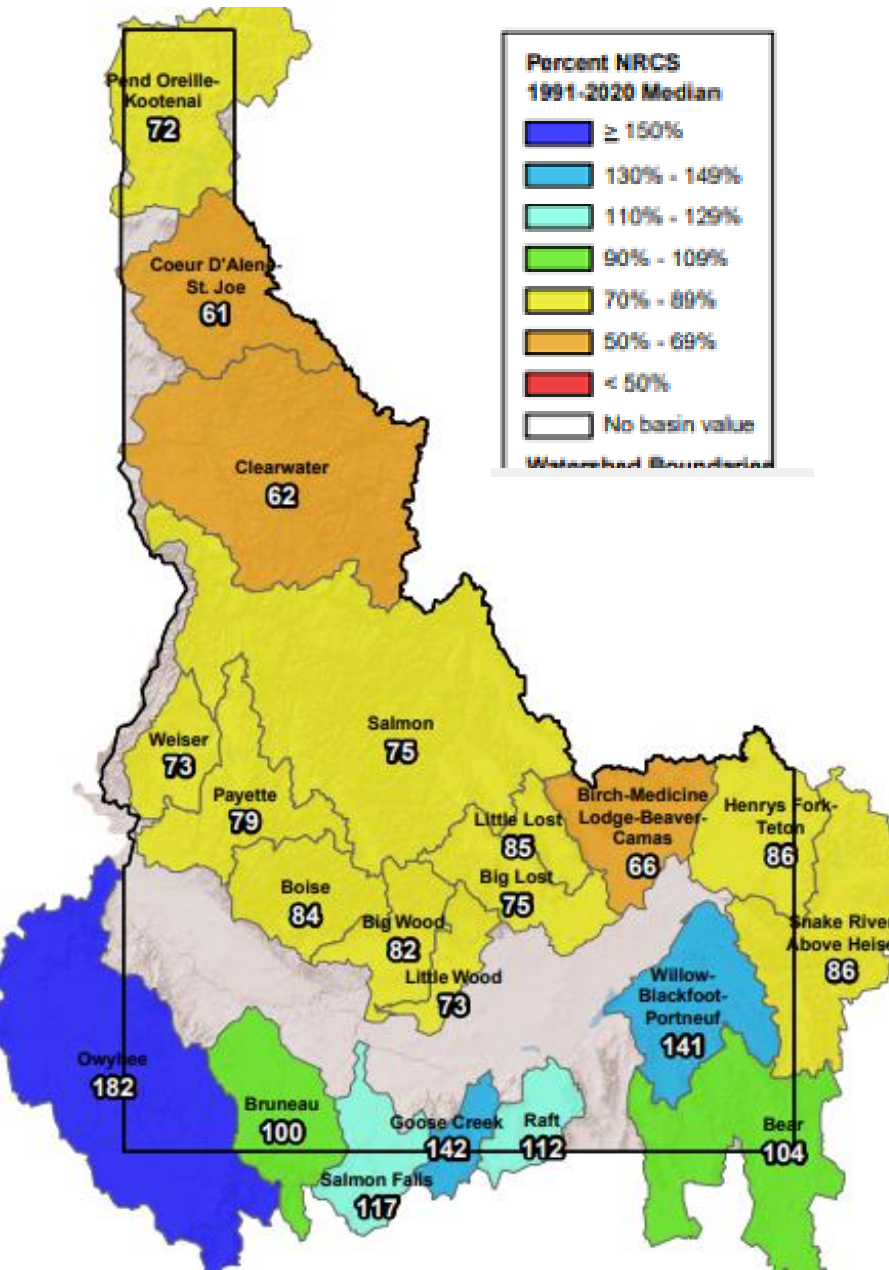
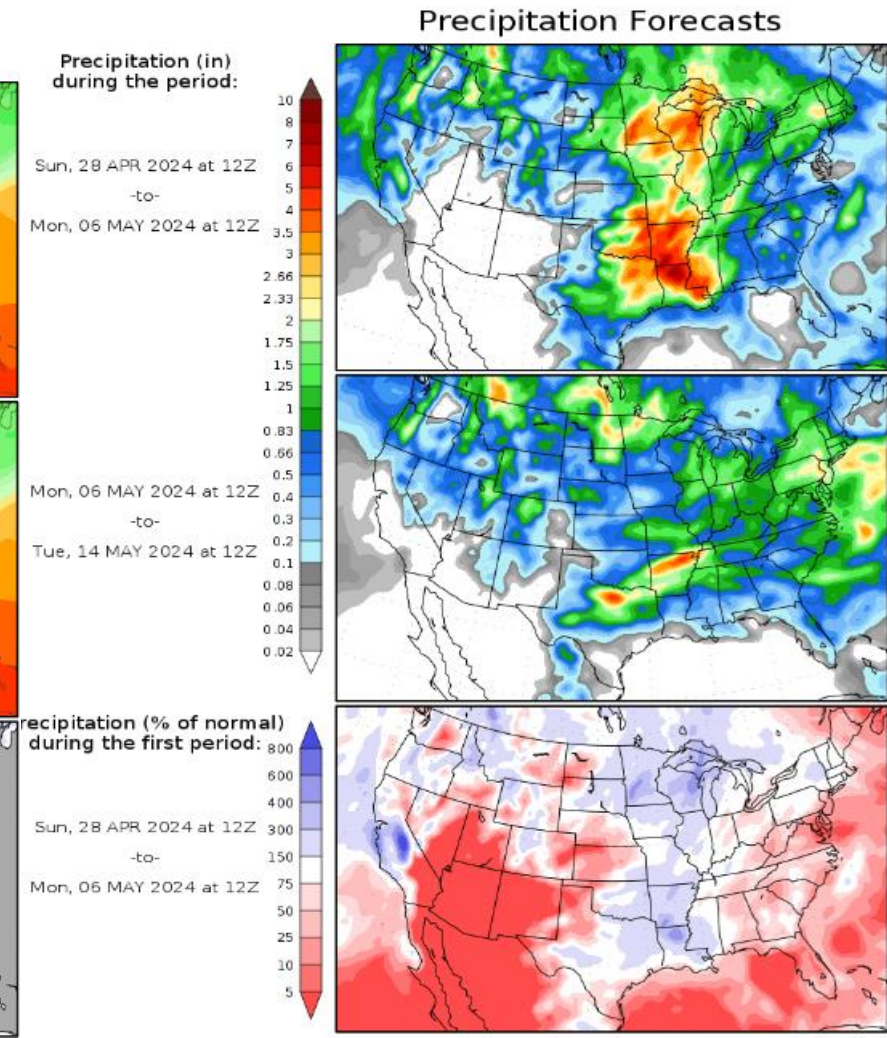
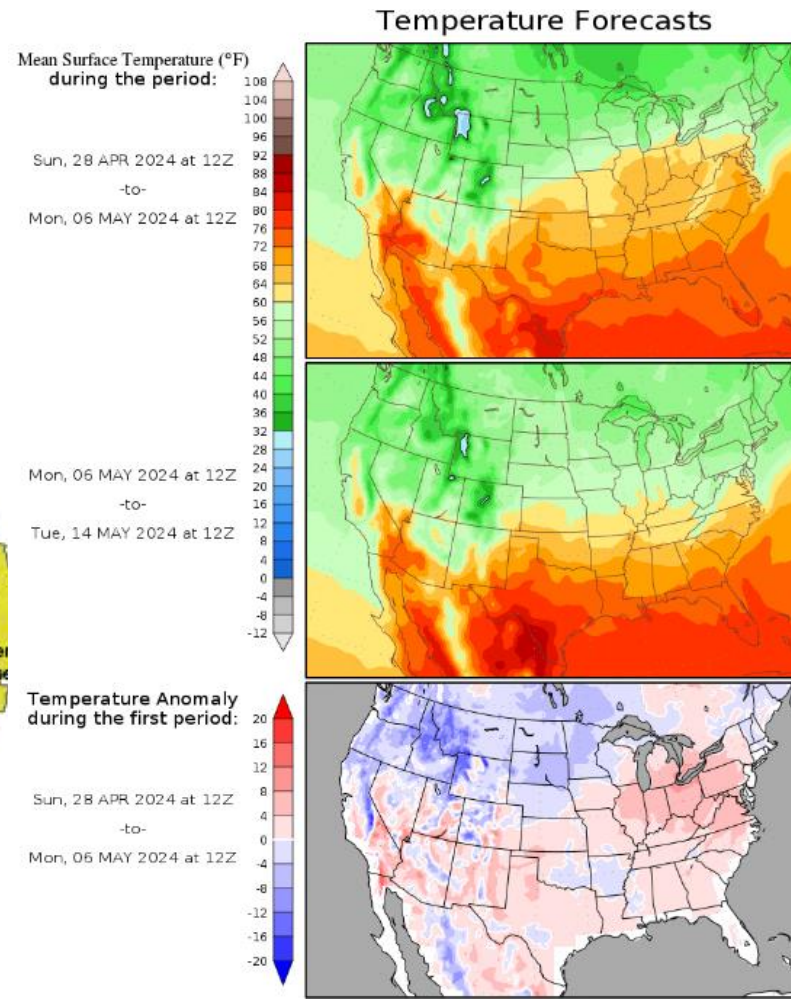


April 29, 2024 MF & Salmon
Snow2Flow Update
Snow Water Equivalent Map Apr 27, 2024



Weather – more of the same.
What you see is what you get until a different
weather pattern sets in.

