Weather Outlook

December 2021

Weather Forecast Office

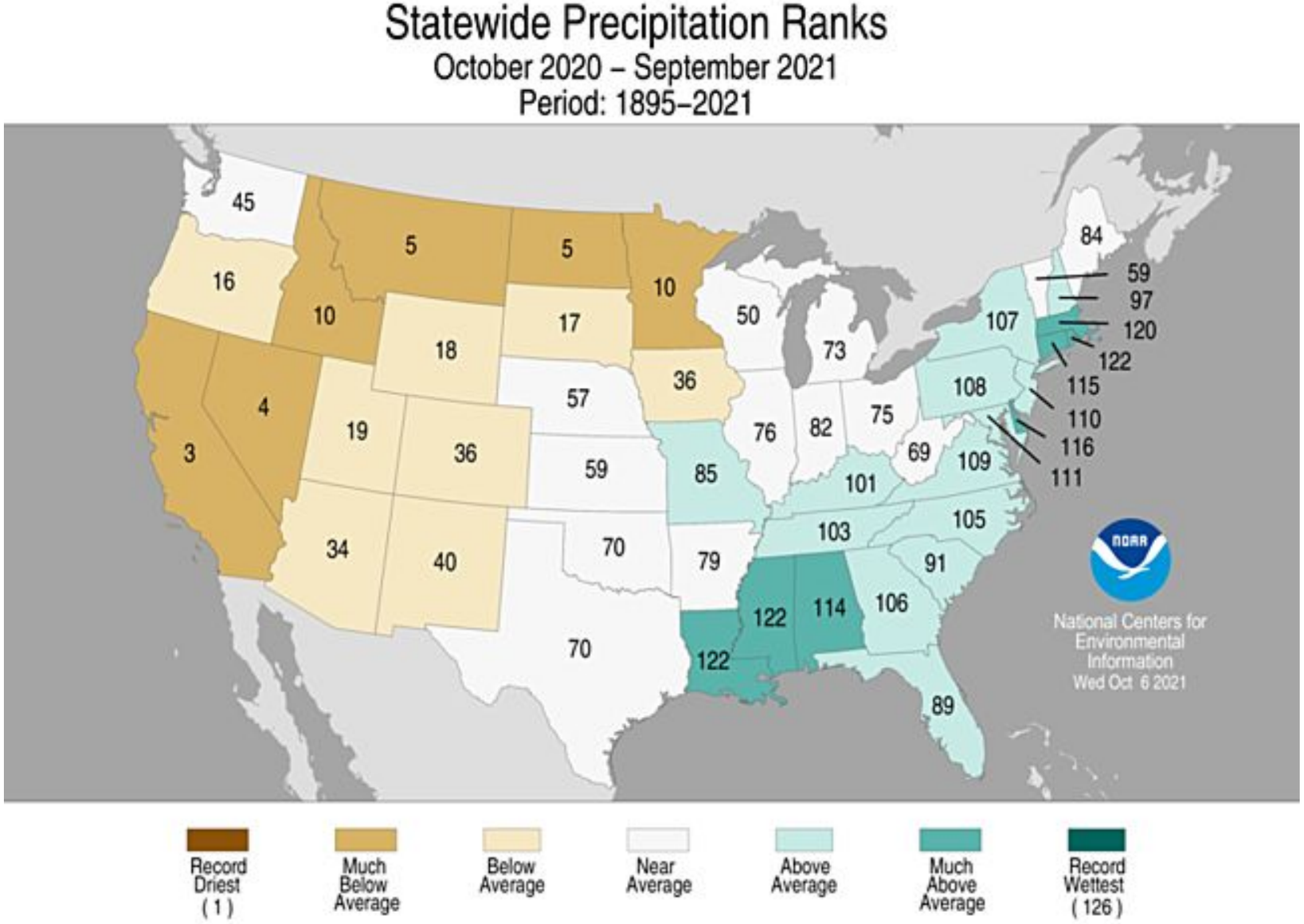
Pocatello, ID

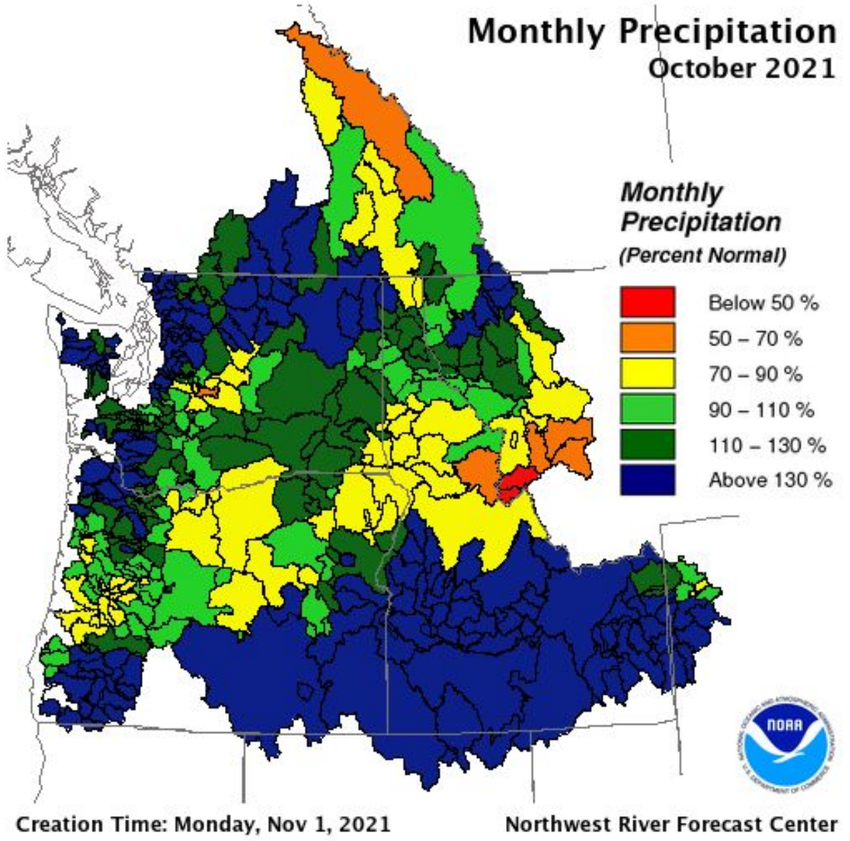
Thursday, December 9

Presenter : Tim Axford

2020 - 2021 Water Year Was Very Dry

Weather Forecast Office
Pocatello, ID
Thursday, December 9

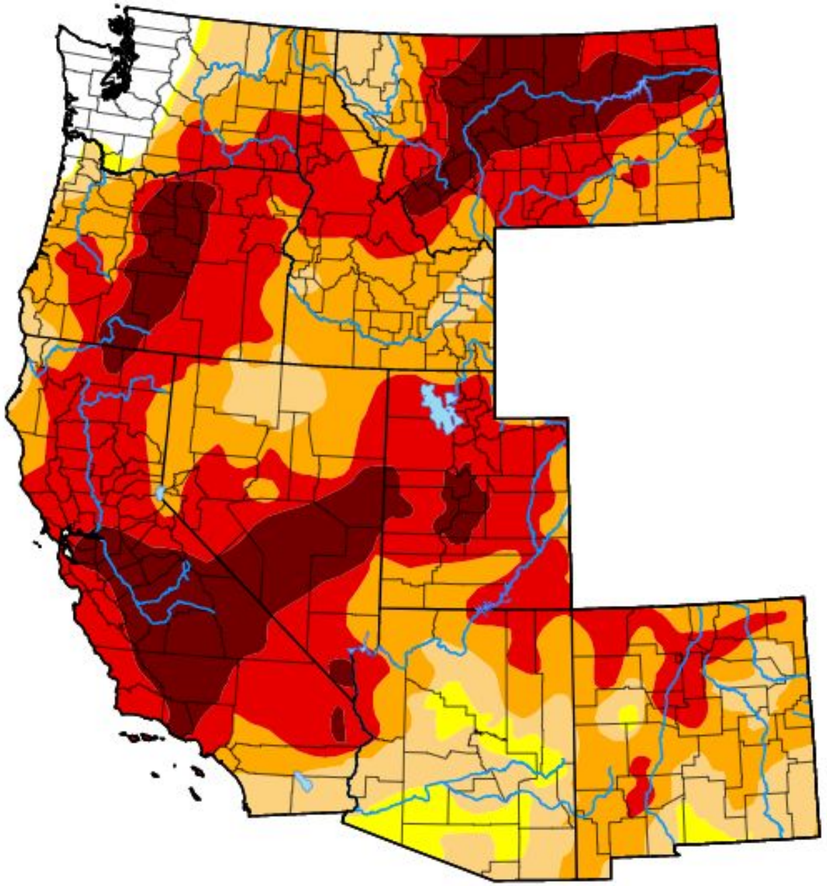




Current Drought Status

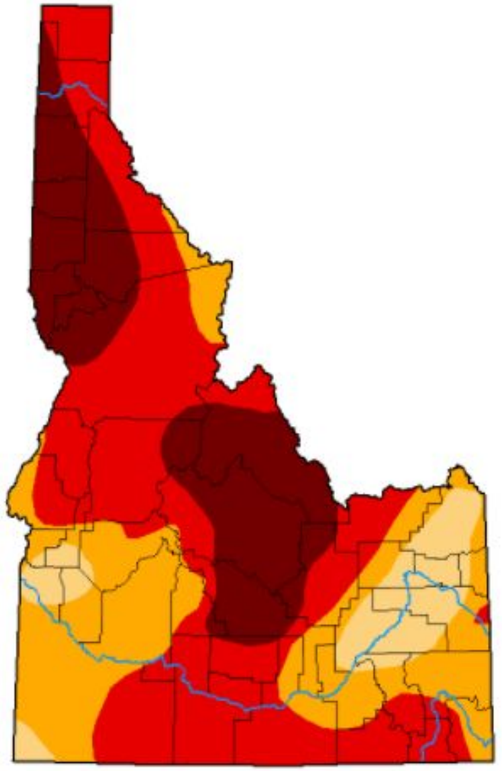
Weather Forecast Office
Pocatello, ID
Thursday, December 9

West

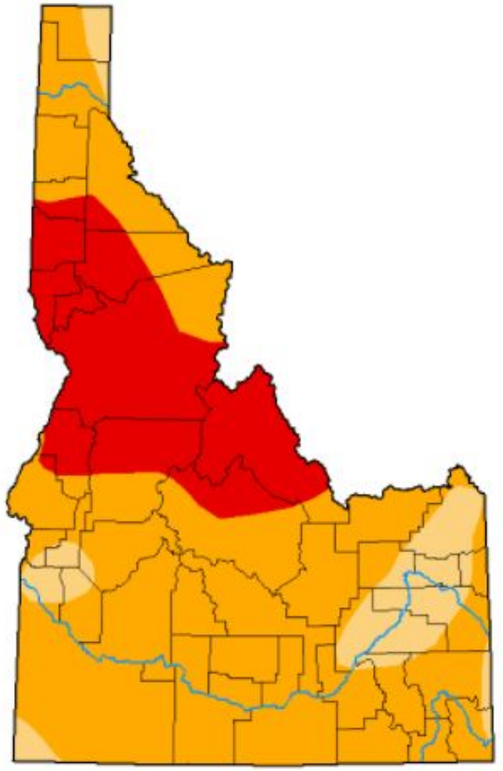


Drought Classification

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

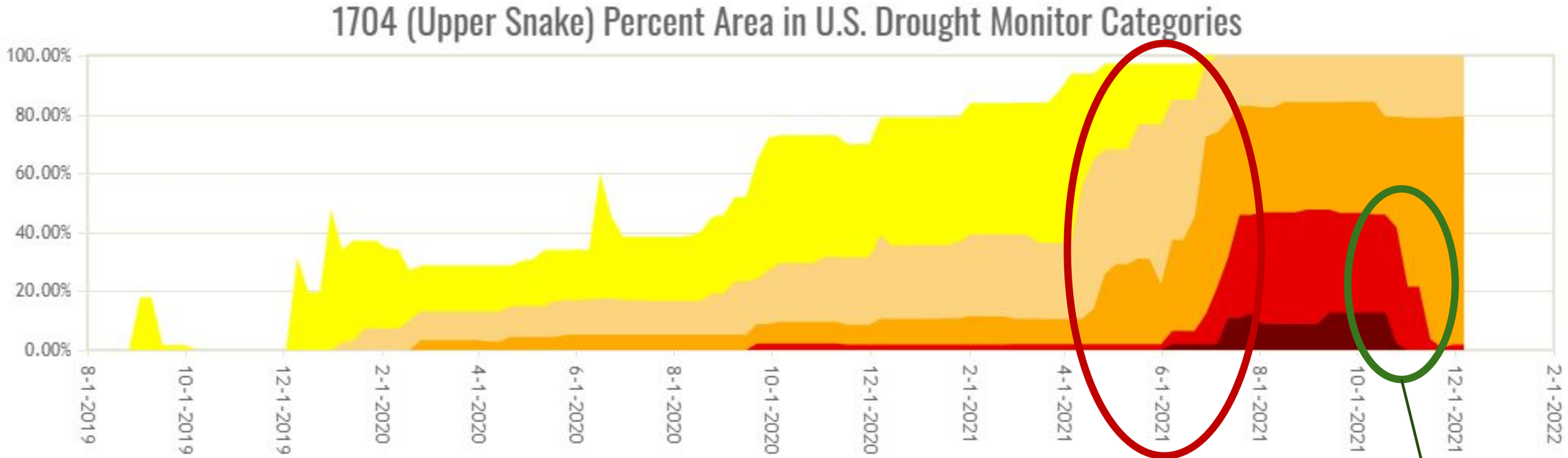


September 14, 2021



December 7, 2021

Drought Status Timeseries

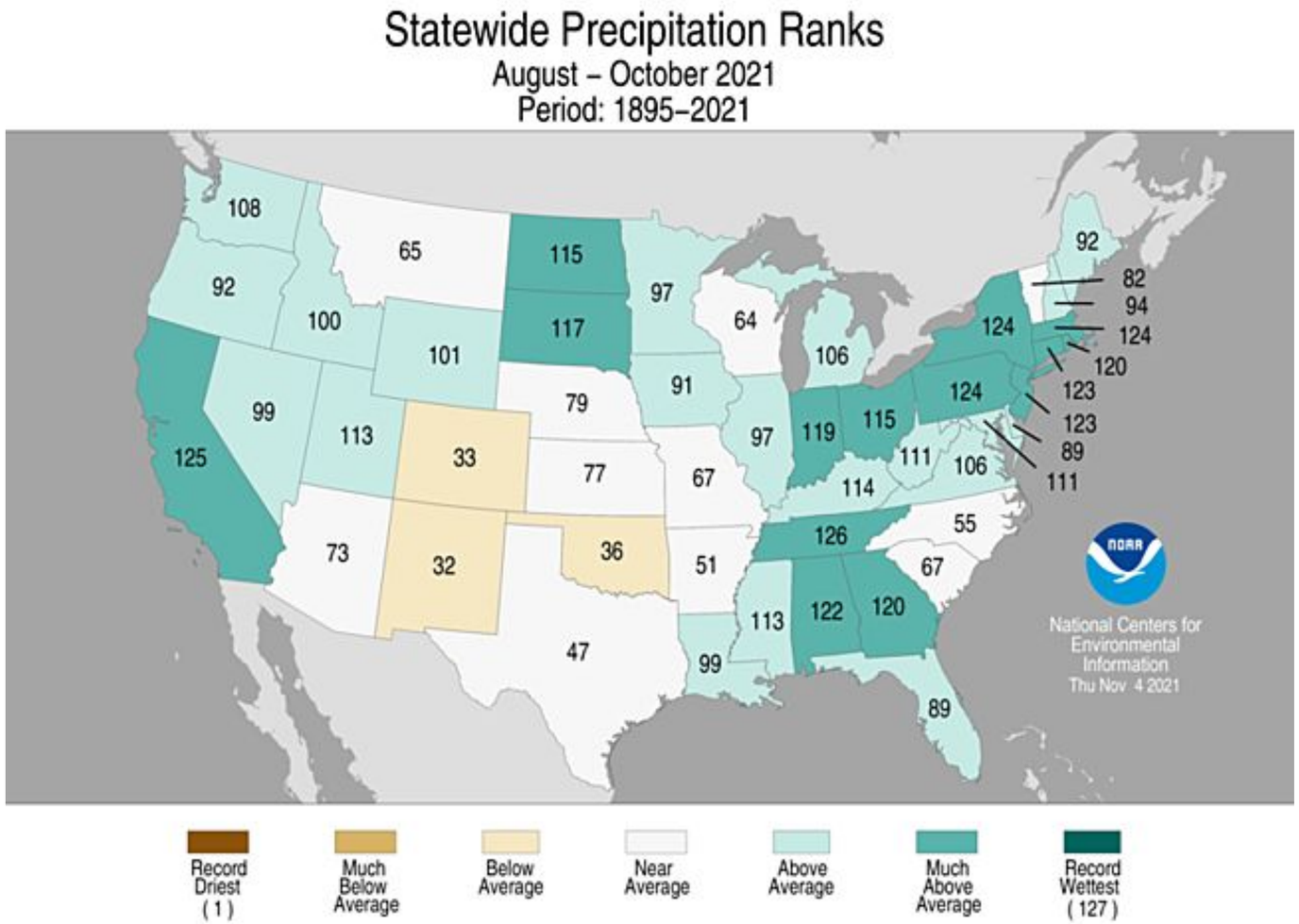


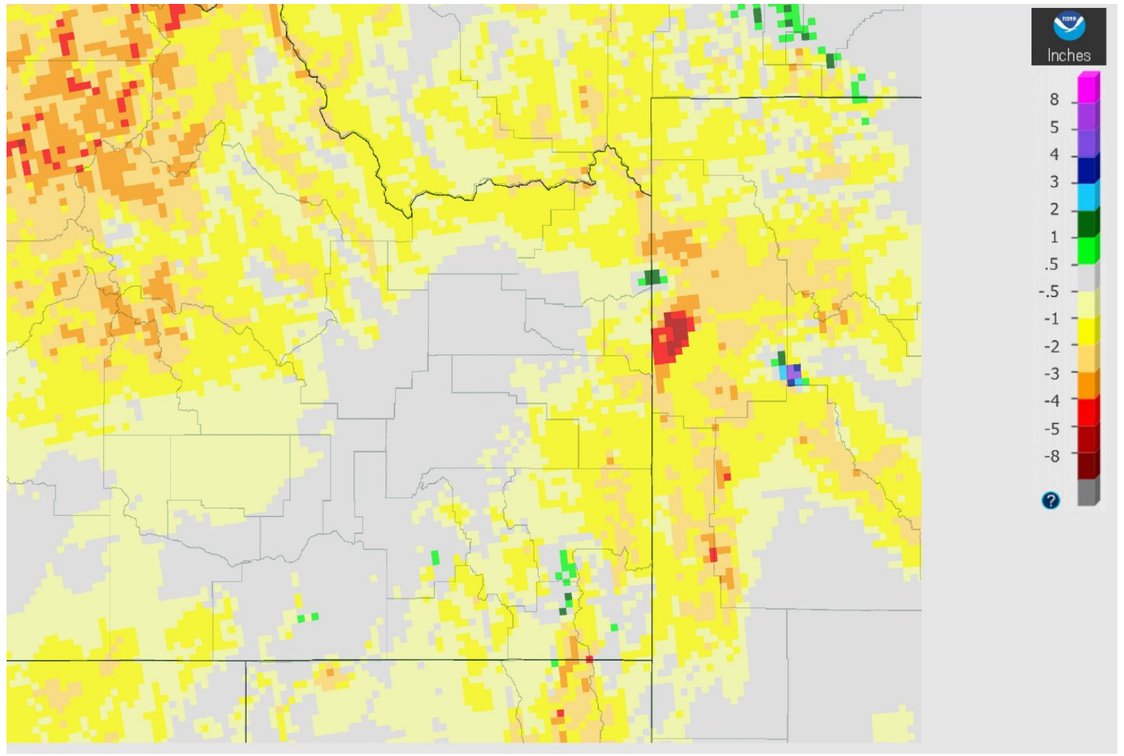
Quick transition into nearly ½ of Upper Snake in D4

Wet Autumn helped, but improvement will be slow

Summer Ended Wet - November Dry

Weather Forecast Office
Pocatello, ID
Thursday, December 9



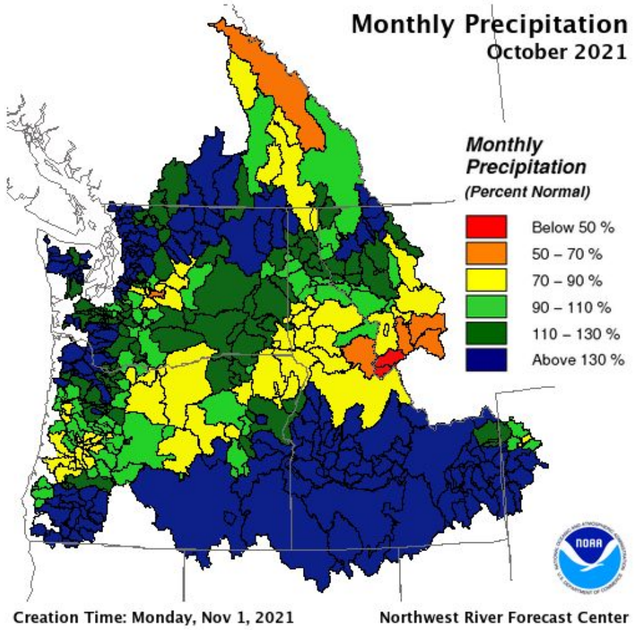


November Precipitation Departure from Normal

2021-2022 Water Year So Far...

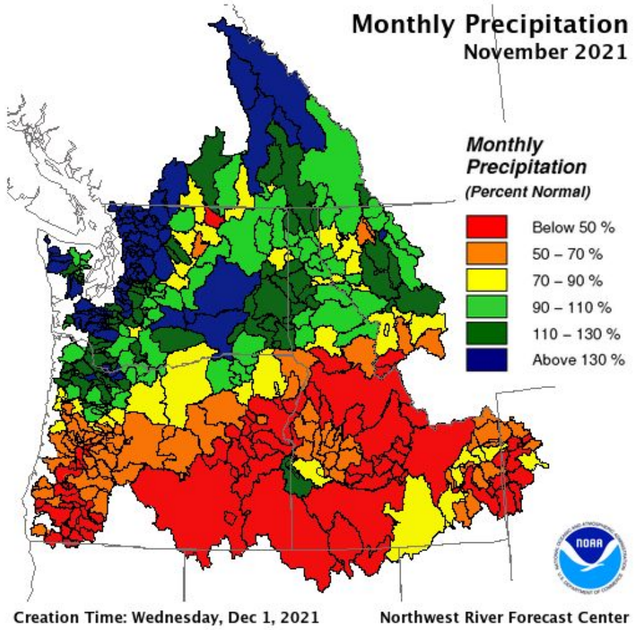
Weather Forecast Office
Pocatello, ID
Thursday, December 9

October



+

November



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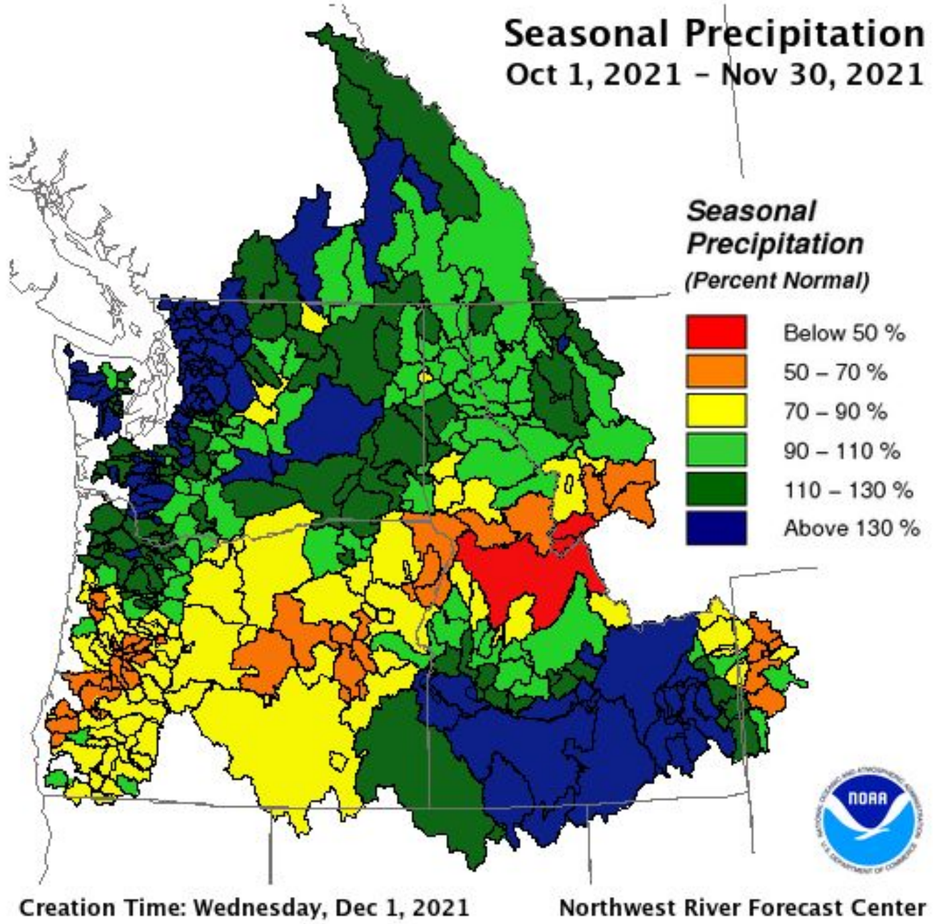


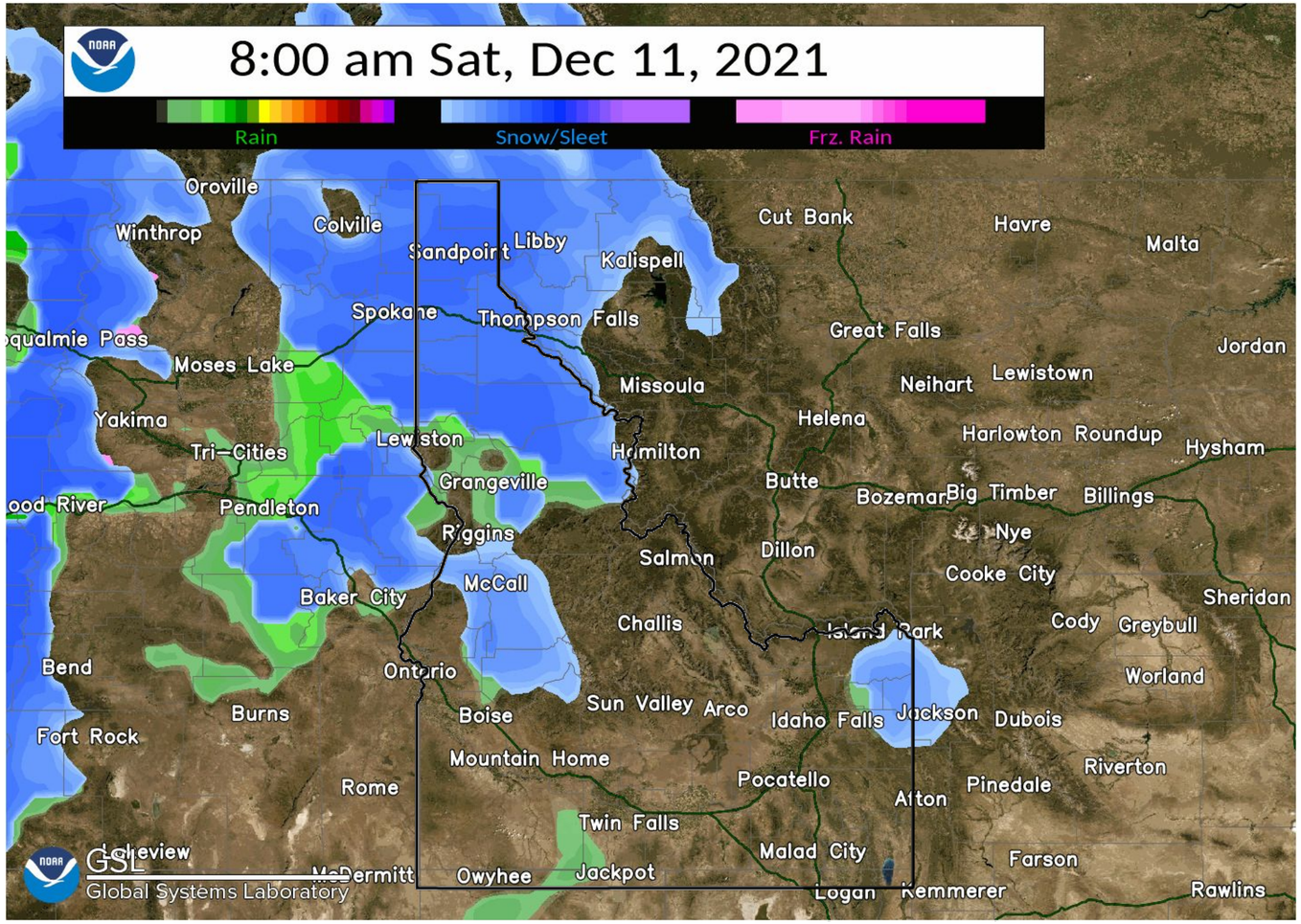
The wet October is outpacing the dry conditions of November, but we'll need to transition back to a wetter pattern soon.

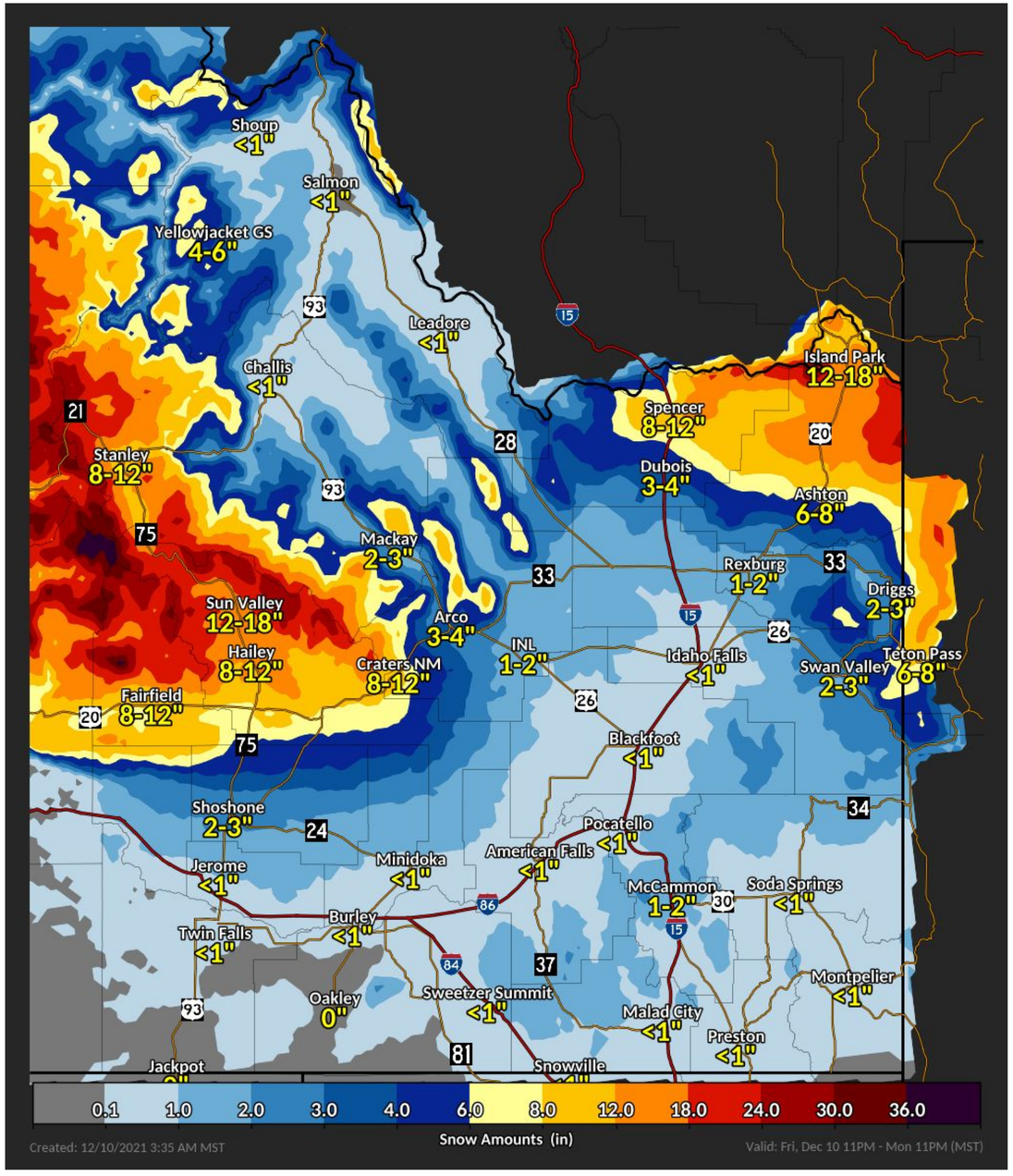
Short Term Forecast and Seasonal Outlooks

Weather Forecast Office
Pocatello, ID
Thursday, December 9

Weekend Snow

Weather Forecast Office
Pocatello, ID
Thursday, December 9

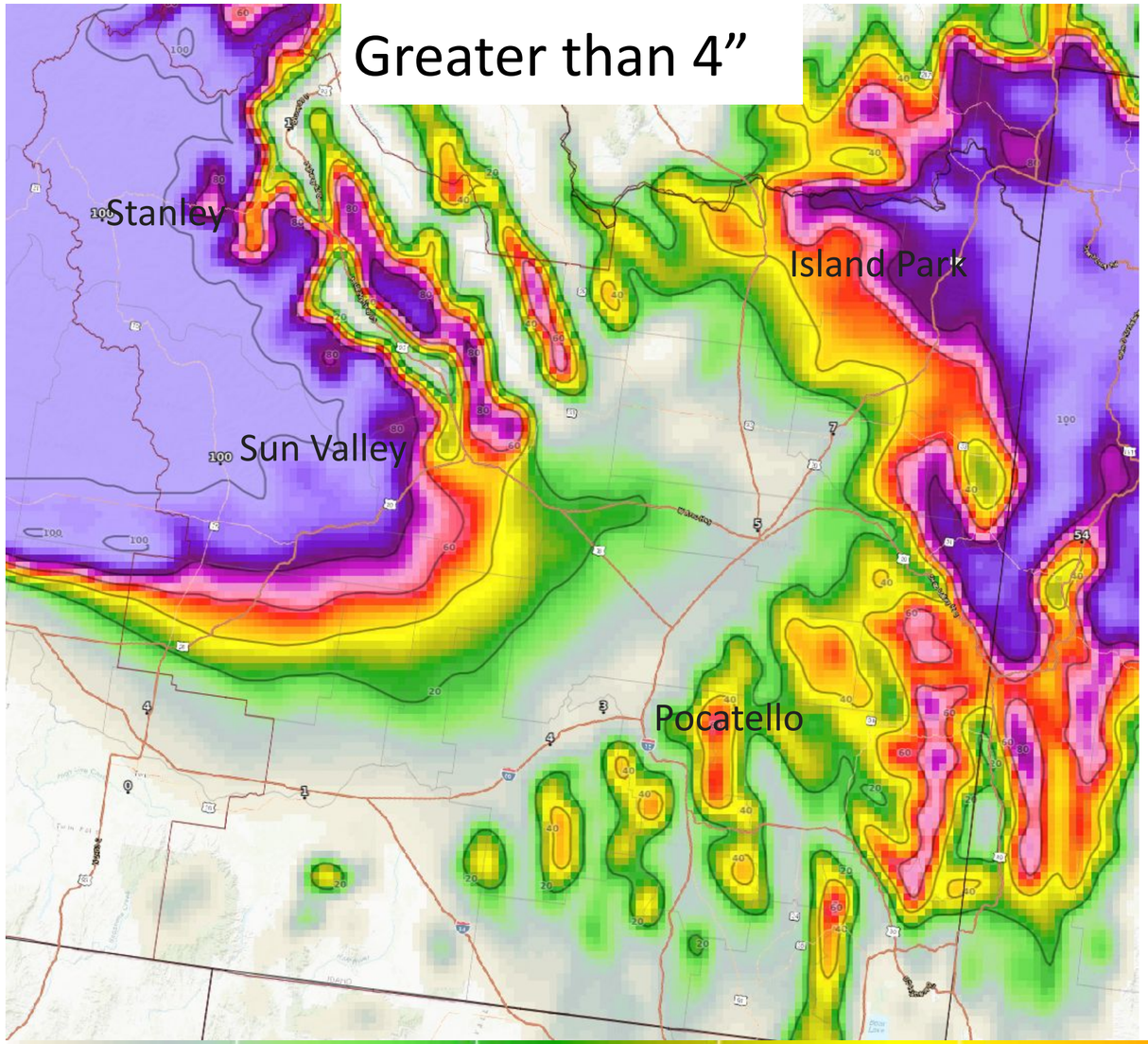


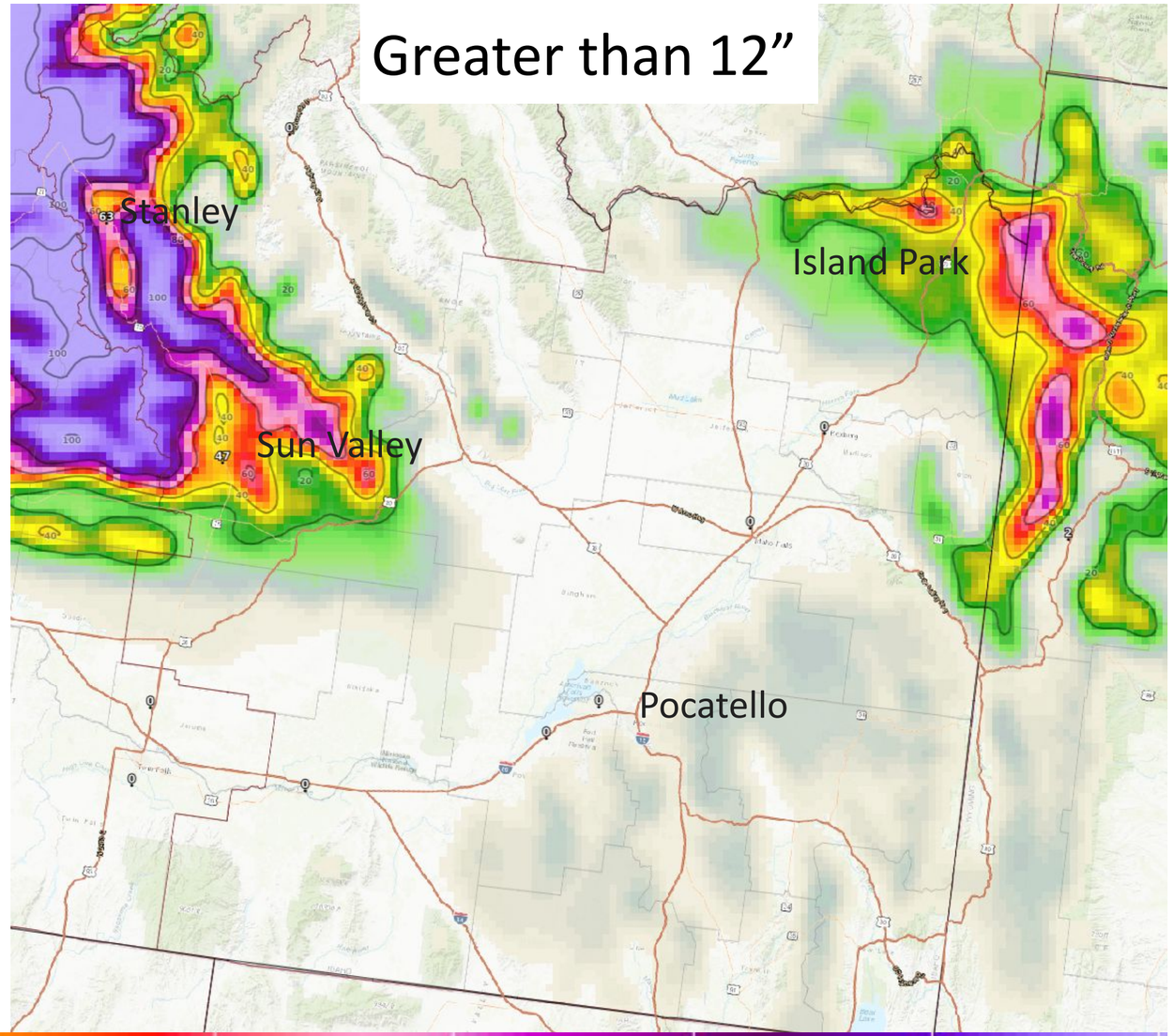


Initial system aimed at the West Central Mountains carrying over into Island Park

