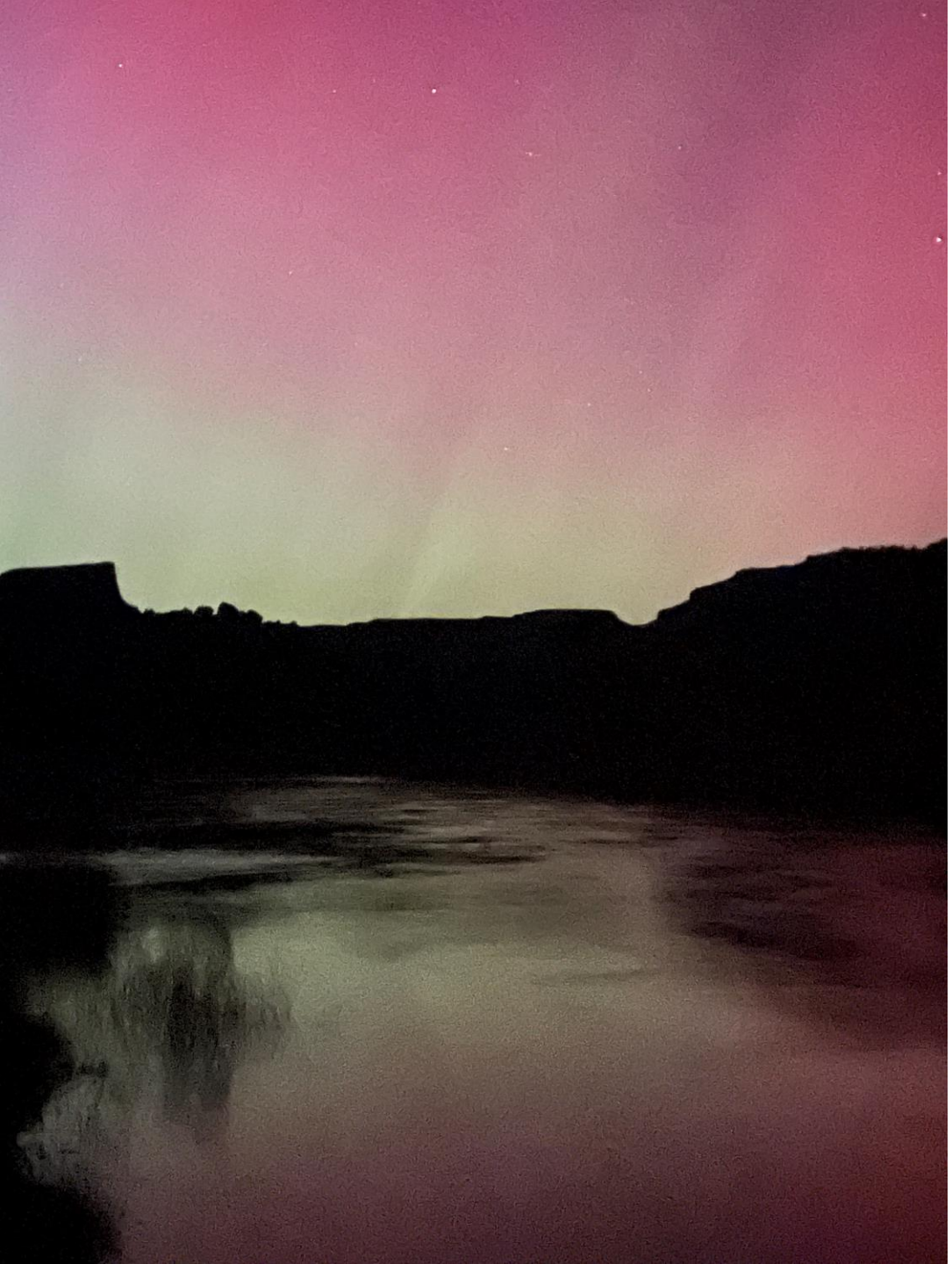
NRCS May 1 May-Jul Volume forecasts of 143 KAF with range of 88 to 210 KAF

Here's the runoff for a few more similar snow years:
2016 May-Jul Volume was 176 KAF
2002 May-Jul Volume was 87 KAF
1979 May-Jul Volume was 162 KAF

- **2016 too wet with a volume of 176 KAF.**
- **2002 too dry with a volume of 87 KAF**
- **1979 a possibility with addition rain to push peak and volume higher.**





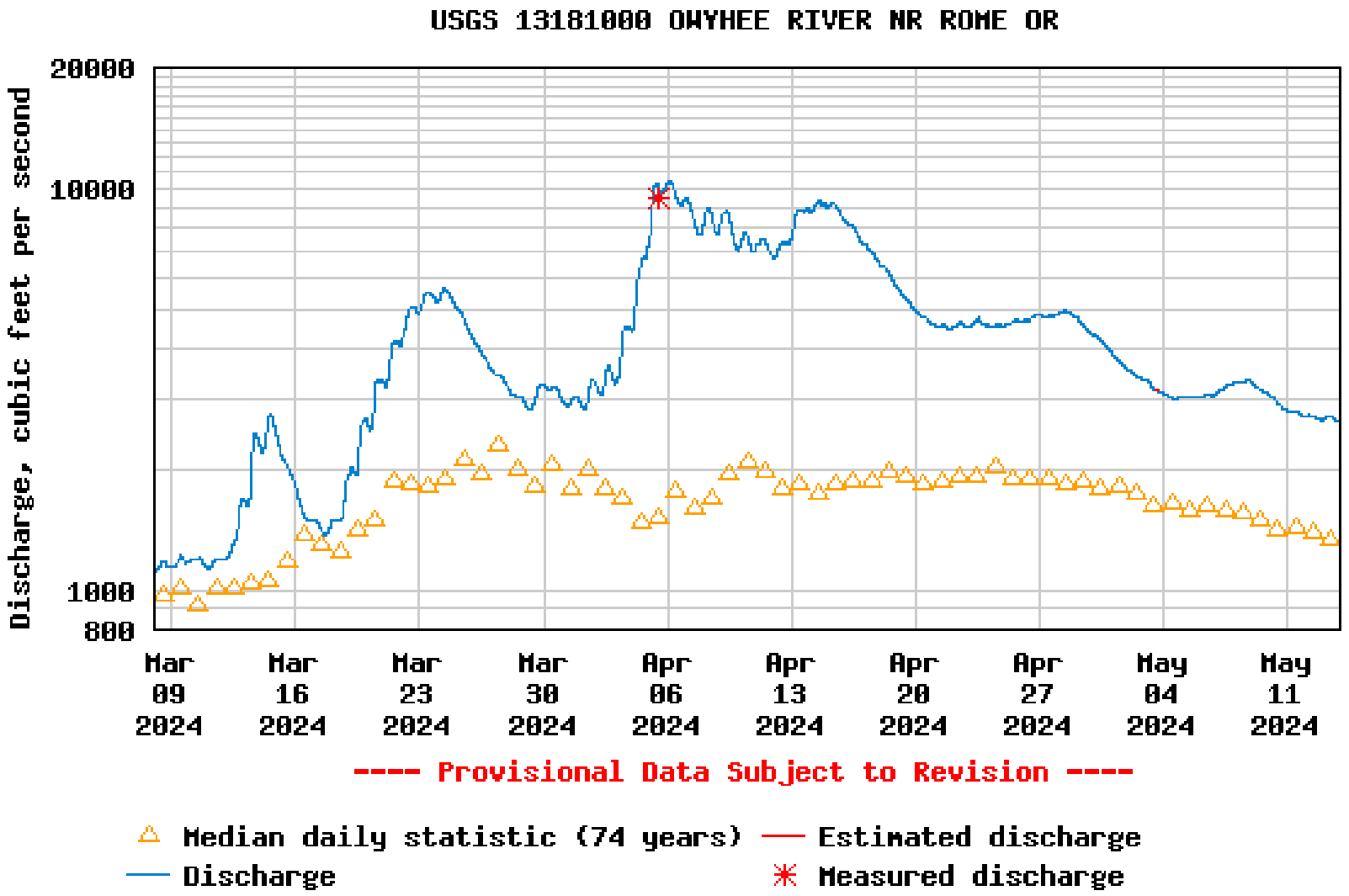


On to the Owyhee !