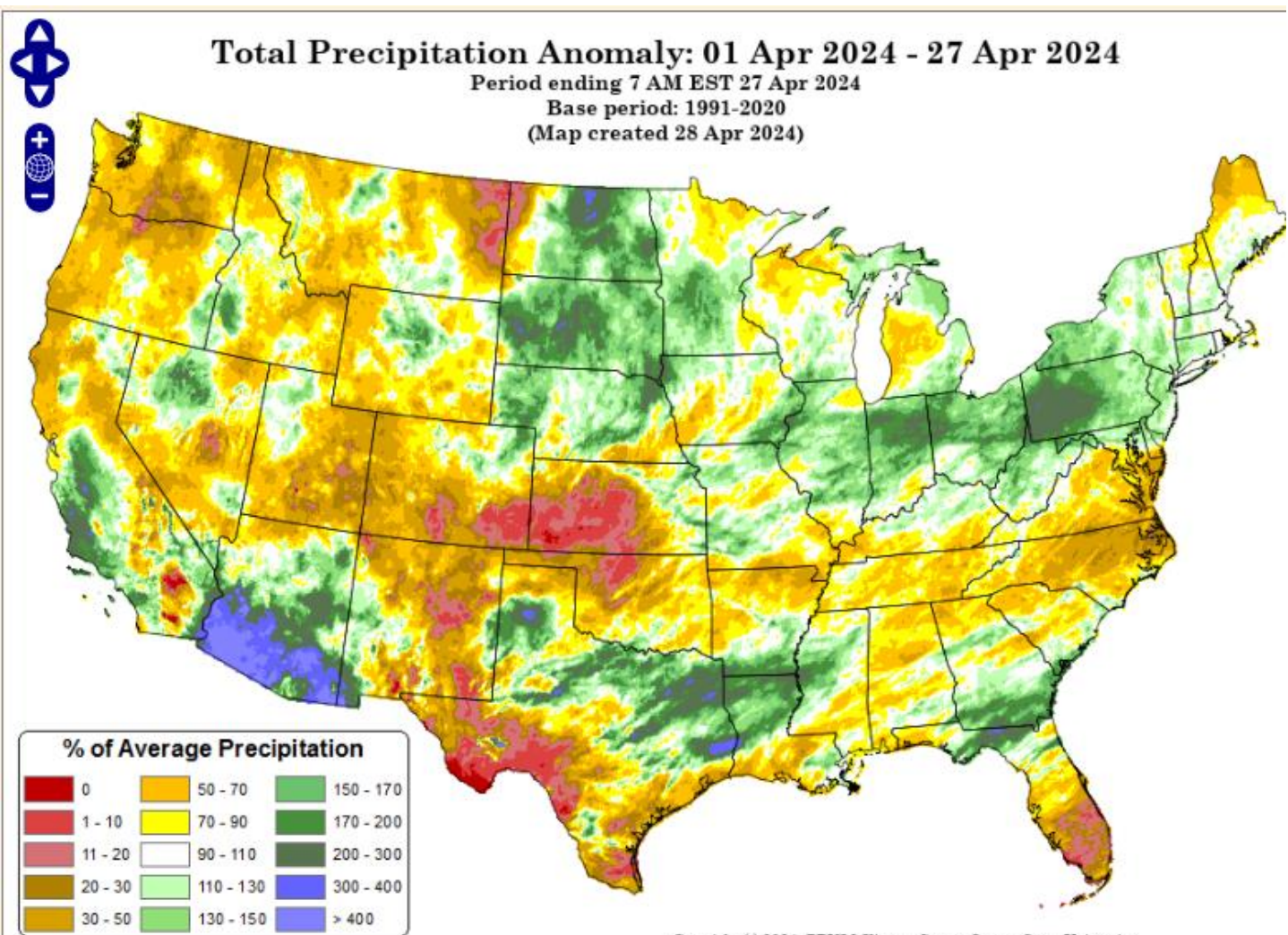
Two 7-day Temp & Precip Forecasts



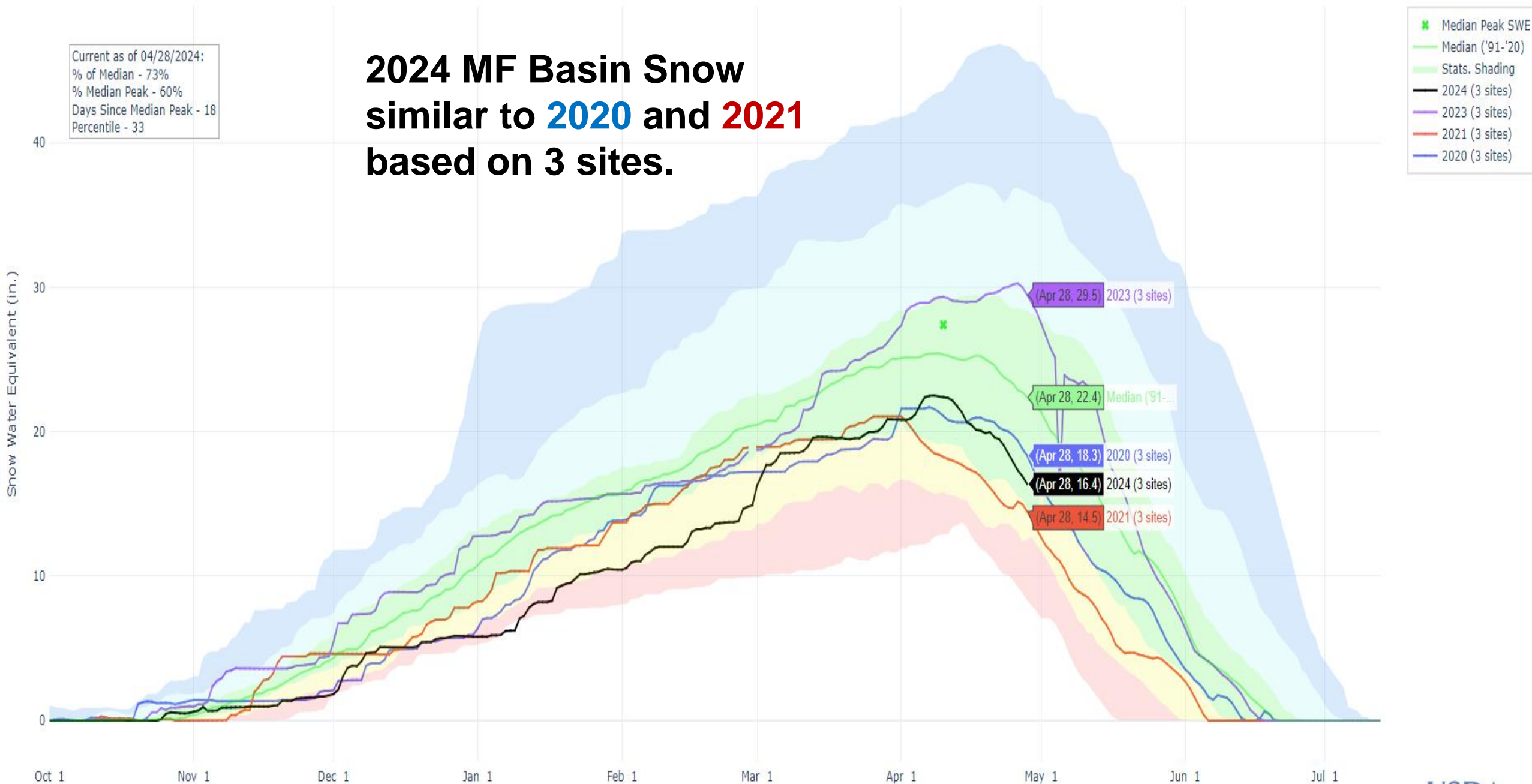
With a few days left in April and a little storm pushing in from the northern Cascades, April monthly precip will be below normal except for that Bogus storm the first week of the month. Remember that Bouse storm...

<https://snowweatherandflow.blog/2024/04/15/what-a-storm-it-was-a-boise-bogus-storm/>

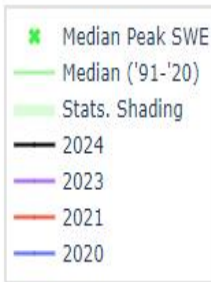
The Salmon basin is only looking at 76% of Monthly Total as of April 28.