% Chance of Snow Amounts Through Sunday

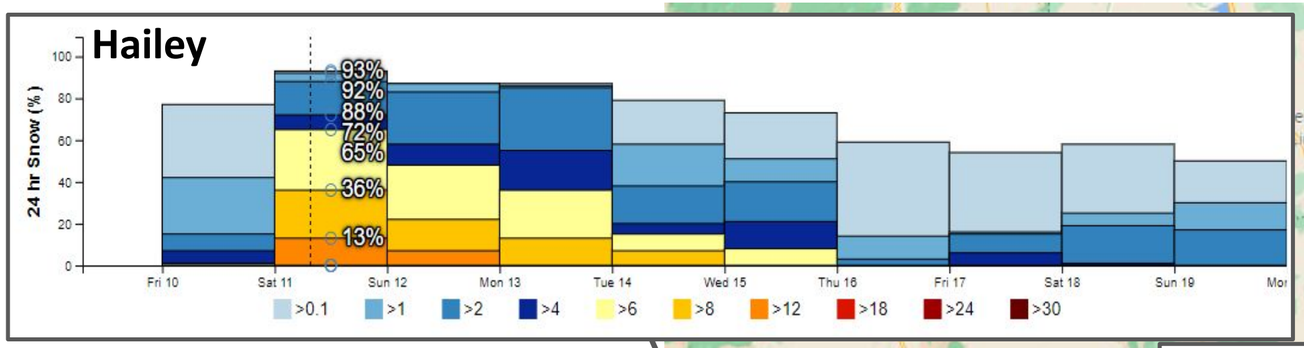
Weather Forecast Office
Pocatello, ID
Thursday, December 9

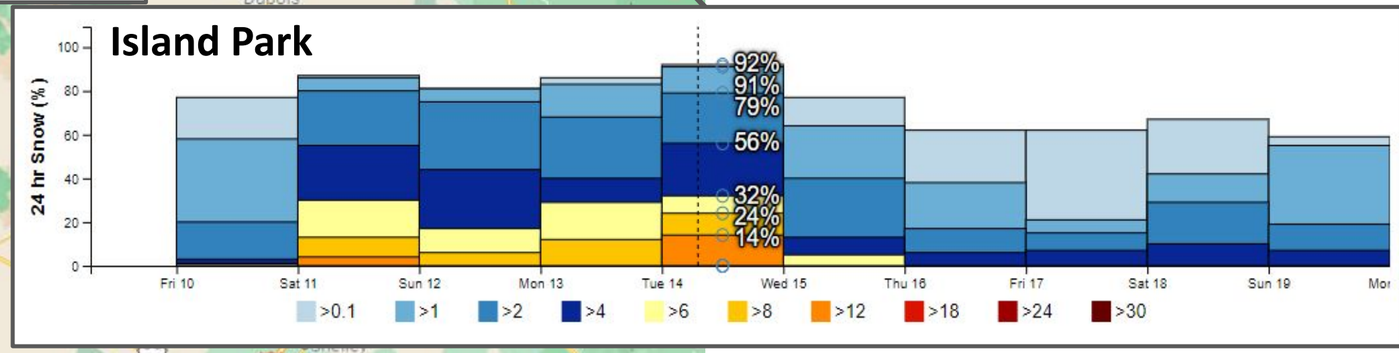


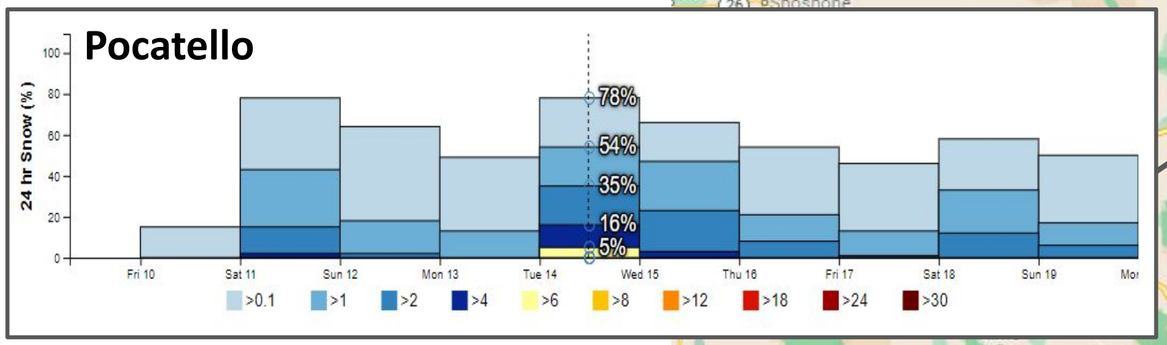


10 20 30 40 50 60 70 80 90

Timing the Heaviest Snow

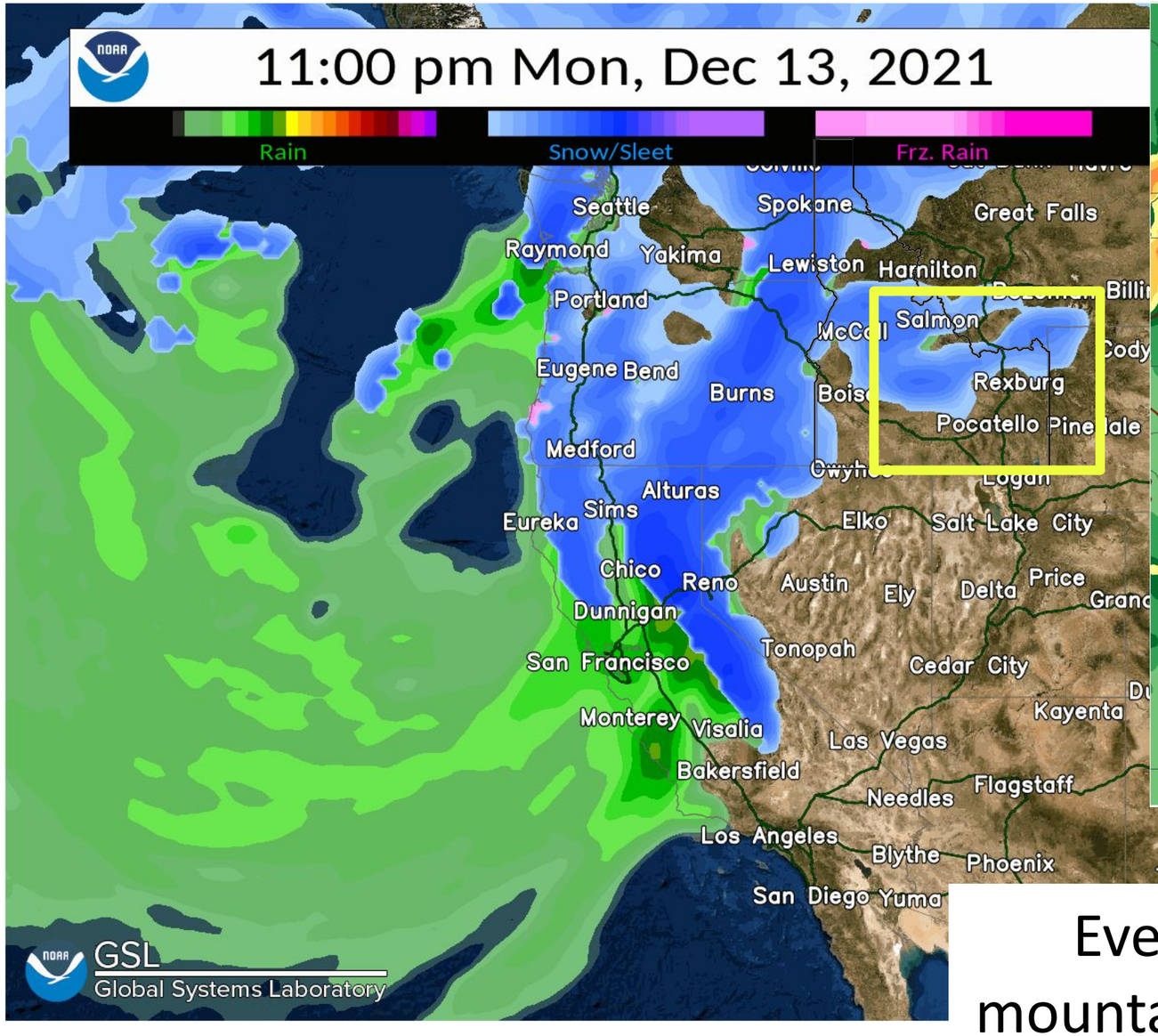


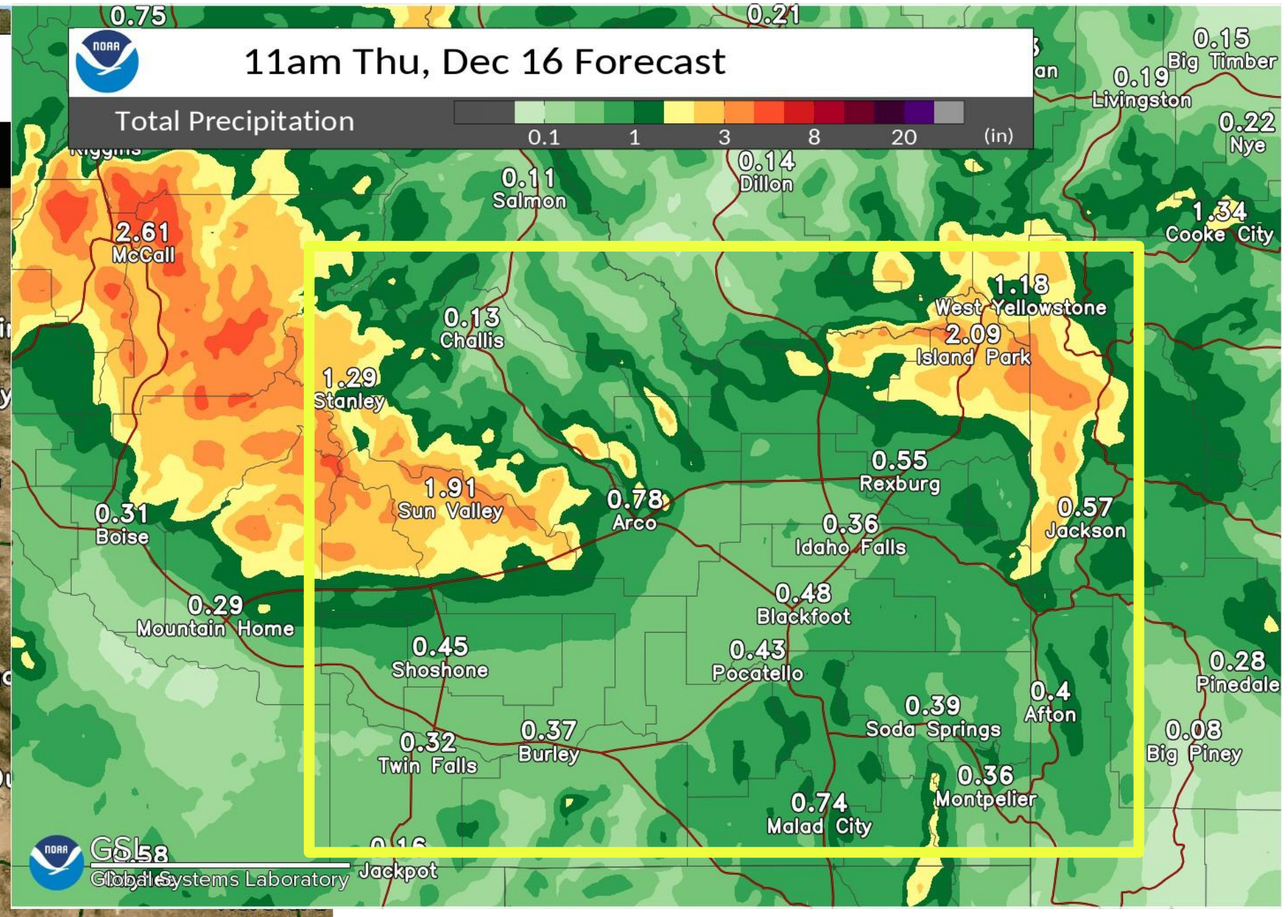




Wet Pattern Through Next Week

Weather Forecast Office
Pocatello, ID
Thursday, December 9





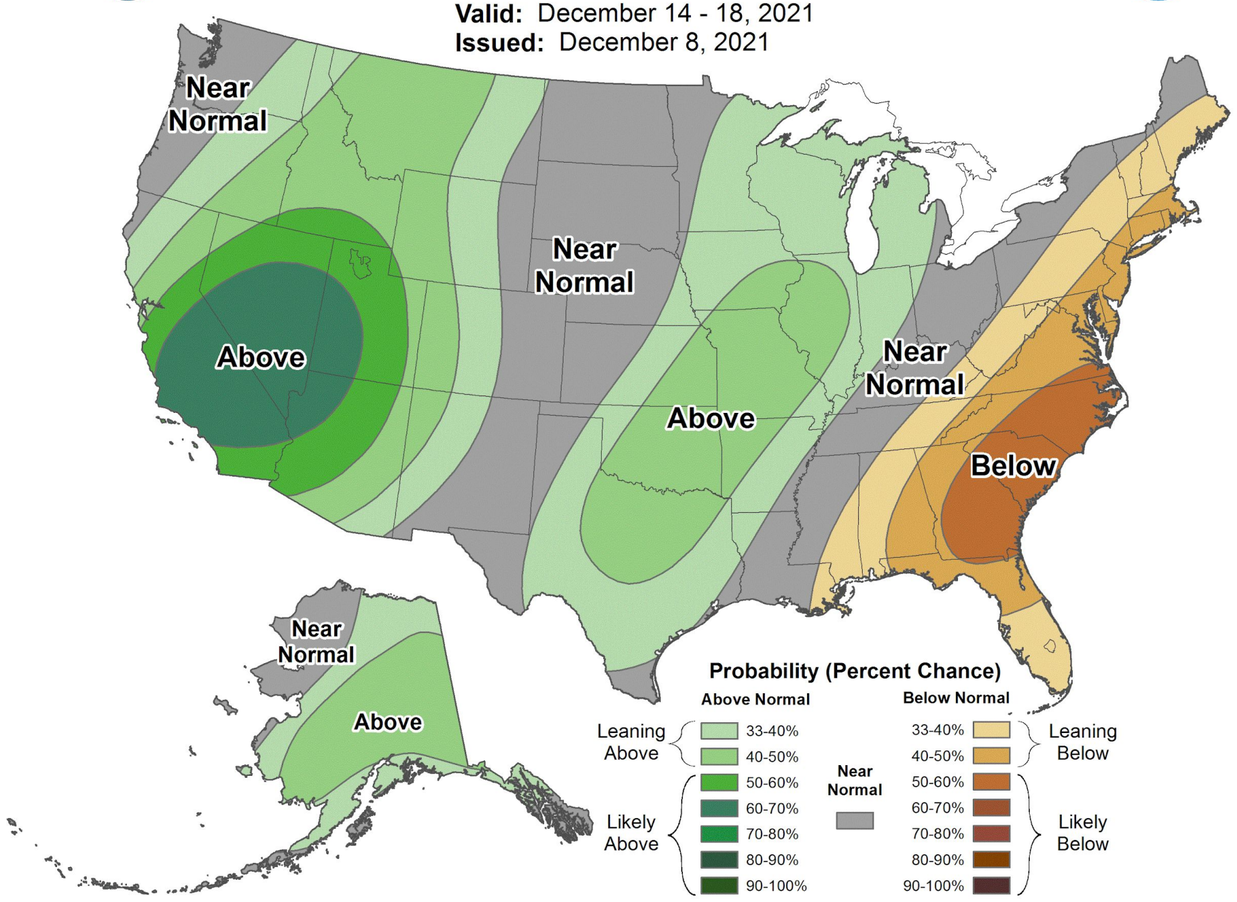
Everyone will see some precipitation with mountains squeezing out relatively high amounts

Late Next Week

Weather Forecast Office
Pocatello, ID
Thursday, December 9

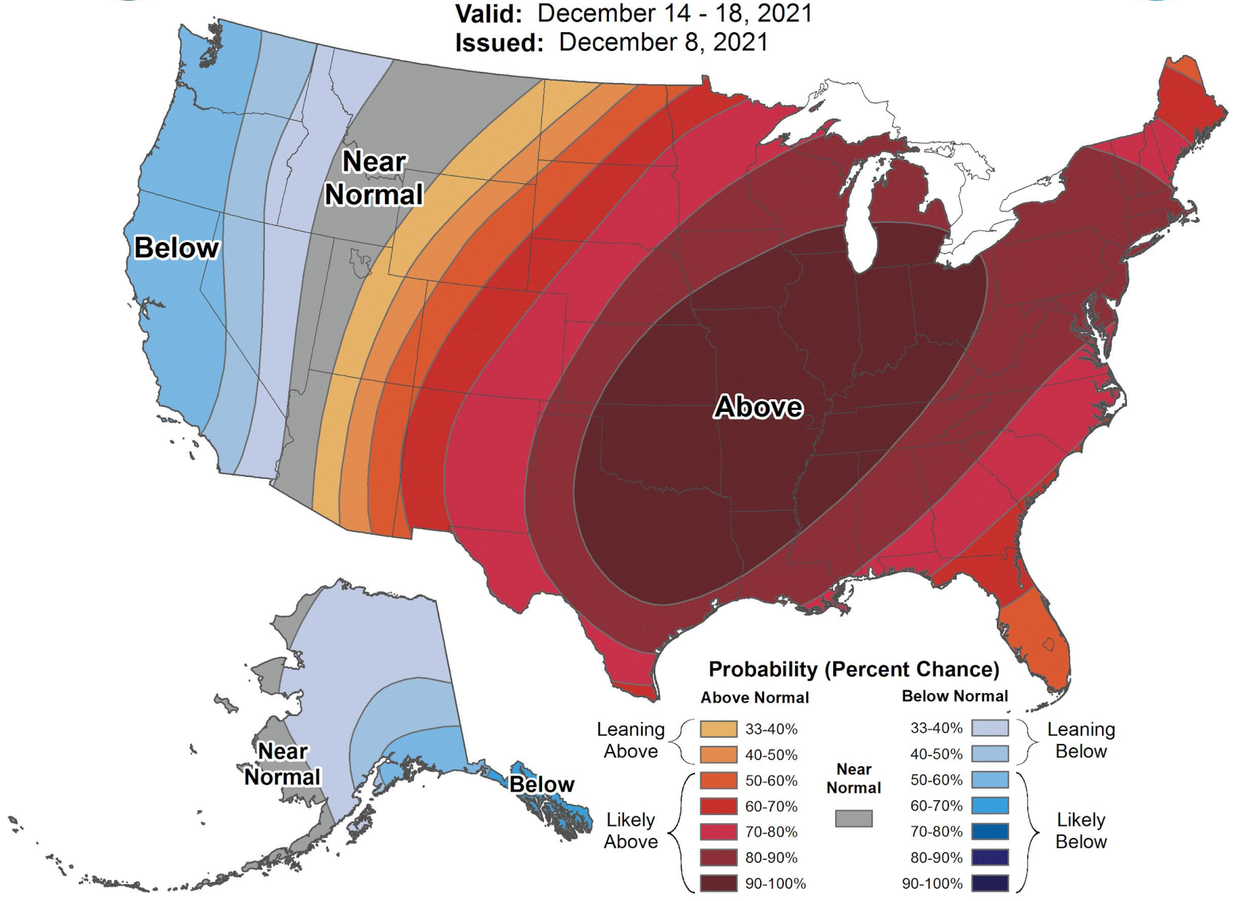
6-10 Day Precipitation Outlook

Valid: December 14 - 18, 2021
Issued: December 8, 2021



6-10 Day Temperature Outlook

Valid: December 14 - 18, 2021
Issued: December 8, 2021

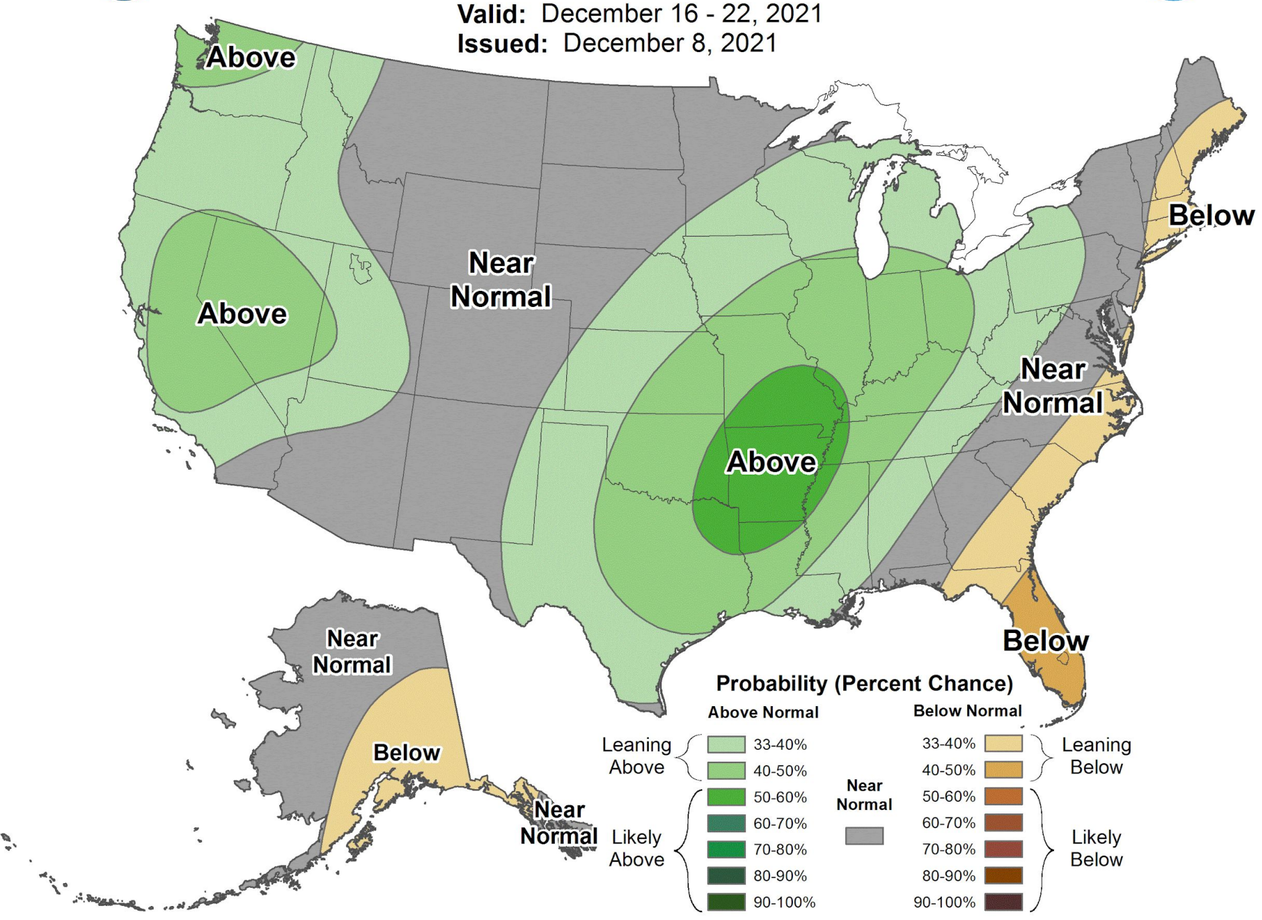


Middle of December

Weather Forecast Office
Pocatello, ID
Thursday, December 9

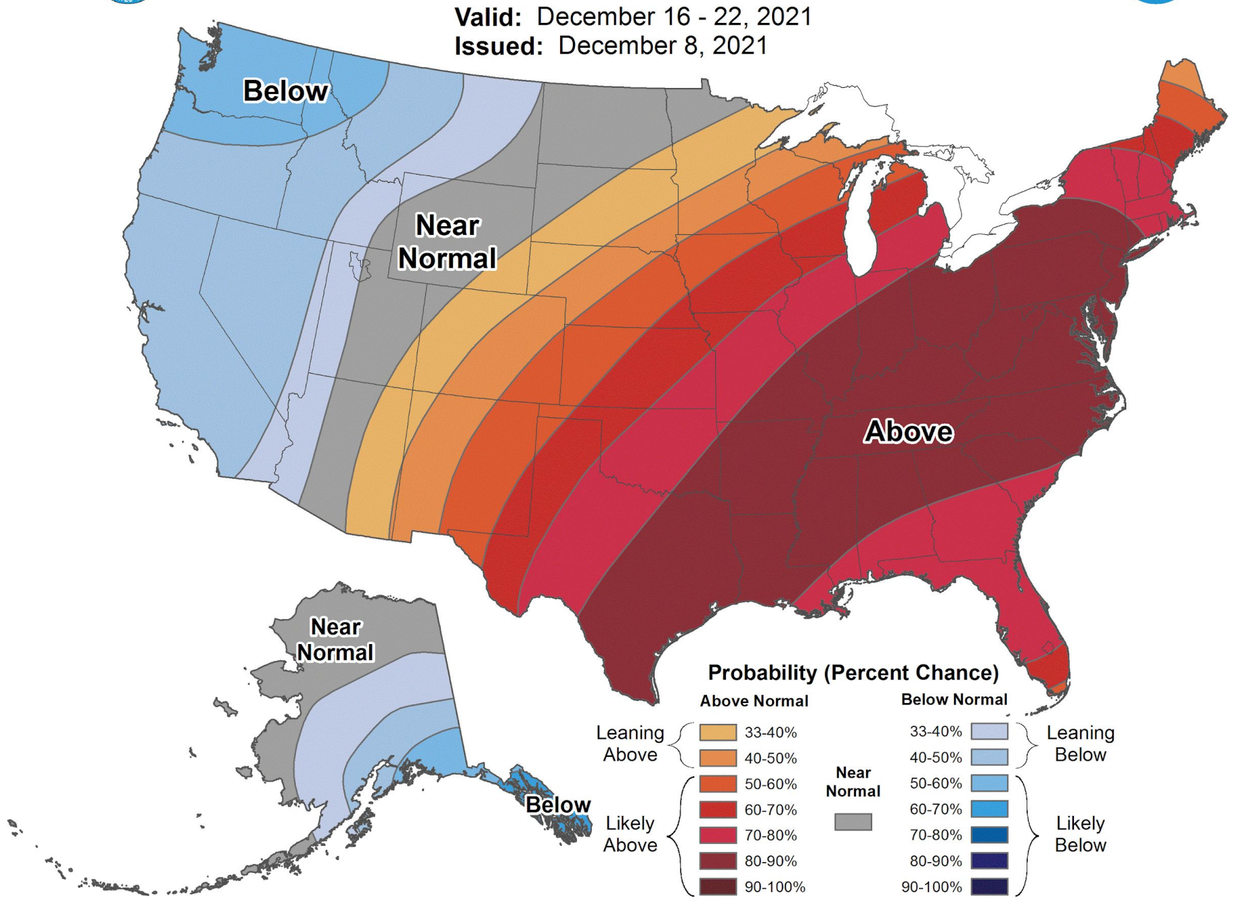
8-14 Day Precipitation Outlook

Valid: December 16 - 22, 2021
Issued: December 8, 2021



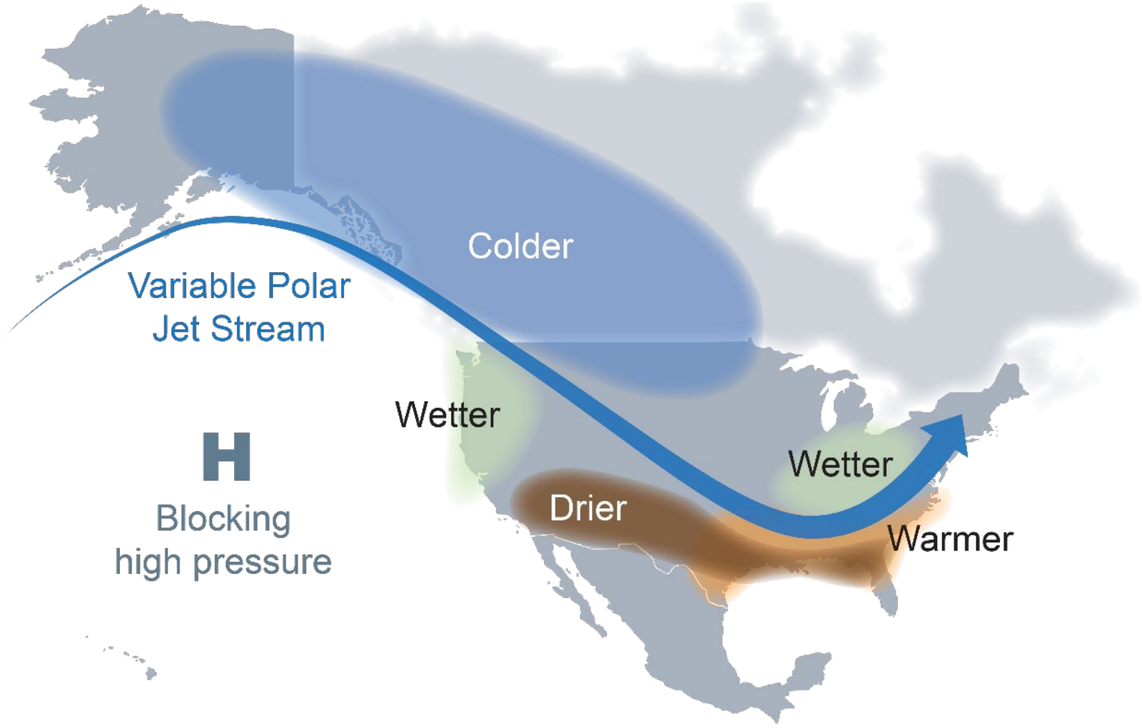
8-14 Day Temperature Outlook

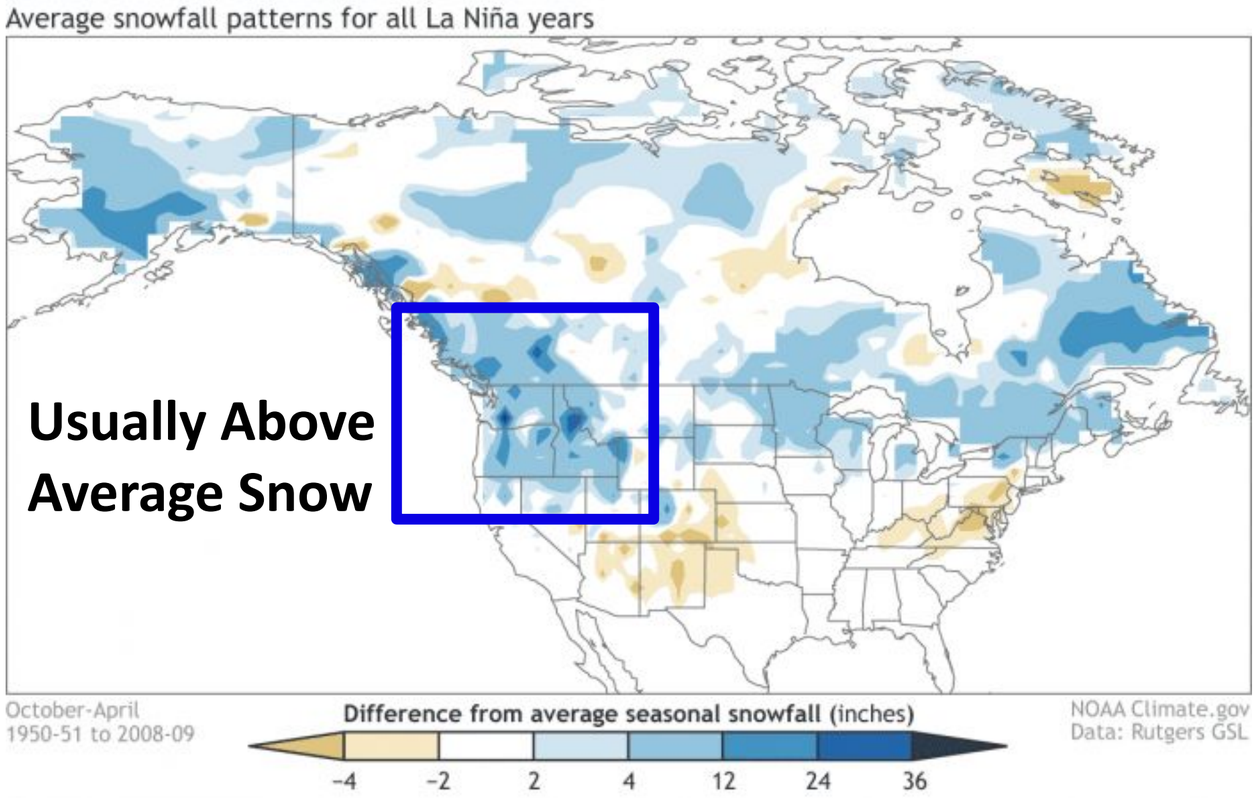
Valid: December 16 - 22, 2021
Issued: December 8, 2021