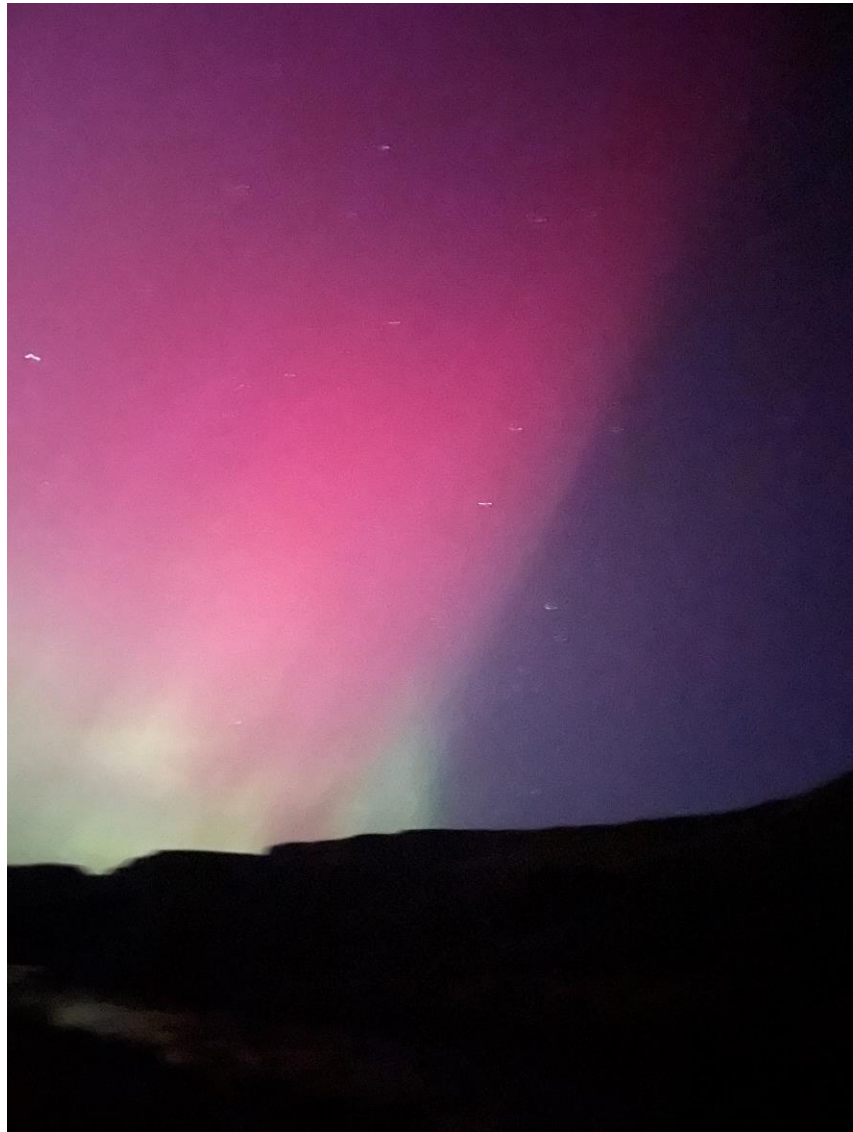
The Northen Lights around midnight on May 10 at Mile 19 on the Lower Owyhee.

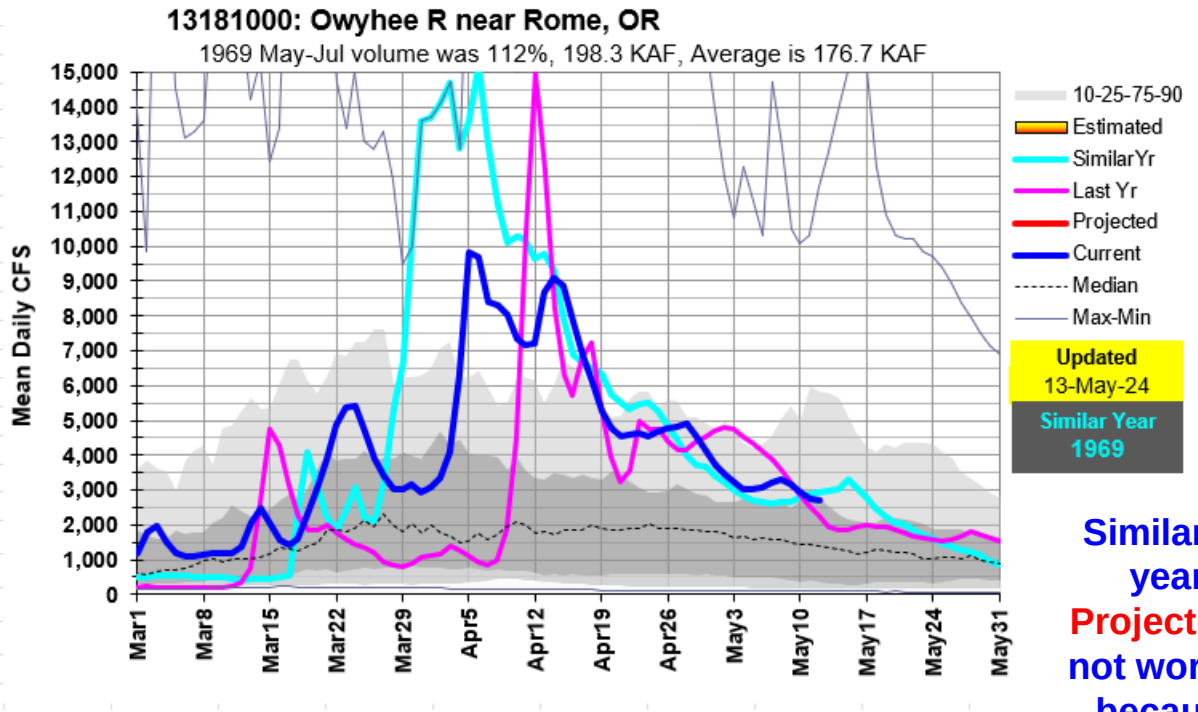
Who would have thought you could see the Lights from deep within this canyon.