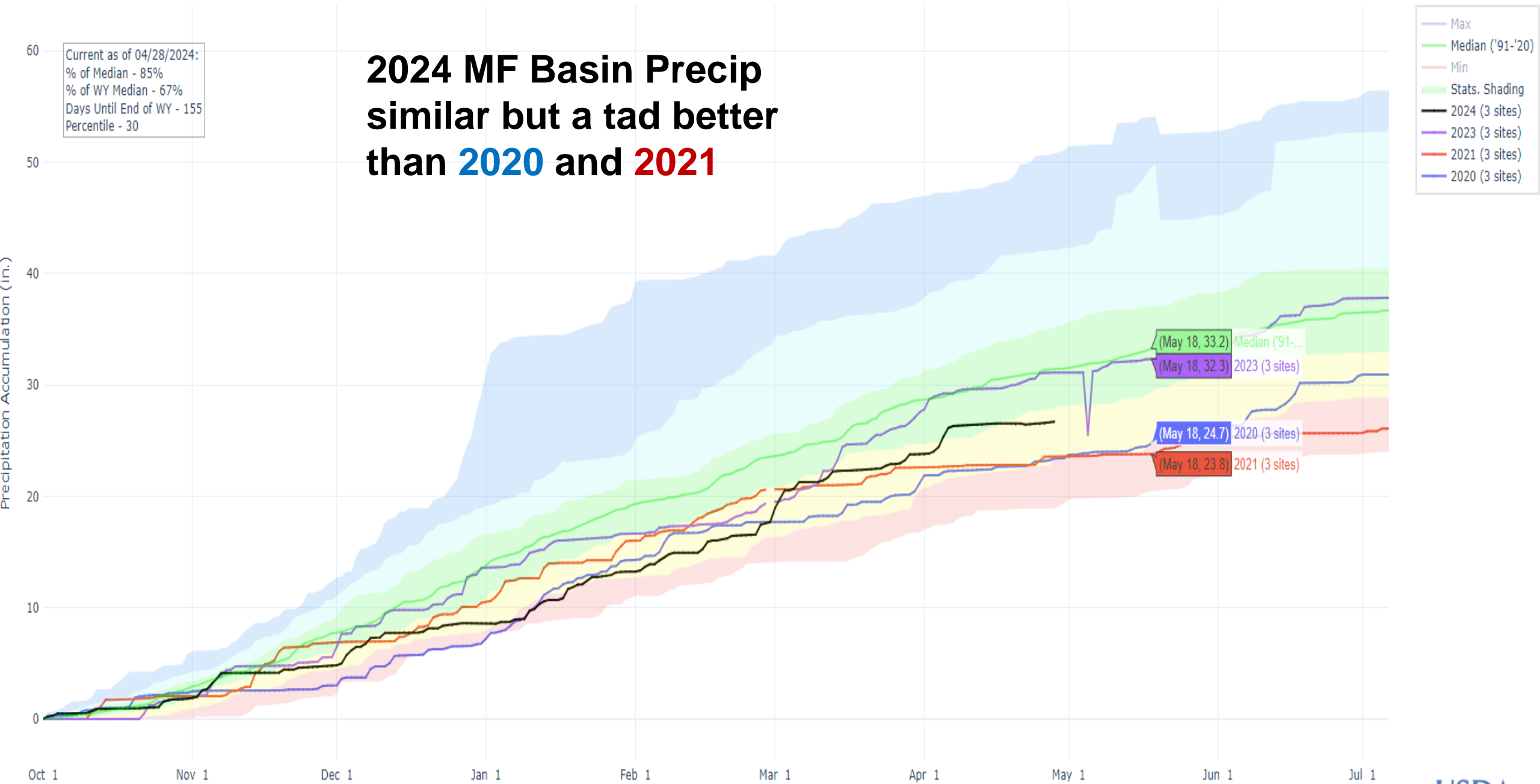


Idaho SNOTEL Precipitation Summary Update Report							
Based on Mountain Data from NRCS SNOTEL Sites							
Provisional data, subject to revision							
Data based on the first reading of the day (typically 00:00) for Sunday, April 28, 2024							
Basin Site Name	Elev (ft)	Month to Date Precipitation (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 (%)				55			69
COEUR D'ALENE-ST. JOE RIVER BASIN							
Basin Index (%)				65			61
CLEARWATER BASIN							
Basin Index (%)				75			60
SALMON BASIN							
Basin Index (%)				76			64
WEISER BASIN							
Basin Index (%)				80			70
PAYETTE BASIN							
Basin Index (%)				81			70
BOISE BASIN							
Basin Index (%)				68			74
BIG WOOD BASIN							
Basin Index (%)				78			68
LITTLE WOOD BASIN							
Basin Index (%)				34			65
BIG LOST BASIN							
Basin Index (%)				67			66
LITTLE LOST							
Basin Index (%)				62			60
BIRCH, MEDICINE LODGE, BEAVER, CAMAS BASINS							
Basin Index (%)				57			57
HENRYS FORK, TETON BASINS							
Basin Index (%)				54			73



2024 Banner Summit SWE similar to 2020 and 2021

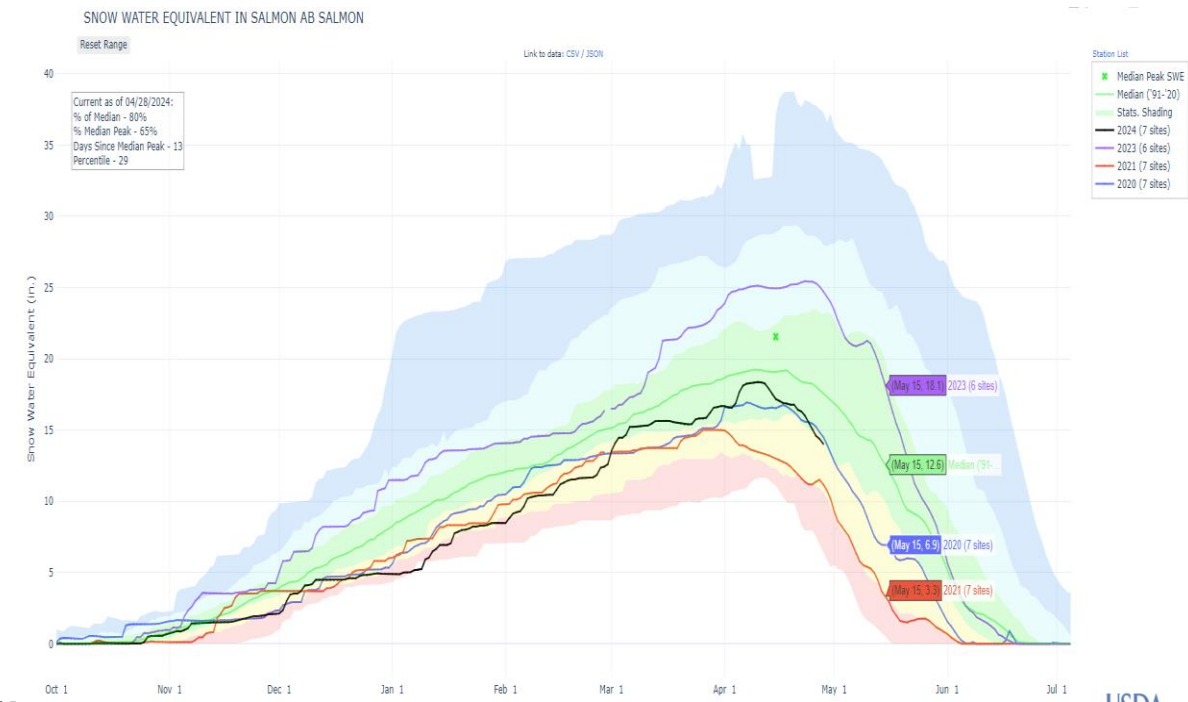




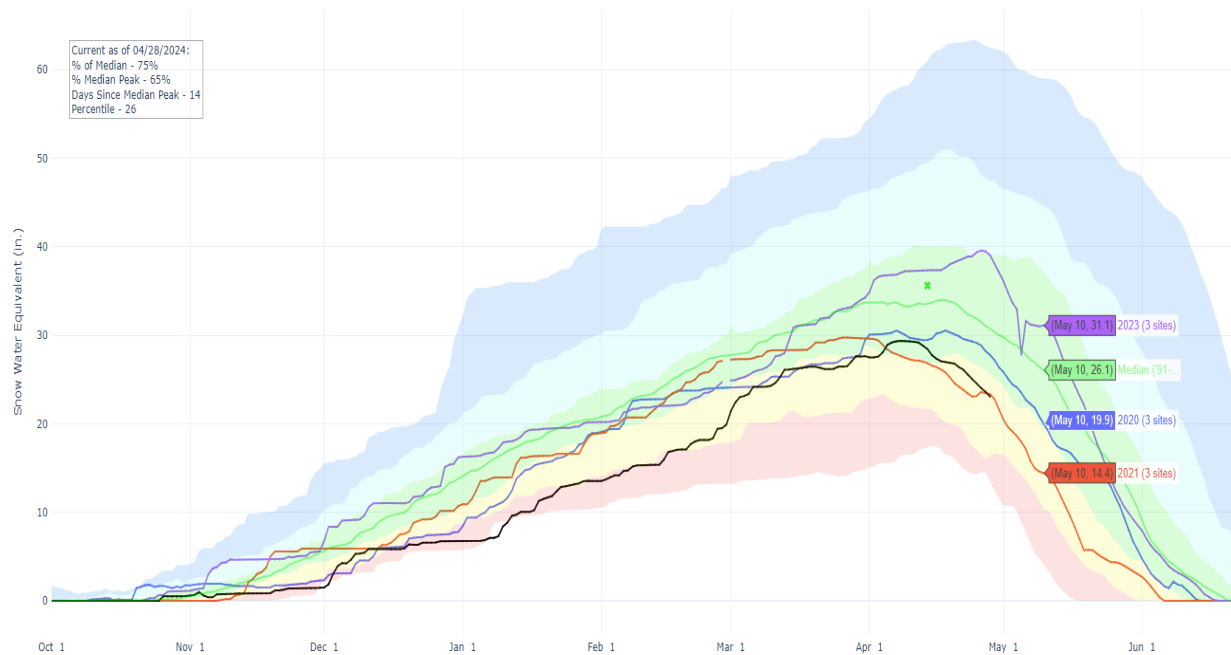
2024 Snow in Lemhi, Salmon abv Salmon, and SF Salmon basins also are similar to 2020 and 2021.

Nice to see that little Apr SWE bump in the Lemhi as historically they have a better chance at spring precip along the ID/MT border than the rest of the state.