2021 - 2022 Winter Outlook

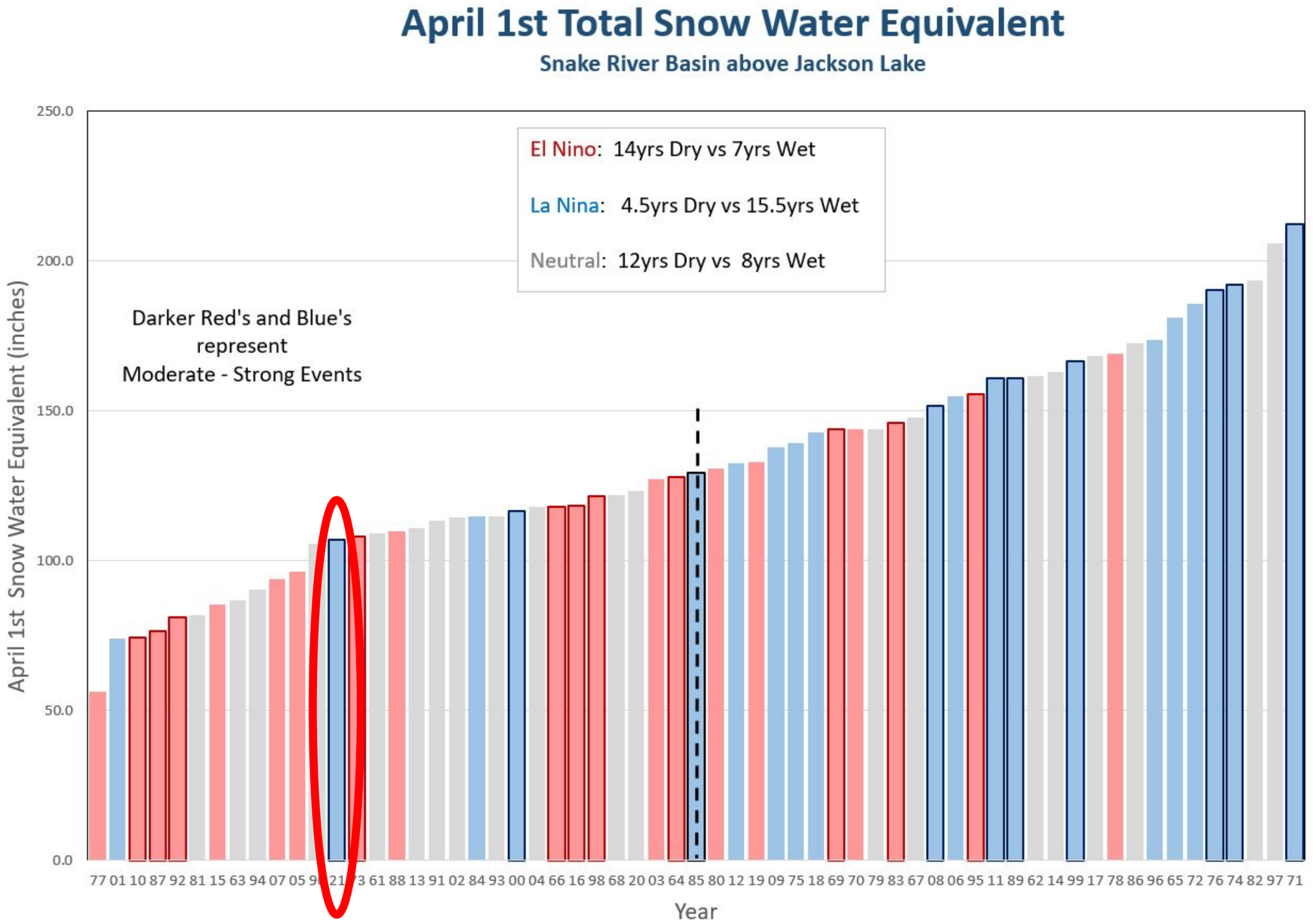
La Niña Conditions Expected - **Again**





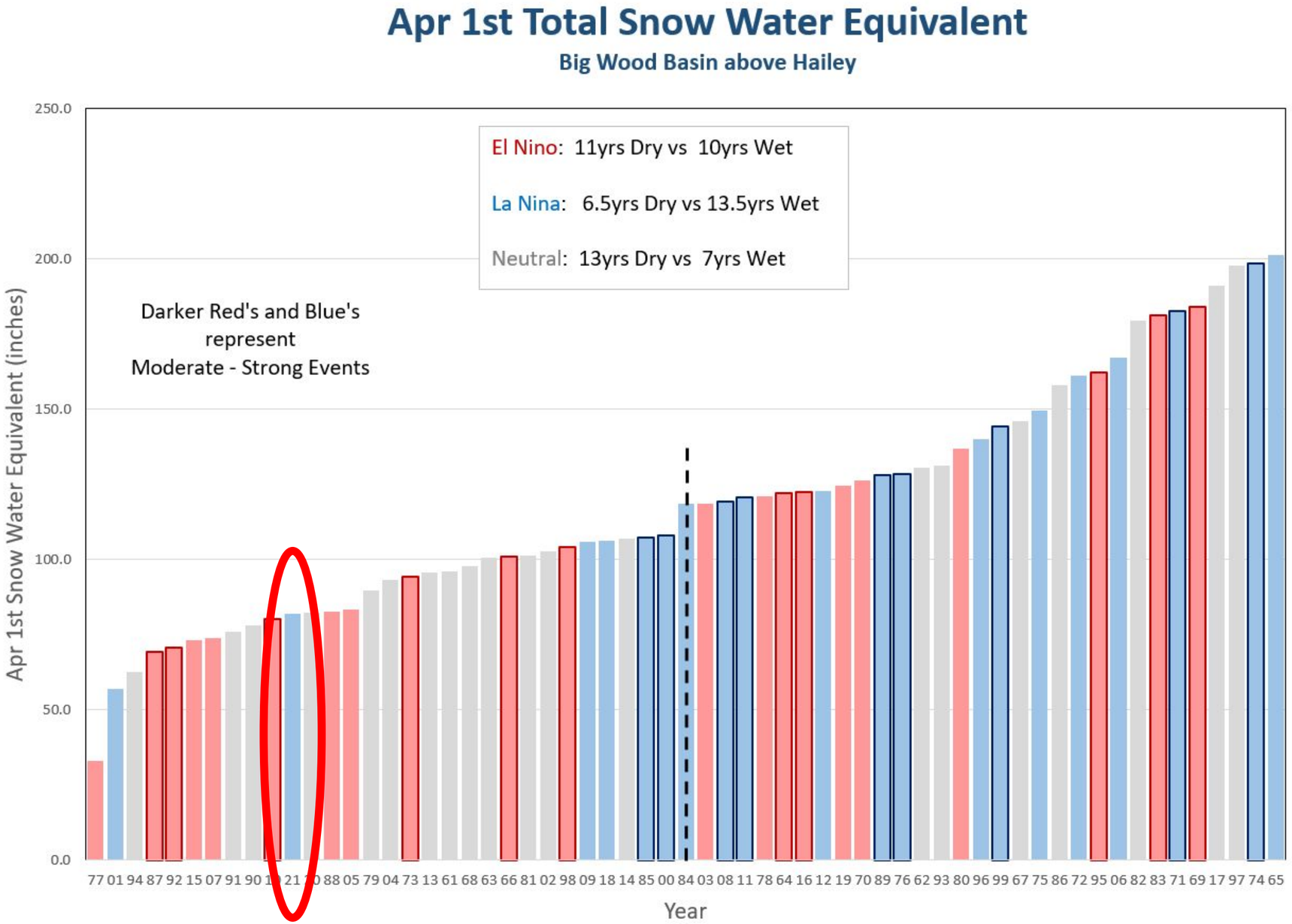
La Niña Snowfall Pattern

Weather Forecast Office
Pocatello, ID
Thursday, December 9



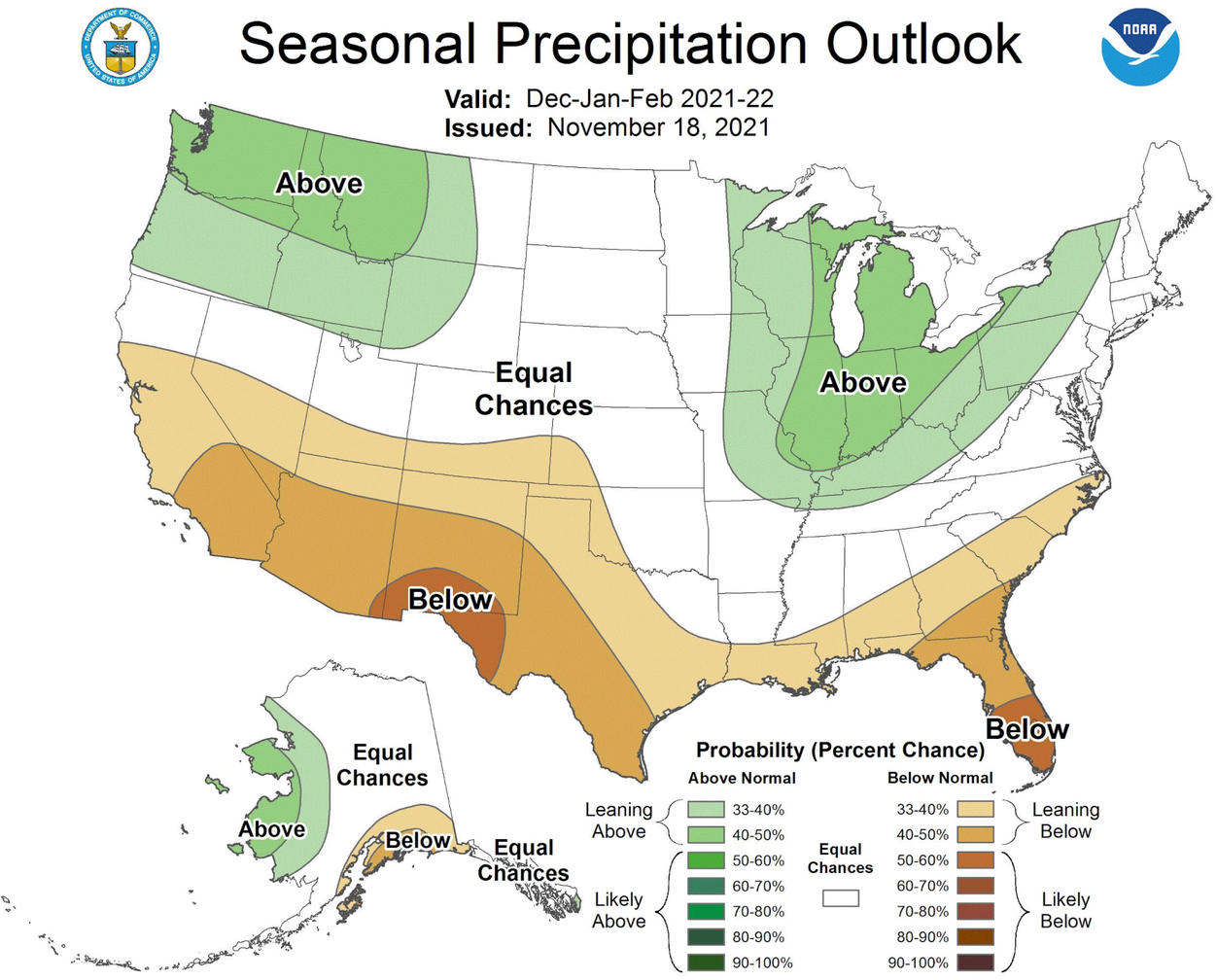
La Niña Snowfall Pattern

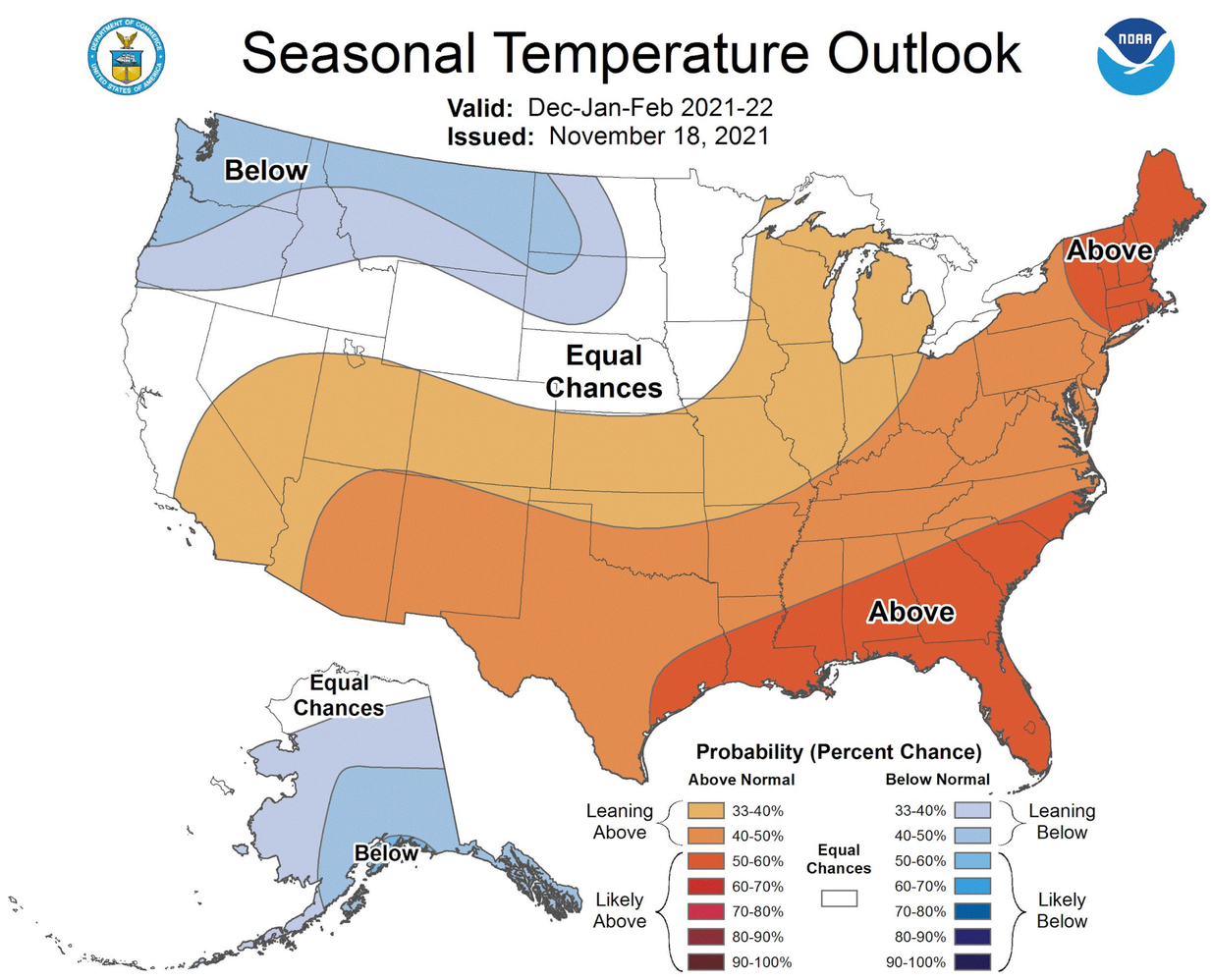
Weather Forecast Office
Pocatello, ID
Thursday, December 9



Dec - Feb Outlook

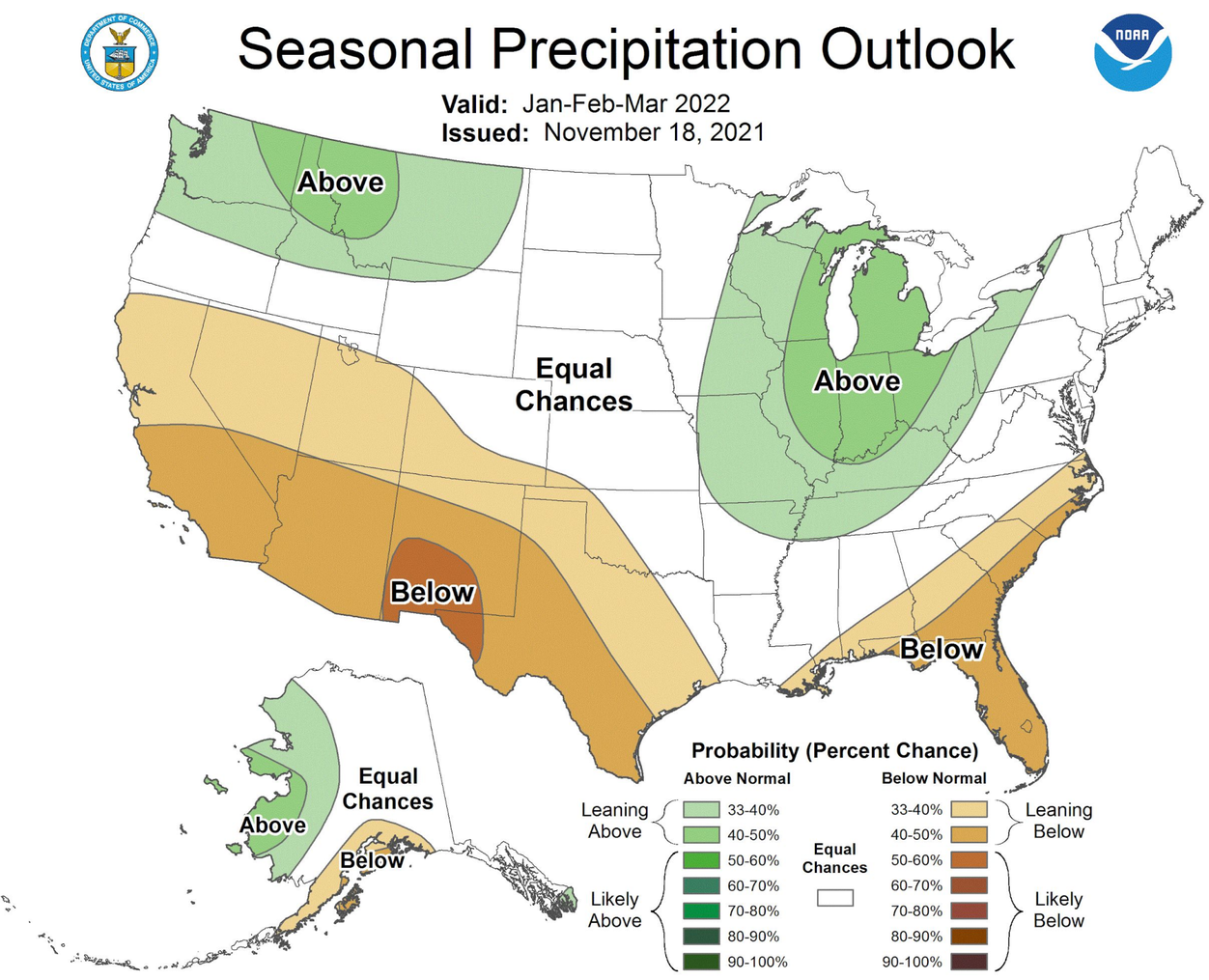
Weather Forecast Office
Pocatello, ID
Thursday, December 9

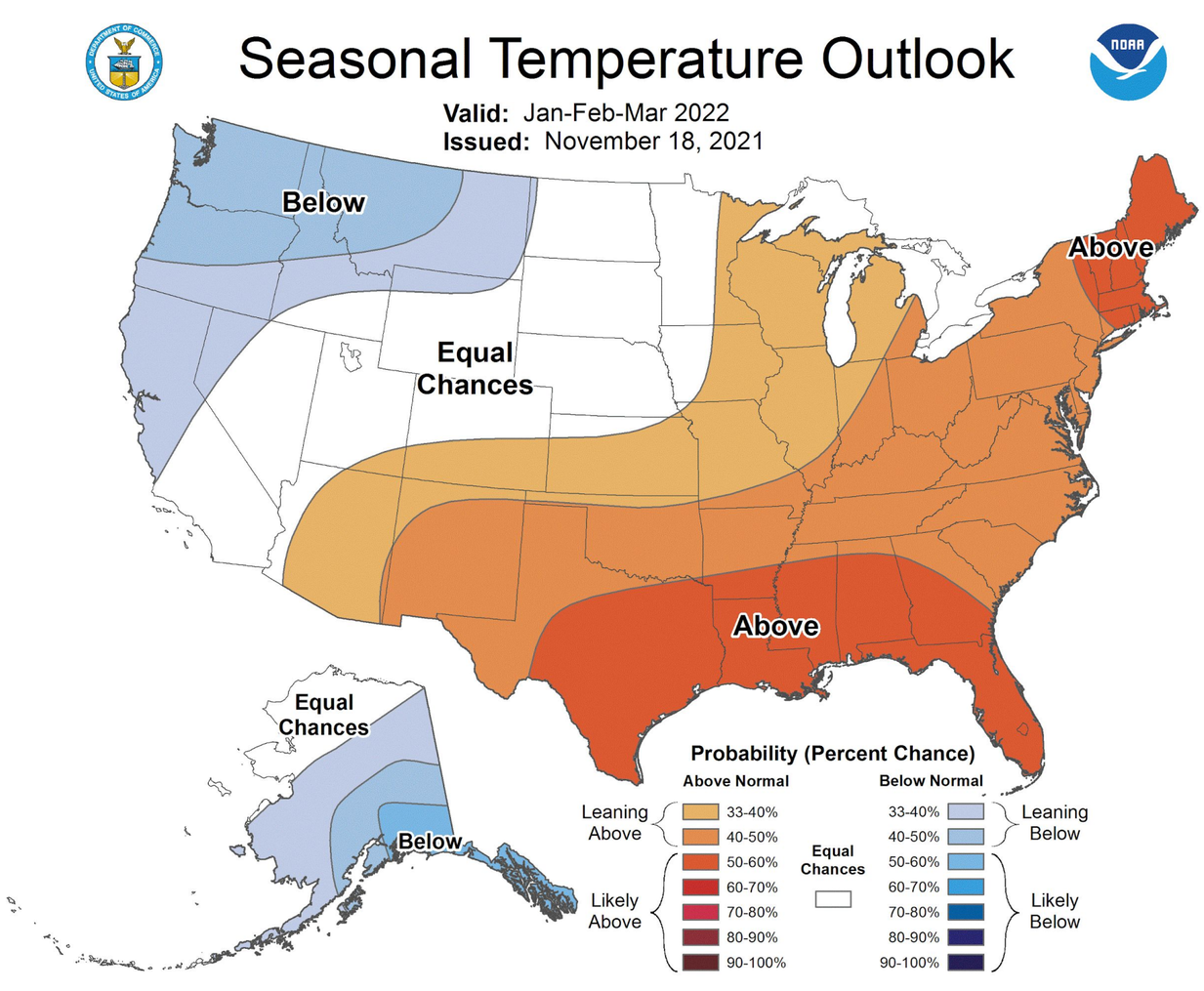




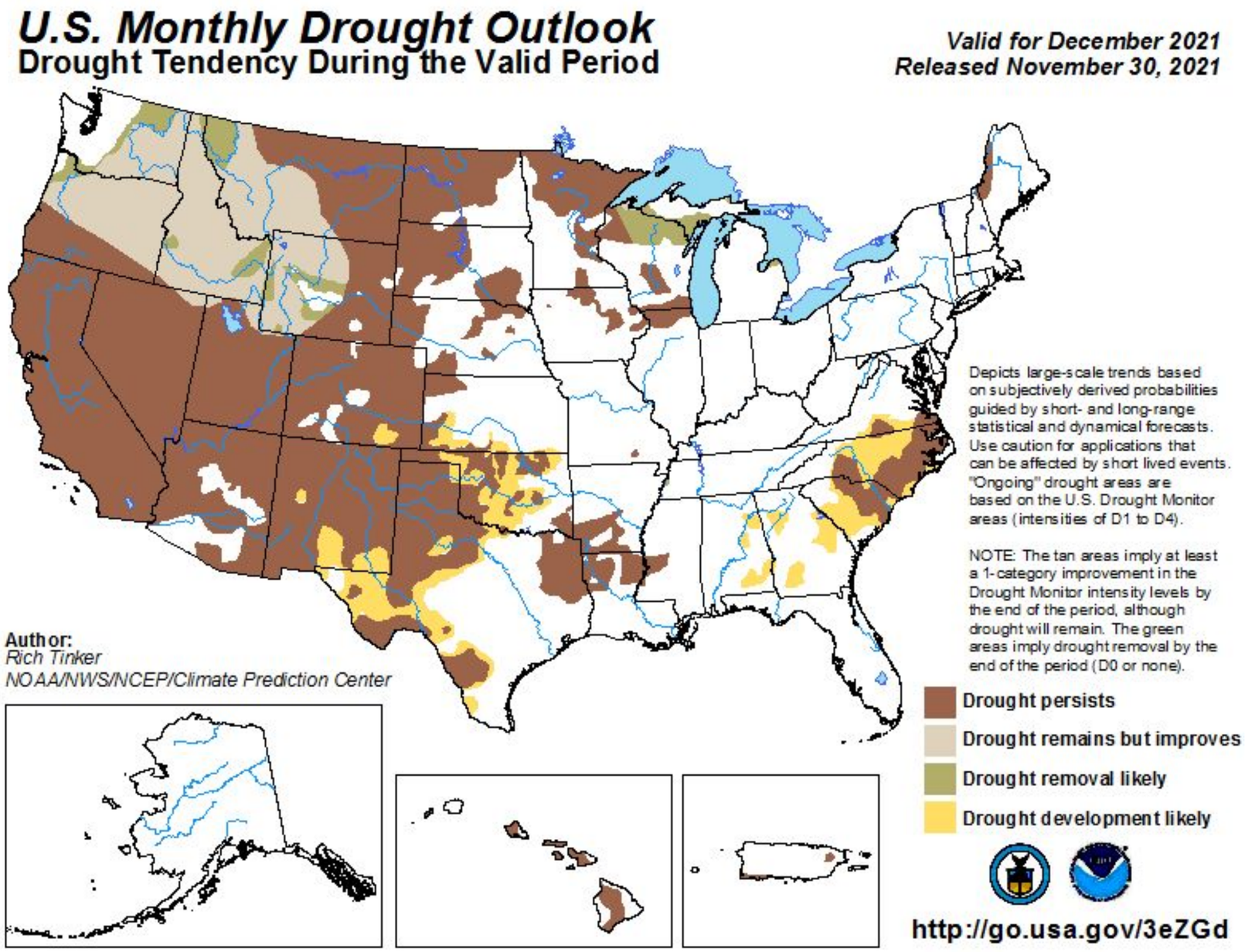
3 Month Precipitation Outlook

Weather Forecast Office
Pocatello, ID
Thursday, December 9



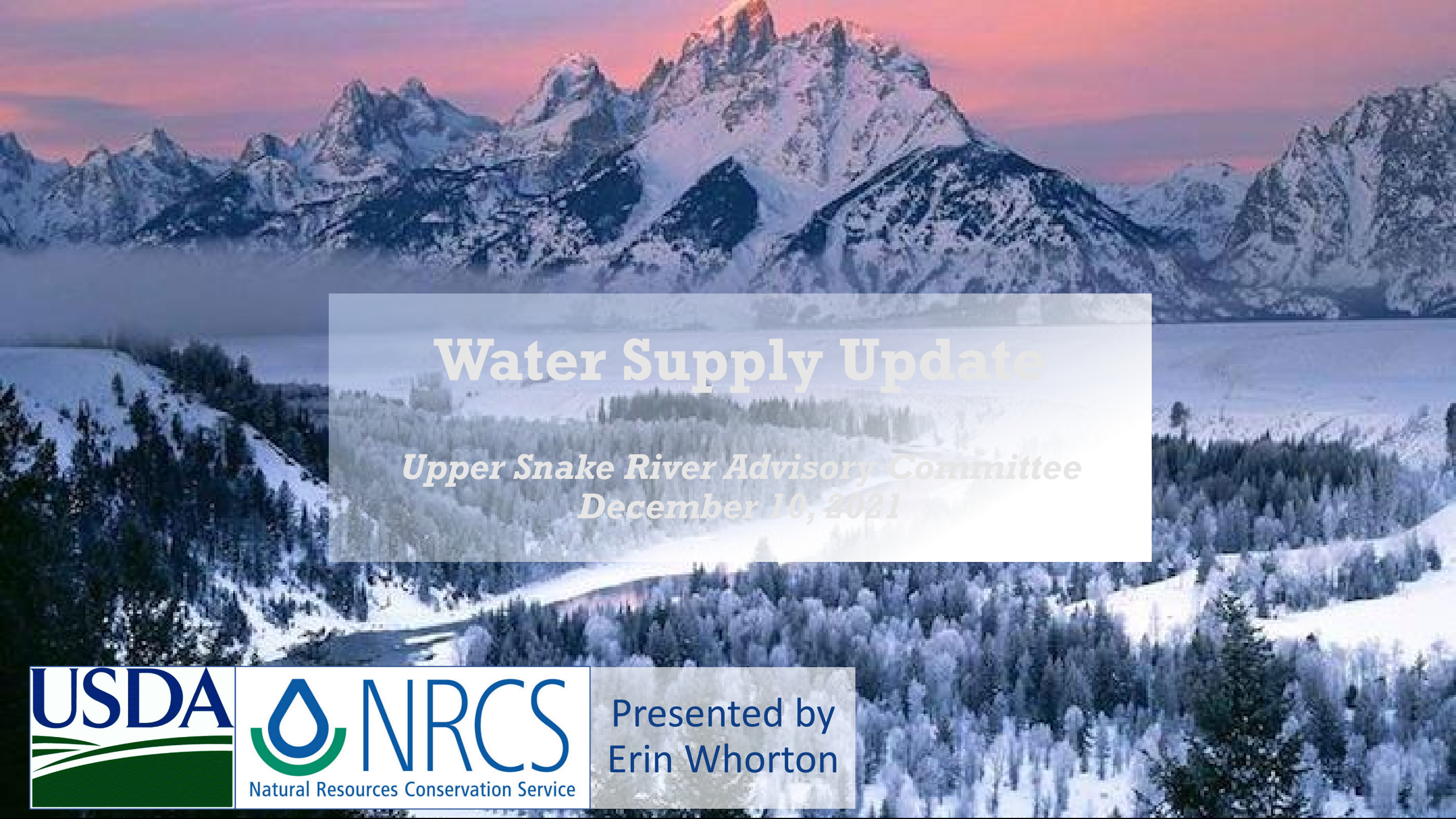


Monthly Drought Outlook



Any Questions?

pocatello.weather@noaa.gov
(208) 233-0834
weather.gov/pocatello

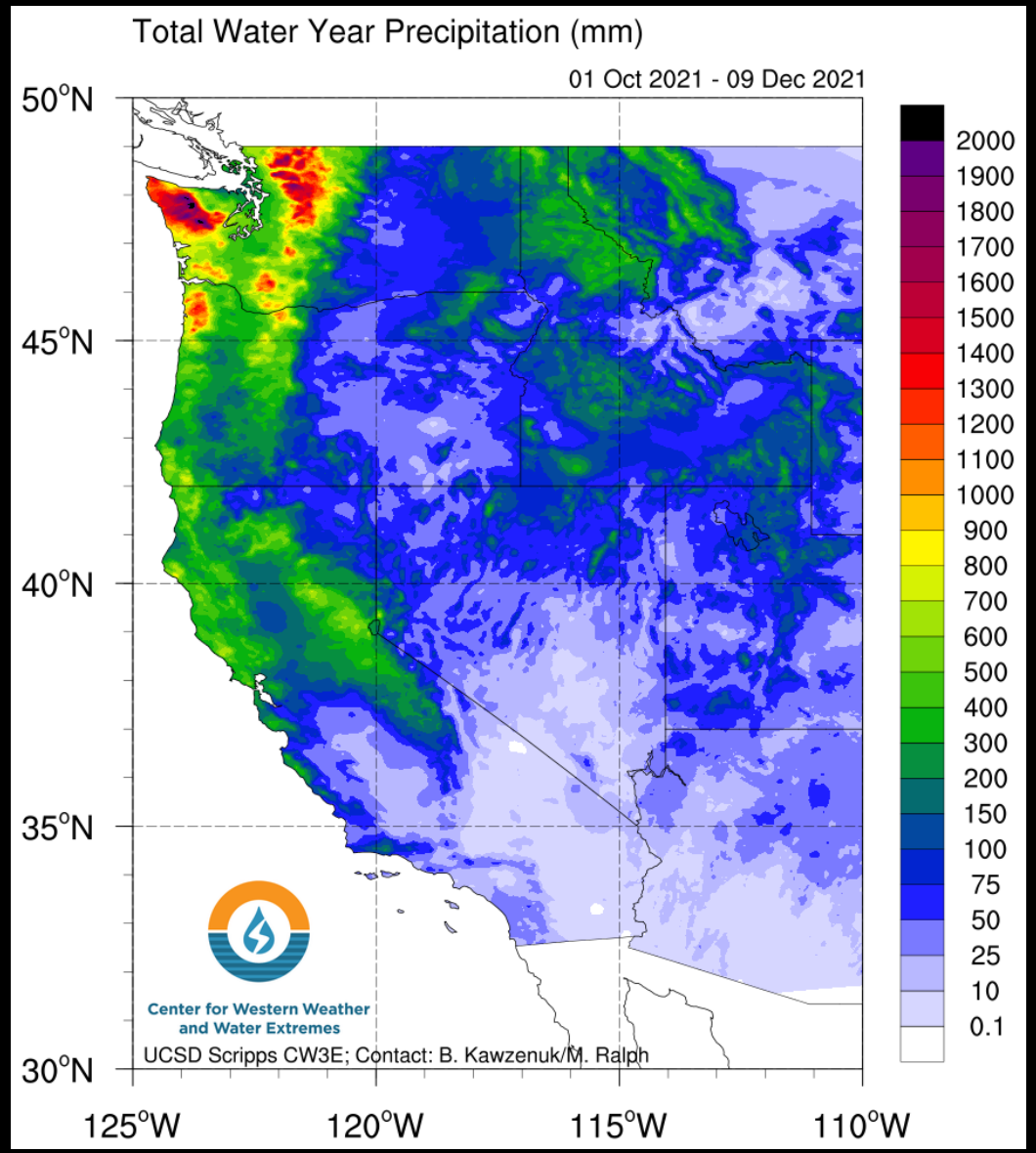


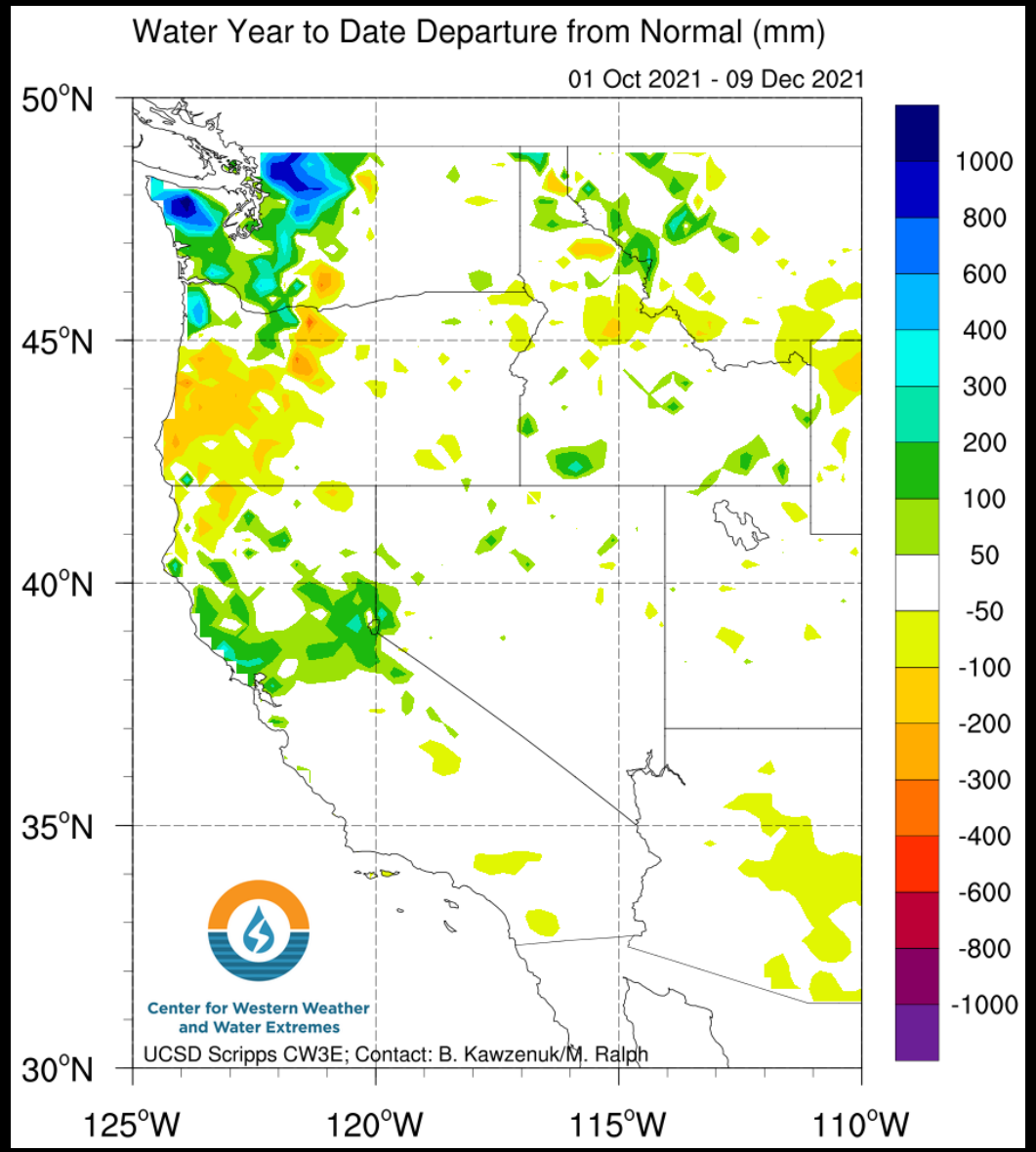
Water Supply Update

Upper Snake River Advisory Committee
December 10, 2021

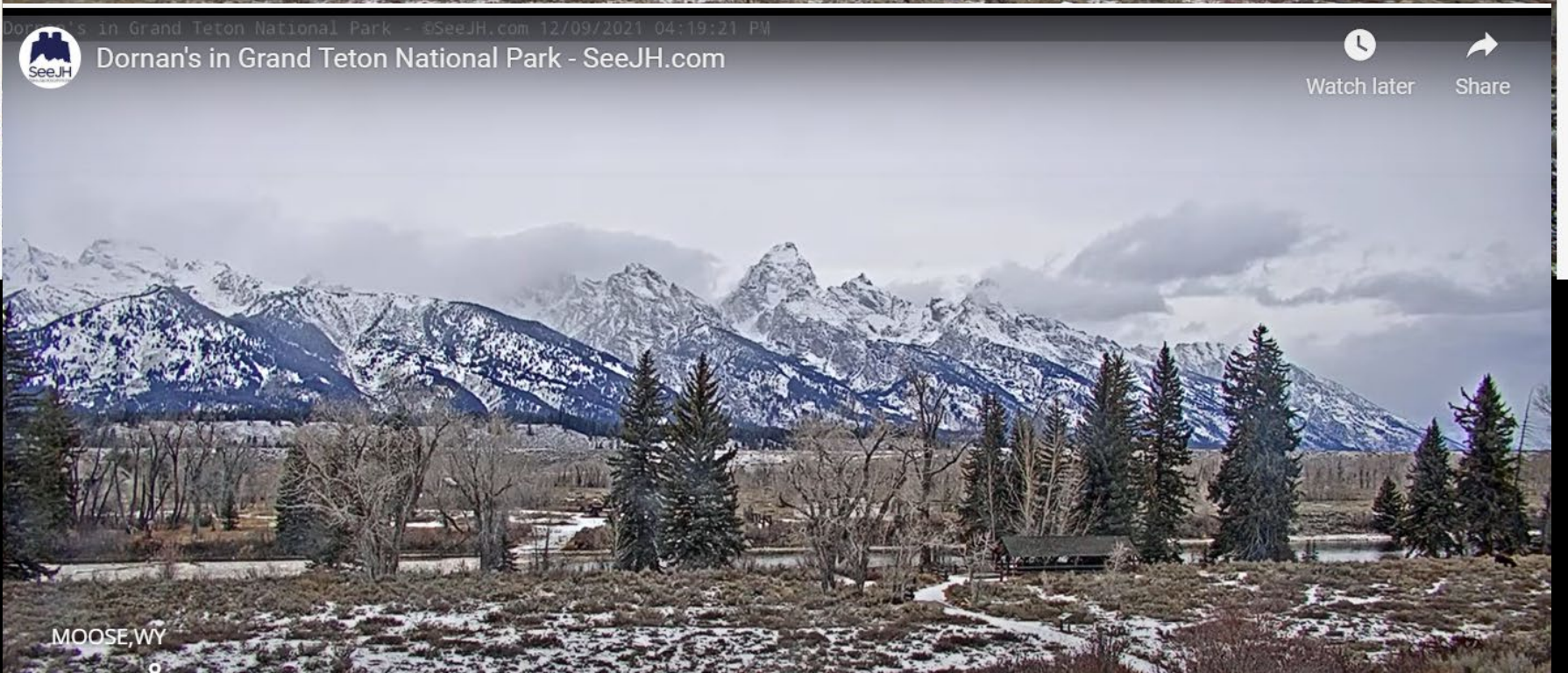
USDA NRCS Natural Resources Conservation Service

Presented by
Erin Whorton


Total Water Year Precipitation (mm)
01 Oct 2021 - 09 Dec 2021
50°N
45°N
40°N
35°N
30°N
125°W
120°W
115°W
110°W
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
150
100
75
50
25
10
0.1
Center for Western Weather and Water Extremes
UCSD Scripps CW3E; Contact: B. Kawzenuk/M. Ralph

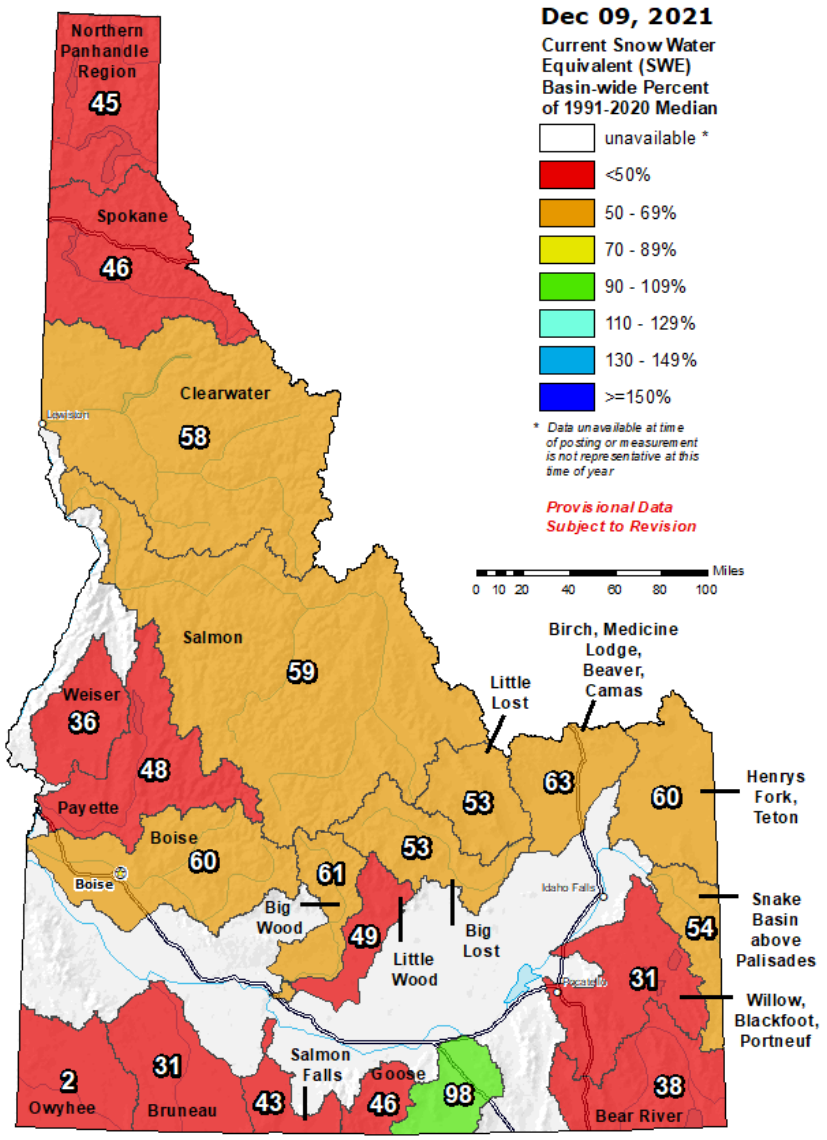

Water Year to Date Departure from Normal (mm)
01 Oct 2021 - 09 Dec 2021
50°N
45°N
40°N
35°N
30°N
125°W
120°W
115°W
110°W
1000
800
600
400
300
200
100
50
-50
-100
-200
-300
-400
-600
-800
-1000
Center for Western Weather and Water Extremes
UCSD Scripps CW3E; Contact: B. Kawzenuk/M. Ralph