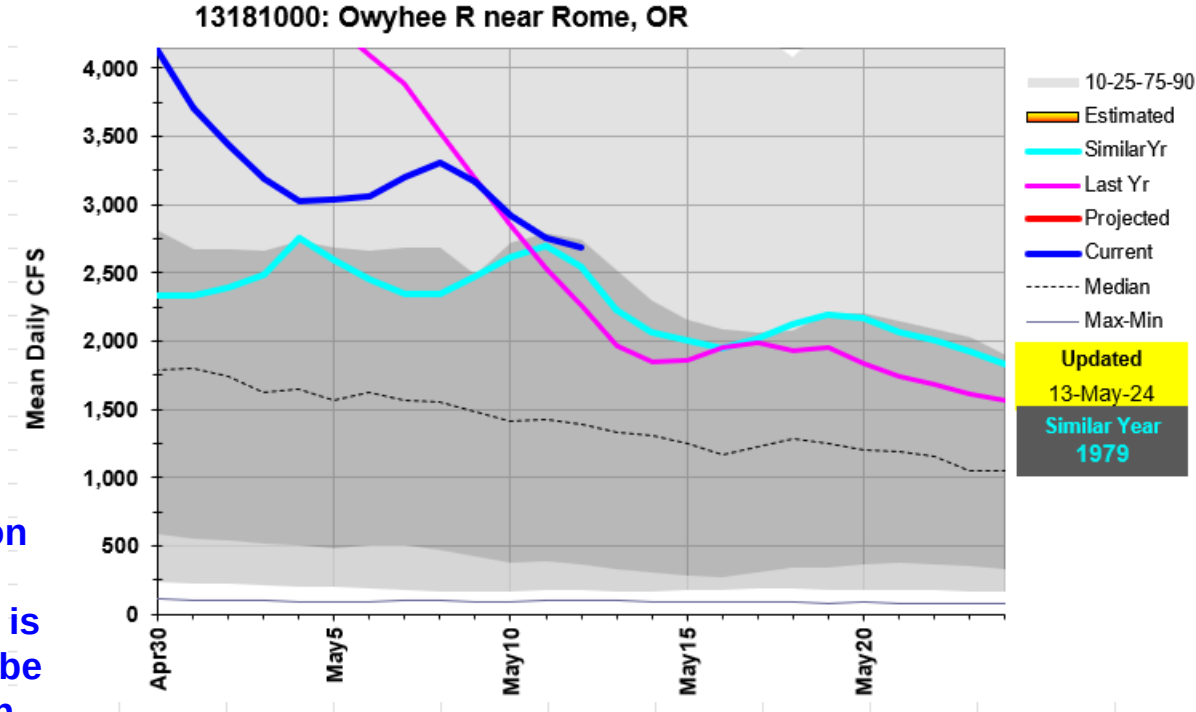
Powerful Mother Nature at Work !



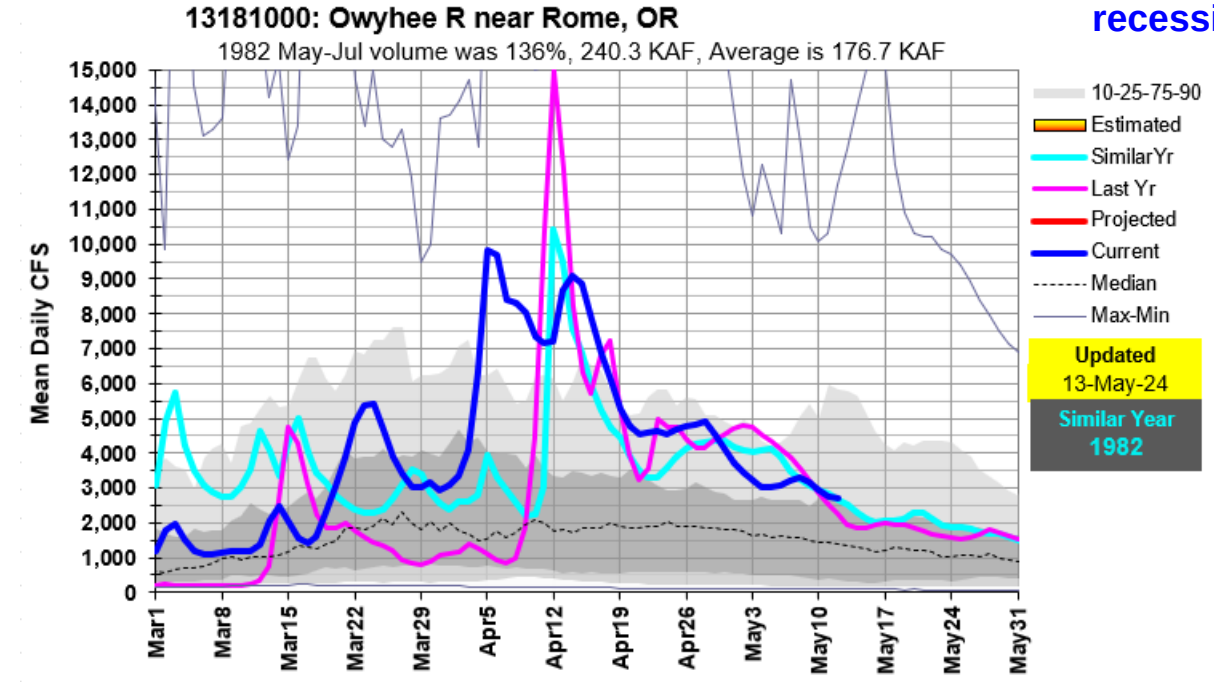
What an amazing year on the Owyhee with an amazing recession flow plateau and amazing Lights !

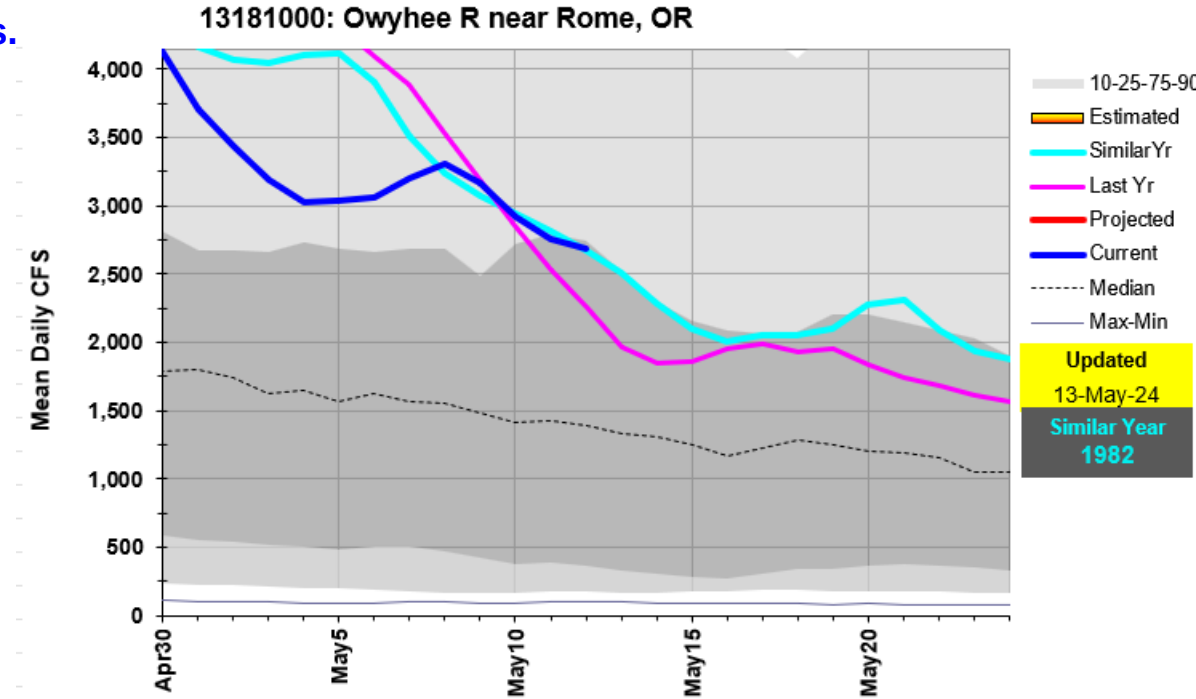






Similar recession years. Sorry Projected option is not working maybe because of high recession flows.