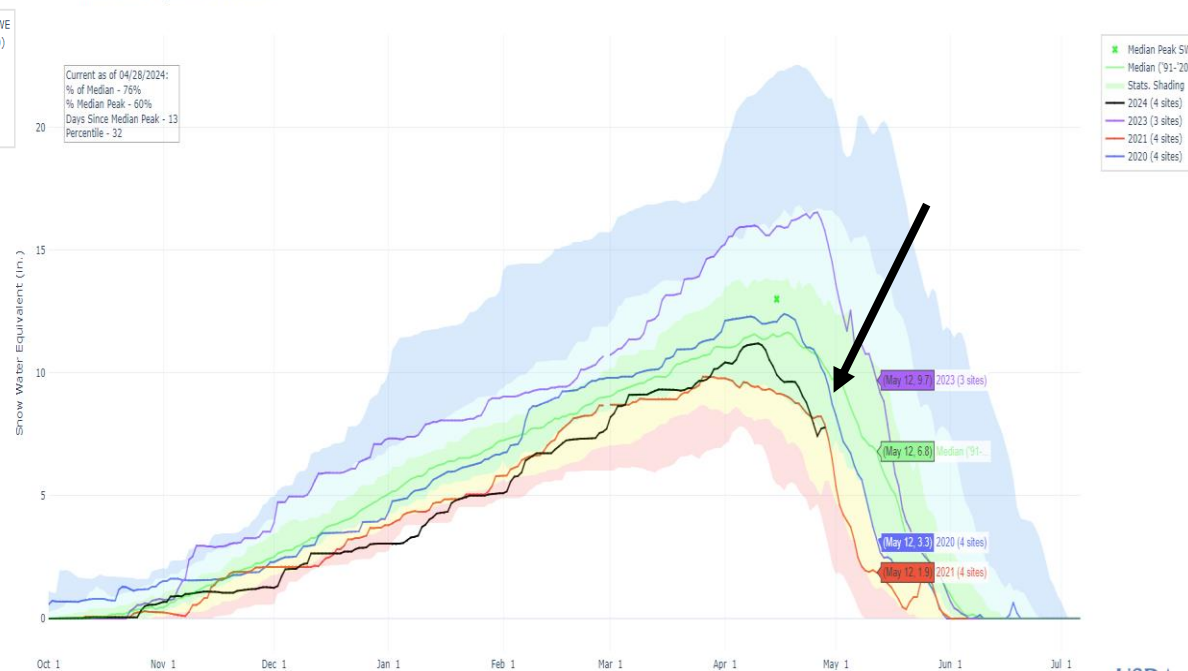
Go Lemhi !



SNOW WATER EQUIVALENT IN SOUTH FORK SALMON



SNOW WATER EQUIVALENT IN LEMHI



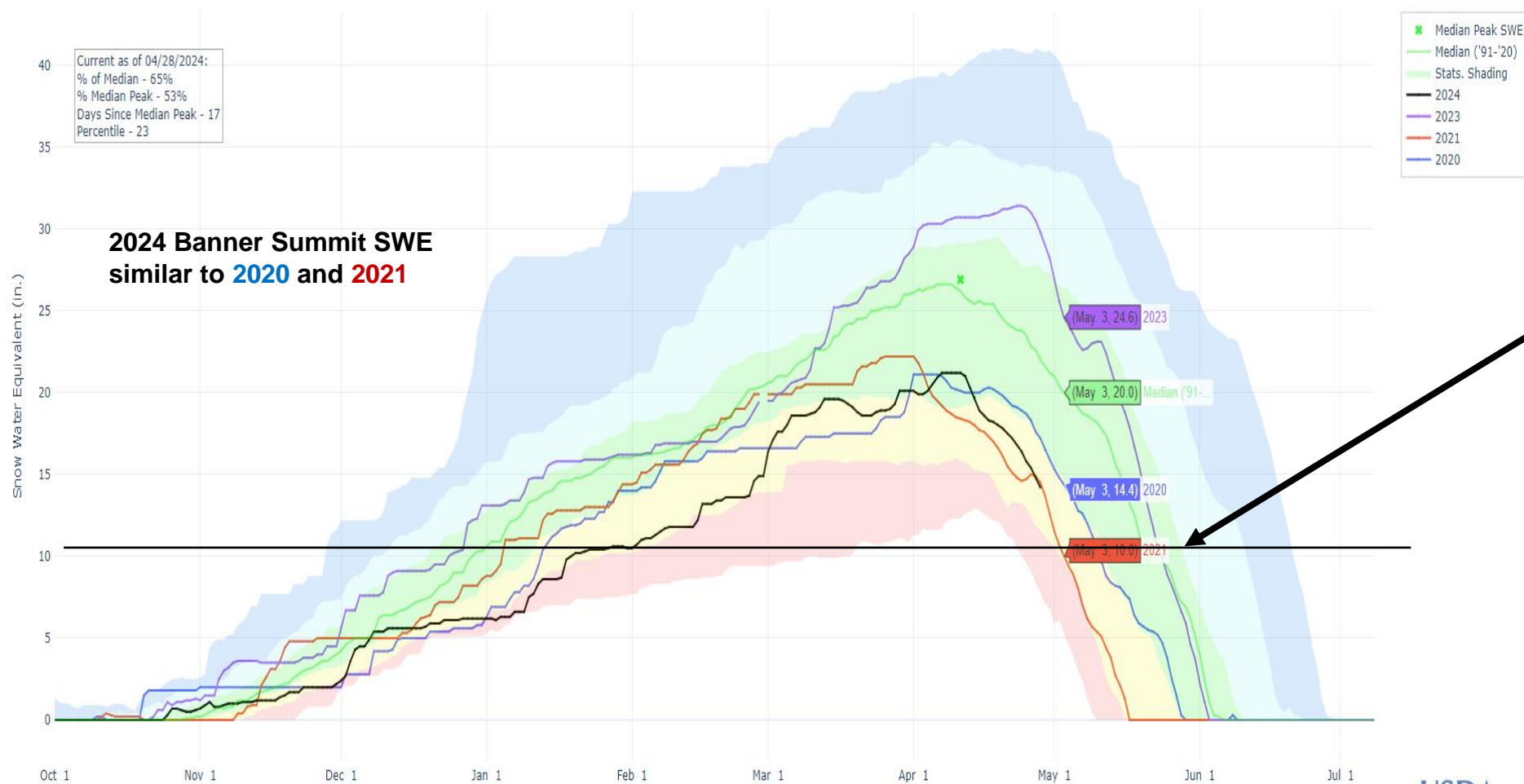
Back to Banner

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.

BANNER SUMMIT, ID (312) SNOW WATER EQUIVALENT



2023 Banner Summit peaked at 21.2” on Apr 11 and is at 14.2” today. On average, the snowmelt peak occurs when the site is 61%, 10.4” remains.

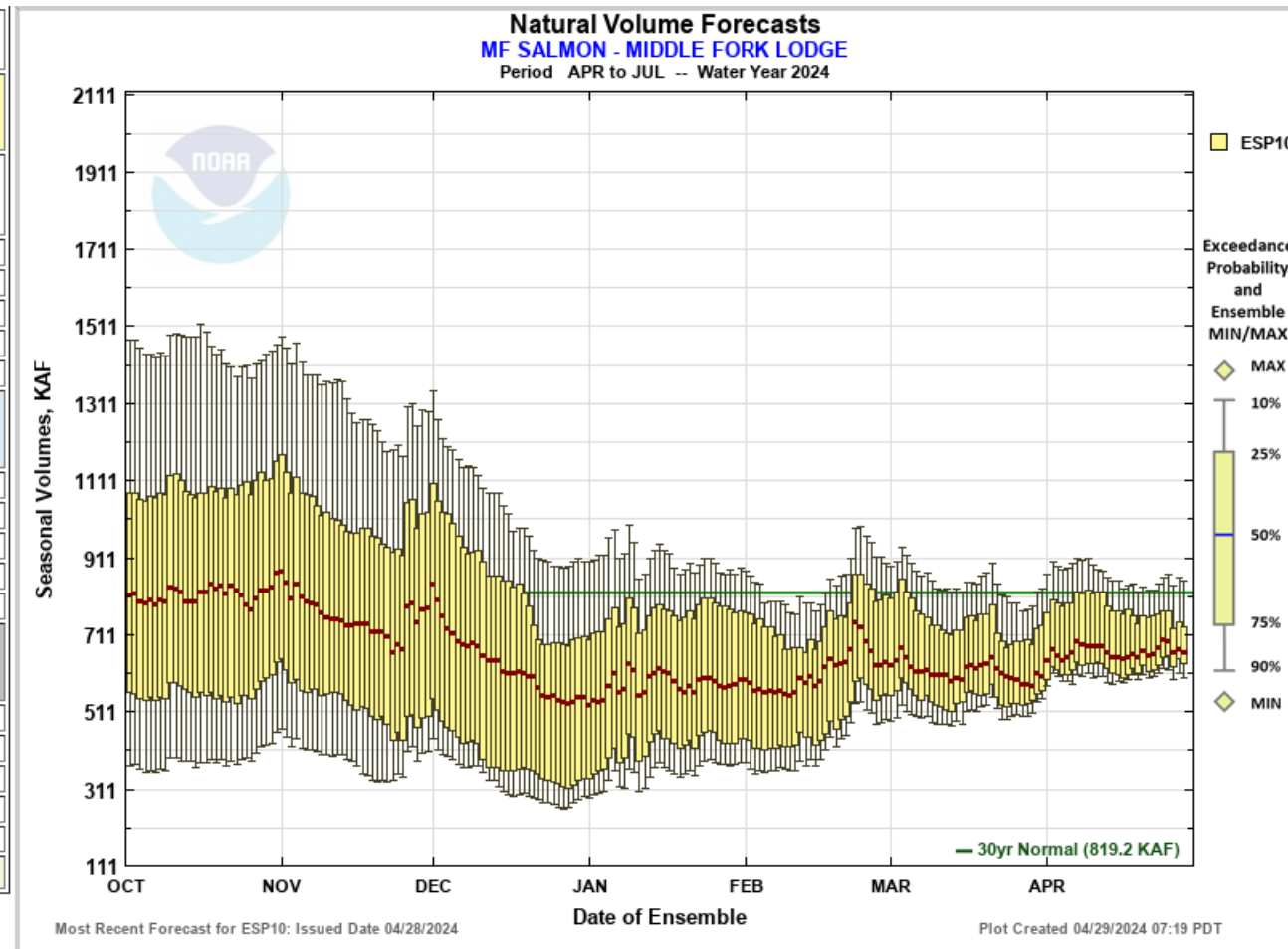
Cooler weather would help delay melt and push peak out.