October 14, 2021



December 9, 2021

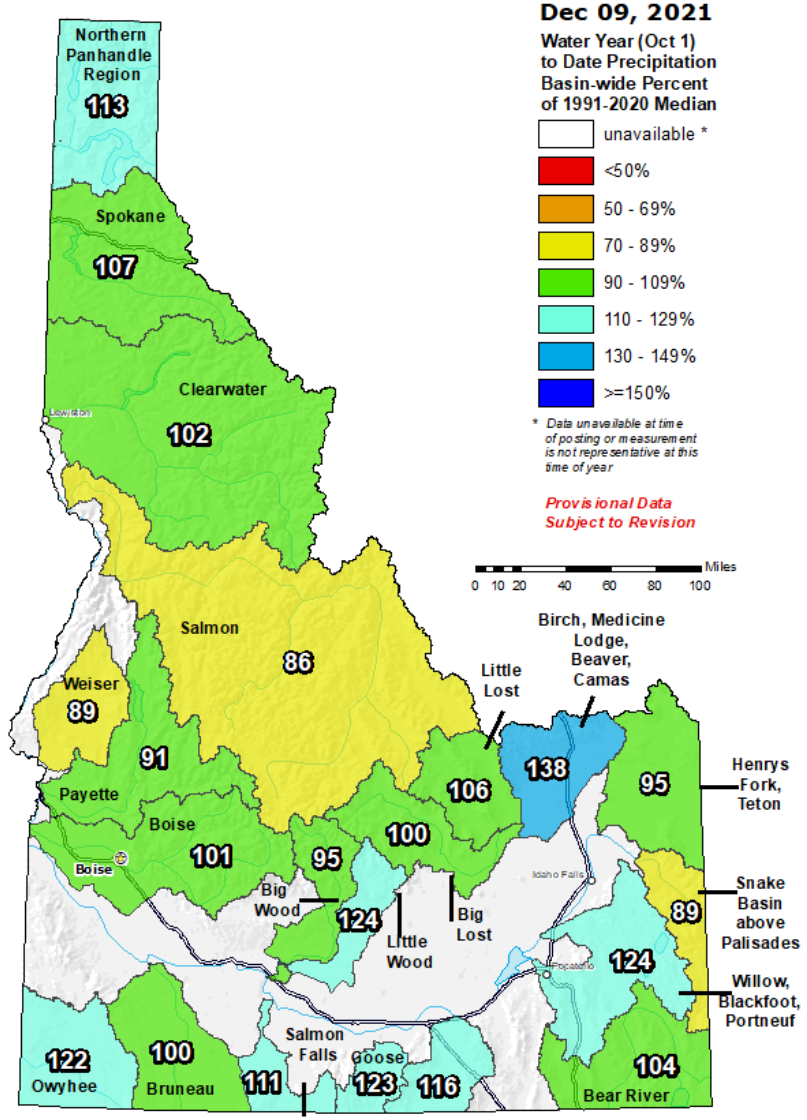
Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

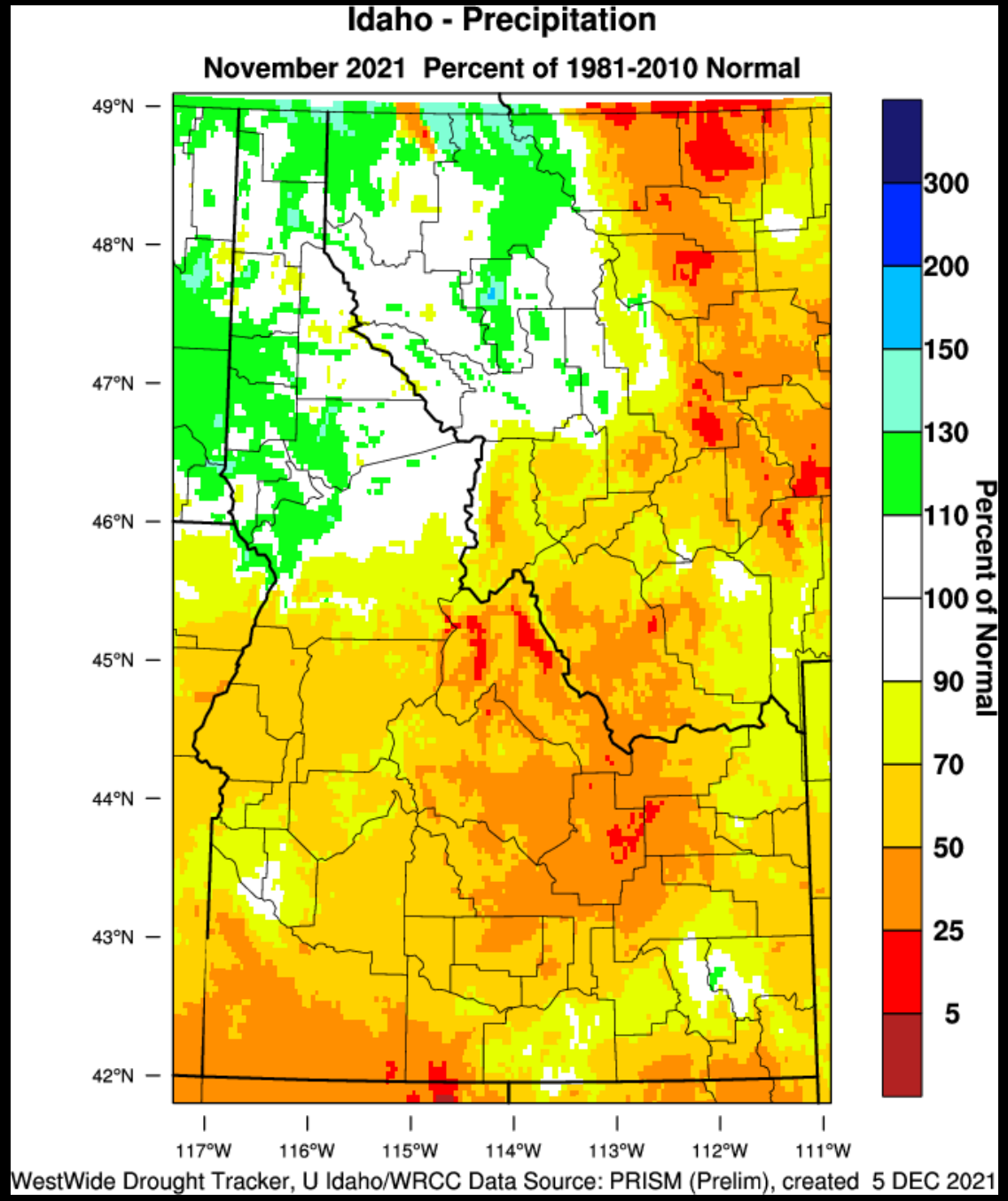
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
https://www.nrcs.usda.gov/wps/portal/wcc/home/

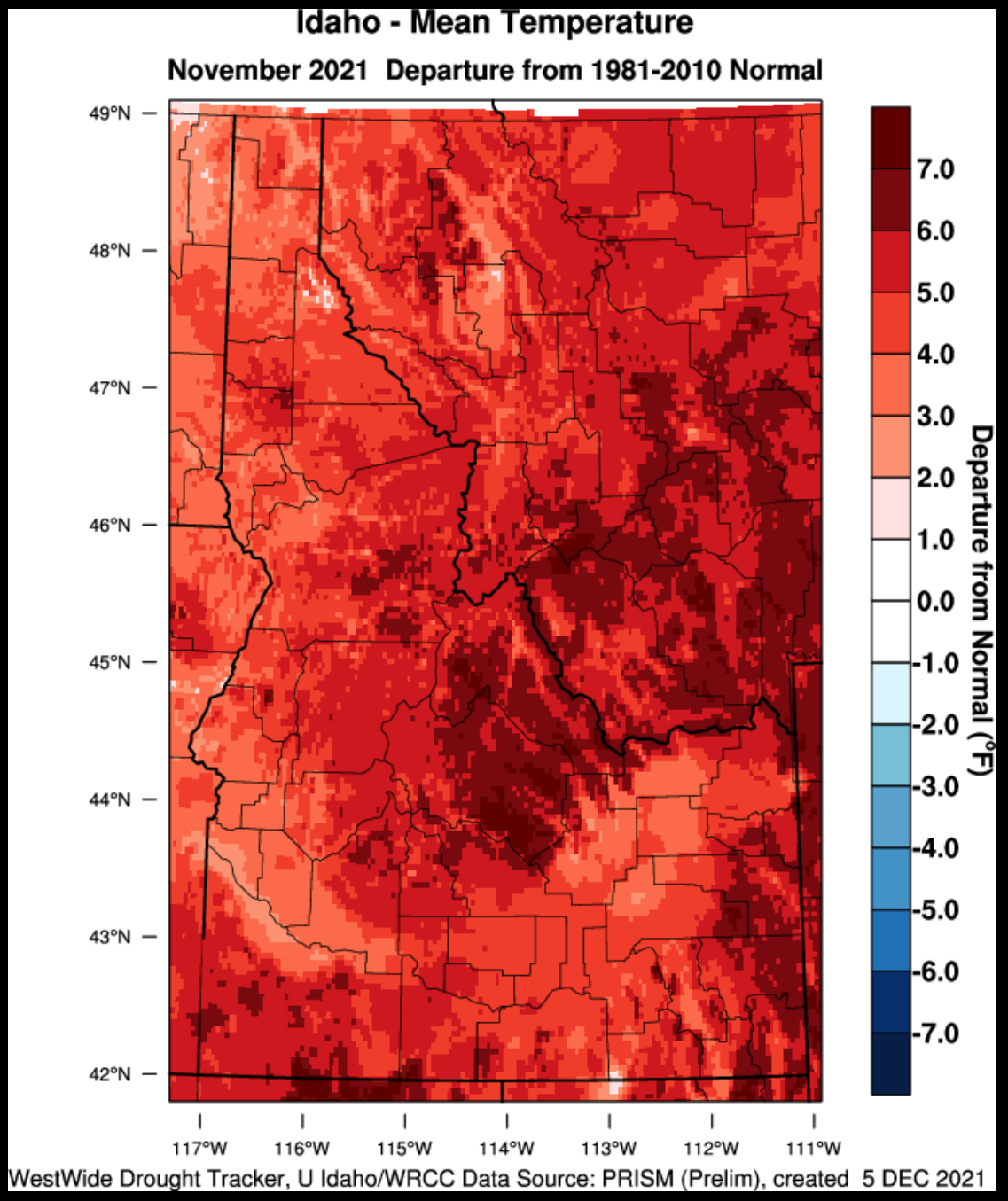
Idaho SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal



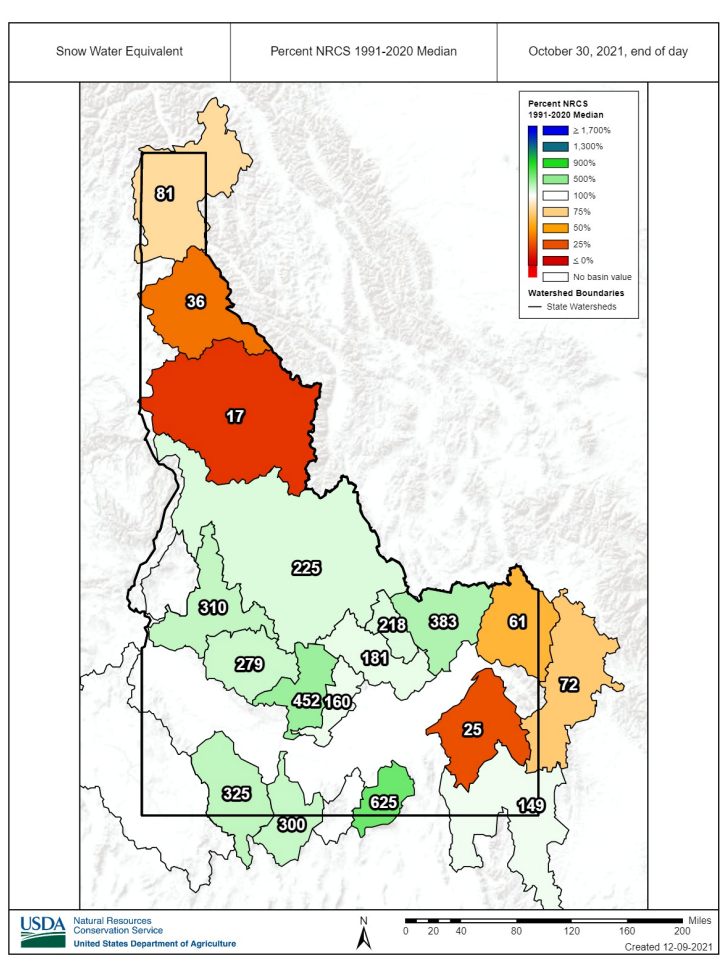
The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
https://www.nrcs.usda.gov/wps/portal/wcc/home/

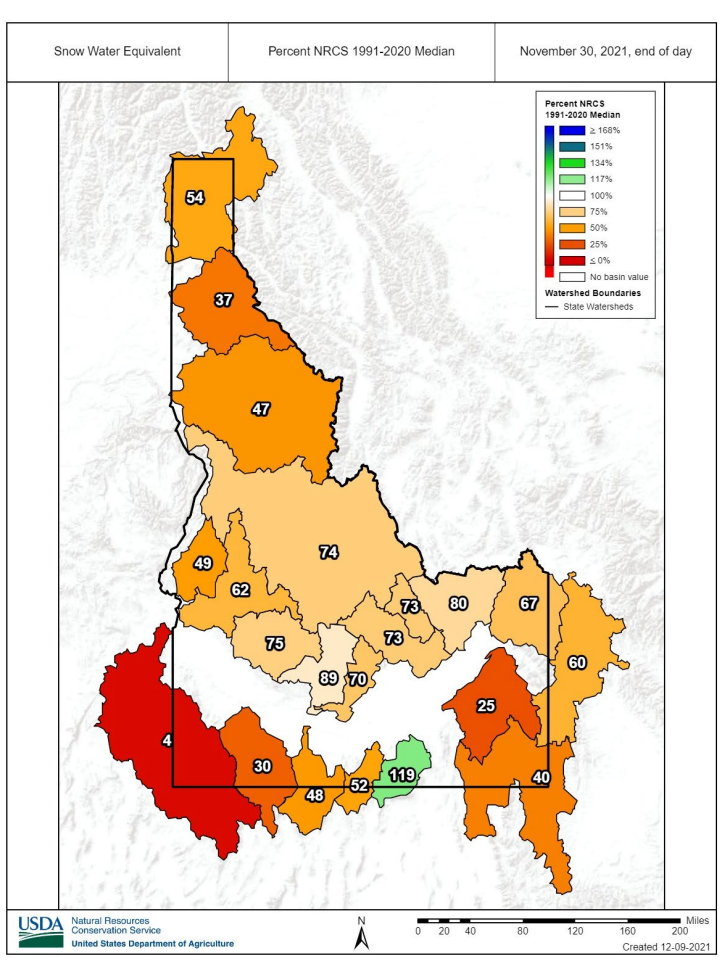

Idaho - Precipitation
November 2021 Percent of 1981-2010 Normal
49°N
48°N
47°N
46°N
45°N
44°N
43°N
42°N
117°W
116°W
115°W
114°W
113°W
112°W
111°W
300
200
150
130
110
100
90
70
50
25
5
Percent of Normal
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 DEC 2021


Idaho - Mean Temperature
November 2021 Departure from 1981-2010 Normal
49°N
48°N
47°N
46°N
45°N
44°N
43°N
42°N
117°W
116°W
115°W
114°W
113°W
112°W
111°W
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
Departure from Normal (°F)
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 DEC 2021

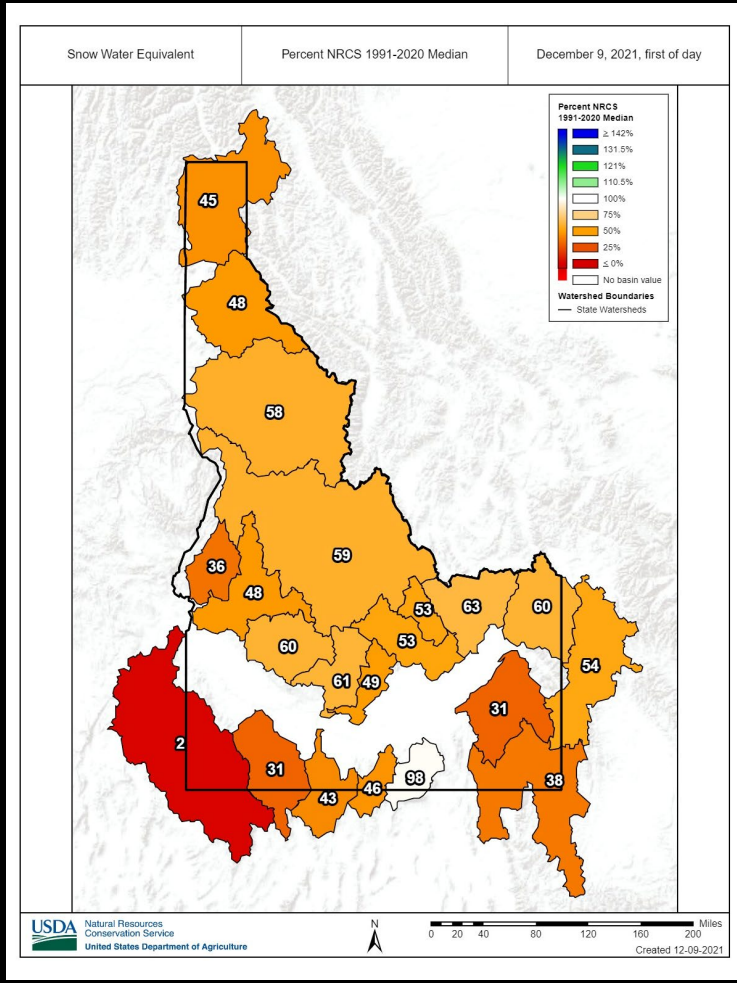
October 31

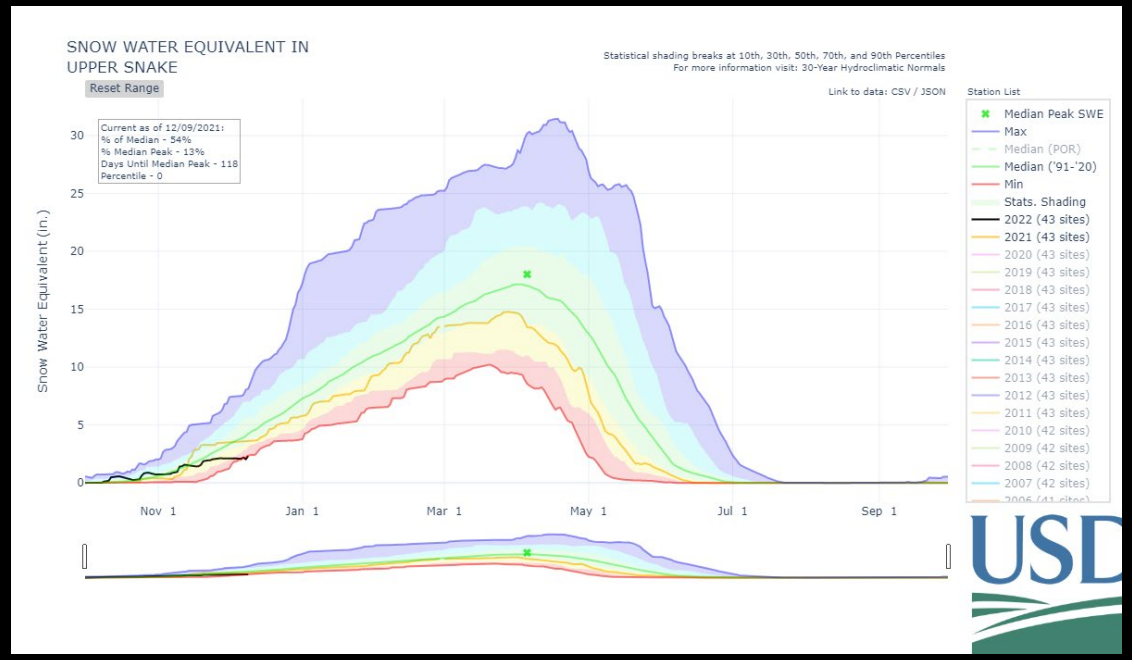


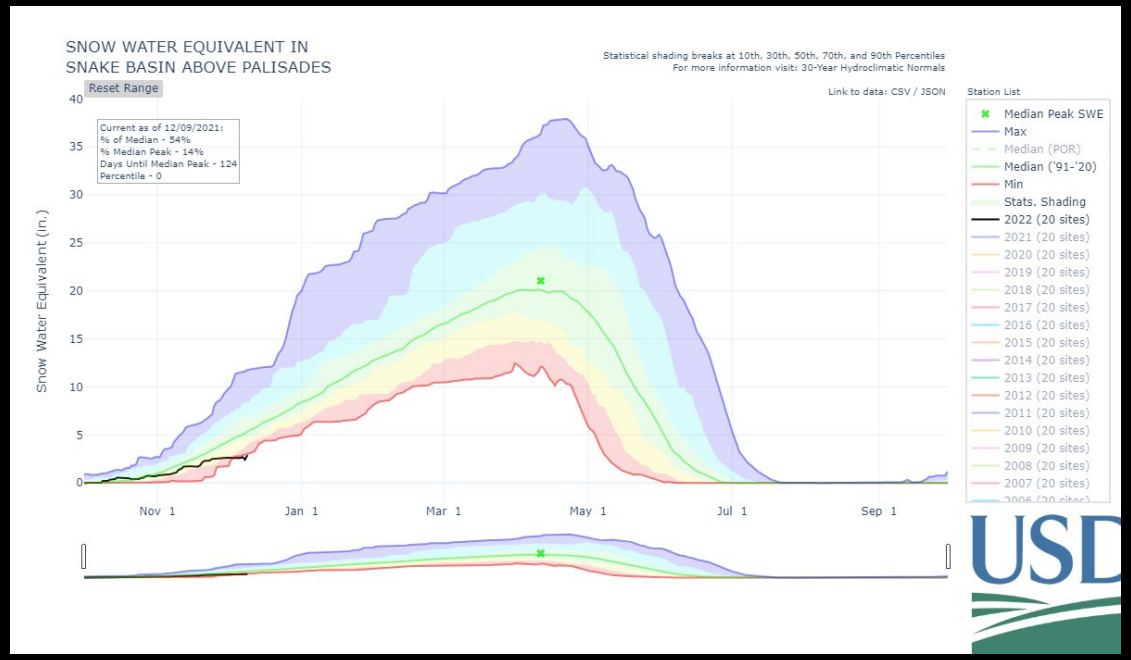
November 30



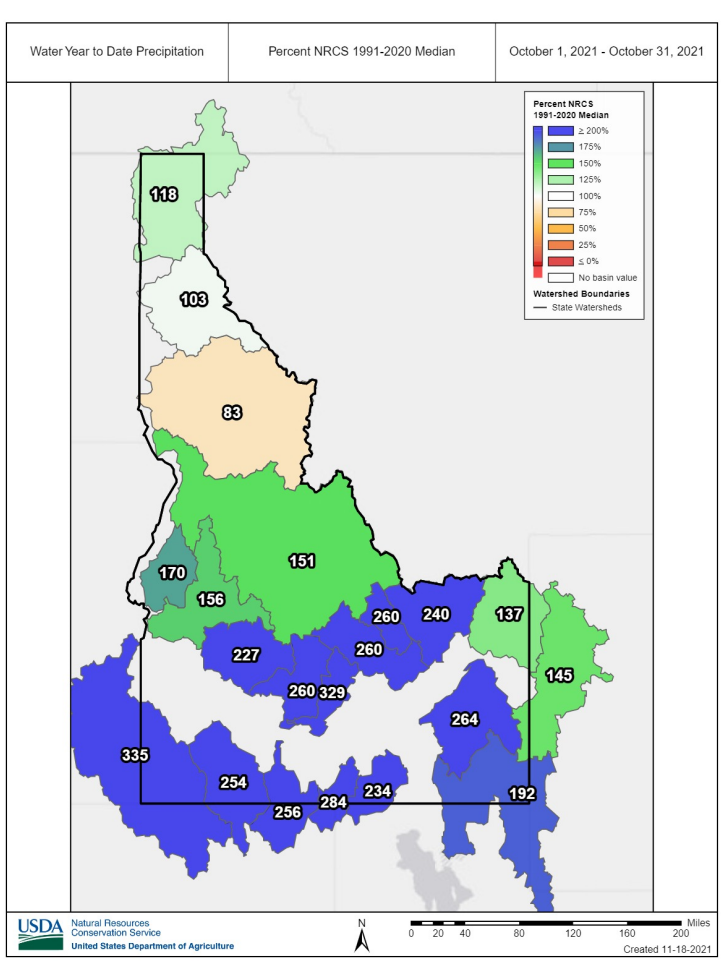
December 9



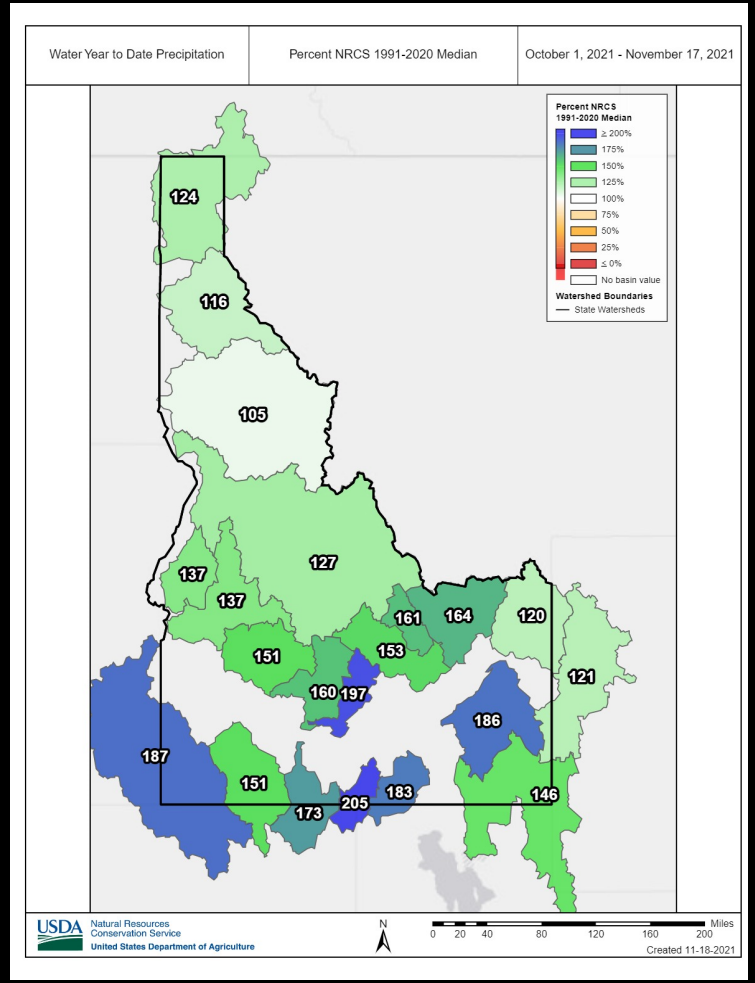

SNOW WATER EQUIVALENT IN
UPPER SNAKE
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles
For more information visit: 30-Year Hydroclimatic Normals
Reset Range
Link to data: CSV / JSON
Station List
Current as of 12/09/2021:
% of Median - 54%
% Median Peak - 13%
Days Until Median Peak - 118
Percentile - 0
Snow Water Equivalent (in.)
0
5
10
15
20
25
30
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Median Peak SWE
Max
Median (POR)
Median ('91-'20)
Min
Stats. Shading
2022 (43 sites)
2021 (43 sites)
2020 (43 sites)
2019 (43 sites)
2018 (43 sites)
2017 (43 sites)
2016 (43 sites)
2015 (43 sites)
2014 (43 sites)
2013 (43 sites)
2012 (43 sites)
2011 (43 sites)
2010 (42 sites)
2009 (42 sites)
2008 (42 sites)
2007 (42 sites)


SNOW WATER EQUIVALENT IN
SNAKE BASIN ABOVE PALISADES
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles
For more information visit: 30-Year Hydroclimatic Normals
Reset Range
Link to data: CSV / JSON
Station List
Current as of 12/09/2021:
% of Median - 54%
% Median Peak - 14%
Days Until Median Peak - 124
Percentile - 0
Snow Water Equivalent (in.)
0
5
10
15
20
25
30
35
40
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Median Peak SWE
Max
Median (POR)
Median ('91-'20)
Min
Stats. Shading
2022 (20 sites)
2021 (20 sites)
2020 (20 sites)
2019 (20 sites)
2018 (20 sites)
2017 (20 sites)
2016 (20 sites)
2015 (20 sites)
2014 (20 sites)
2013 (20 sites)
2012 (20 sites)
2011 (20 sites)
2010 (20 sites)
2009 (20 sites)
2008 (20 sites)
2007 (20 sites)