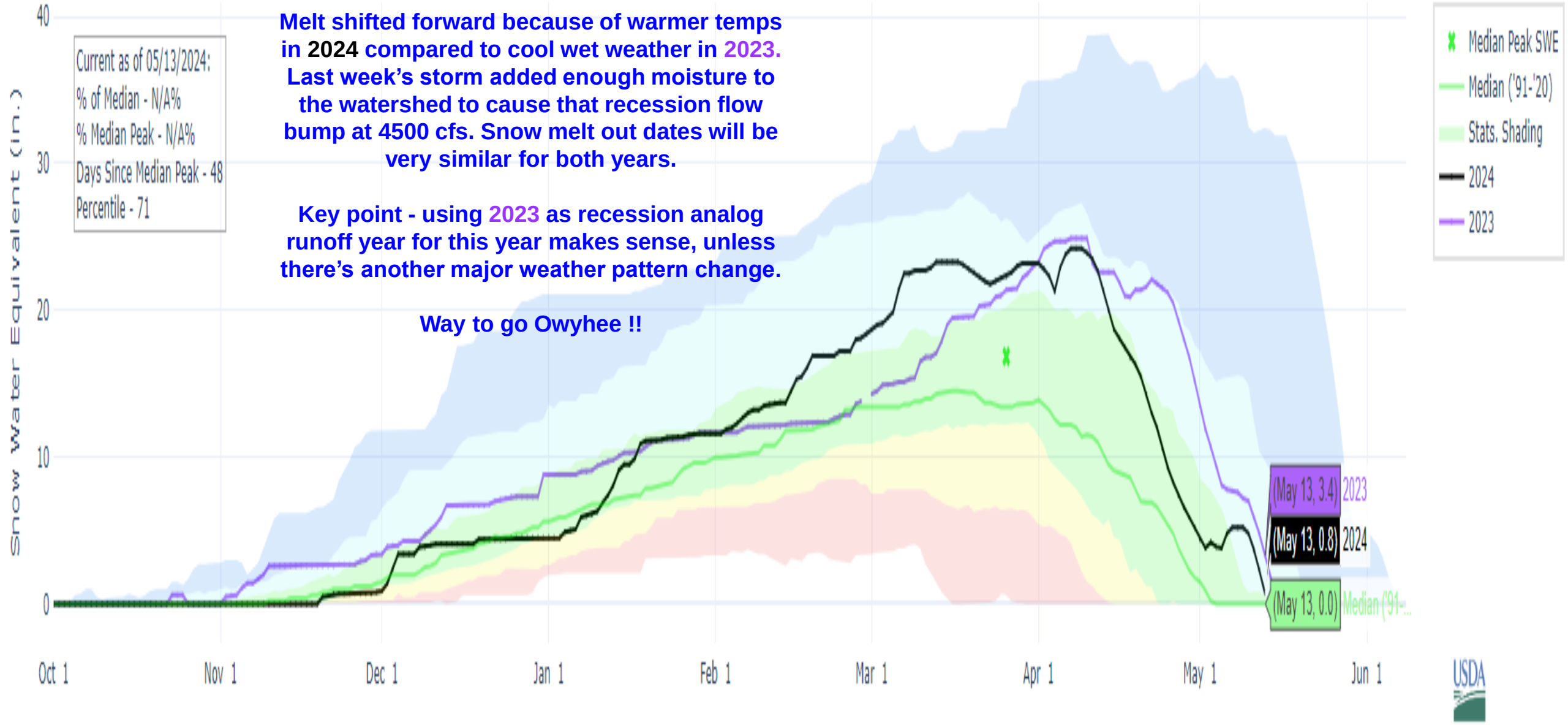
SOUTH MTN., ID (774) SNOW WATER EQUIVALENT

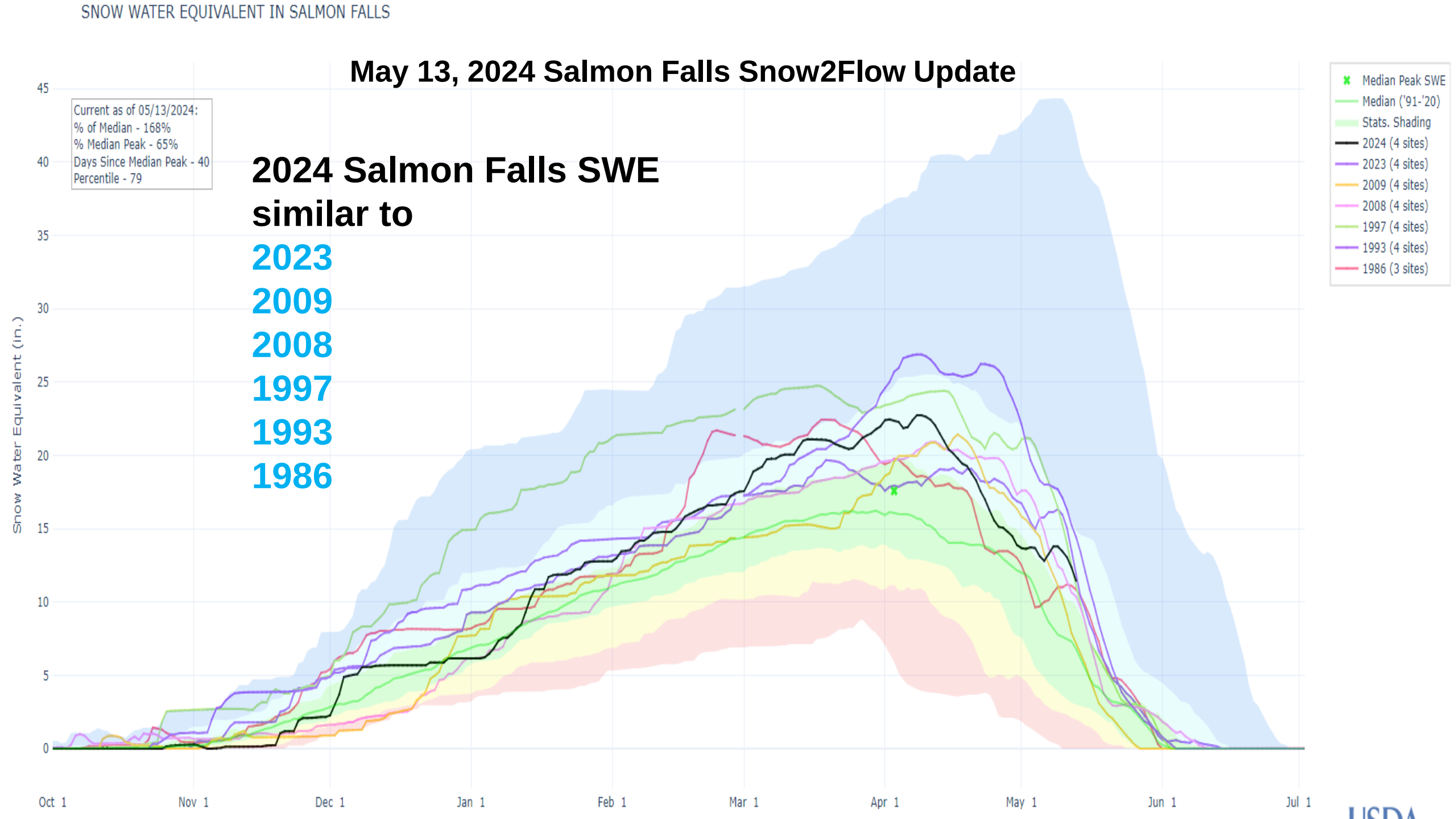
Interesting, SWE peaks are about the same for 2024 and 2023.