Switching 2 Flow

NWS Apr-Jul Volume streamflow
forecast as of Apr 28, 2024

665 KAF, 81% of avg
With a range of 600 to 850 KAF

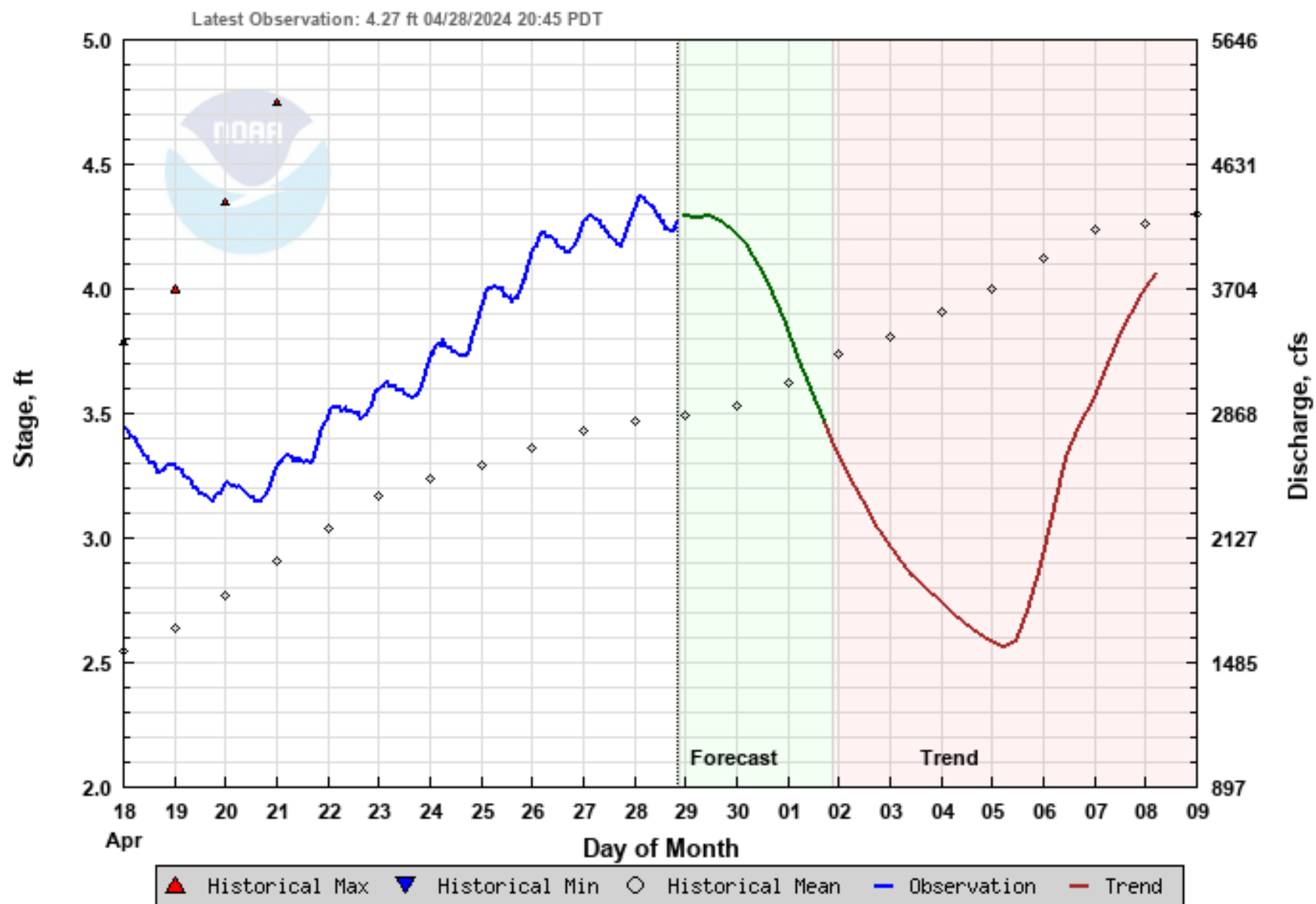
MF SALMON - MIDDLE FORK LODGE (MIDI1) Forecasts for Water Year 2024					
Natural Forecast					
ESP with 10 Days QPF Ensemble: 2024-04-28 Issued: 2024-04-28					
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	677	745	82	946	905
APR-JUL	600	665	81	850	819
JAN-SEP	778	846	84	1047	1012
JAN-JUL	701	766	83	951	926
OCT-SEP	890	958	85	1159	1122
Experimental					
HEFS with 15 days EQPF Ensemble: 2024-04-28 Issued: 2024-04-28					
APR-SEP	690	761	84	937	905
APR-JUL	612	680	83	842	819
JAN-SEP	791	862	85	1038	1012
JAN-JUL	713	781	84	943	926
OCT-SEP	903	974	87	1150	1122
Reference					
ESP with 0 Days QPF Ensemble: 2024-04-28 Issued: 2024-04-28					
APR-SEP	689	752	83	945	905
APR-JUL	612	672	82	848	819
JAN-SEP	790	853	84	1046	1012
JAN-JUL	713	773	83	949	926
OCT-SEP	902	965	86	1158	1122
Move the mouse over the desired "Forecast Period" to display a graph.					



MF SALMON - MIDDLE FORK LODGE (MID11)

NWS MF Forecast & Trend shows cooler temps early this week will slow snowmelt rates that are feeding the river and decrease the flow. Slight high pressure later this week will produce a rebound in melt rates & flow.

Based on Banner Summit Snow2Flow relationship, snowmelt peak may not be to far away, unless the weather changes.

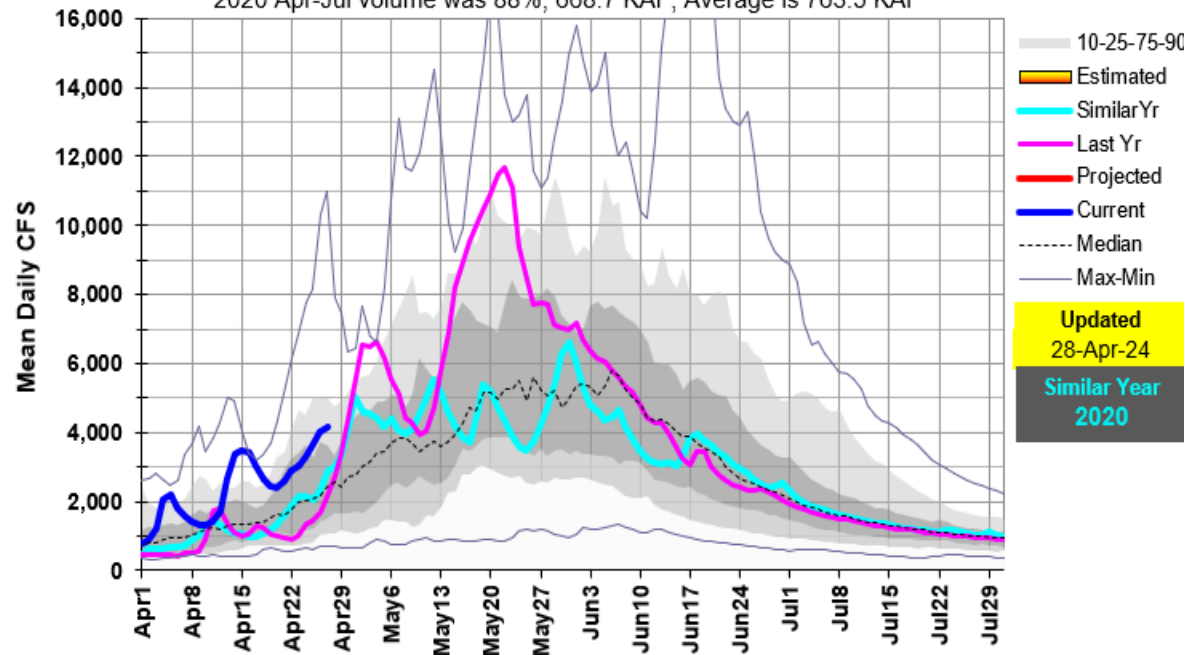


Forecast Created: 04/28/2024 15:52 PDT

Plot Created: 04/28/2024 21:23 PDT

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

2020 Apr-Jul volume was 88%, 668.7 KAF, Average is 763.5 KAF



Based on similar snow years here's the runoff:

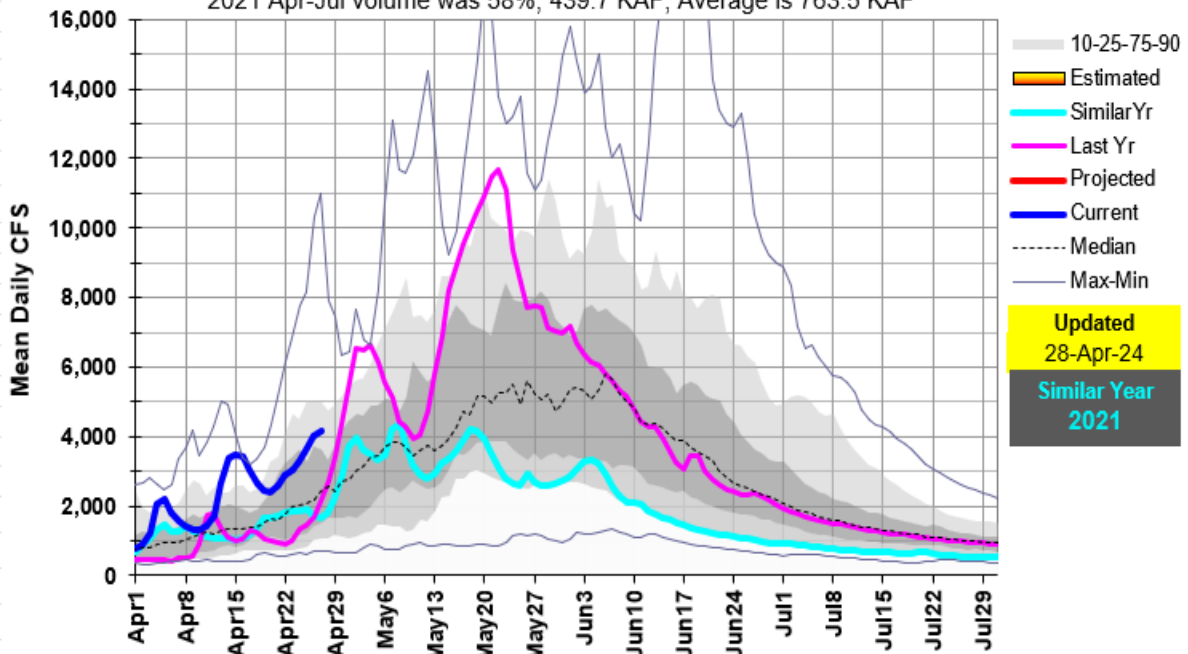
2020 Apr-Jul volume was 668 KAF similar to the NWS forecast volume of 665 KAF.