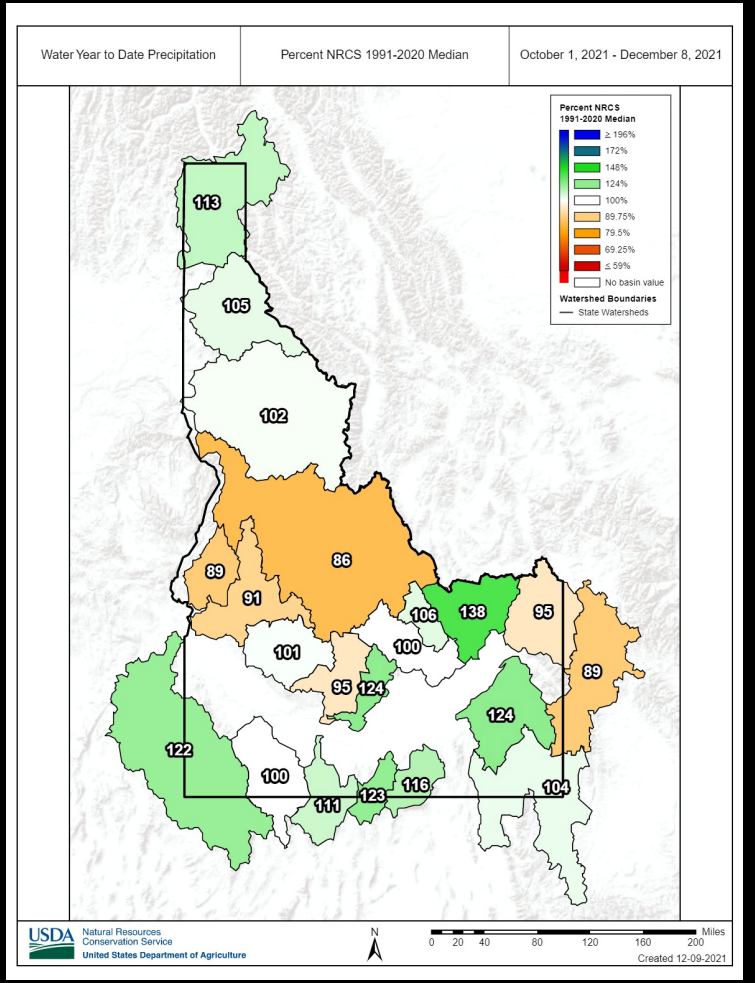
October 31

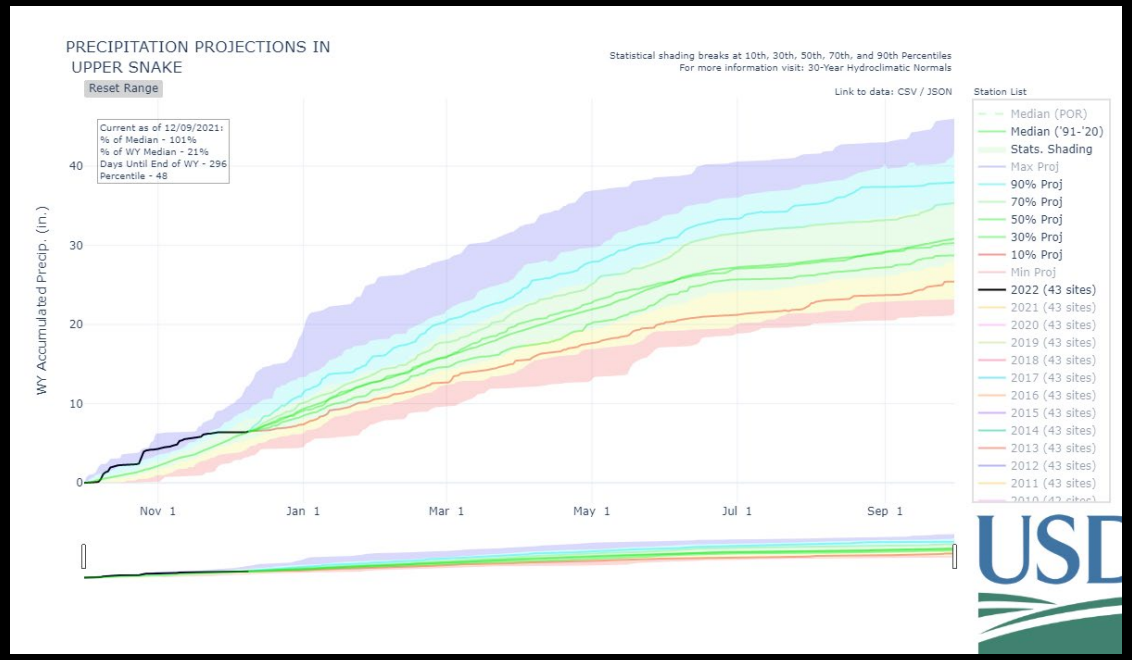


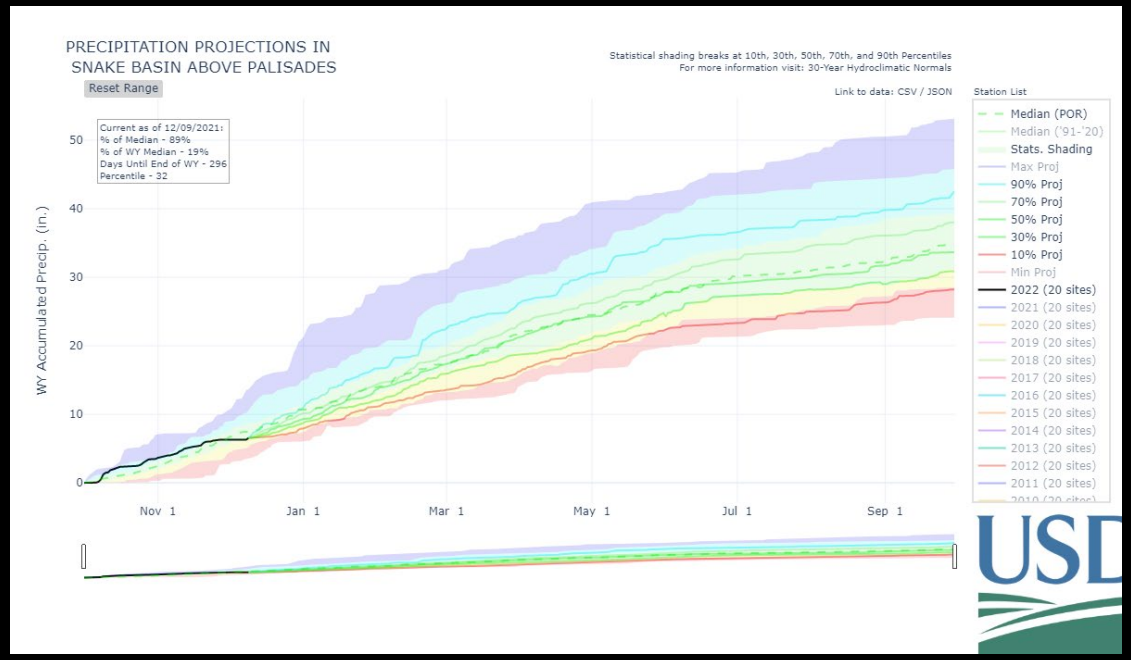
November 17



December 8

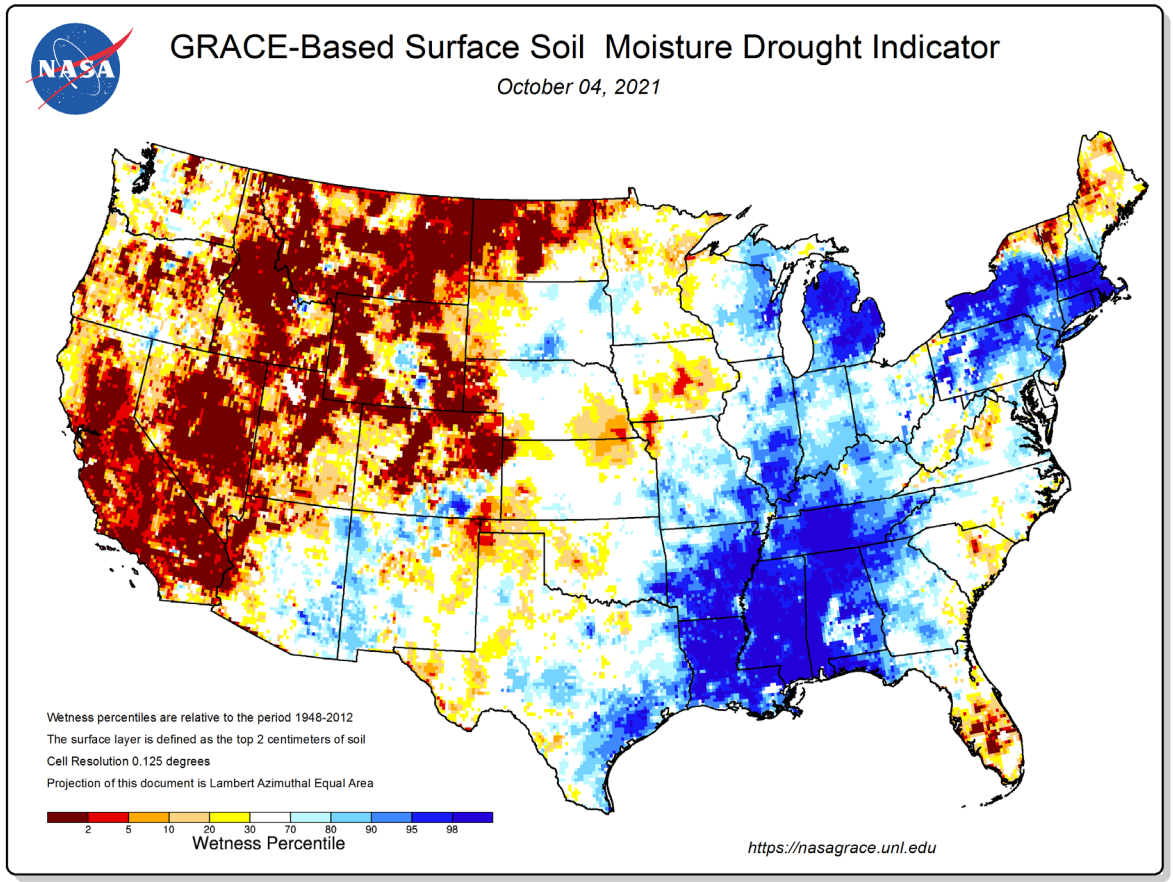


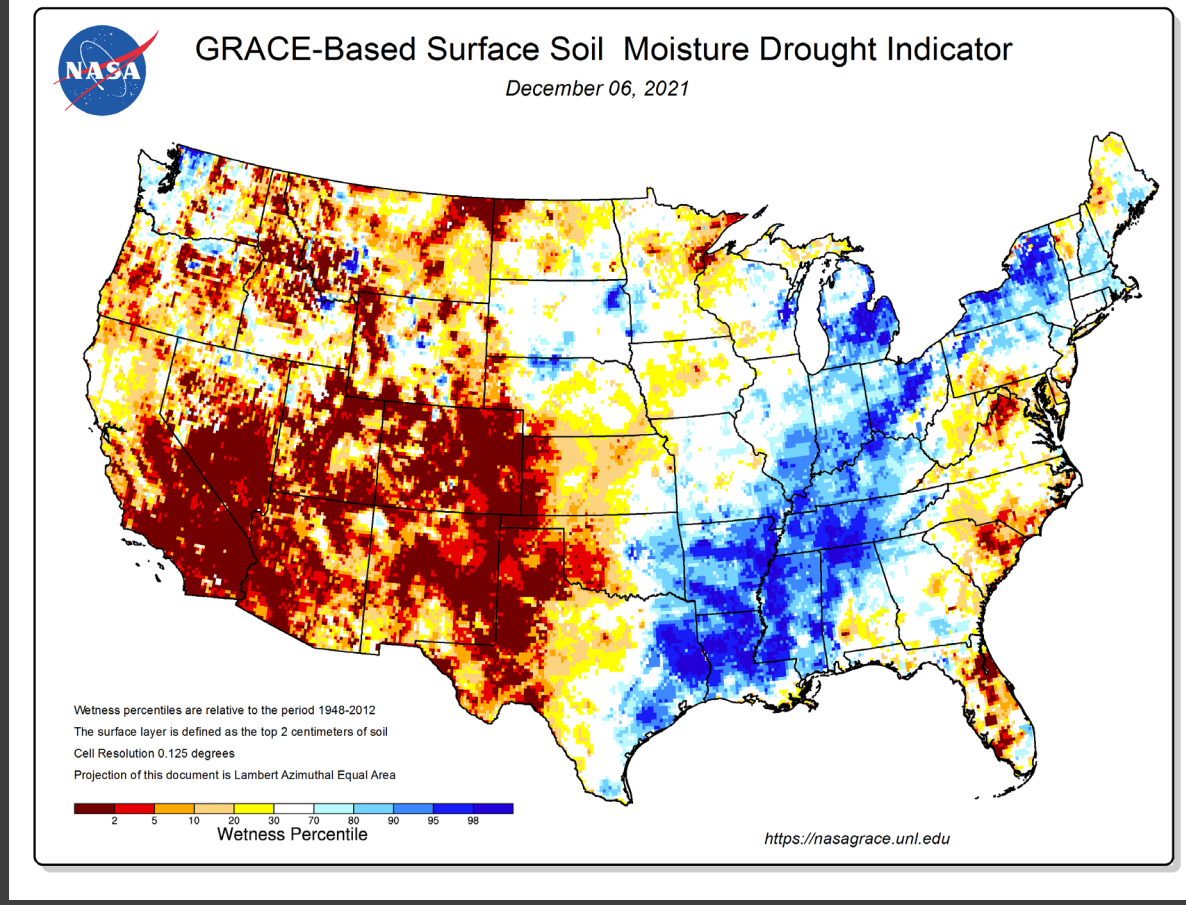

PRECIPITATION PROJECTIONS IN
UPPER SNAKE
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles
For more information visit: 30-Year Hydroclimatic Normals
Reset Range
Link to data: CSV / JSON
Station List
Current as of 12/09/2021:
% of Median - 101%
% of WY Median - 21%
Days Until End of WY - 296
Percentile - 48
WY Accumulated Precip. (in.)
0
10
20
30
40
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Median (POR)
Median ('91-'20)
Stats. Shading
Max Proj
90% Proj
70% Proj
50% Proj
30% Proj
10% Proj
Min Proj
2022 (43 sites)
2021 (43 sites)
2020 (43 sites)
2019 (43 sites)
2018 (43 sites)
2017 (43 sites)
2016 (43 sites)
2015 (43 sites)
2014 (43 sites)
2013 (43 sites)
2012 (43 sites)
2011 (43 sites)

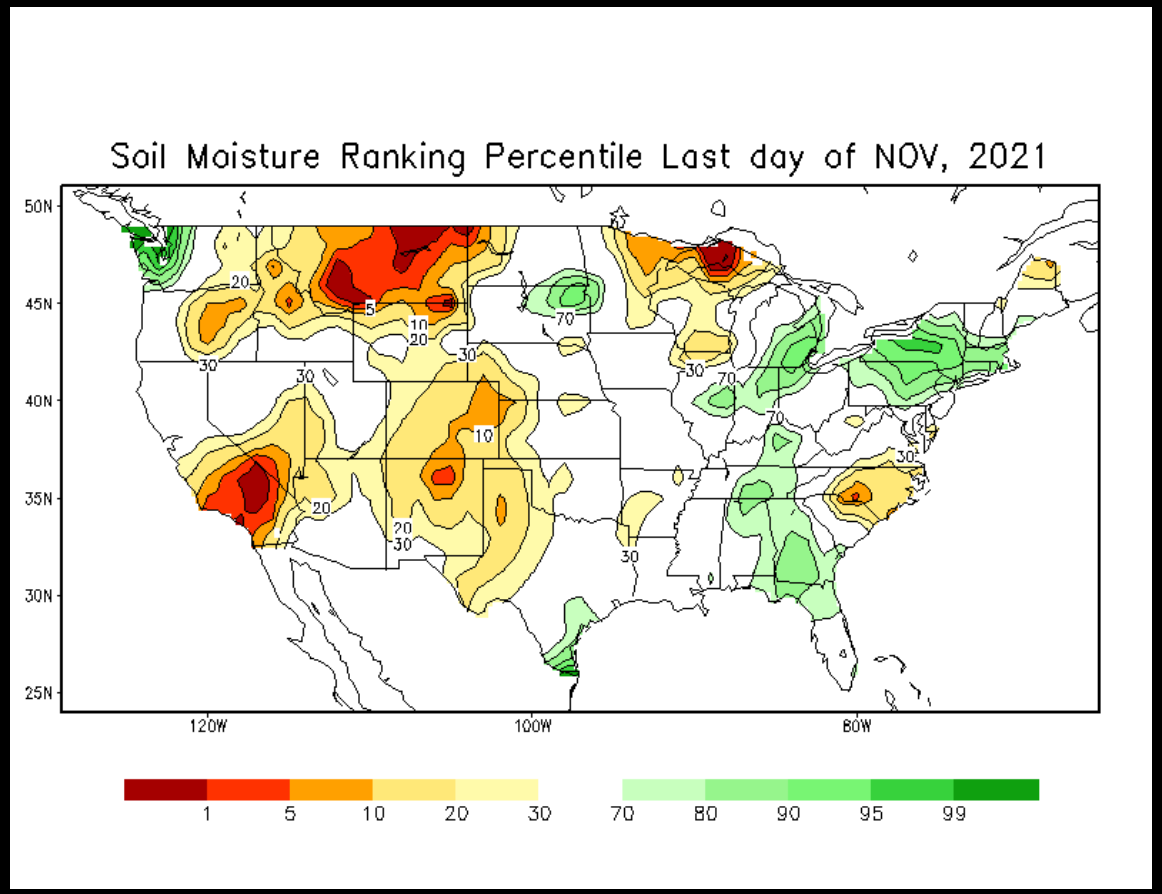

PRECIPITATION PROJECTIONS IN
SNAKE BASIN ABOVE PALISADES
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles
For more information visit: 30-Year Hydroclimatic Normals
Reset Range
Link to data: CSV / JSON
Station List
Current as of 12/09/2021:
% of Median - 89%
% of WY Median - 19%
Days Until End of WY - 296
Percentile - 32
WY Accumulated Precip. (in.)
0
10
20
30
40
50
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Median (POR)
Median ('91-'20)
Stats. Shading
Max Proj
90% Proj
70% Proj
50% Proj
30% Proj
10% Proj
Min Proj
2022 (20 sites)
2021 (20 sites)
2020 (20 sites)
2019 (20 sites)
2018 (20 sites)
2017 (20 sites)
2016 (20 sites)
2015 (20 sites)
2014 (20 sites)
2013 (20 sites)
2012 (20 sites)
2011 (20 sites)

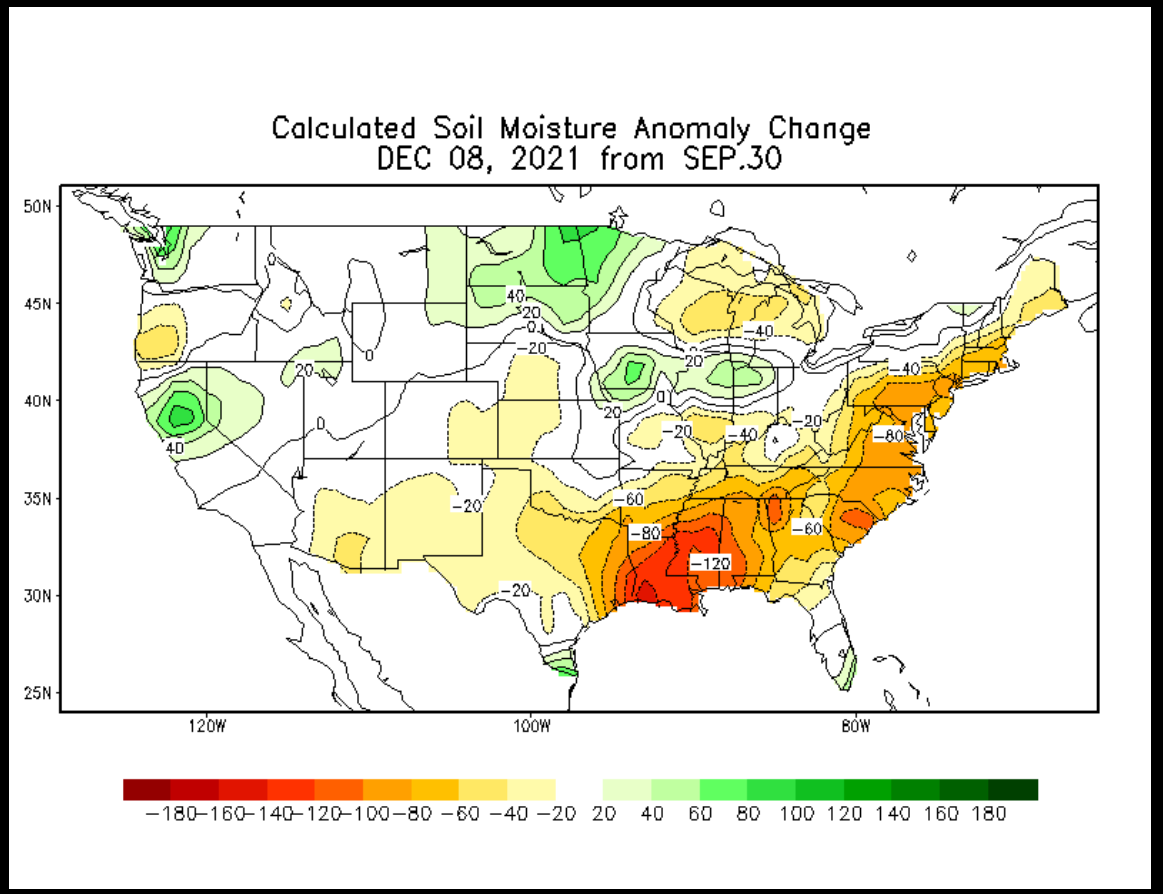
Surface soil moisture conditions

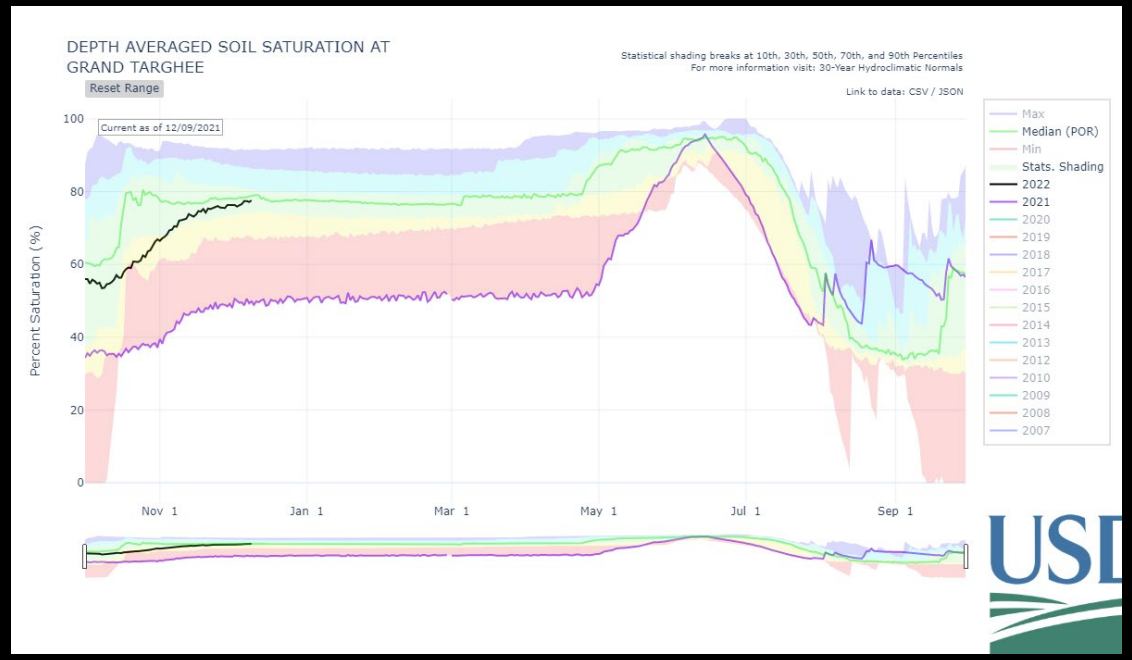
October 4 versus December 6

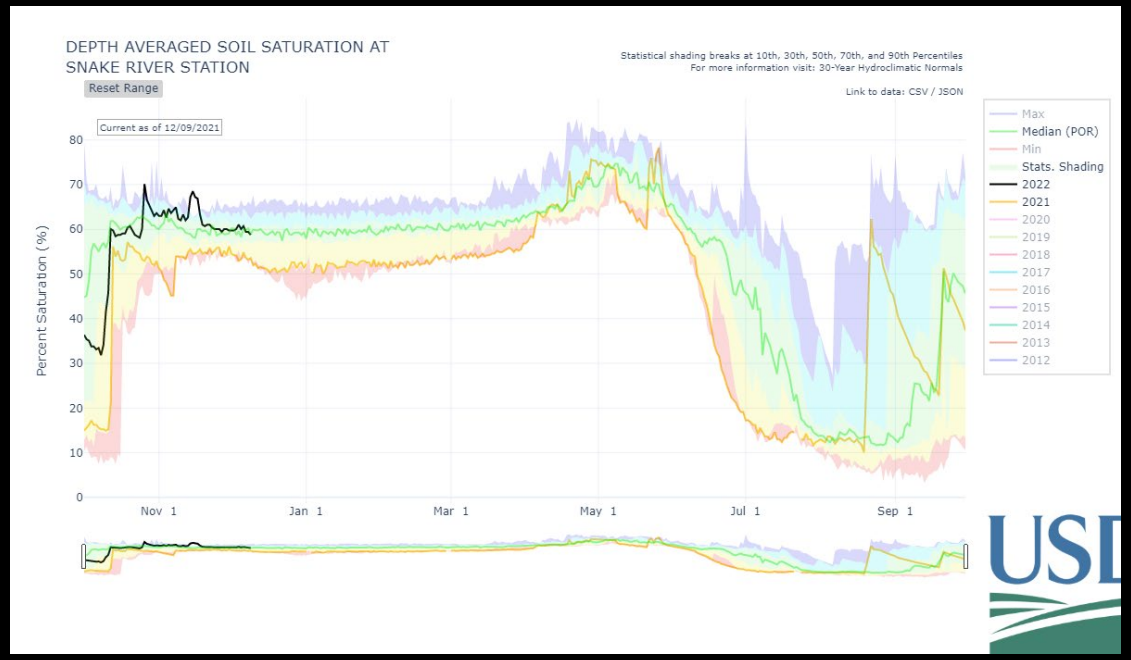





Soil Moisture Ranking Percentile Last day of NOV, 2021
50N
45N
40N
35N
30N
25N
120W
100W
80W
1
5
10
20
30
70
80
90
95
99

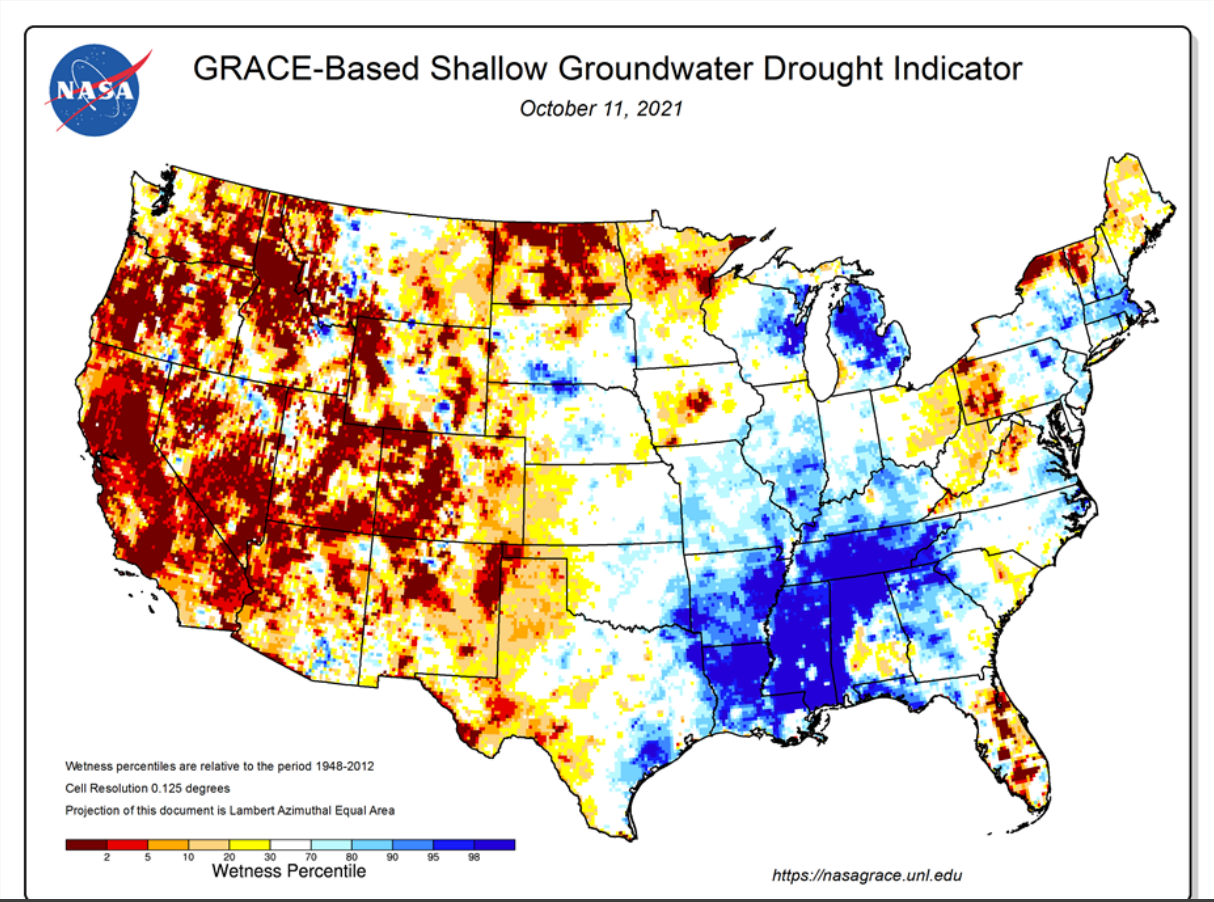

Calculated Soil Moisture Anomaly Change
DEC 08, 2021 from SEP.30
50N
45N
40N
35N
30N
25N
120W
100W
80W
−180 −160 −140 −120 −100 −80 −60 −40 −20 20 40 60 80 100 120 140 160 180

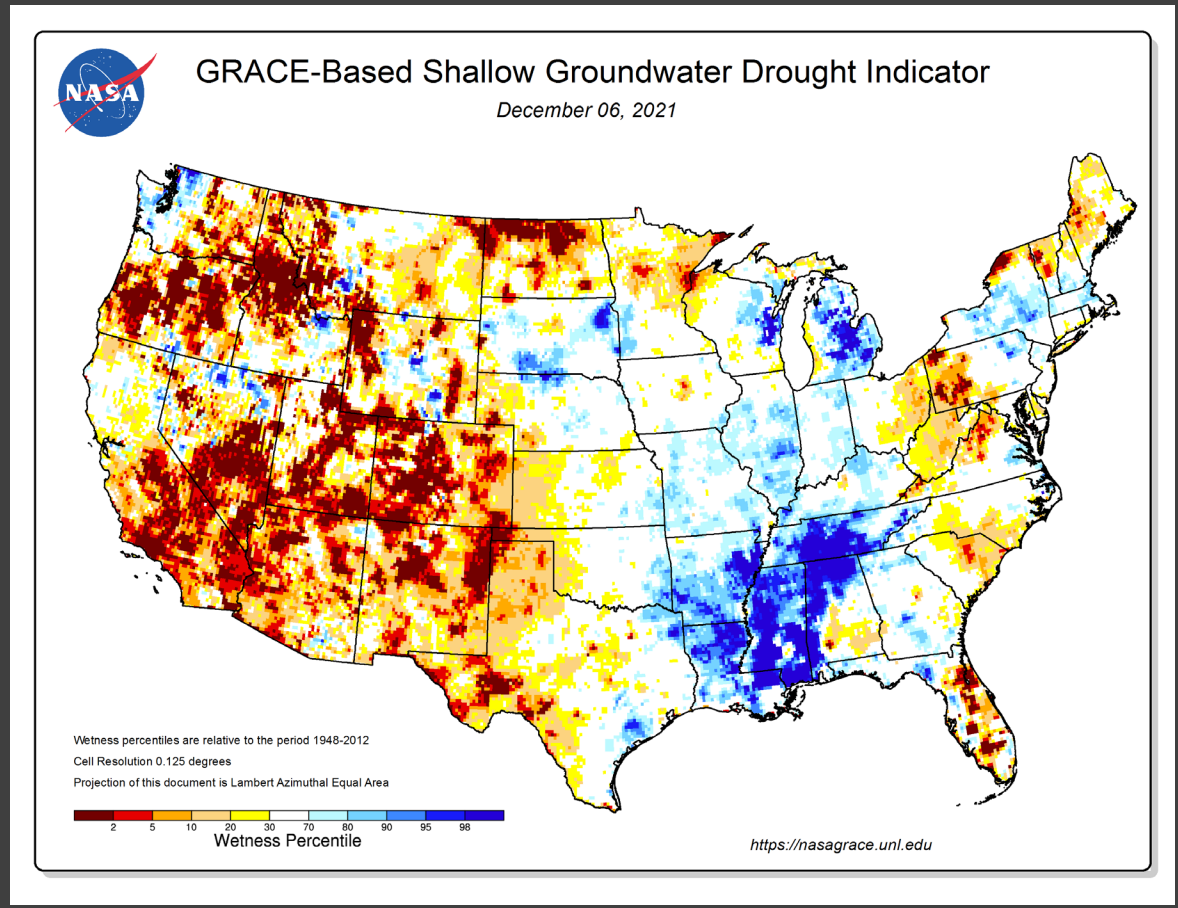

DEPTH AVERAGED SOIL SATURATION AT
GRAND TARGHEE
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles
For more information visit: 30-Year Hydroclimatic Normals
Reset Range
Link to data: CSV / JSON
Current as of 12/09/2021
Percent Saturation (%)
100
80
60
40
20
0
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Max
Median (POR)
Min
Stats. Shading
2022
2021
2020
2019
2018
2017
2016
2015
2014
2013
2012
2010
2009
2008
2007


DEPTH AVERAGED SOIL SATURATION AT
SNAKE RIVER STATION
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles
For more information visit: 30-Year Hydroclimatic Normals
Reset Range
Link to data: CSV / JSON
Current as of 12/09/2021
Percent Saturation (%)
80
70
60
50
40
30
20
10
0
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Max
Median (POR)
Min
Stats. Shading
2022
2021
2020
2019
2018
2017
2016
2015
2014
2013
2012