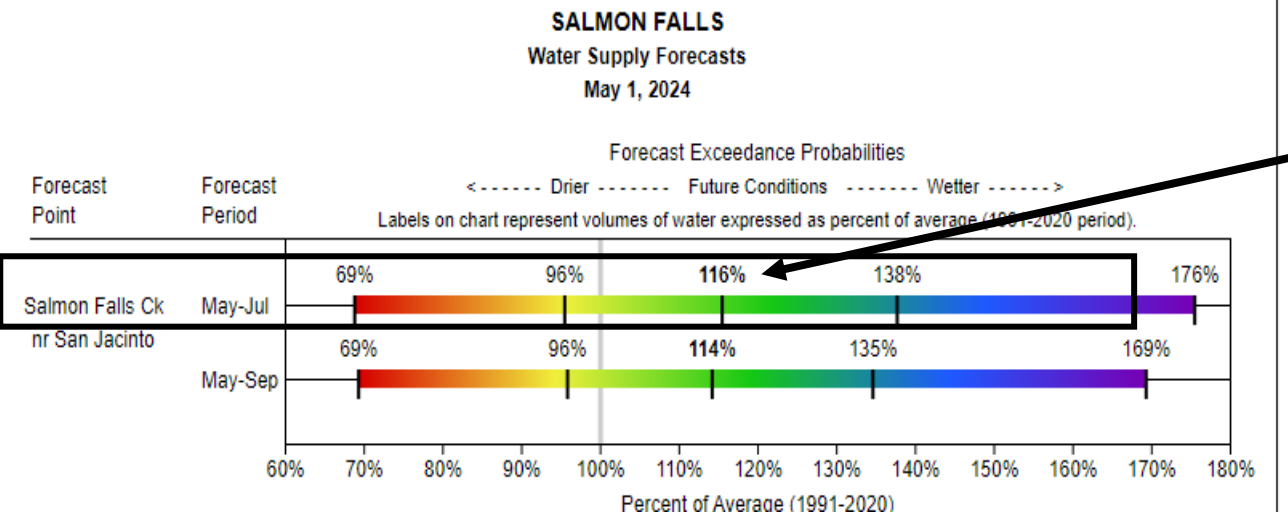
Melt shifted forward because of warmer temps in 2024 compared to cool wet weather in 2023. Last week's storm added enough moisture to the watershed to cause that recession flow bump at 4500 cfs. Snow melt out dates will be very similar for both years.

Key point - using 2023 as recession analog runoff year for this year makes sense, unless there's another major weather pattern change.

Way to go Owyhee !!




SNOW WATER EQUIVALENT IN SALMON FALLS
May 13, 2024 Salmon Falls Snow2Flow Update
Current as of 05/13/2024:
% of Median - 168%
% Median Peak - 65%
Days Since Median Peak - 40
Percentile - 79
2024 Salmon Falls SWE similar to
2023
2009
2008
1997
1993
1986
Median Peak SWE
Median ('91-'20)
Stats. Shading
2024 (4 sites)
2023 (4 sites)
2009 (4 sites)
2008 (4 sites)
1997 (4 sites)
1993 (4 sites)
1986 (3 sites)
Snow Water Equivalent (in.)
45
40
35
30
25
20
15
10
5
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1

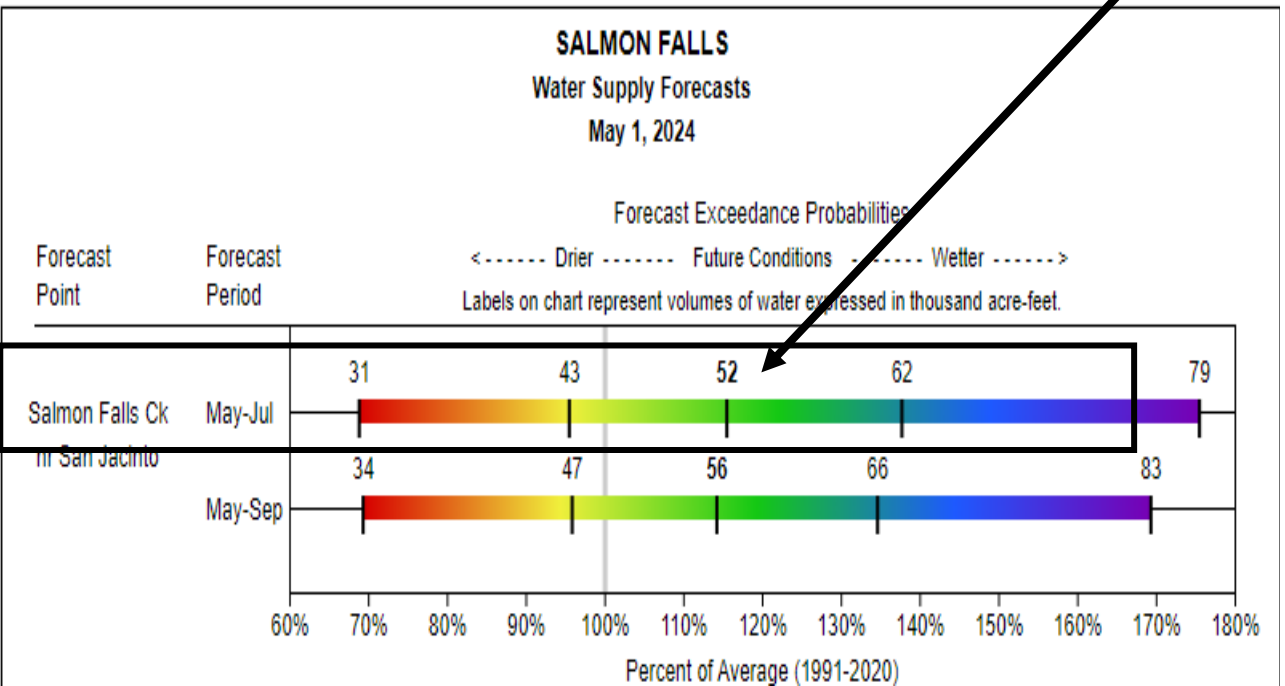


NRCS May 1 May-Jul Volume streamflow forecasts is:

116% of avg

52 KAF with range of 88 to 210 KAF

NWS does not publish a May - Jul volume forecast and neither agency has a current daily water supply volume forecast to see how the forecast may have change since 1st of month.



MAGIC MOUNTAIN, ID (610) SNOW WATER EQUIVALENT

Salmon Falls Creek and Magic Mountain SNOTEL SITE

On average, the Salmon Falls Creek near San Jacinto, NV peak streamflow occurs when Magic Mountain SNOTEL is approximately 62% melted.