2021 Apr-Jul Volume was 439 KAF much lower than the 50% Chance forecast of 665 KAF and way less than the 90% Chance of Exceedance Forecast of 600 KAF.

The 90% Exceedance Forecast of 600 KAF seems kinda tight to the 50% Exceedance forecast. Someone should check my numbers and with NWS about low side of this forecast.

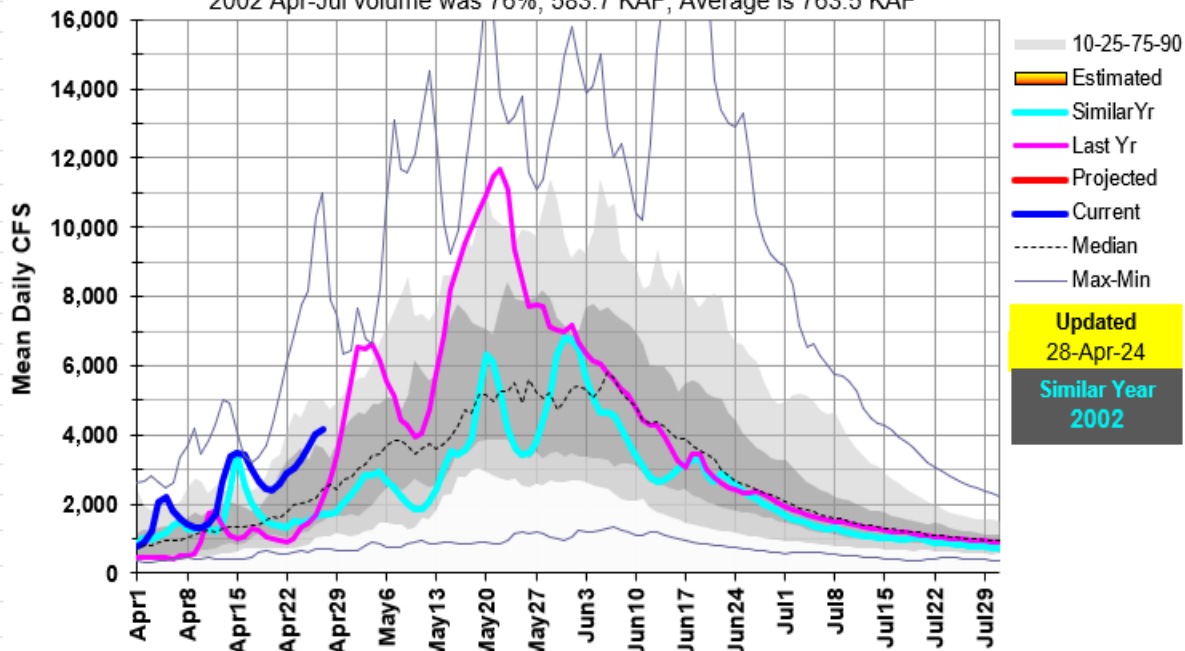
13309220: MF Salmon R at MF Lodge near Yellow Pine, ID

2021 Apr-Jul volume was 58%, 439.7 KAF, Average is 763.5 KAF



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

2002 Apr-Jul volume was 76%, 583.7 KAF, Average is 763.5 KAF



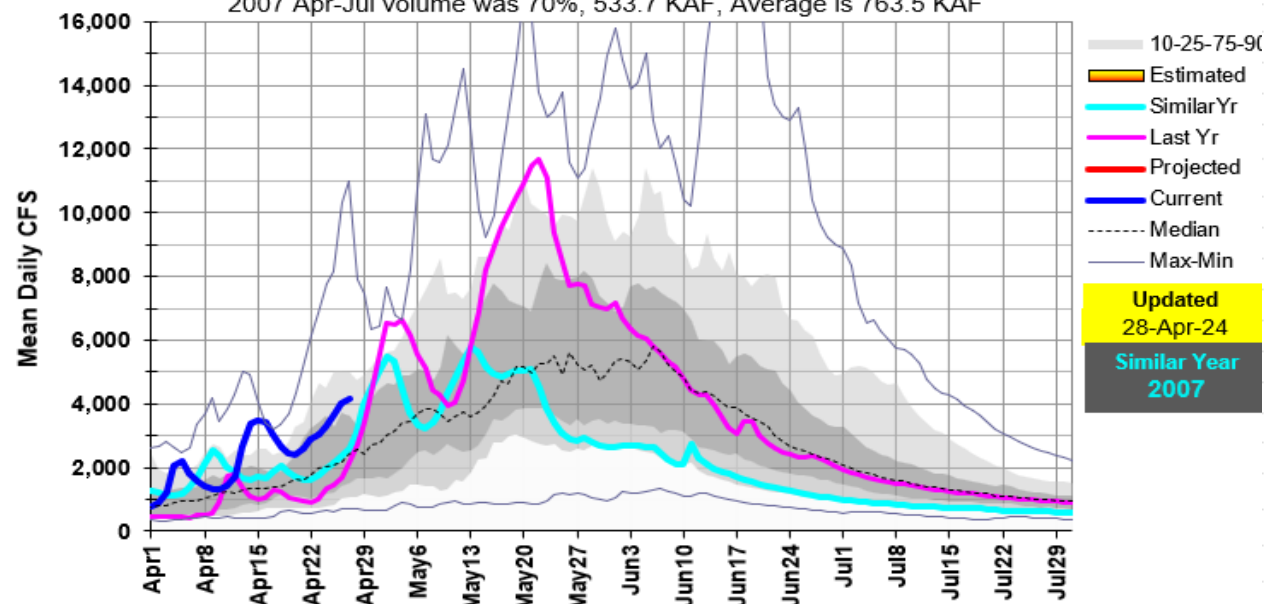
Here's a few other runoff years to watch as we learn more in next few weeks how the remaining snow melts that drives our river's levels.

Keep in mind the Banner Summit Snow2Flow Relationship is based on snow and snowmelt relationship with peak flows.

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

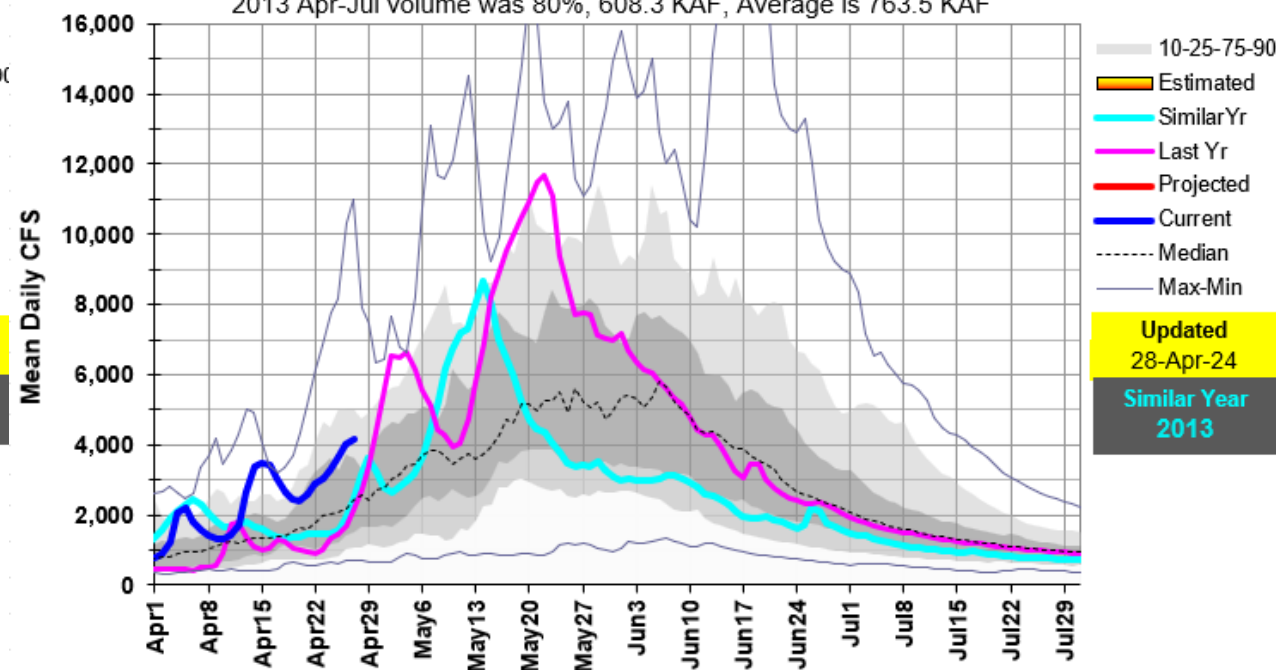
13309220: MF Salmon R at MF Lodge near Yellow Pine, ID