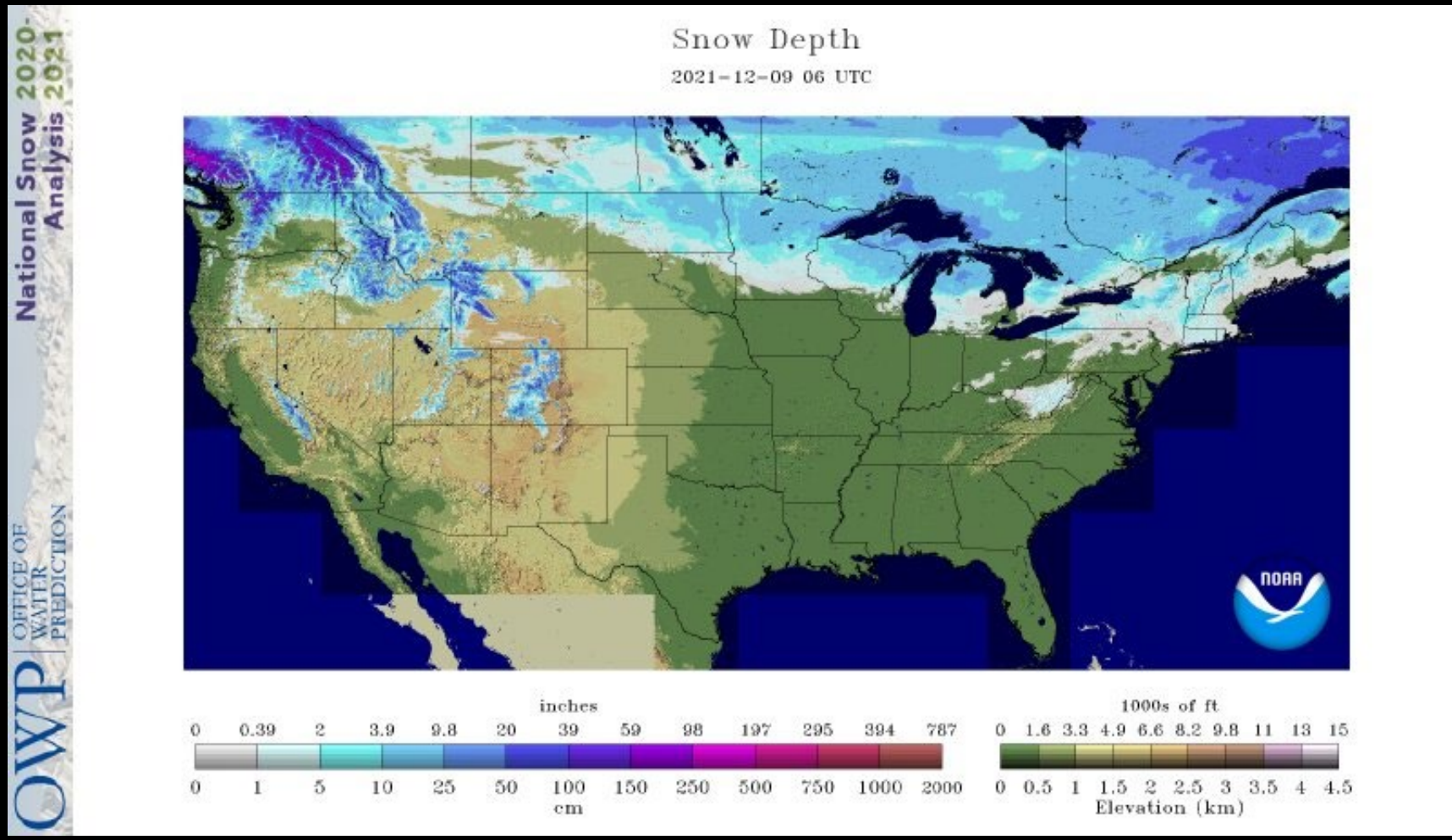
Shallow groundwater conditions

October 11 versus December 6

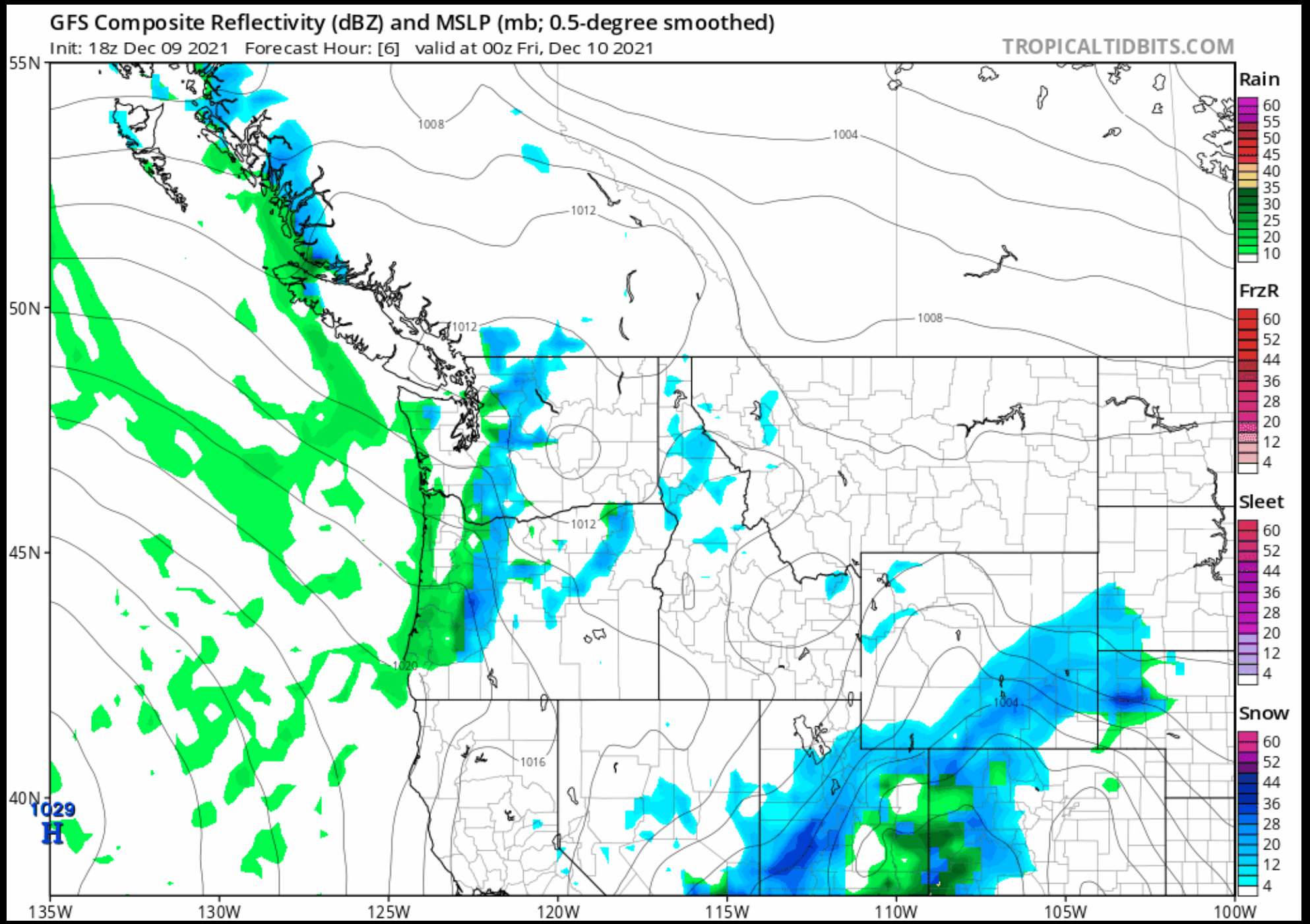


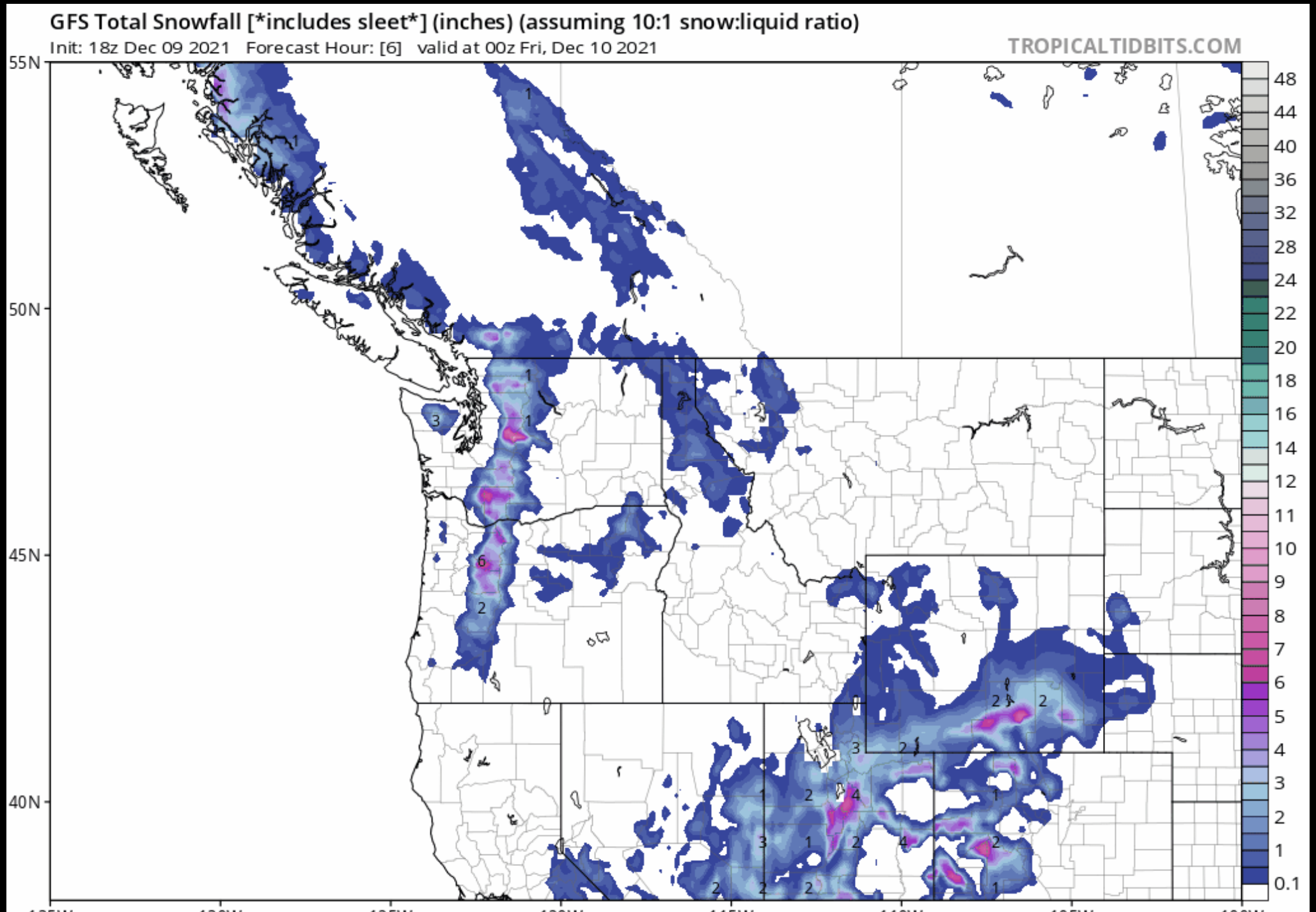


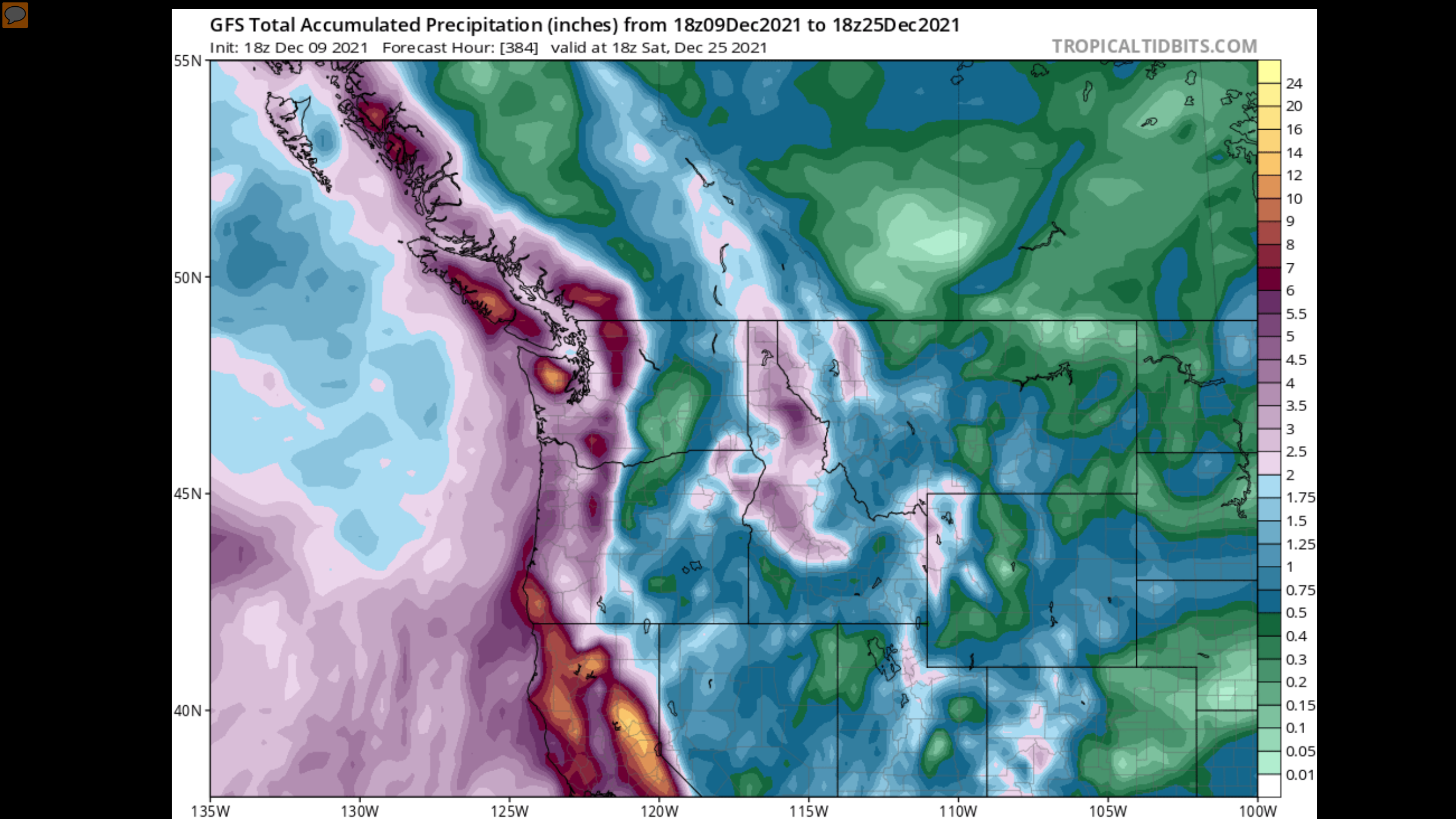
Snowfall across the West



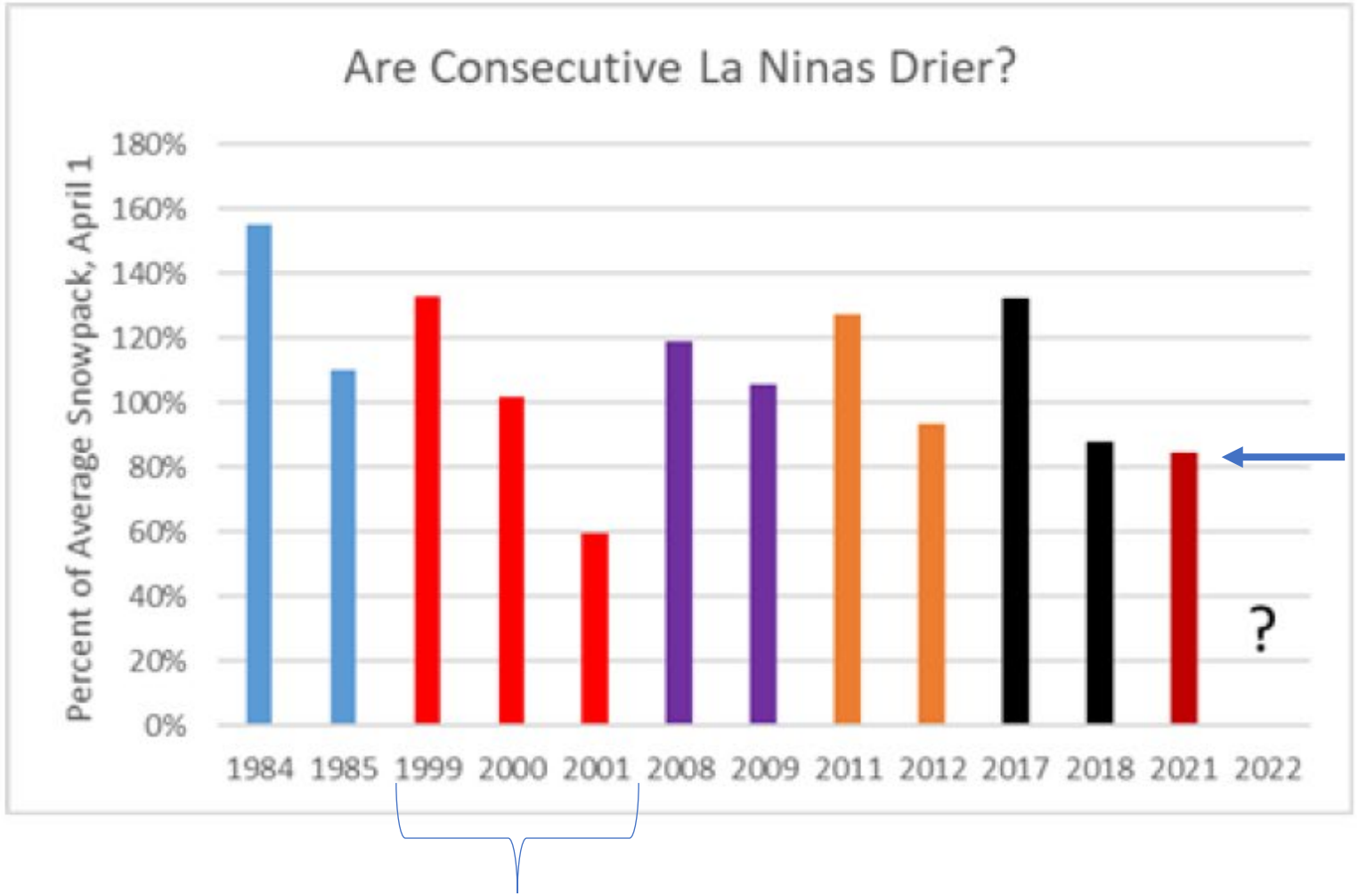
NRCS

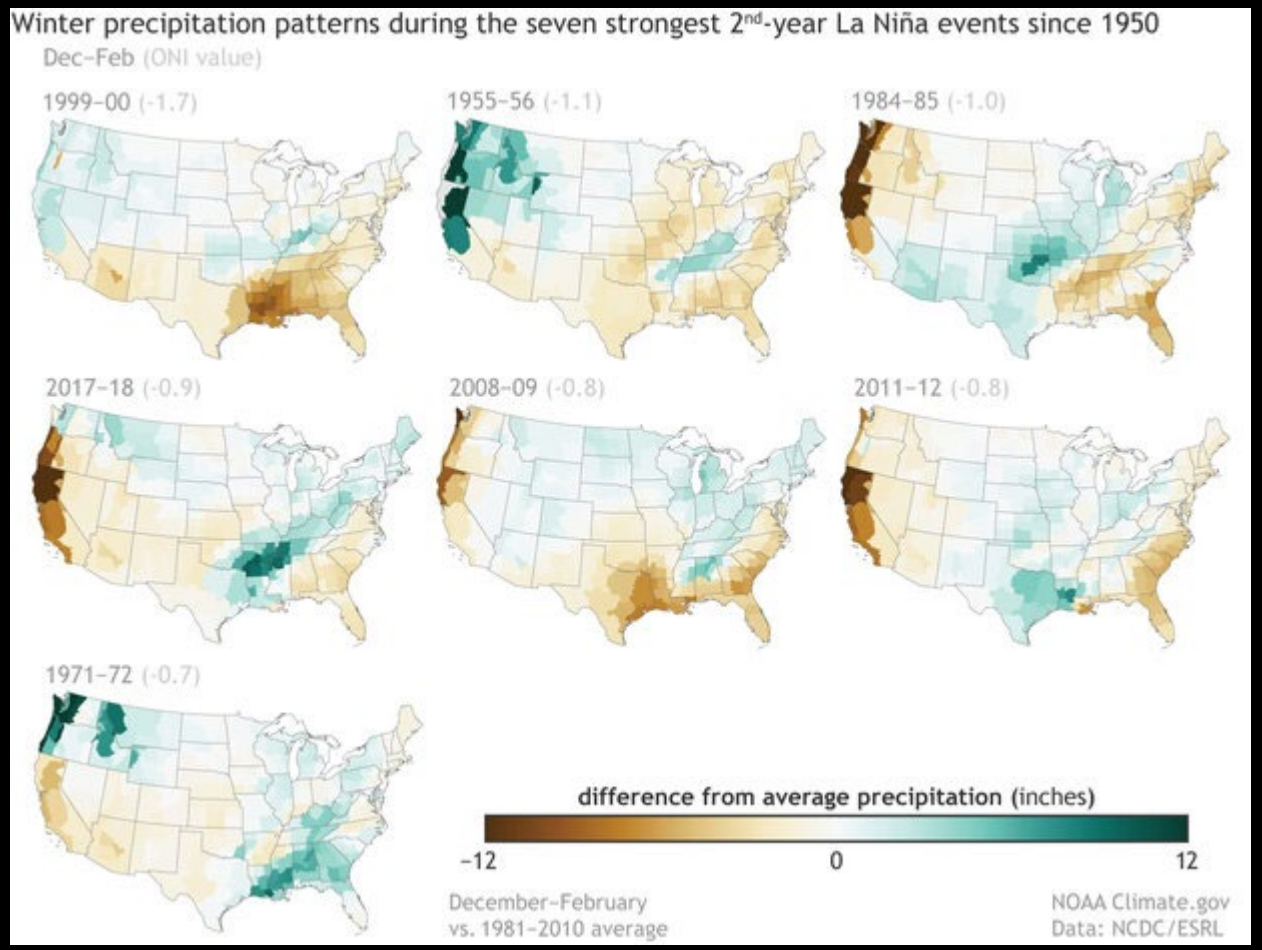

GFS Composite Reflectivity (dBZ) and MSLP (mb; 0.5-degree smoothed)
Init: 18z Dec 09 2021 Forecast Hour: [6] valid at 00z Fri, Dec 10 2021
TROPICALTIDBITS.COM
55N
50N
45N
40N
135W
130W
125W
120W
115W
110W
105W
100W
1008
1004
1012
1012
1008
1012
1020
1004
1016
1029
H
Rain
60
55
50
45
40
35
30
25
20
10
FrzR
60
52
44
36
28
20
12
4
Sleet
60
52
44
36
28
20
12
4
Snow
60
52
44
36
28
20
12
4

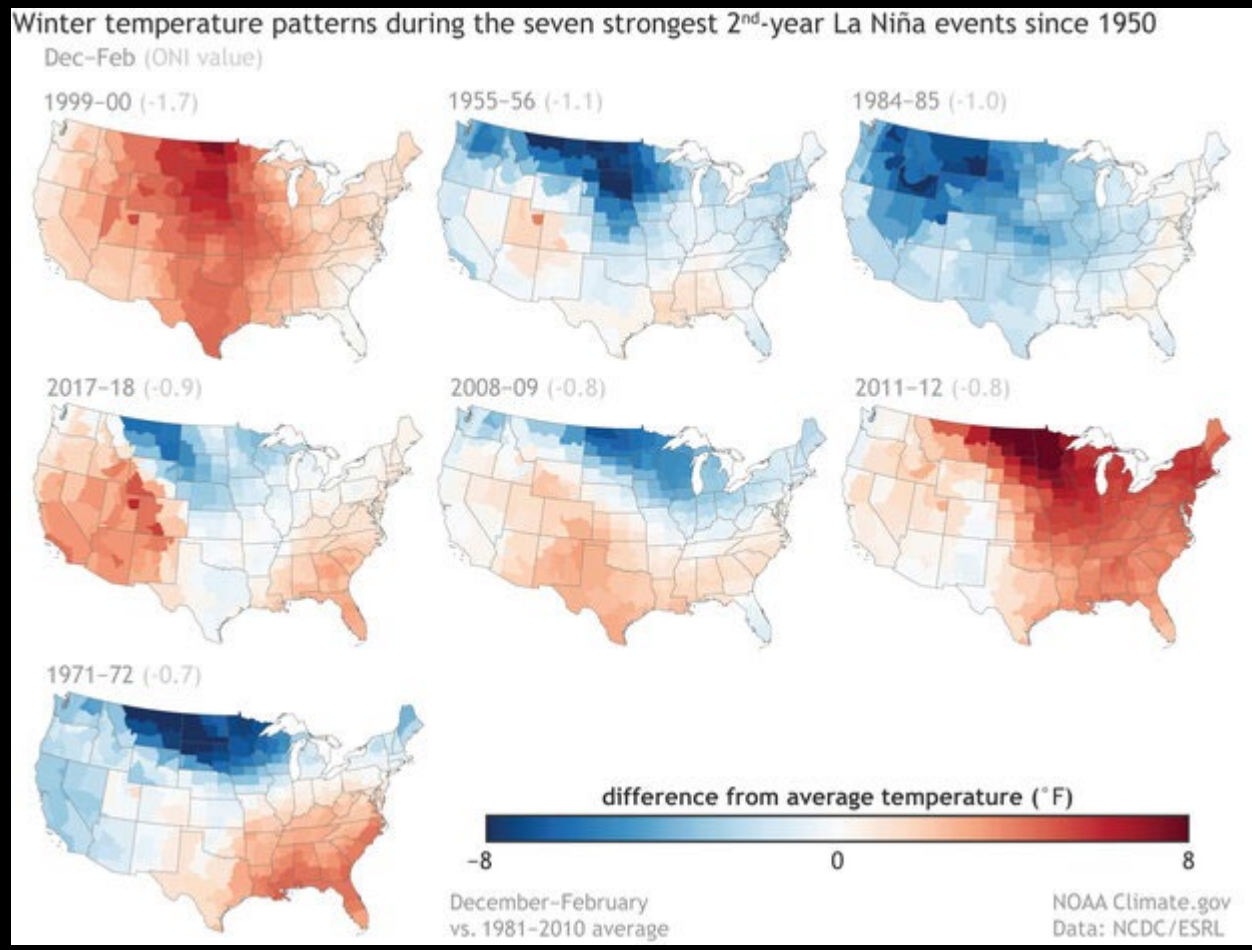

GFS Total Snowfall [*includes sleet*] (inches) (assuming 10:1 snow:liquid ratio)
Init: 18z Dec 09 2021 Forecast Hour: [6] valid at 00z Fri, Dec 10 2021
TROPICALTIDBITS.COM
55N
50N
45N
40N
48
44
40
36
32
28
24
22
20
18
16
14
12
11
10
9
8
7
6
5
4
3
2
1
0.1


GFS Total Accumulated Precipitation (inches) from 18z09Dec2021 to 18z25Dec2021
Init: 18z Dec 09 2021 Forecast Hour: [384] valid at 18z Sat, Dec 25 2021
TROPICALTIDBITS.COM
55N
50N
45N
40N
135W
130W
125W
120W
115W
110W
105W
100W
24
20
16
14
12
10
9
8
7
6
5.5
5
4.5
4
3.5
3
2.5
2
1.75
1.5
1.25
1
0.75
0.5
0.4
0.3
0.2
0.15
0.1
0.05
0.01

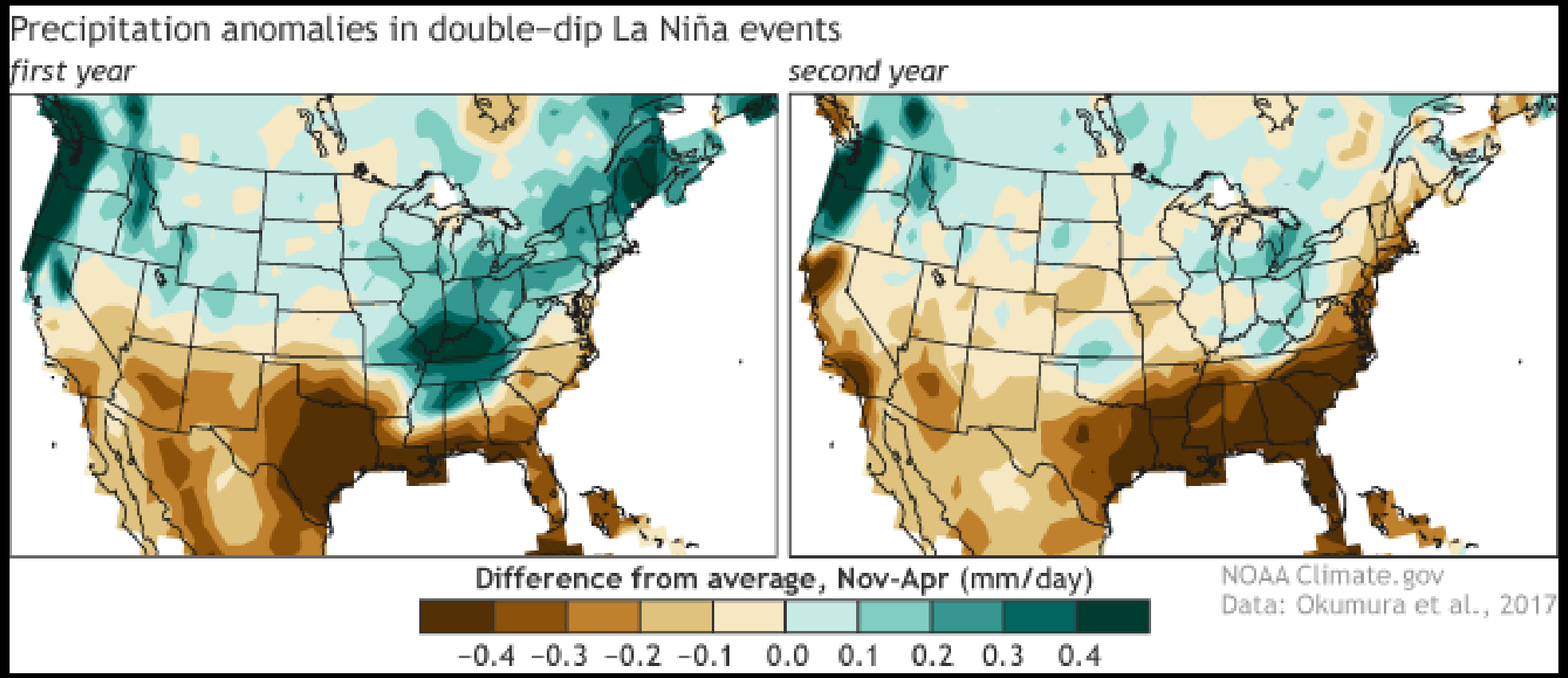
Are Successive La Ninas Drier?





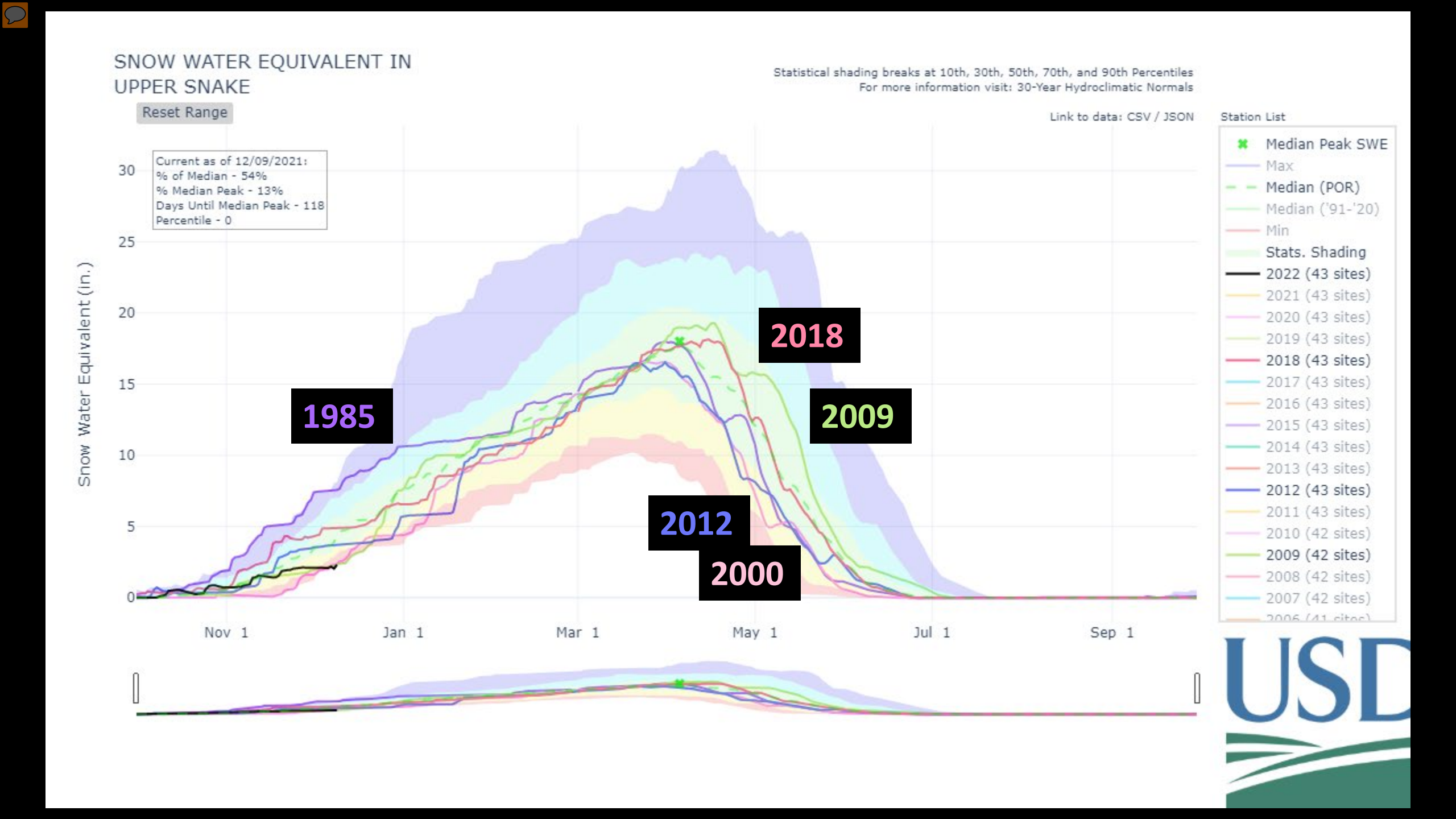


https://www.climate.gov/news-features/blogs/enso/what-expect-winter-noaa%E2%80%99s-2021-22-winter-outlook

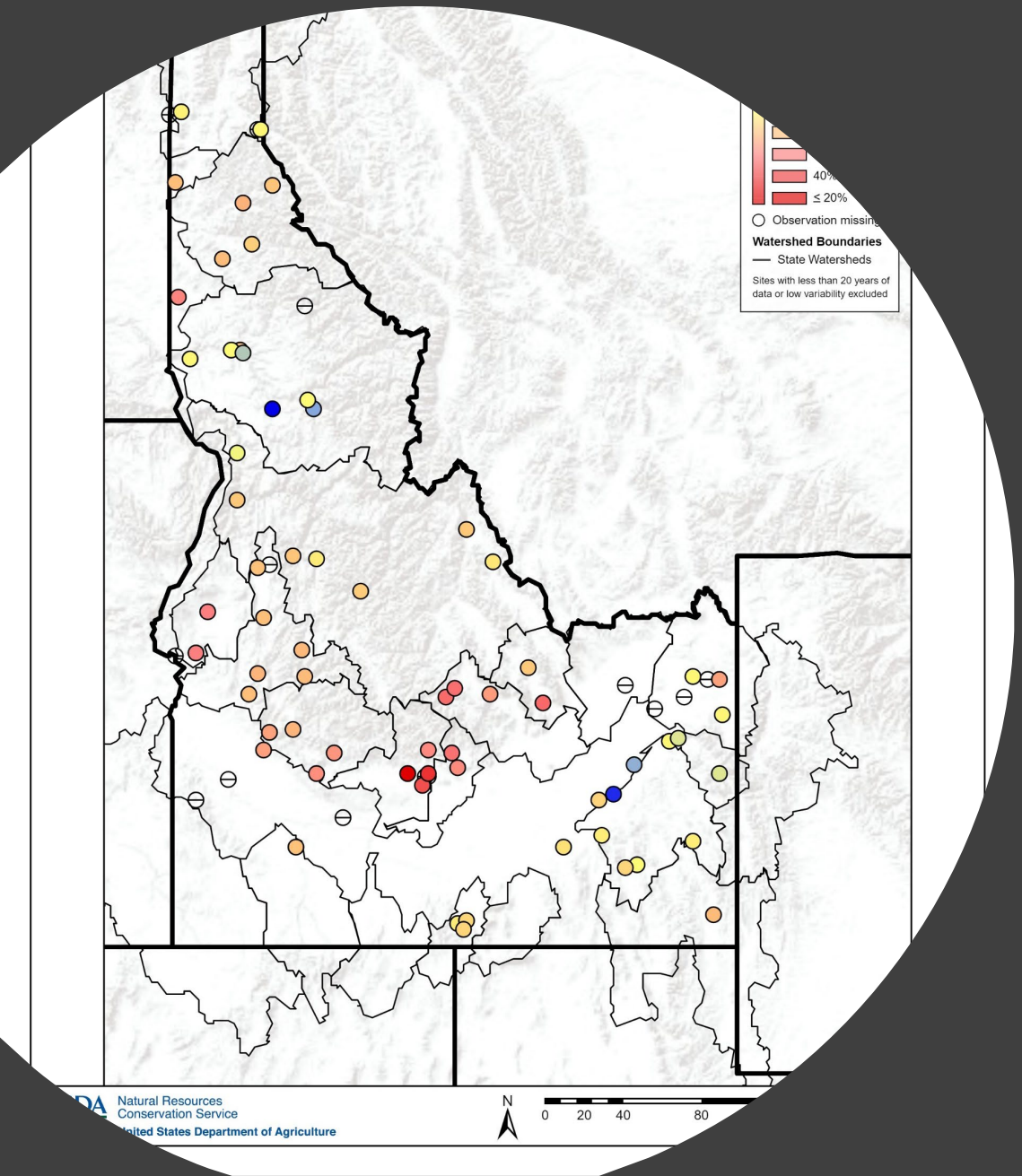


Average November – April precipitation anomalies (mm/day) for the (left) first extended winter and (right) second extended winter of all multi-level La Niñas since 1900. Anomalies are the difference from the long-term (1900-2012) average, with the linear trend removed. Climate.gov figure from GPCC data and adapted from Okumura et al. (2017).

https://www.climate.gov/news-features/blogs/enso/more-us-drought-second-year-la-ni%C3%B1a


SNOW WATER EQUIVALENT IN UPPER SNAKE
Reset Range
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles
For more information visit: 30-Year Hydroclimatic Normals
Link to data: CSV / JSON
Station List
Current as of 12/09/2021:
% of Median - 54%
% Median Peak - 13%
Days Until Median Peak - 118
Percentile - 0
Snow Water Equivalent (in.)
30
25
20
15
10
5
0
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
1985
2018
2009
2012
2000
Median Peak SWE
Max
Median (POR)
Median ('91-'20)
Min
Stats. Shading
2022 (43 sites)
2021 (43 sites)
2020 (43 sites)
2019 (43 sites)
2018 (43 sites)
2017 (43 sites)
2016 (43 sites)
2015 (43 sites)
2014 (43 sites)
2013 (43 sites)
2012 (43 sites)
2011 (43 sites)
2010 (42 sites)
2009 (42 sites)
2008 (42 sites)
2007 (42 sites)

Thank you!



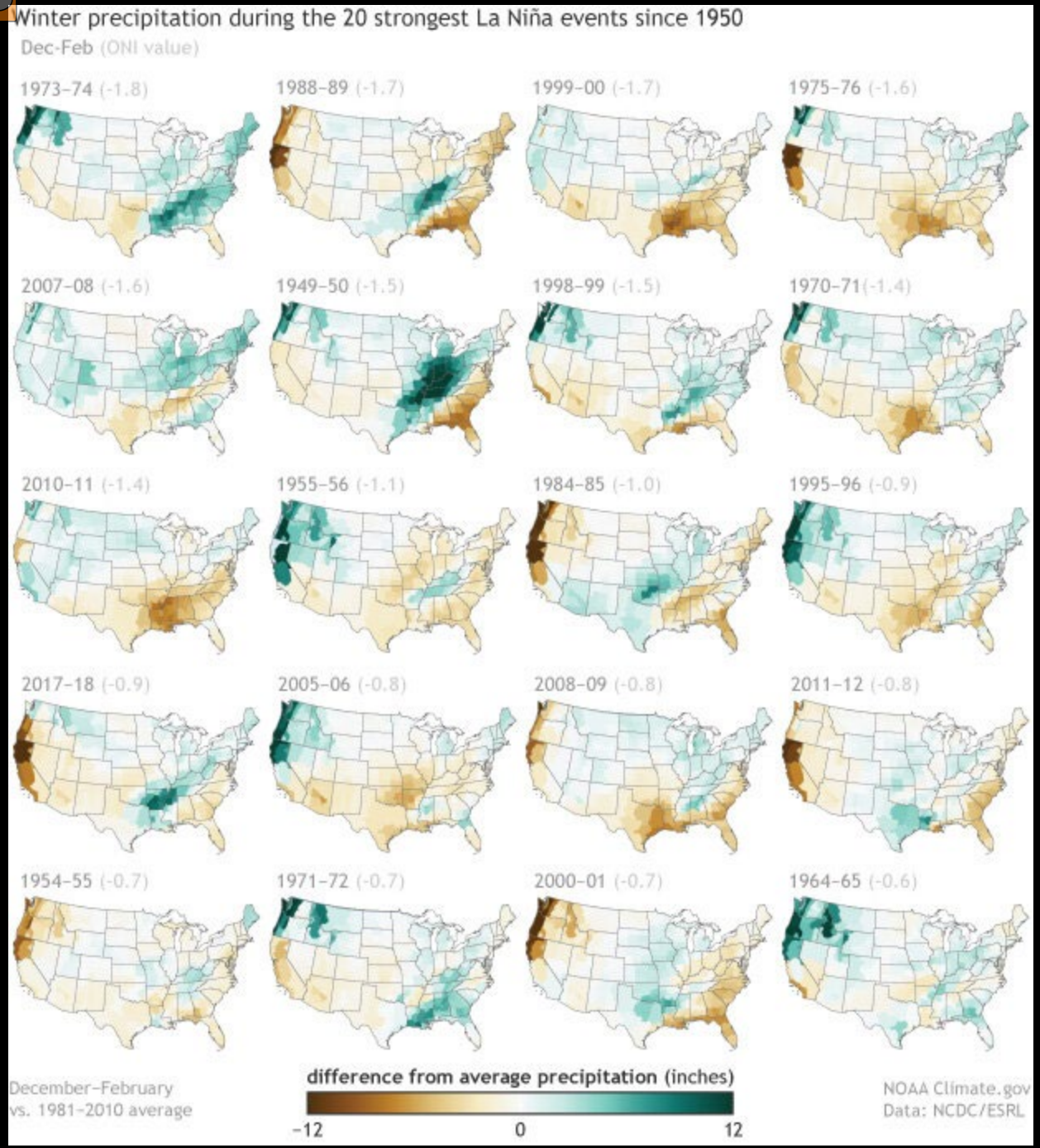
Idaho Snow Survey - NRCS

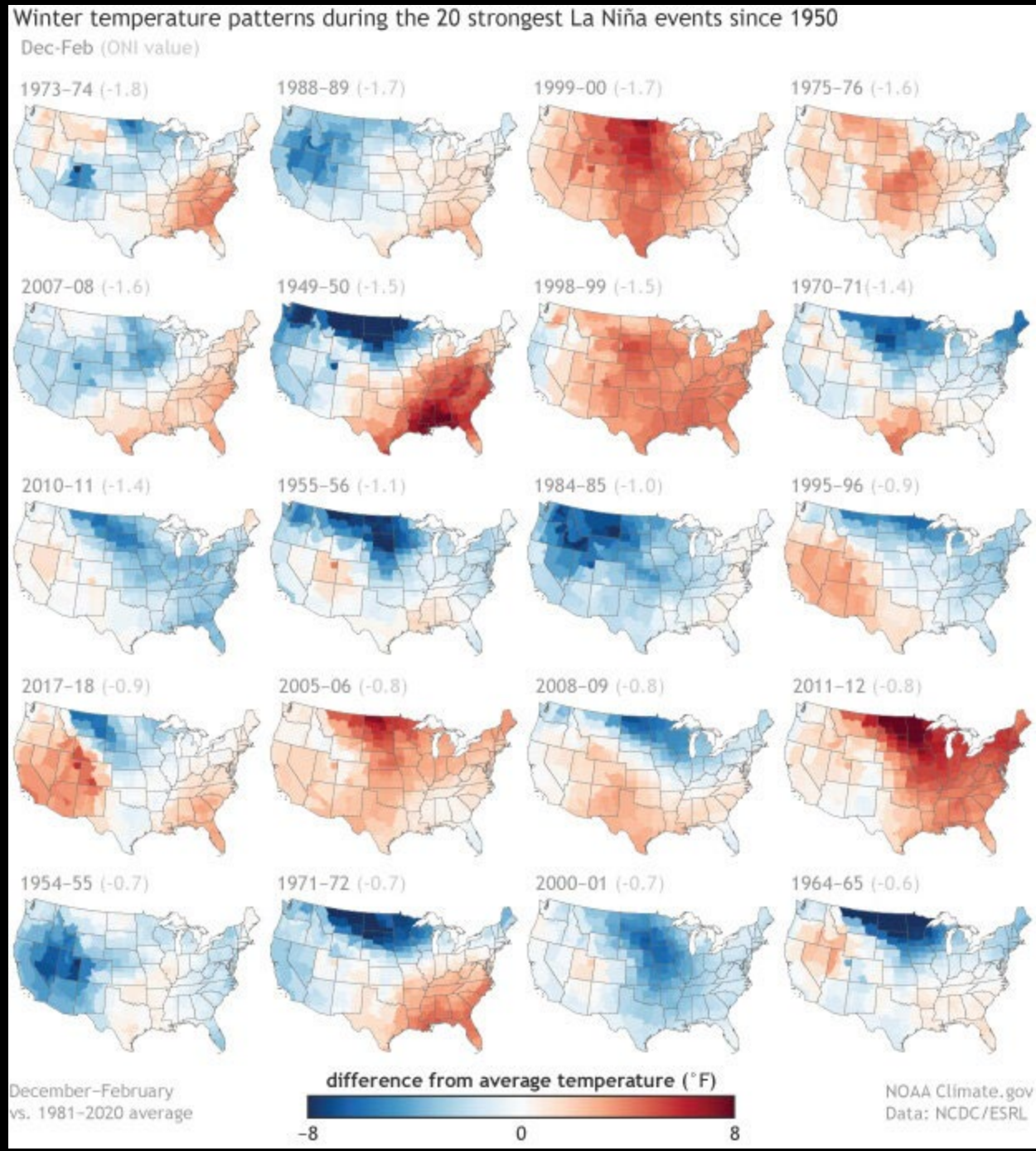
Erin Whorton

erin.whorton@usda.gov

208-685-6983

NRCS

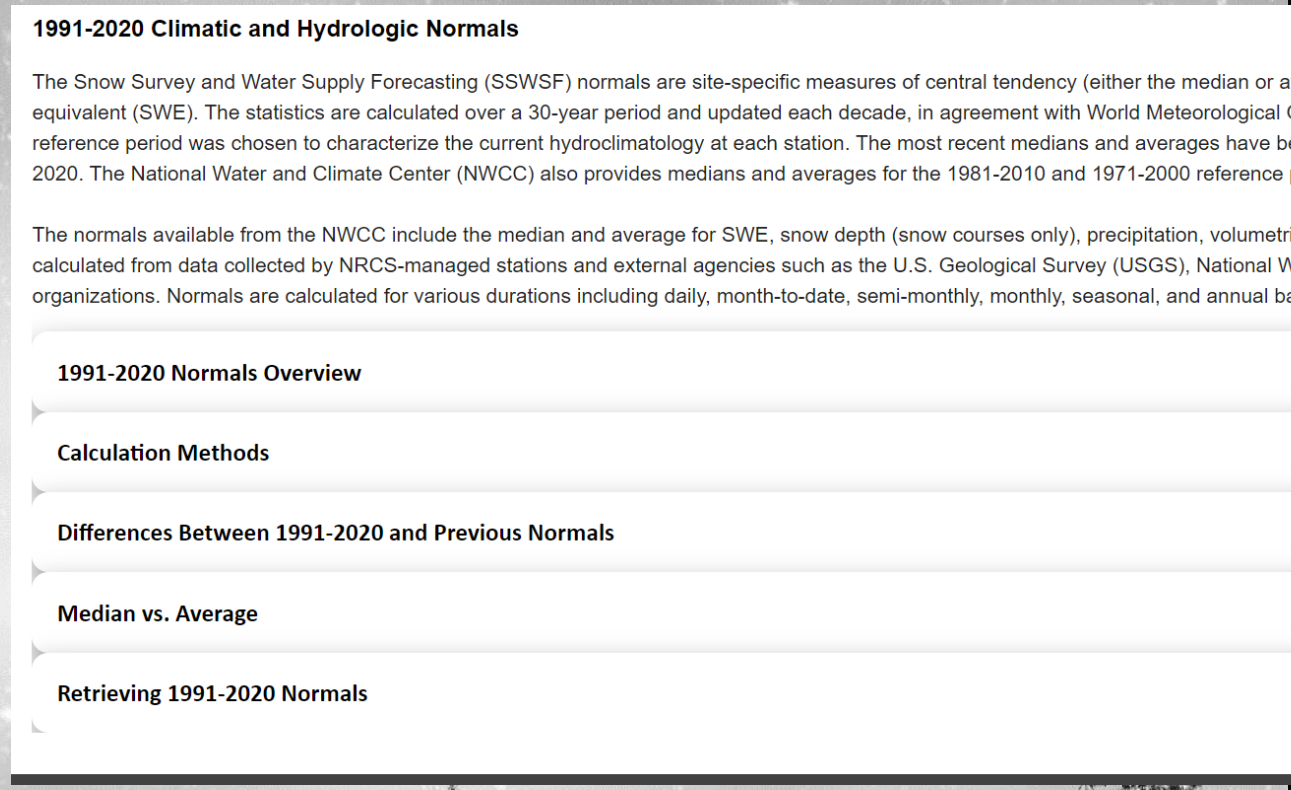

Winter precipitation during the 20 strongest La Niña events since 1950
Dec-Feb (ONI value)
1973–74 (-1.8)
1988–89 (-1.7)
1999–00 (-1.7)
1975–76 (-1.6)
2007–08 (-1.6)
1949–50 (-1.5)
1998–99 (-1.5)
1970–71(-1.4)
2010–11 (-1.4)
1955–56 (-1.1)
1984–85 (-1.0)
1995–96 (-0.9)
2017–18 (-0.9)
2005–06 (-0.8)
2008–09 (-0.8)
2011–12 (-0.8)
1954–55 (-0.7)
1971–72 (-0.7)
2000–01 (-0.7)
1964–65 (-0.6)
December–February
vs. 1981–2010 average
difference from average precipitation (inches)
-12
0
12
NOAA Climate.gov
Data: NCDC/ESRL