Current as of 05/13/2024:
% of Median - 272%
% Median Peak - 81%
Days Since Median Peak - 43
Percentile - 88

Summary by magnitude MAX SWE

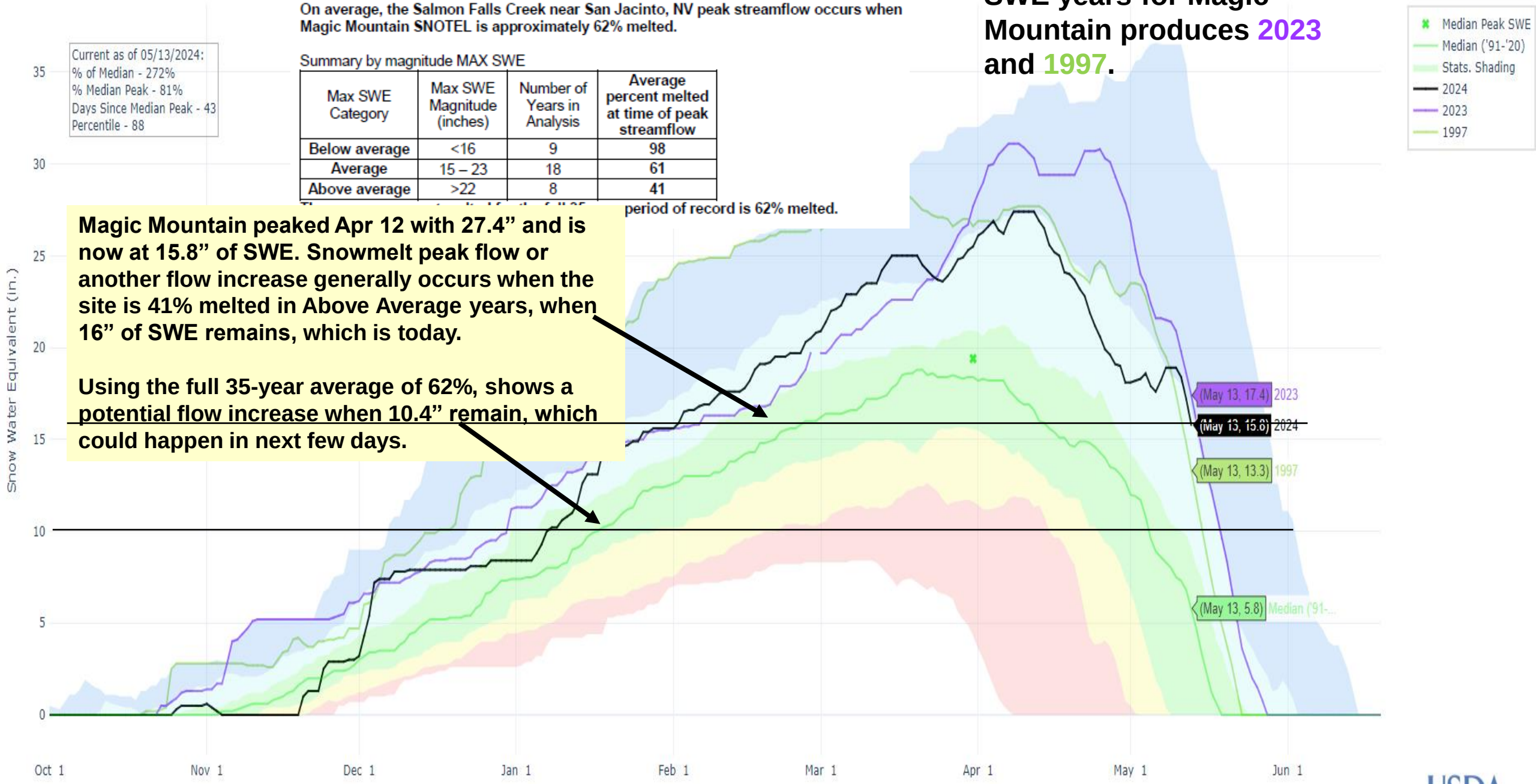
Max SWE Category	Max SWE Magnitude (inches)	Number of Years in Analysis	Average percent melted at time of peak streamflow
Below average	<16	9	98
Average	15 – 23	18	61
Above average	>22	8	41

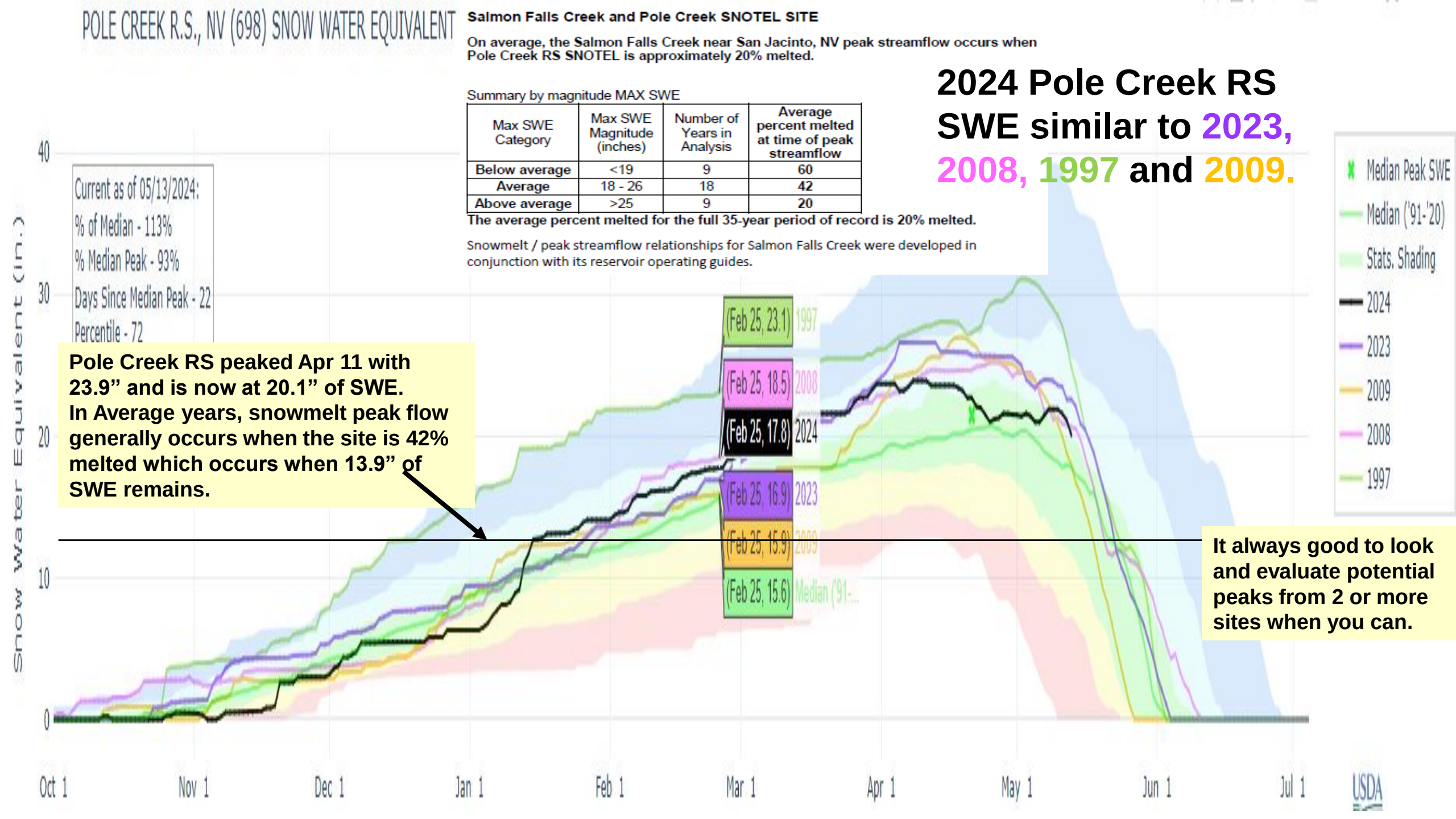
period of record is 62% melted.