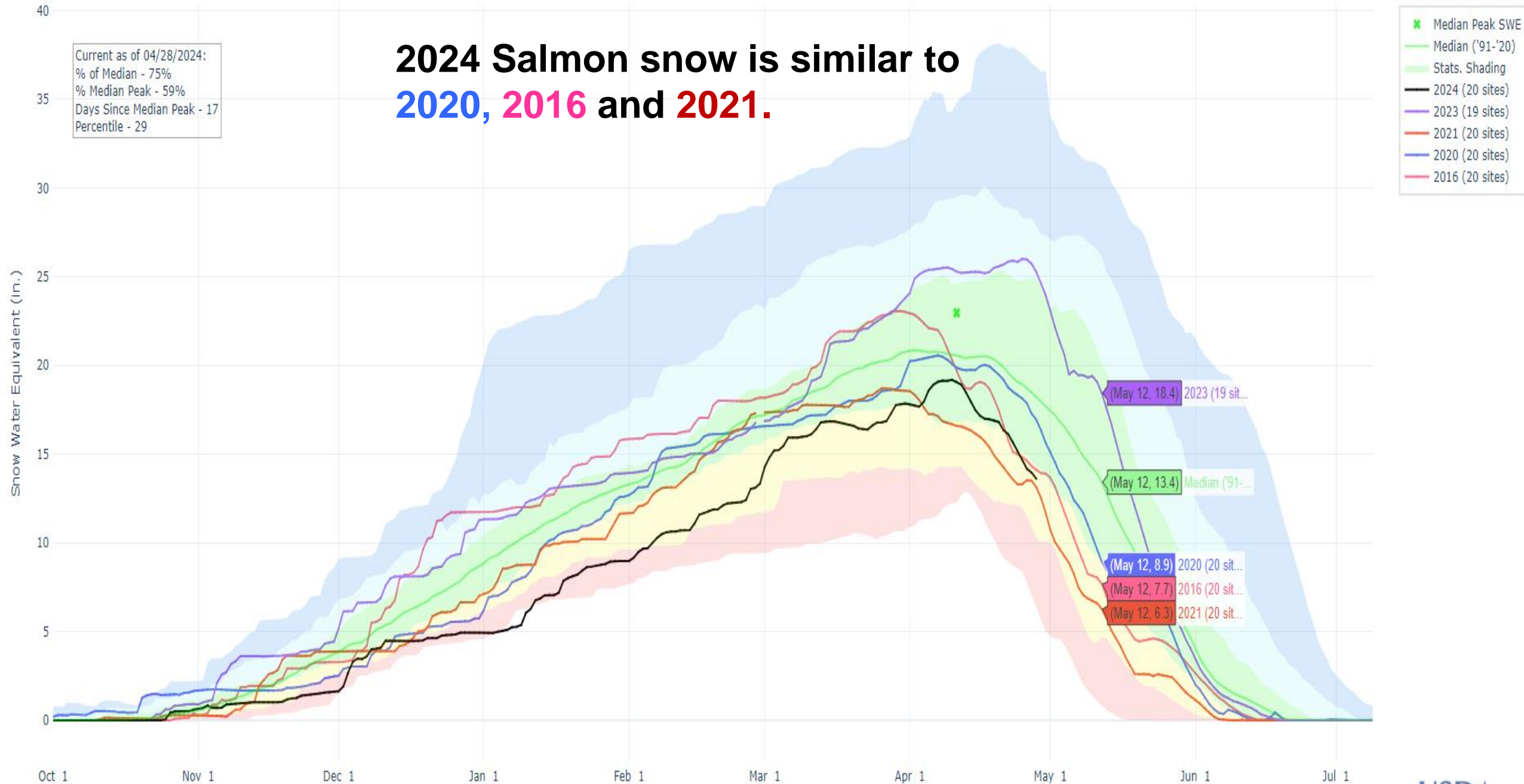
2007 Apr-Jul volume was 70%, 533.7 KAF, Average is 763.5 KAF



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

2013 Apr-Jul volume was 80%, 608.3 KAF, Average is 763.5 KAF





Apr 28, 2024

Salmon at WhiteBird

NWS Apr-Jul Volume streamflow forecast:

5043 KAF, 90% of avg

With a range of 4644 to 6016 KAF

SALMON - AT WHITEBIRD (WHBI1) Forecasts for Water Year 2024

Official Water Supply

ESP with 10 Days QPF Ensemble: 2024-04-28 Issued: 2024-04-28

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	5180	5617	91	6639	6158
APR-JUL	4644	5043	90	6016	5614
JAN-SEP	6068	6505	92	7527	7099
JAN-JUL	5532	5931	90	6904	6555
OCT-SEP	6945	7381	93	8404	7958

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2024-04-28 Issued: 2024-04-28

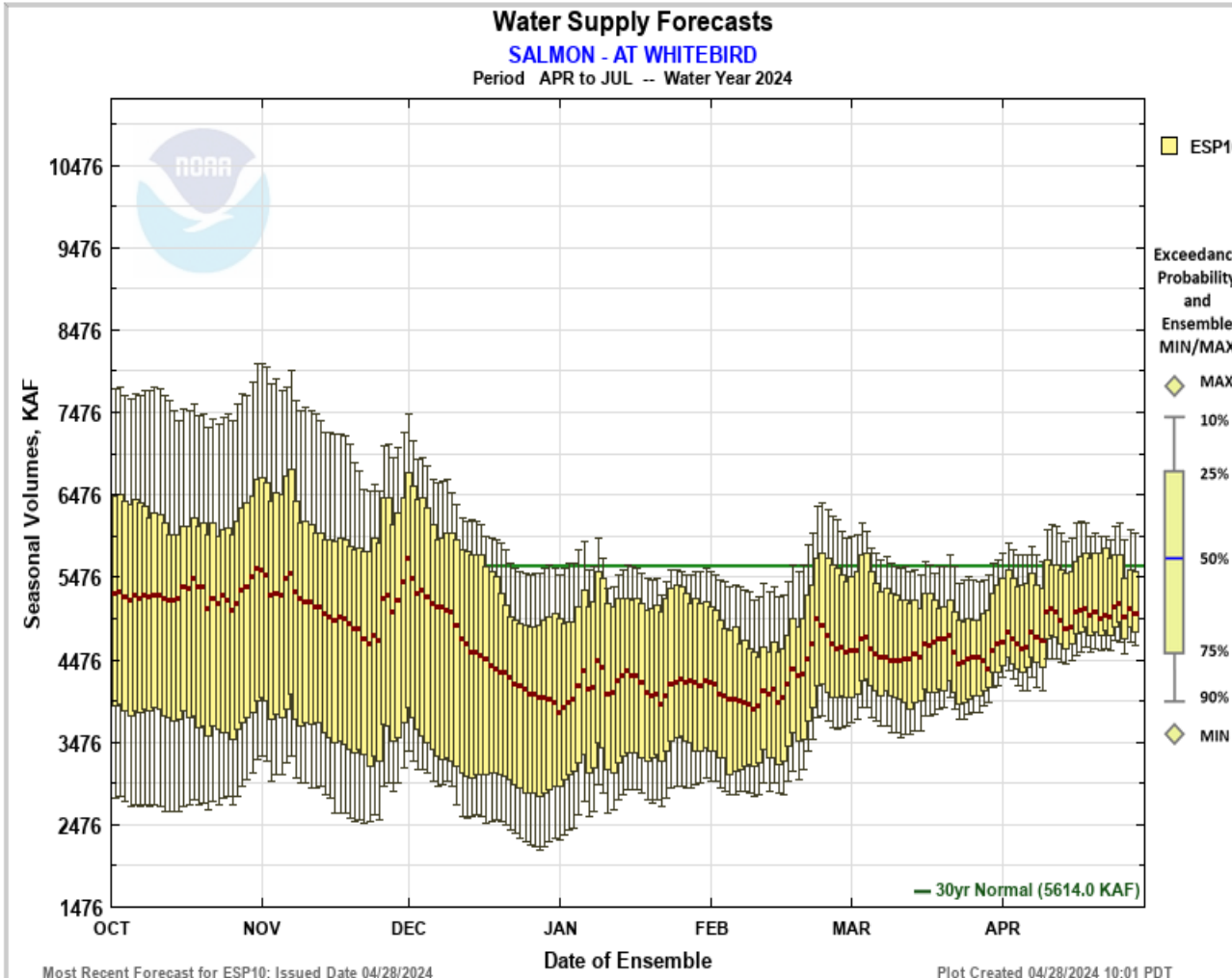
APR-SEP	5080	5585	91	6773	6158
APR-JUL	4541	5039	90	6095	5614
JAN-SEP	5968	6473	91	7661	7099
JAN-JUL	5429	5927	90	6983	6555
OCT-SEP	6845	7349	92	8538	7958