Winter temperature patterns during the 20 strongest La Niña events since 1950
Dec-Feb (ONI value)
1973–74 (-1.8)
1988–89 (-1.7)
1999–00 (-1.7)
1975–76 (-1.6)
2007–08 (-1.6)
1949–50 (-1.5)
1998–99 (-1.5)
1970–71(-1.4)
2010–11 (-1.4)
1955–56 (-1.1)
1984–85 (-1.0)
1995–96 (-0.9)
2017–18 (-0.9)
2005–06 (-0.8)
2008–09 (-0.8)
2011–12 (-0.8)
1954–55 (-0.7)
1971–72 (-0.7)
2000–01 (-0.7)
1964–65 (-0.6)
December–February
vs. 1981–2020 average
difference from average temperature (°F)
-8
0
8
NOAA Climate.gov
Data: NCDC/ESRL

New 30-year hydroclimatic normals released on iMap

- New normal are now available on iMap and other NRCS products
  - Previous 30-year normal: 1981 – 2010
  - New normal period is: **1991 - 2020**

- For detailed information:
- https://www.nrcs.usda.gov/wps/portal/wcc/home/snowClimateMonitoring/30YearNormals/



1991-2020 Climatic and Hydrologic Normals

The Snow Survey and Water Supply Forecasting (SSWSF) normals are site-specific measures of central tendency (either the median or a
equivalent (SWE). The statistics are calculated over a 30-year period and updated each decade, in agreement with World Meteorological
reference period was chosen to characterize the current hydroclimatology at each station. The most recent medians and averages have b
2020. The National Water and Climate Center (NWCC) also provides medians and averages for the 1981-2010 and 1971-2000 reference

The normals available from the NWCC include the median and average for SWE, snow depth (snow courses only), precipitation, volumetri
calculated from data collected by NRCS-managed stations and external agencies such as the U.S. Geological Survey (USGS), National W
organizations. Normals are calculated for various durations including daily, month-to-date, semi-monthly, monthly, seasonal, and annual ba

1991-2020 Normals Overview

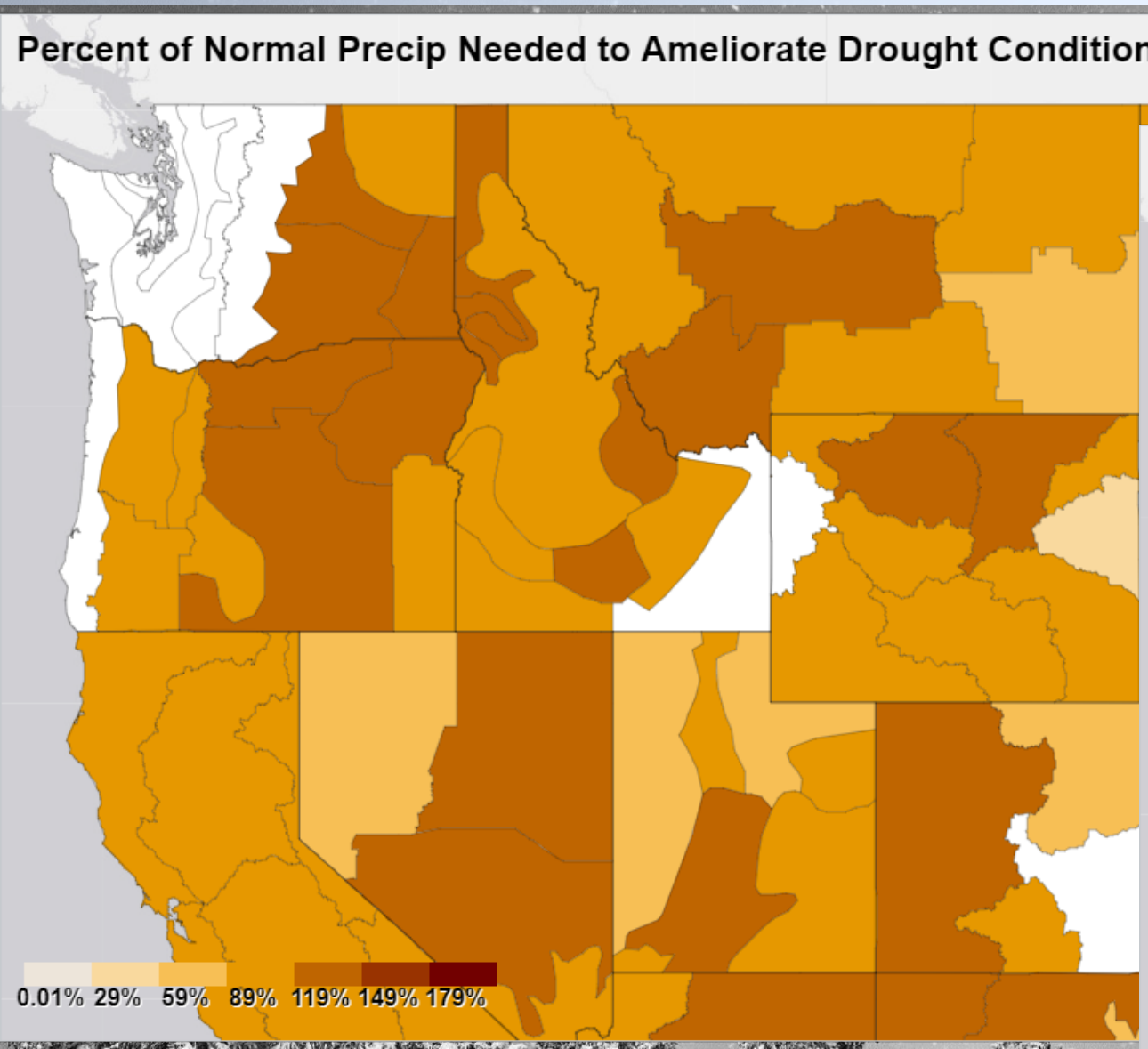
Calculation Methods

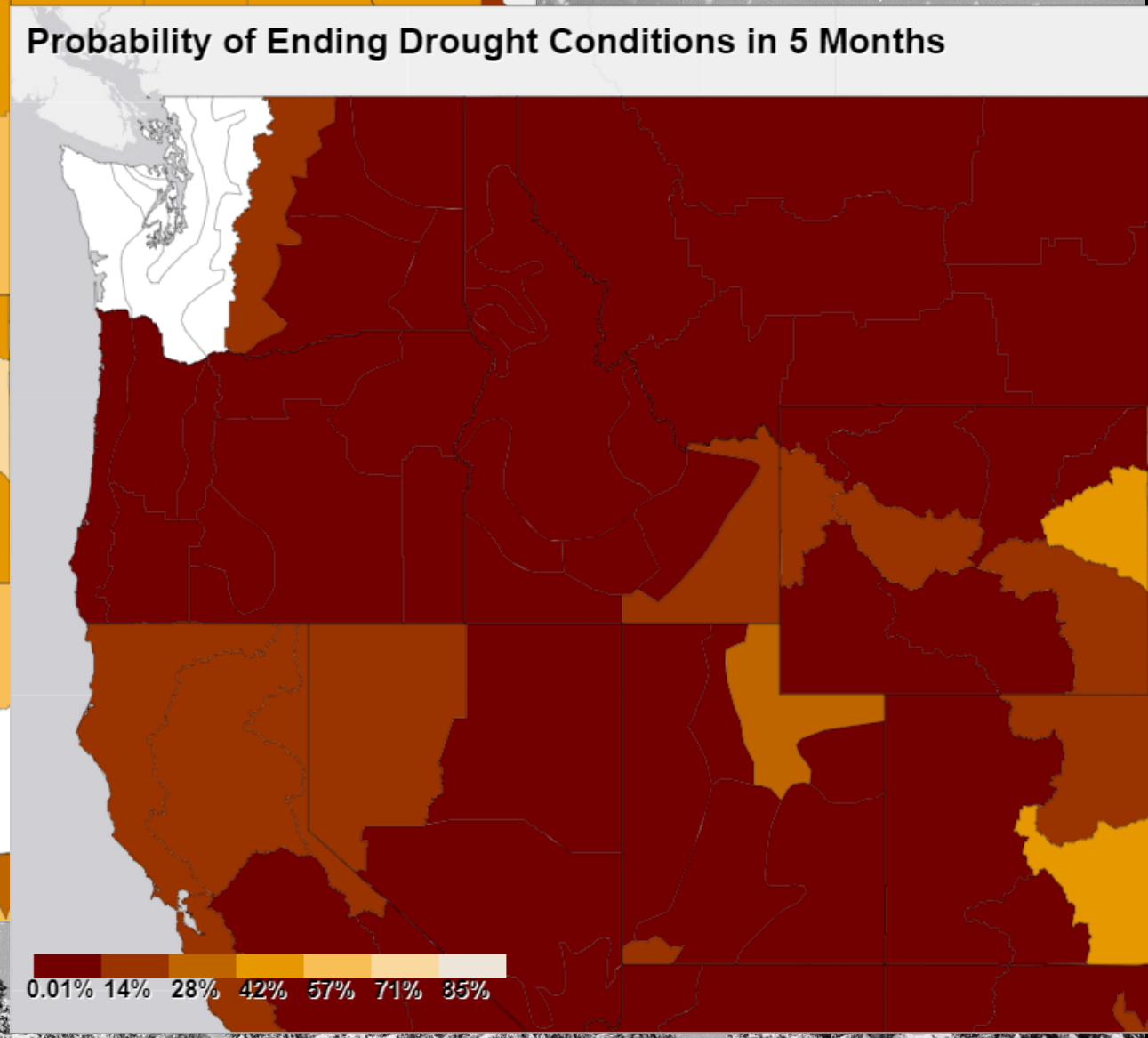
Differences Between 1991-2020 and Previous Normals

Median vs. Average

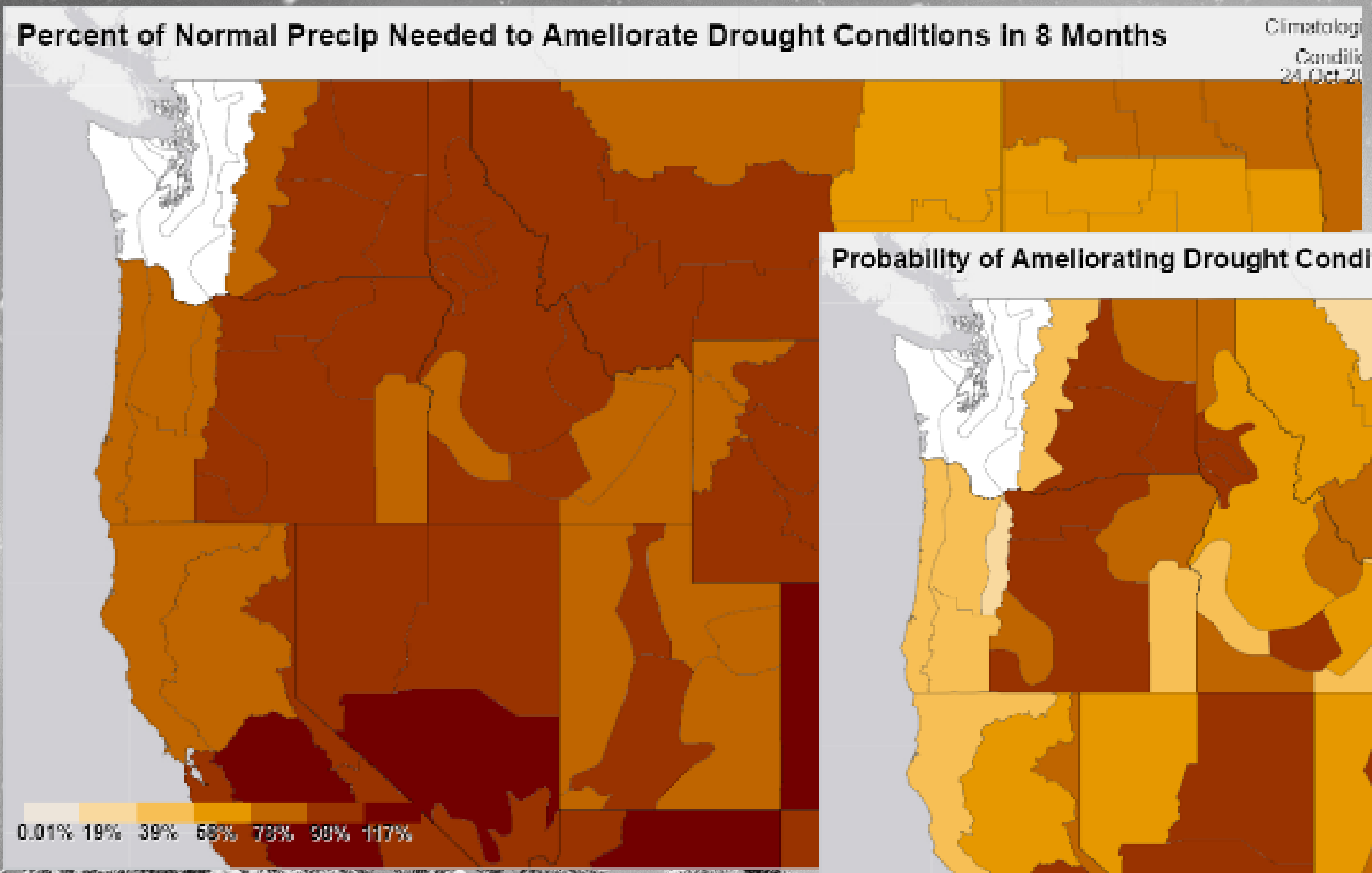
Retrieving 1991-2020 Normals

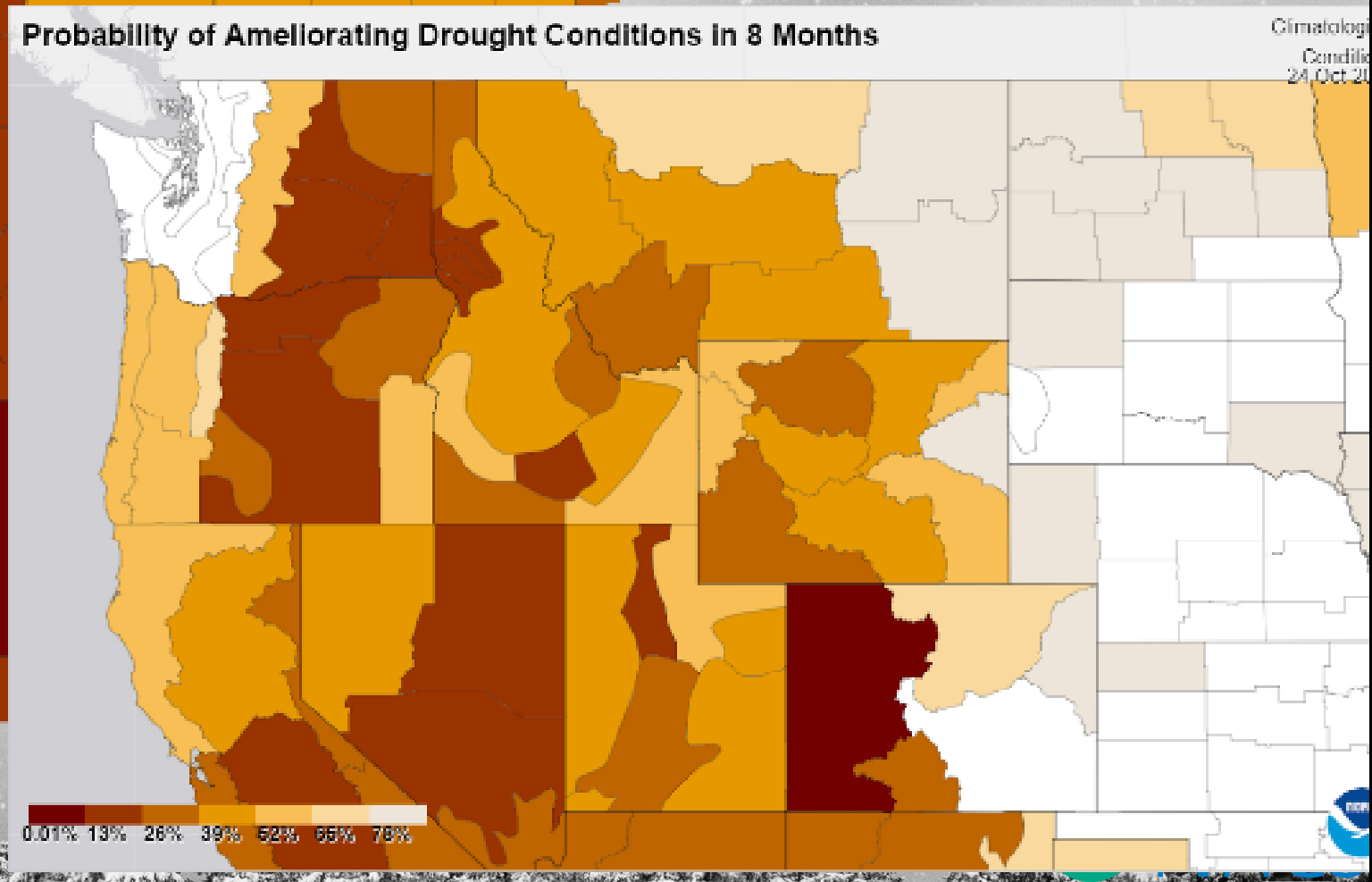
What will it take to end drought conditions?





How much precip needed to improve drought conditions?



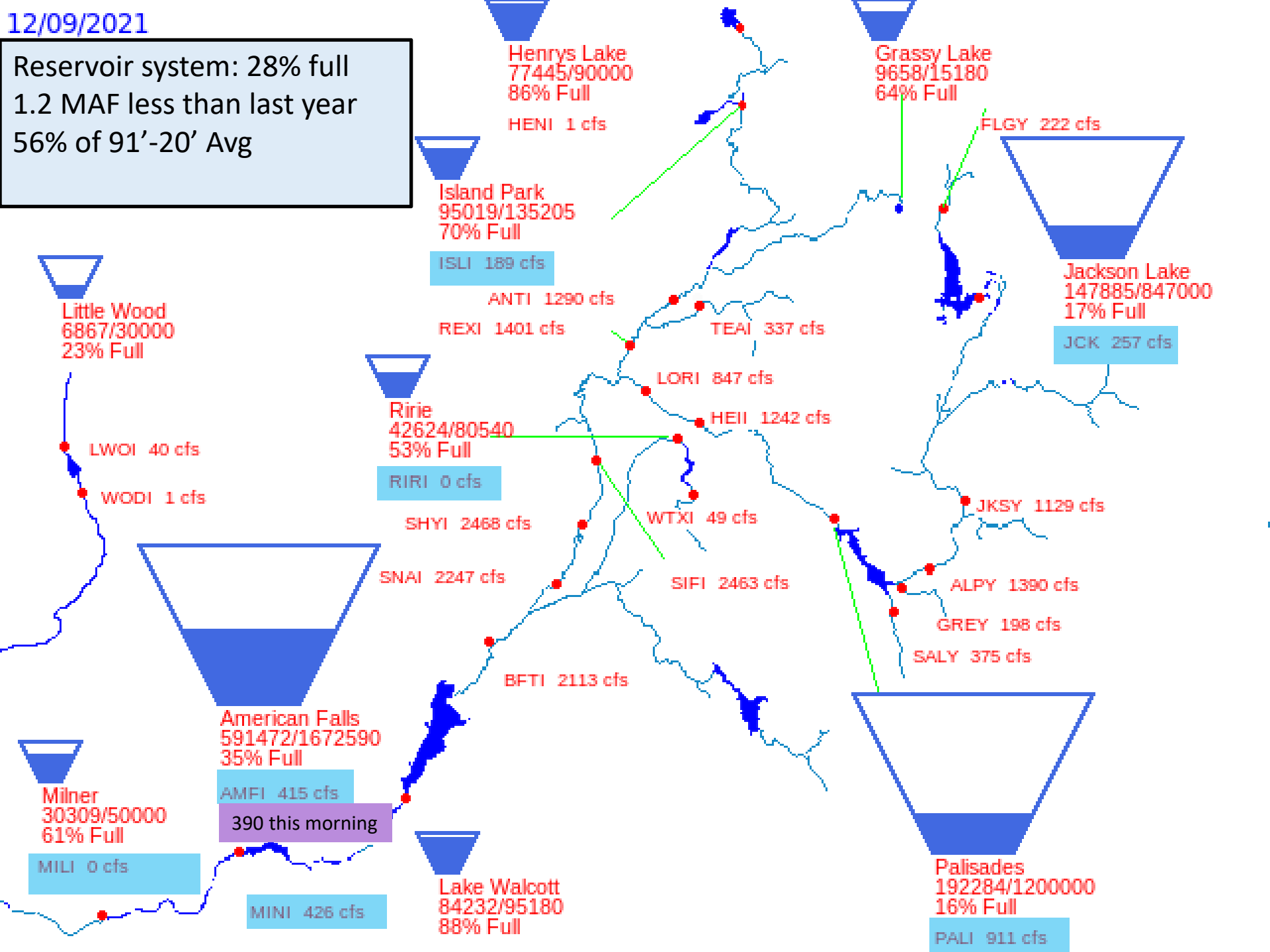


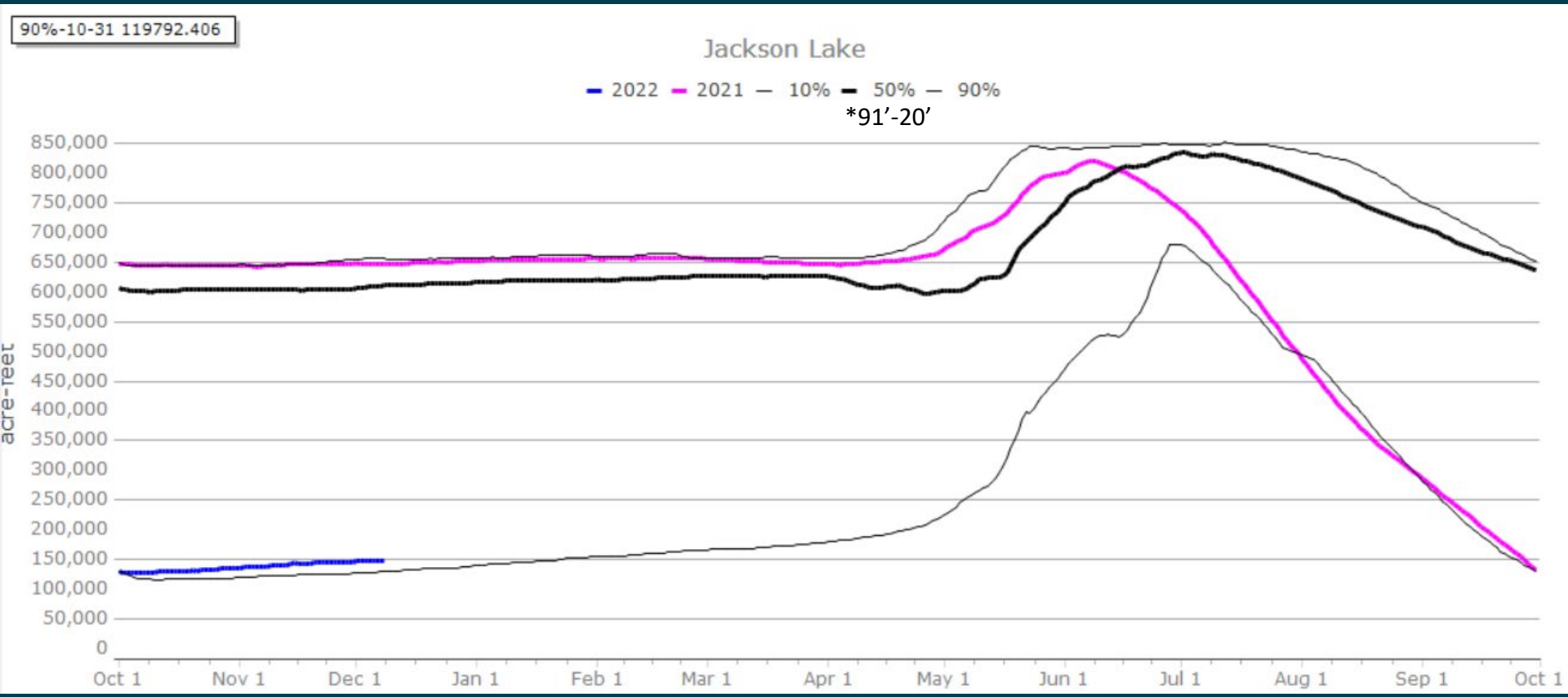
Upper Snake Advisory Committee Meeting
December 10, 2021

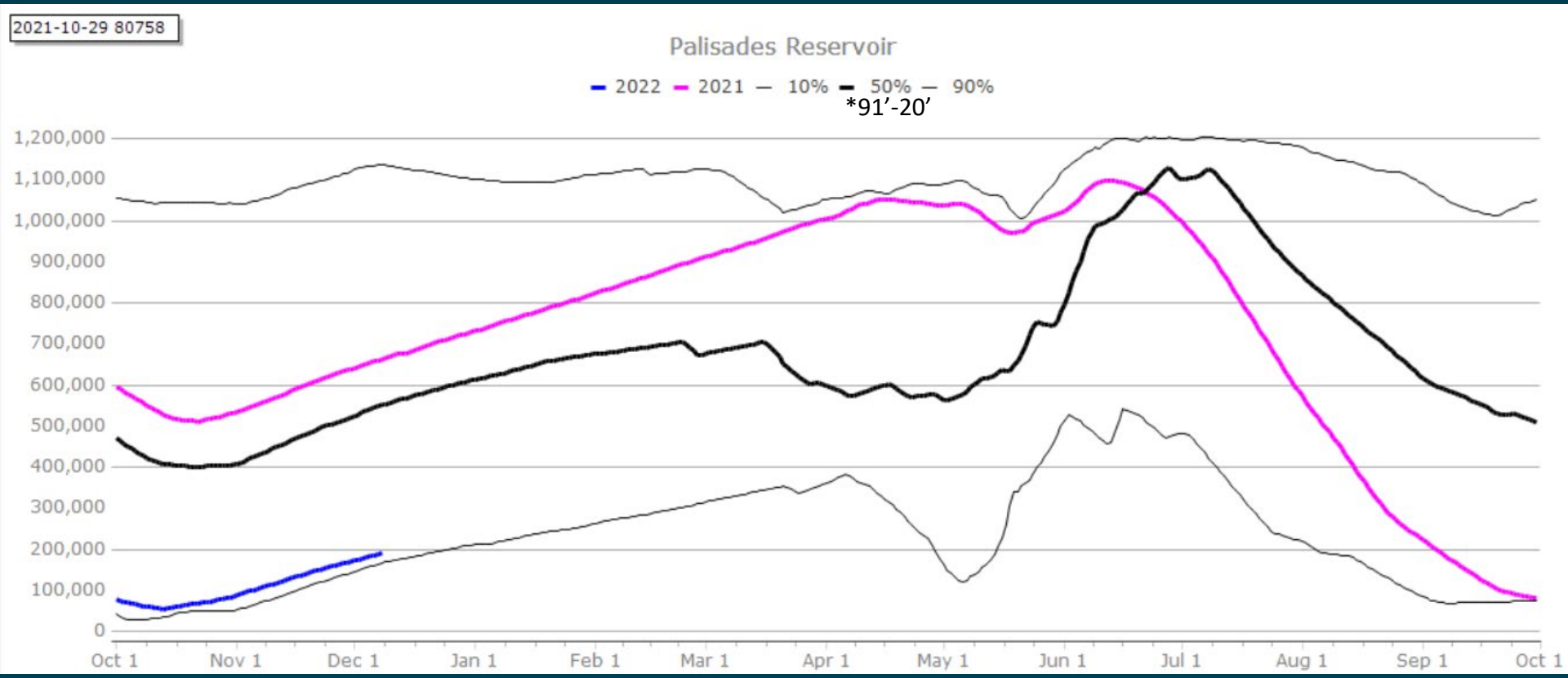
Upper Snake Reservoir Operations

12/09/2021

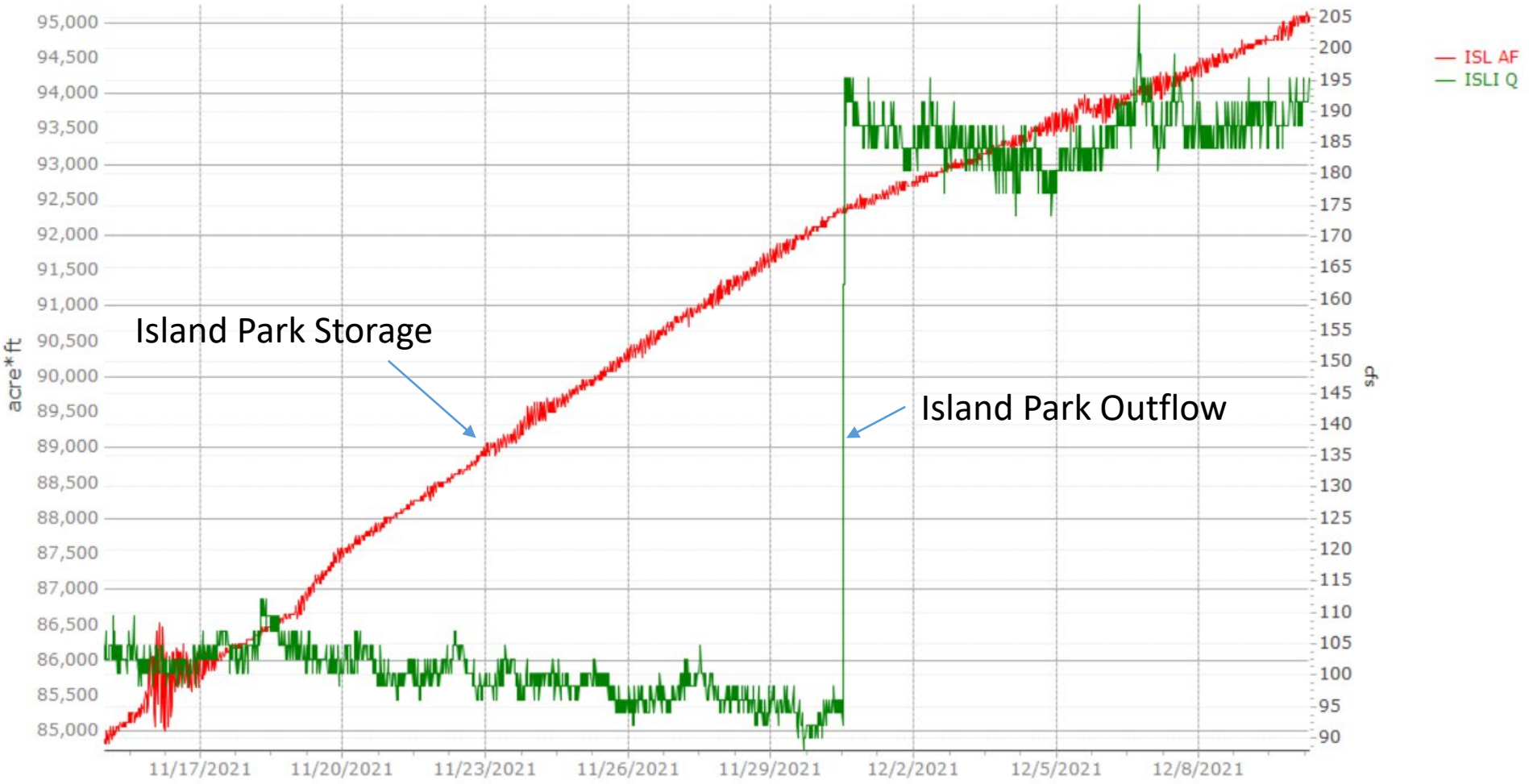
Reservoir system: 28% full
1.2 MAF less than last year
56% of 91'-20' Avg



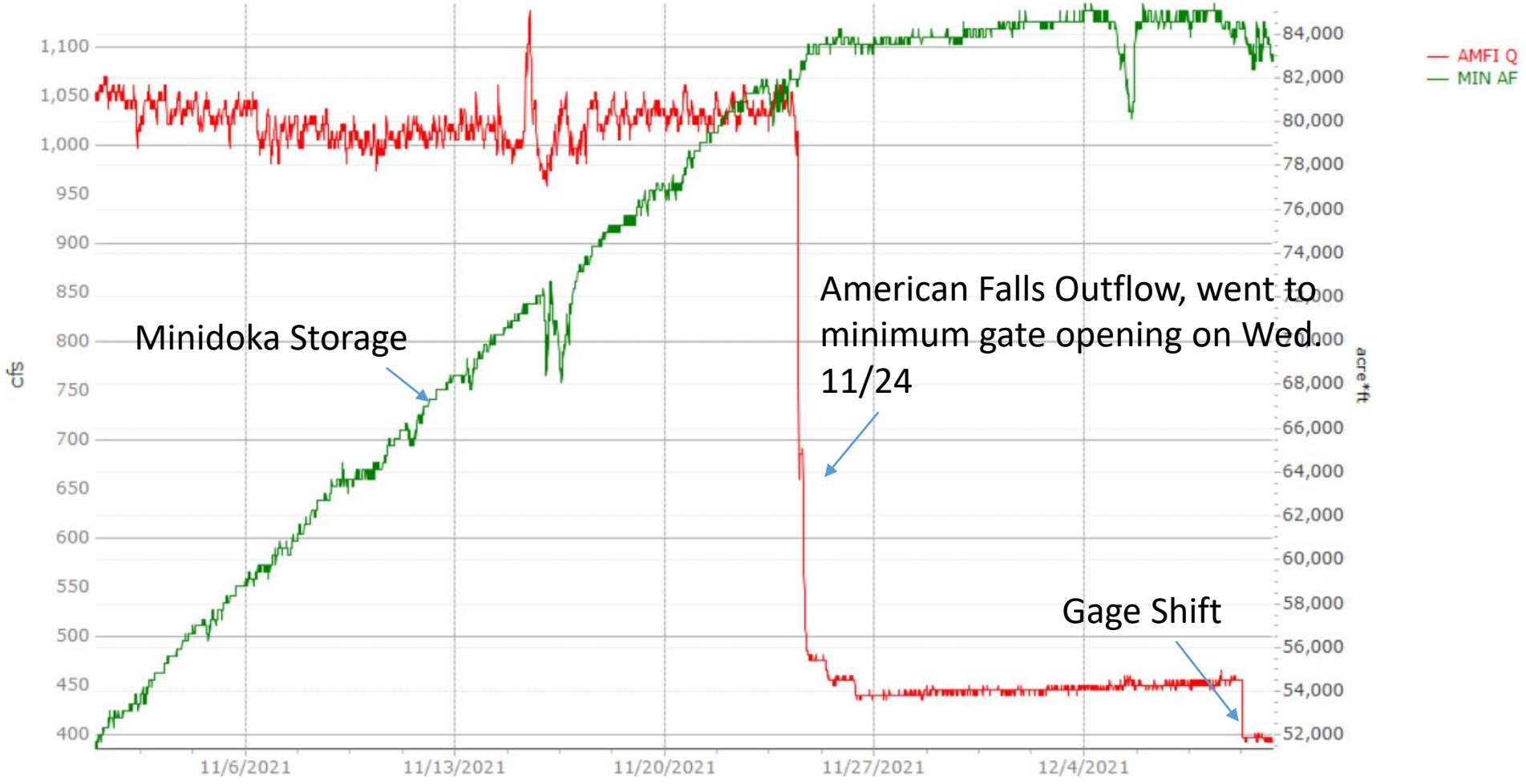

90%-10-31 119792.406
Jackson Lake
2022
2021
10%
50%
90%
*91'-20'
acre-feet
850,000
800,000
750,000
700,000
650,000
600,000
550,000
500,000
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1


2021-10-29 80758
Palisades Reservoir
2022
2021
10%
50%
90%
*91'-20'
1,200,000
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1