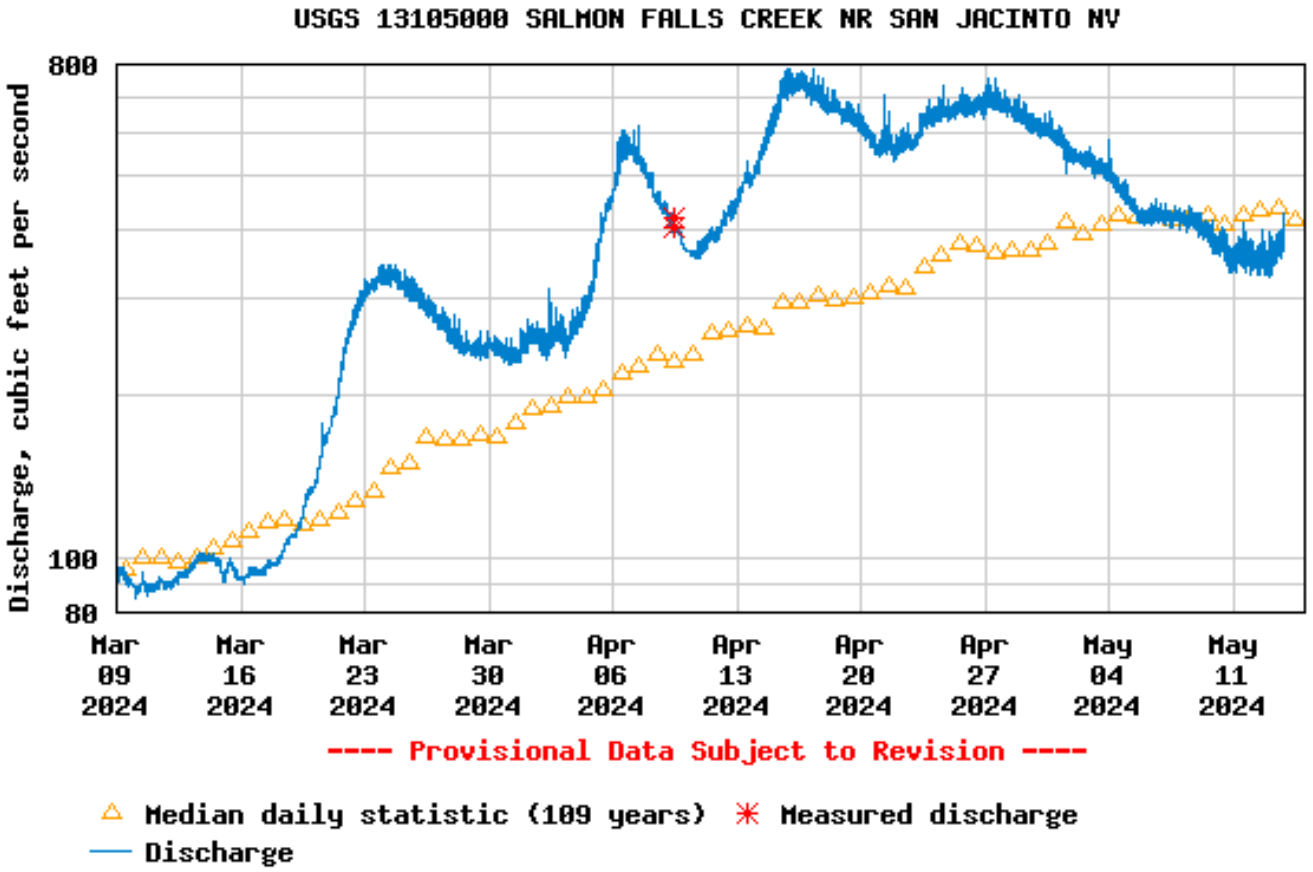
Magic Mountain peaked Apr 12 with 27.4" and is now at 15.8" of SWE. Snowmelt peak flow or another flow increase generally occurs when the site is 41% melted in Above Average years, when 16" of SWE remains, which is today.

Using the full 35-year average of 62%, shows a potential flow increase when 10.4" remain, which could happen in next few days.

Narrowing down similar SWE years for Magic Mountain produces 2023 and 1997.