Reference

ESP with 0 Days QPF Ensemble: 2024-04-28 Issued: 2024-04-28

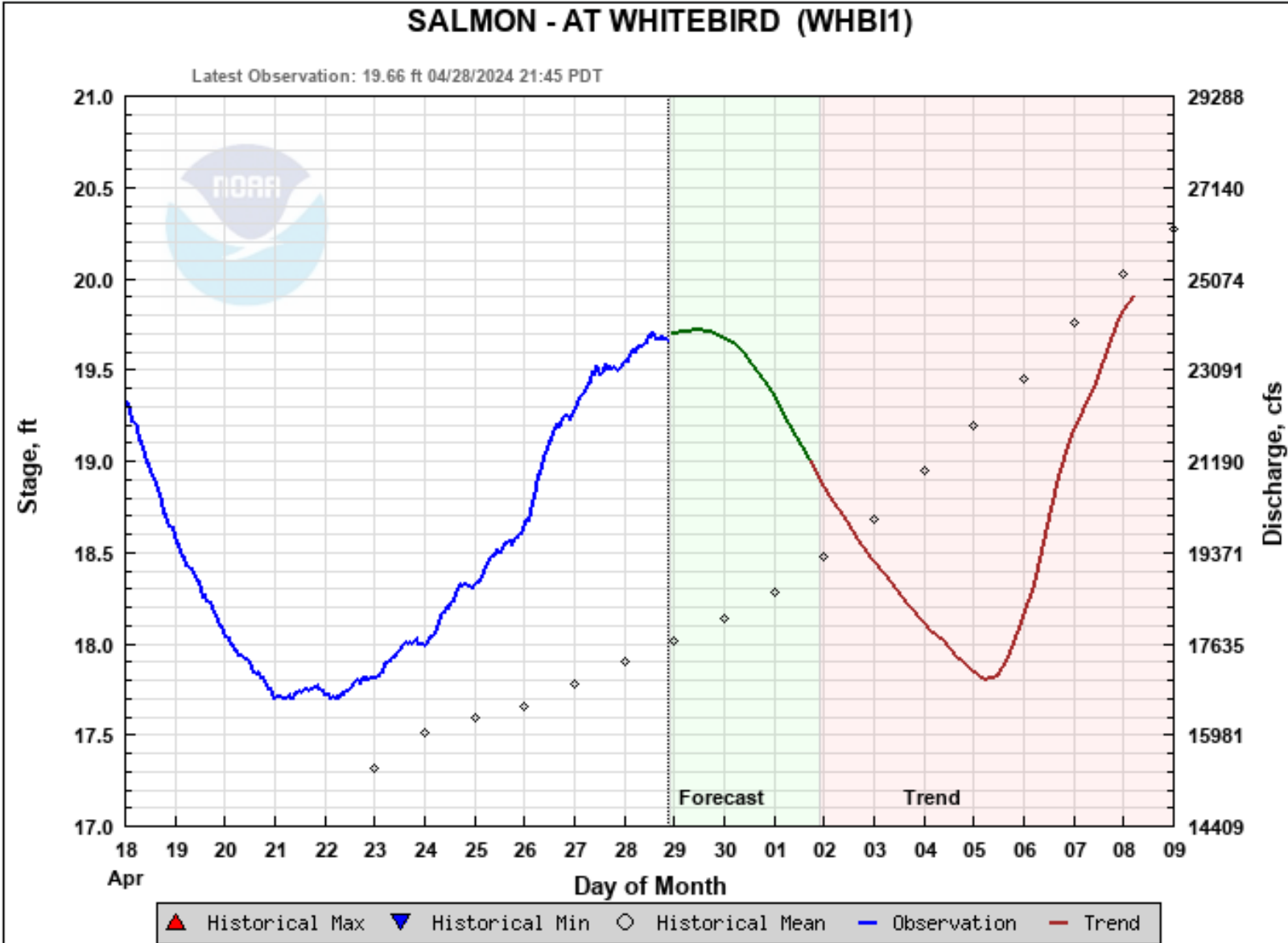
APR-SEP	5058	5541	90	6742	6158
APR-JUL	4525	4989	89	6058	5614
JAN-SEP	5946	6429	91	7630	7099
JAN-JUL	5413	5877	90	6946	6555
OCT-SEP	6823	7305	92	8507	7958

Move the mouse over the desired "Forecast Period" to display a graph.



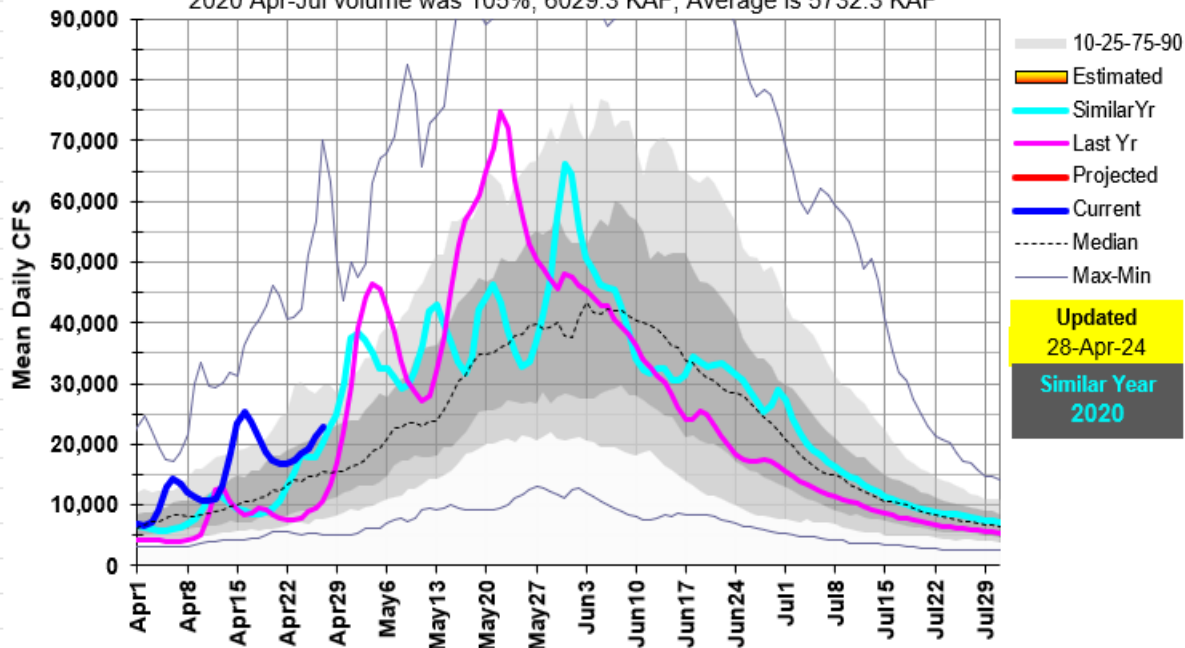
NWS Whitebird Forecast & Trend shows similar trend as MF with cooler temps slowing the melt and decreasing the flow from the tributaries feeding the Main followed by another increase as high pressure returns.

Hopefully, the high pressure won't last. Keep watching the weather, melt rates and those tributaries to see how they respond.



13317000: Salmon R at White Bird, ID

2020 Apr-Jul volume was 105%, 6029.3 KAF, Average is 5732.3 KAF

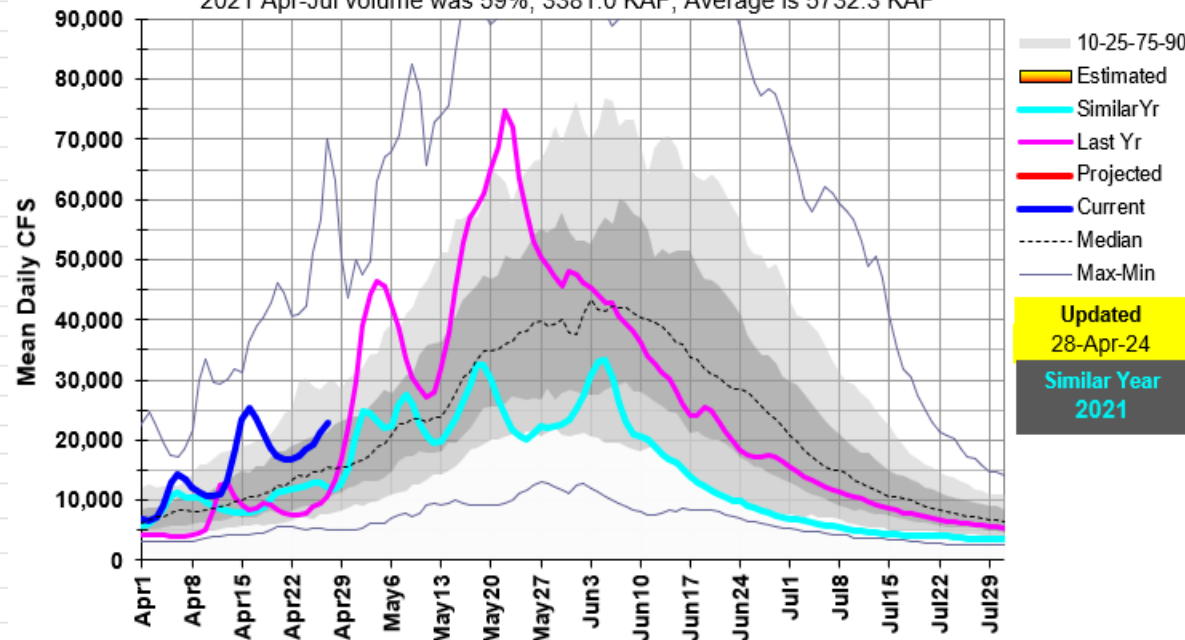


Wow - based on similar snow years of 2020 and 2021 show a full range of flows that be expected.

2020 Apr-Jul volume was 6029 KAF much higher than NWS forecast volume of 5043 KAF, and closer to the 10% Chance of Exceedance Forecast of 6016 KAF. A cool wet spring is needed for this volumes to happen.

13317000: Salmon R at White Bird, ID

2021 Apr-Jul volume was 59%, 3381.0 KAF, Average is 5732.3 KAF



2021 Apl-Jul Volume was 3381 KAF much lower than the 50% Chance Forecast of 5043 KAF and even less than then the 90% Chance of Exceedance Forecast of 4644 KAF.

Let's hope the flows are way better than 2021.

Here's a good year to watch – 2016 was another strong El Nino year like this year. Apr-Jul volume was 5302 KAF that is very similar to the current NWS forecast of 5043 KAF. The peak to date pattern matches closely too, with earlier than normal runoff and multiple peaks.

Stay tuned and we'll see if 2016 repeats this year with a similar flow pattern.