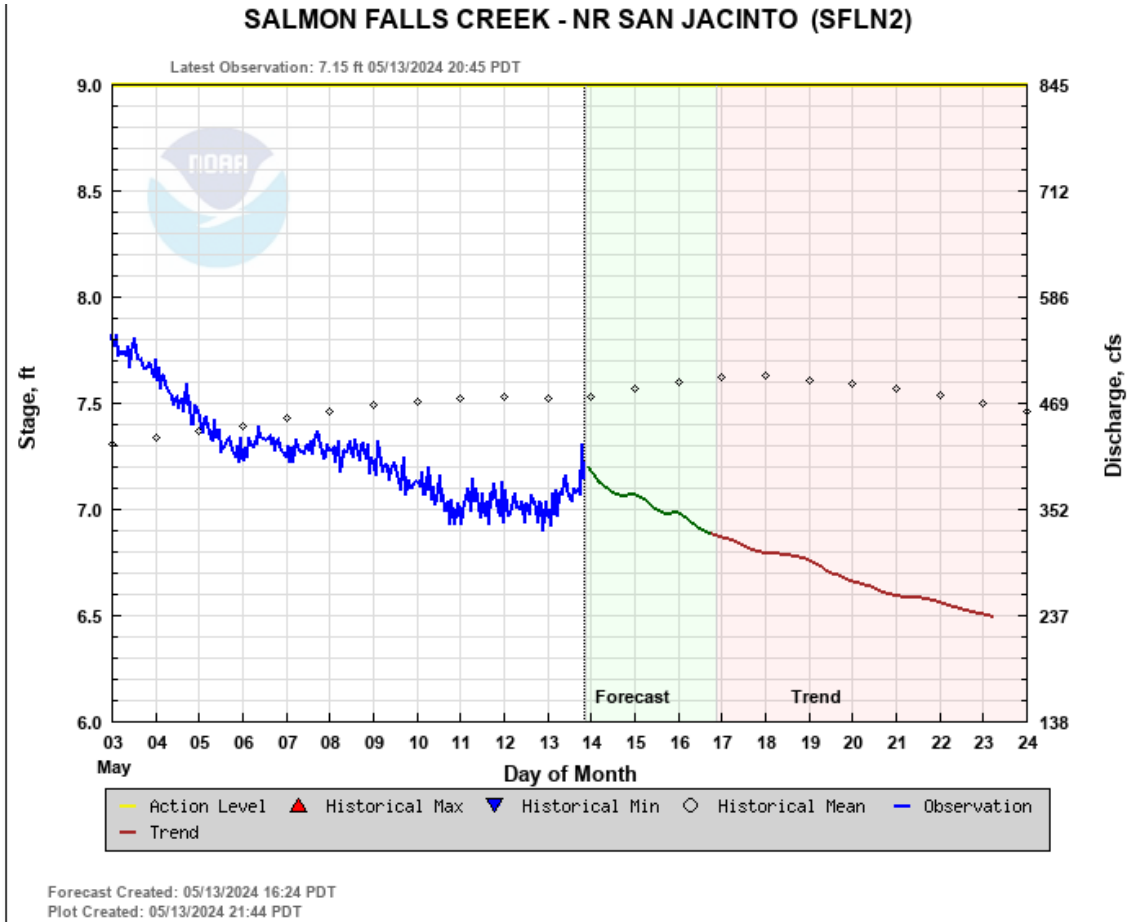


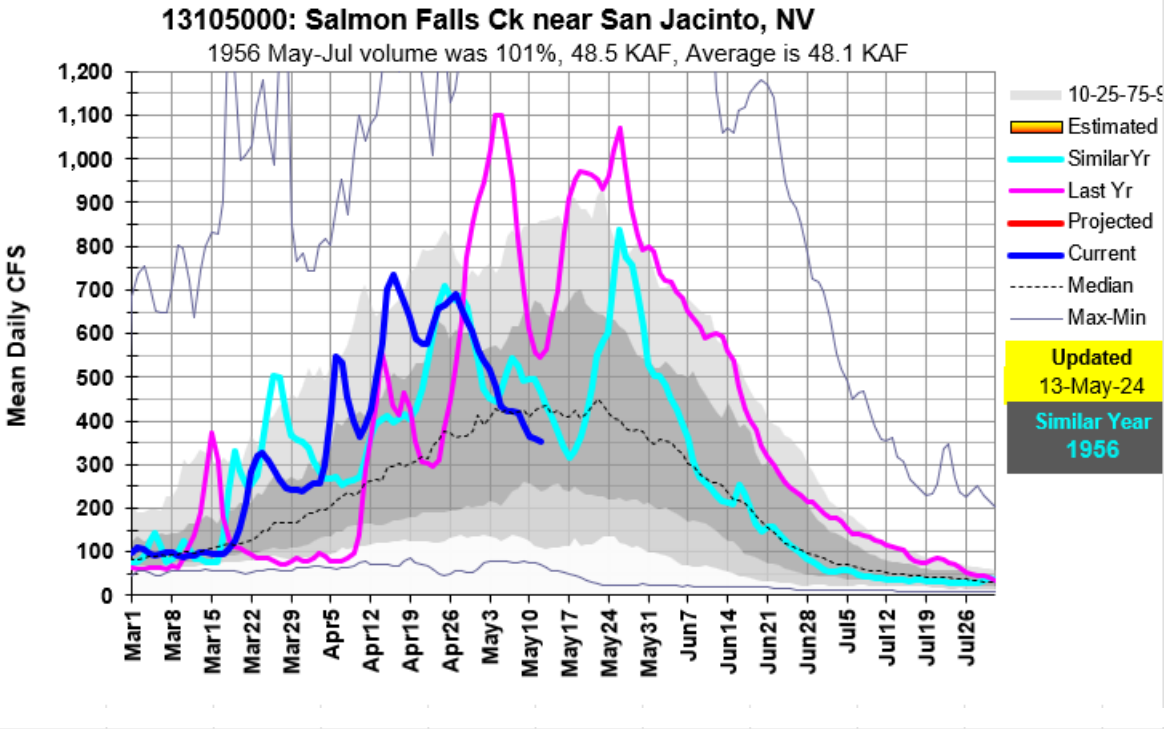

POLE CREEK R.S., NV (698) SNOW WATER EQUIVALENT
Salmon Falls Creek and Pole Creek SNOTEL SITE
On average, the Salmon Falls Creek near San Jacinto, NV peak streamflow occurs when Pole Creek RS SNOTEL is approximately 20% melted.
Summary by magnitude MAX SWE
Max SWE Category | Max SWE Magnitude (inches) | Number of Years in Analysis | Average percent melted at time of peak streamflow
Below average | <19 | 9 | 60
Average | 18 - 26 | 18 | 42
Above average | >25 | 9 | 20
The average percent melted for the full 35-year period of record is 20% melted.
Snowmelt / peak streamflow relationships for Salmon Falls Creek were developed in conjunction with its reservoir operating guides.
2024 Pole Creek RS SWE similar to 2023, 2008, 1997 and 2009.
Current as of 05/13/2024:
% of Median - 113%
% Median Peak - 93%
Days Since Median Peak - 22
Percentile - 72
Pole Creek RS peaked Apr 11 with 23.9" and is now at 20.1" of SWE.
In Average years, snowmelt peak flow generally occurs when the site is 42% melted which occurs when 13.9" of SWE remains.
It always good to look and evaluate potential peaks from 2 or more sites when you can.
Snow Water Equivalent (in.)
40
30
20
10
0
(Feb 25, 23.1) 1997
(Feb 25, 18.5) 2008
(Feb 25, 17.8) 2024
(Feb 25, 16.9) 2023
(Feb 25, 15.9) 2009
(Feb 25, 15.6) Median ('91-...
Median Peak SWE
Median ('91-'20)
Stats. Shading
2024
2023
2009
2008
1997
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
USDA

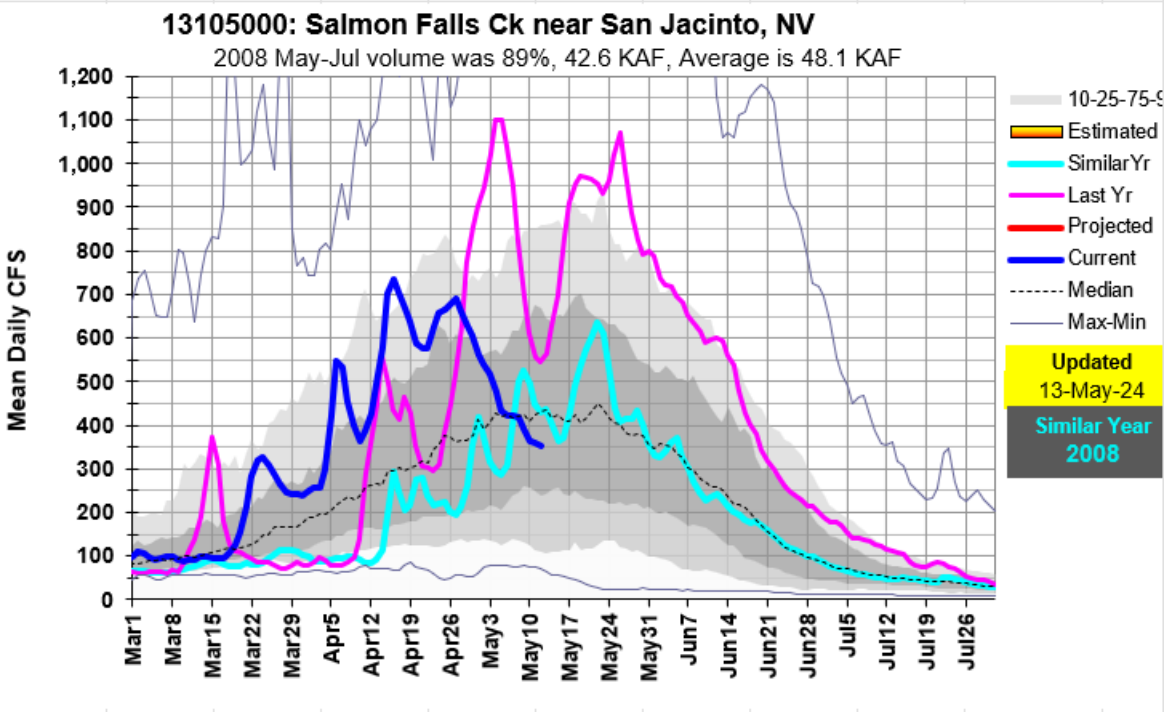


Current flow data shows a mean daily peak of around 700 cfs on Apr 17 and 27. Time will tell if next peak exceeds these but observations from the Owyhee shows these southern Idaho rivers staying higher longer this season.

NWS short term forecast and trend shows gradual decrease.







Snow2Flow Relationship shows another peak or increase from remaining snow to melt is still to come. Future weather will determine if next peak exceeds previous peaks.

May-Jul NRCS Volume Forecast is 52 Kaf
May-Jul volume runoff for 1956 was 48 KAF and for 2008 was 42 KAF.

Future weather will determine if next peak, and when recession flows start and if they stay higher longer like the Owhyee River.