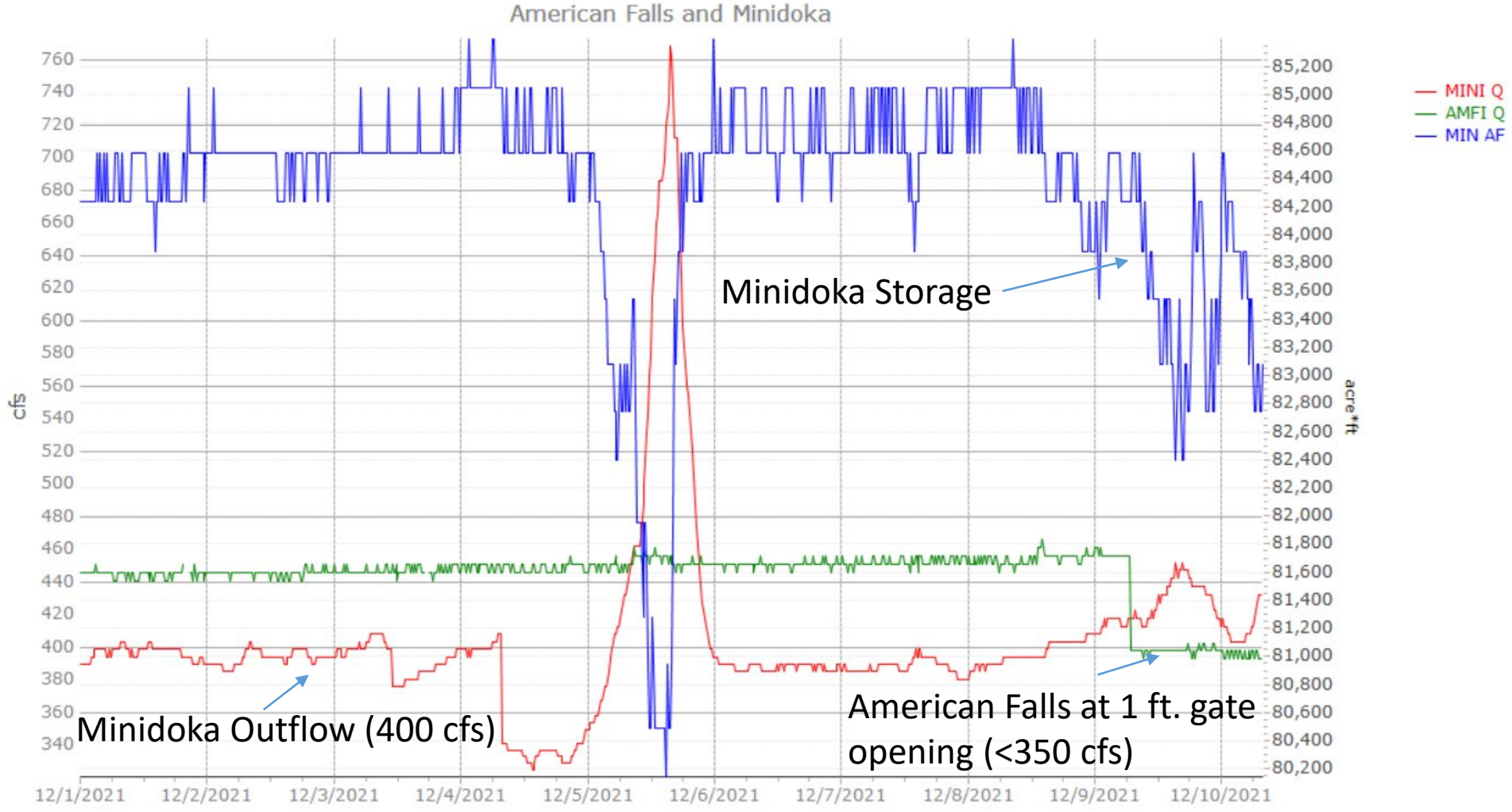
Island Park Overview



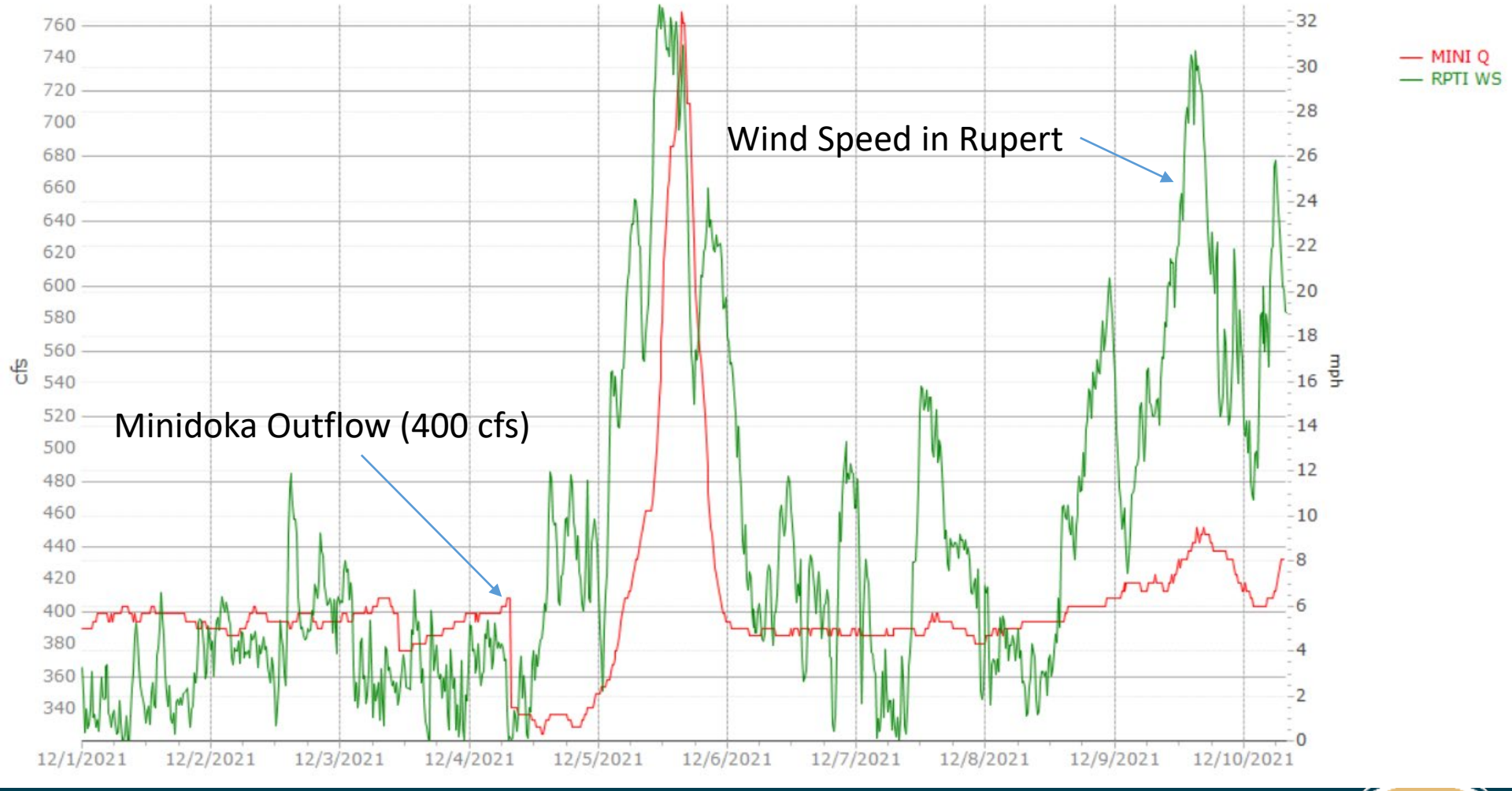
American Falls – Minidoka Overview

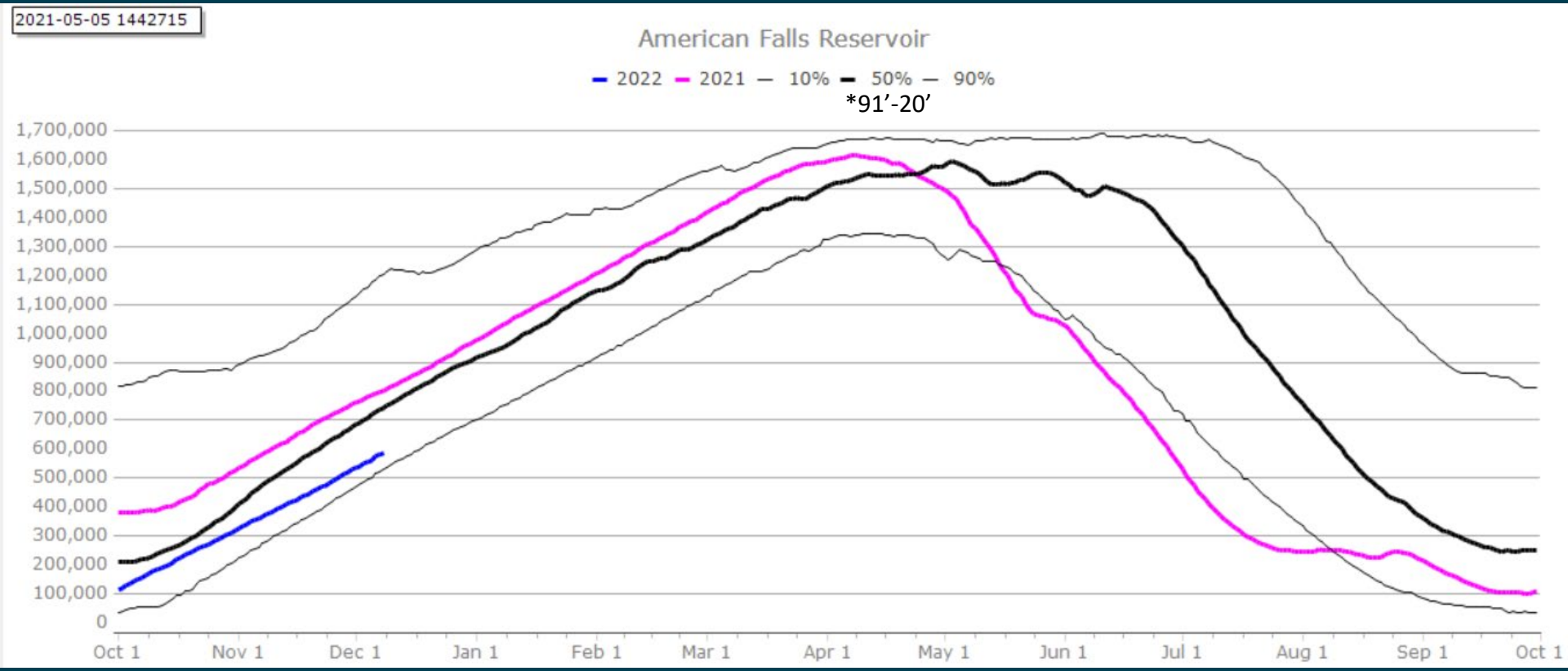


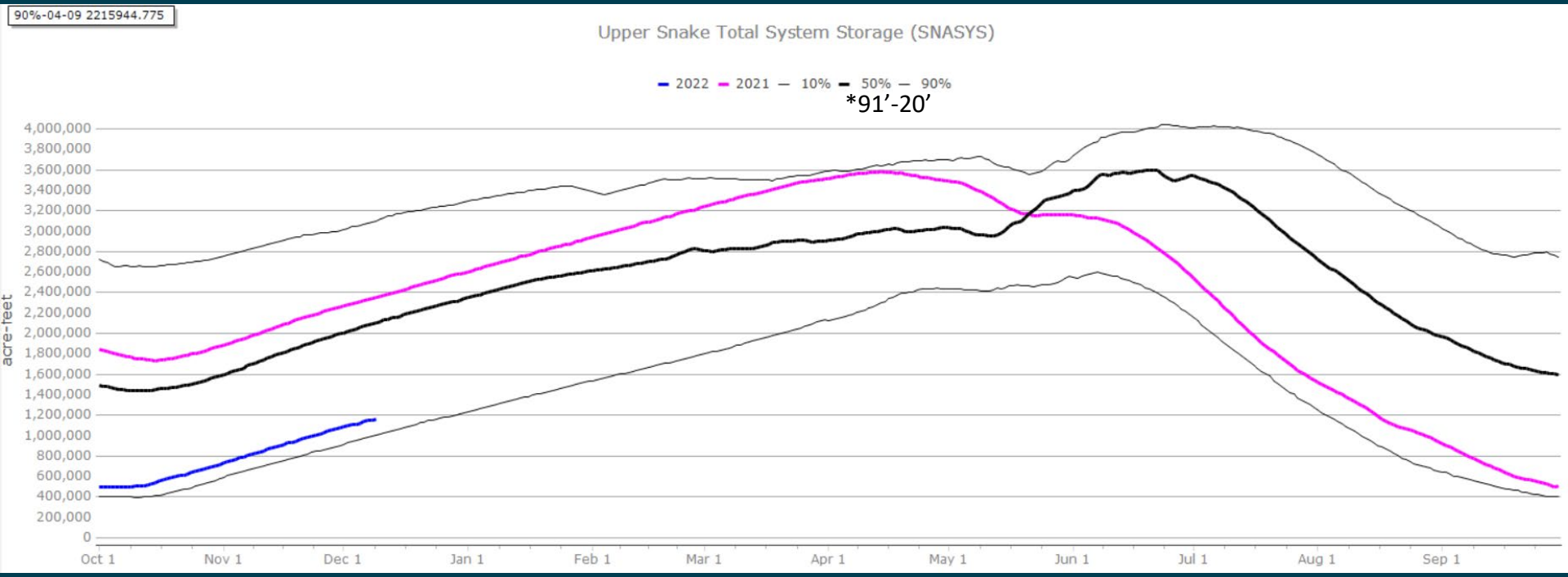
American Falls – Minidoka Overview



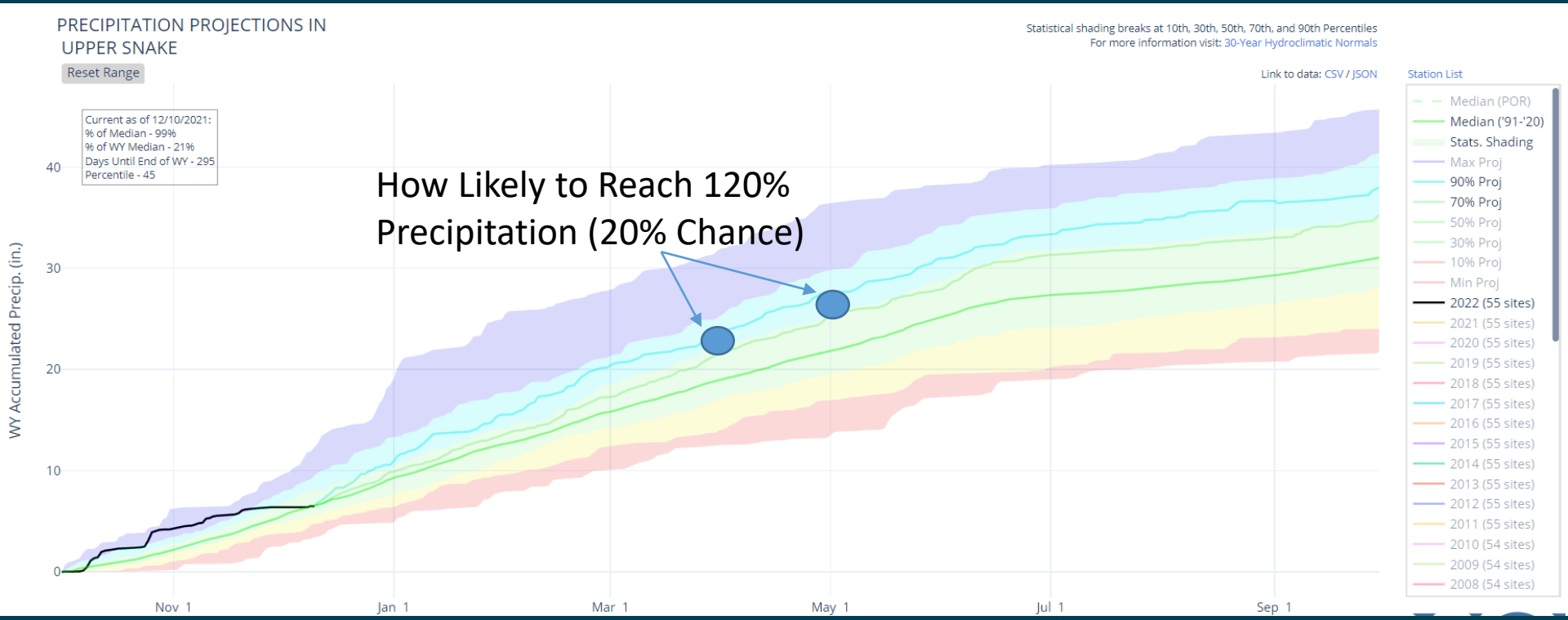
American Falls – Minidoka Overview




2021-05-05 1442715
American Falls Reservoir
2022
2021
10%
50%
90%
*91'-20'
1,700,000
1,600,000
1,500,000
1,400,000
1,300,000
1,200,000
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1


90%-04-09 2215944.775
Upper Snake Total System Storage (SNASYS)
2022
2021
10%
50%
90%
*91'-20'
acre-feet
4,000,000
3,800,000
3,600,000
3,400,000
3,200,000
3,000,000
2,800,000
2,600,000
2,400,000
2,200,000
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1

Range of Precipitation for Potential to Fill the System



Operational Outlook

- Jackson: maintain 280 cfs target through the winter
- Palisades: 900 cfs for winter flow
- Island Park: maintain 200 cfs to Spring
- American Falls: <350 cfs until Spring
- Minidoka: 400 cfs until Spring

For More Information

Snake River Area Office

- Lanie Paquin - Area Manager
  208-383-2246
  mpaquin@usbr.gov

Upper Snake Field Office

- Mike Hilliard – Field Office Manager
  208-678-0461 (x34)
  mhilliard@usbr.gov
- Tyler Cox – Resource Manager (x15)
  tcox@usbr.gov
- Brian Stevens – Water Operations Group Manager (x24)
  bstevens@usbr.gov
- Jeremy Dalling - Reservoir Operations Lead (x25)
  jdalling@usbr.gov
- Darrin Fredrickson - Staff Assistant (x17)
  dfredrickson@usbr.gov

Snake River Operations Web Sites

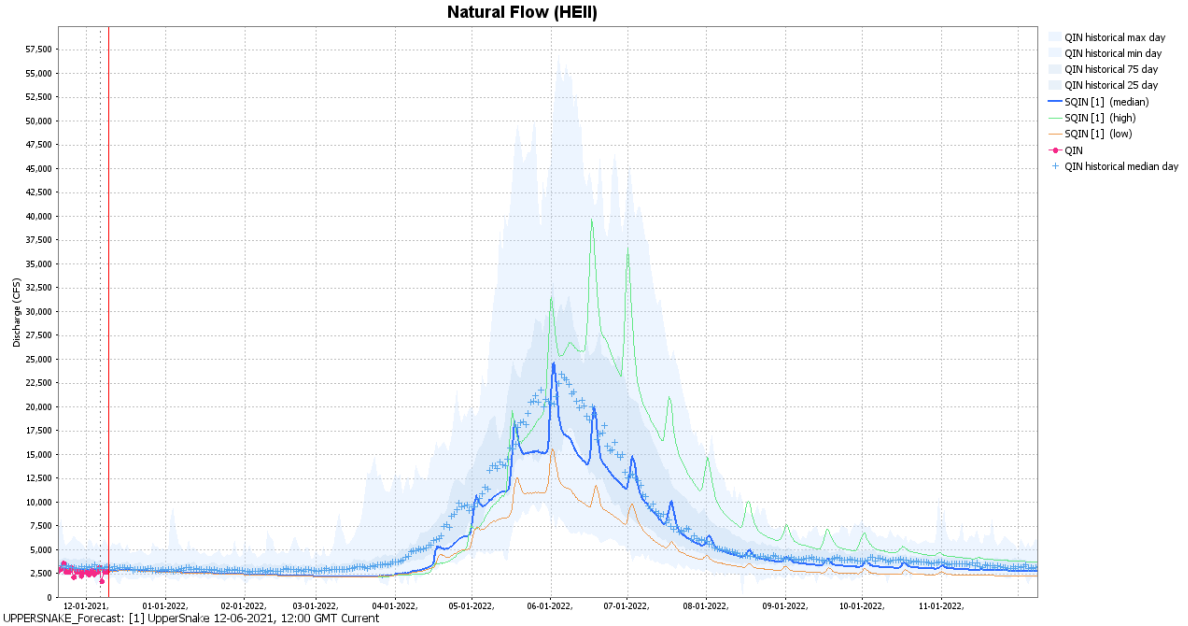
- Upper Snake water information site - http://www.usbr.gov/pn/hydromet/uppersnake/index.html
- USBR HydroMet - http://www.usbr.gov/pn/hydromet/
- Northwest River Forecast Center - http://www.nwrfc.noaa.gov/rfc/
- NRCS SNOTEL Data - http://www.id.nrcs.usda.gov/snow/

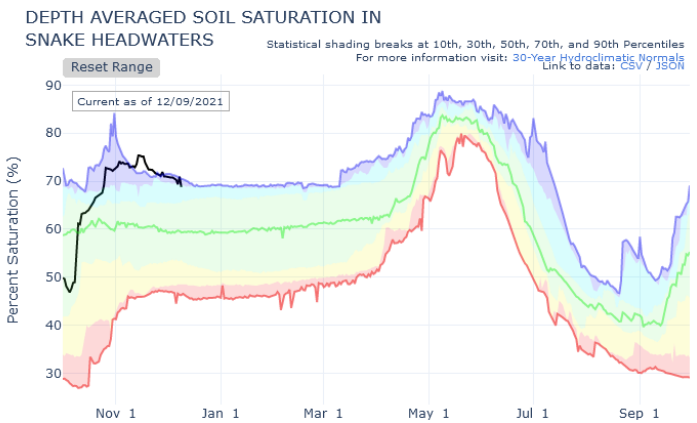
Upper Snake Advisory Committee Meeting – Idaho Power Update

December 10, 2021

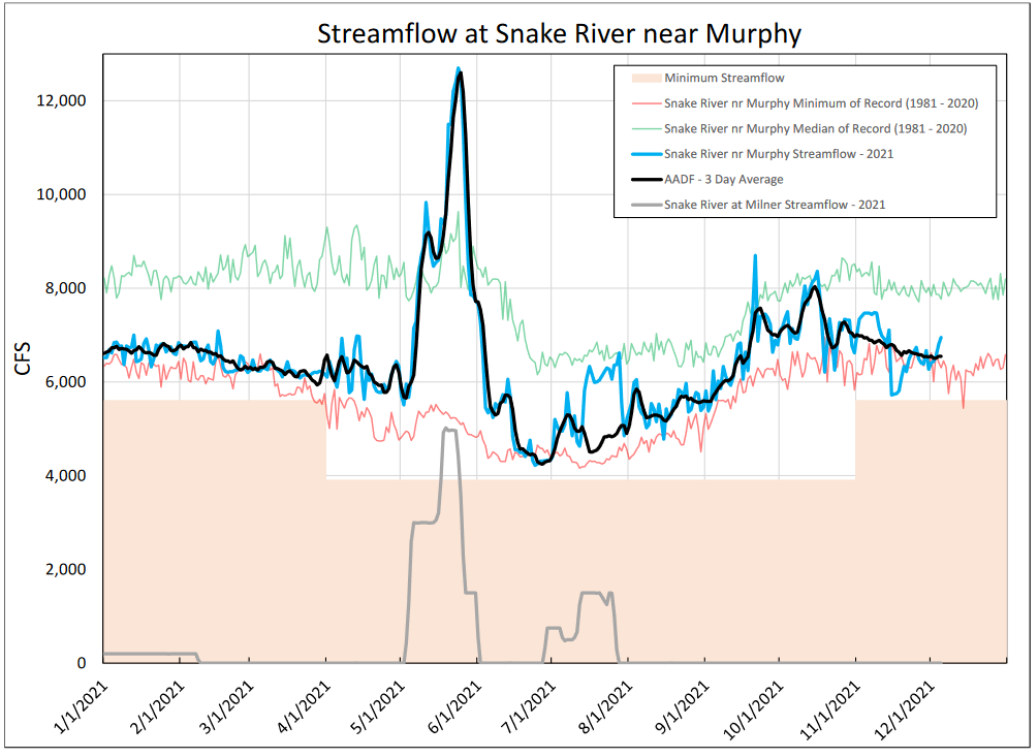
Snake River at Heise Forecast

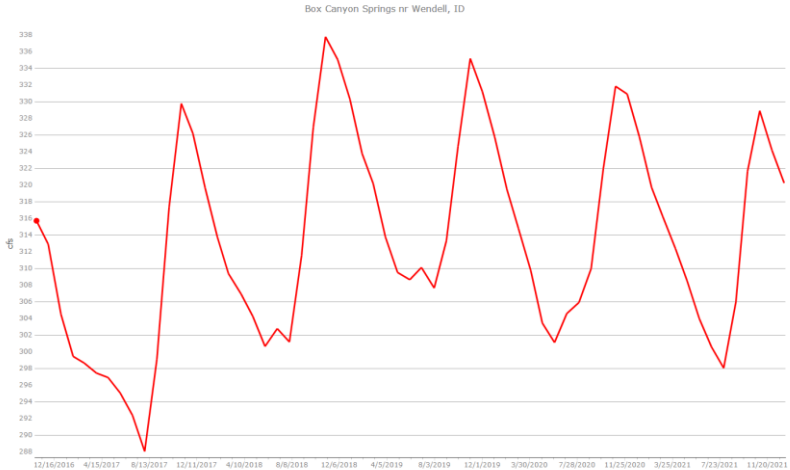
January-July Heise Natural Forecast (KAF)					
	10% Exceedance	Median	Percent of Normal	90% Exceedance	Normal May-Jul (81-10)
IPC	4,252	2,912	75%	2,175	3,871
NWRFC	4,588	2,789	72%	1,893	3,871





Snake River Flow Conditions





Brownlee Inflow Forecast

SNAKE - BROWNLEE DAM (BRNI1)
Forecasts for Water Year 2022

Official Water Supply

ESP with 10 Days QPF ***Ensemble:*** 2021-12-08 ***Issued:*** 2021-12-08

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	3892	5244	82	8226	6398
APR-JUL	2800	3988	78	6429	5125
JAN-SEP	6622	8078	84	11948	9600
JAN-JUL	5525	6794	82	10275	8326
OCT-SEP	8538	10068	85	14023	11906

Experimental Water Supply

HEFS with 15 days EQPF ***Ensemble:*** 2021-12-08 ***Issued:*** 2021-12-08

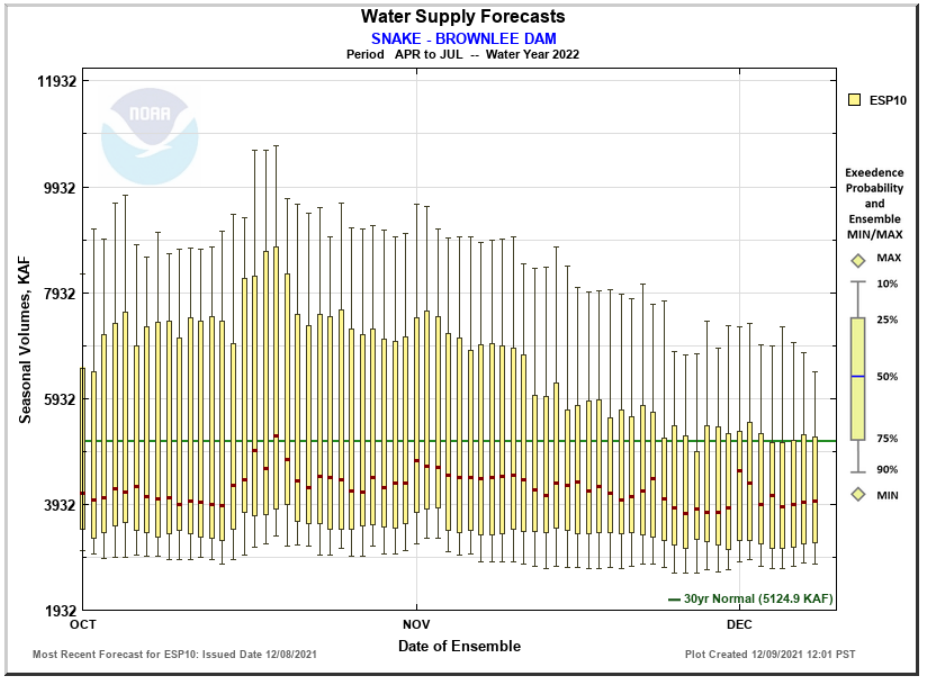
APR-SEP	3799	5255	82	9427	6398
APR-JUL	2752	3913	76	7458	5125
JAN-SEP	6473	8187	85	13425	9600
JAN-JUL	5395	6927	83	11877	8326
OCT-SEP	8396	10199	86	15375	11906

Reference

ESP with 0 Days QPF ***Ensemble:*** 2021-12-08 ***Issued:*** 2021-12-08

APR-SEP	3694	5069	79	8561	6398
APR-JUL	2663	3860	75	6862	5125
JAN-SEP	6391	7990	83	12366	9600
JAN-JUL	5325	6727	81	10710	8326
OCT-SEP	8340	9912	83	14513	11906

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



Columbia River at the Dalles Forecast

COLUMBIA - THE DALLES DAM (TDAO3)
Forecasts for Water Year 2022

Official Water Supply

ESP with 10 Days QPF ***Ensemble:*** 2021-12-08 ***Issued:*** 2021-12-08

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	71720	89292	95	115056	94166
APR-JUL	59899	76643	94	97574	81933
APR-AUG	66267	84189	94	108002	89196
JAN-SEP	86788	109681	95	139642	115946
JAN-JUL	75973	97043	94	122919	103714
OCT-SEP	103145	125680	95	156133	132314

Experimental Water Supply

HEFS with 15 days EQPF ***Ensemble:*** 2021-12-08 ***Issued:*** 2021-12-08

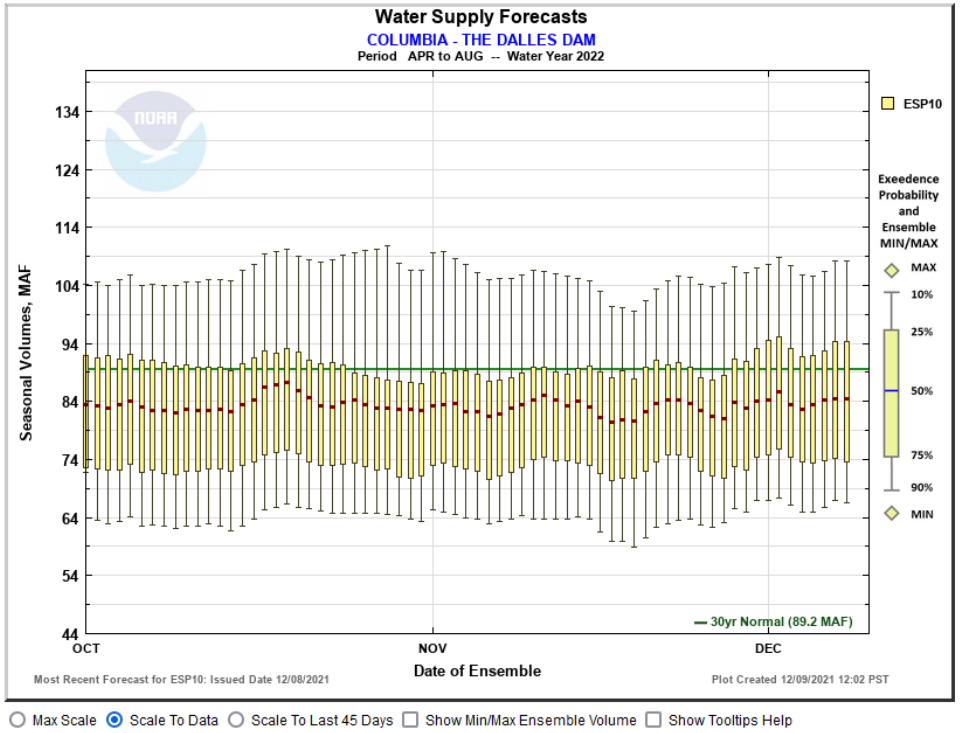
APR-SEP	74385	92399	98	116841	94166
APR-JUL	62696	78891	96	99959	81933
APR-AUG	68682	86782	97	110776	89196
JAN-SEP	90684	112377	97	137963	115946
JAN-JUL	78385	98937	95	123459	103714
OCT-SEP	106818	128652	97	154075	132314

Reference

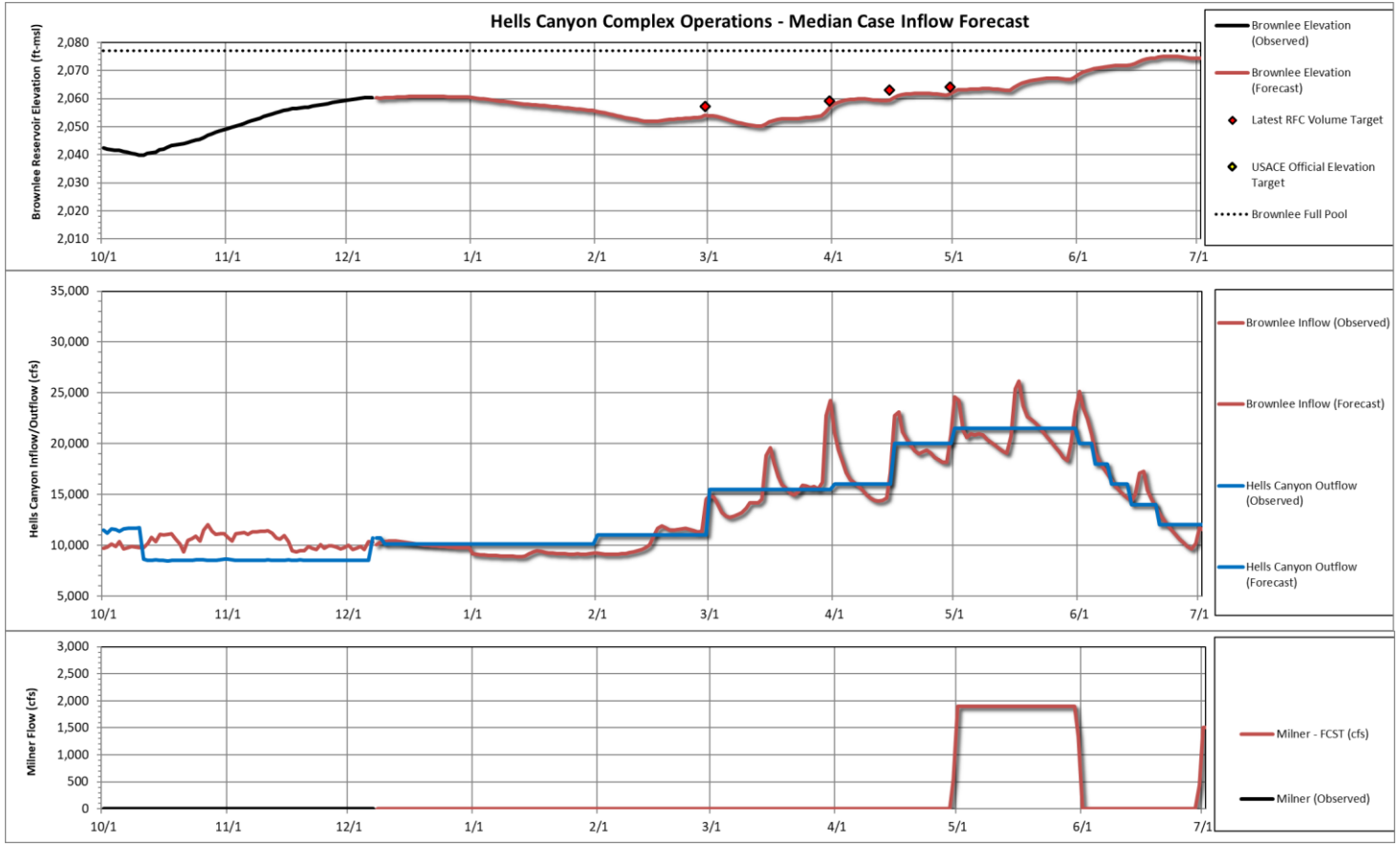
ESP with 0 Days QPF ***Ensemble:*** 2021-12-08 ***Issued:*** 2021-12-08

APR-SEP	72106	90729	96	114682	94166
APR-JUL	60589	77005	94	98296	81933
APR-AUG	67183	85324	96	109076	89196
JAN-SEP	89859	110834	96	135687	115946
JAN-JUL	77616	96923	93	121113	103714
OCT-SEP	106206	127514	96	151859	132314

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



2022 IPC Flood Control Outlook

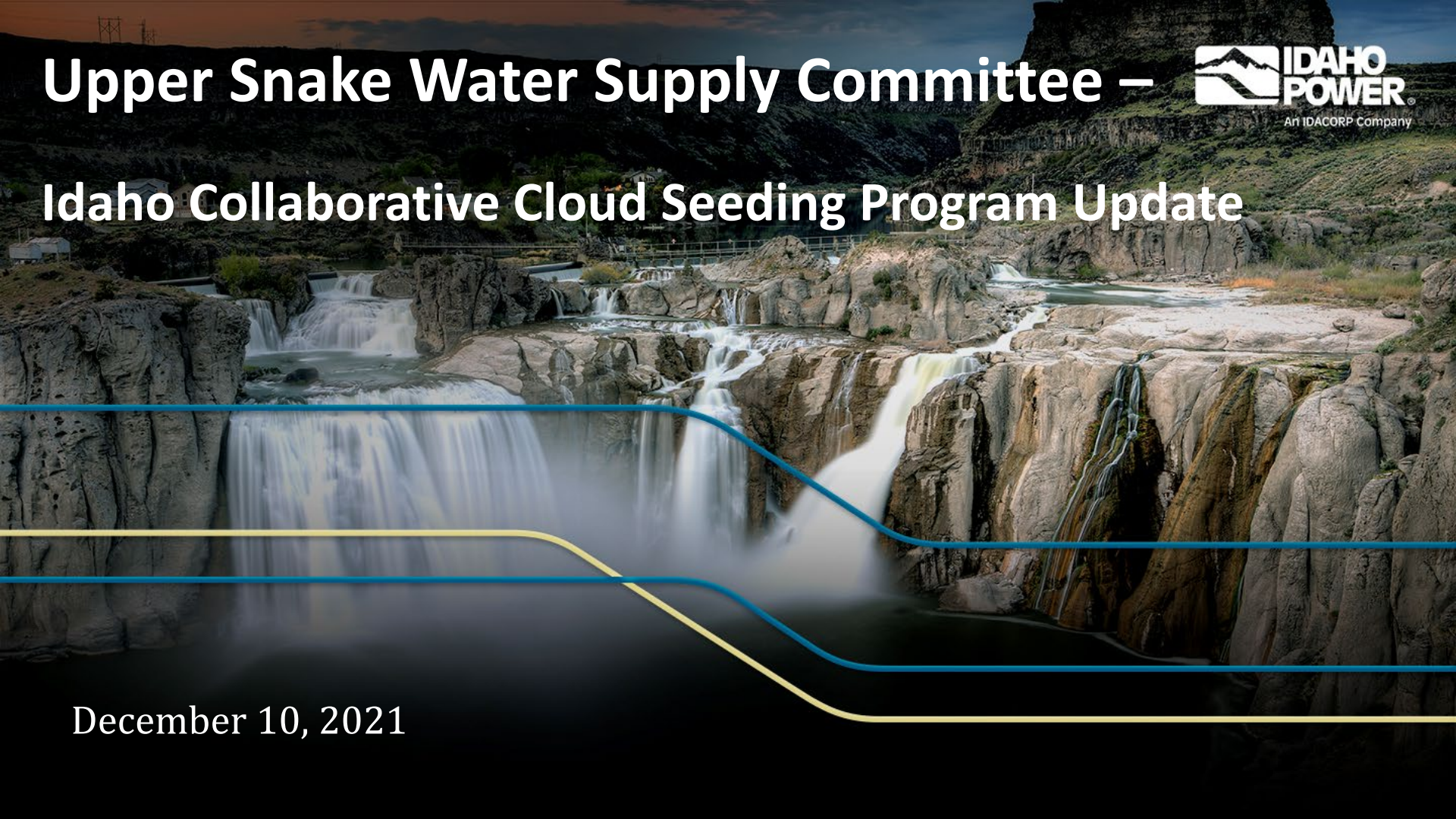


Questions?

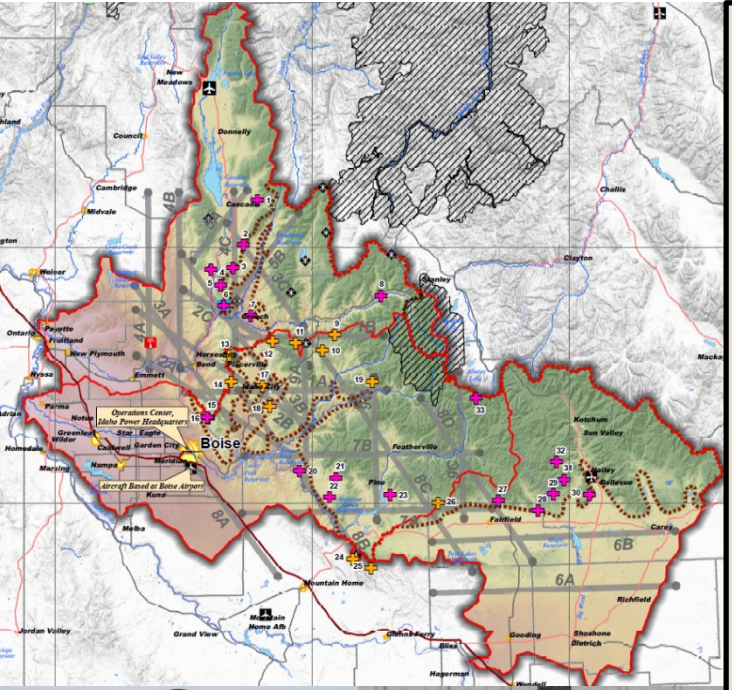
John Hildreth, P.E.
SENIOR ENGINEER
Idaho Power | Water Resources and Policy
Email: JHildreth@idahopower.com

Upper Snake Water Supply Committee –

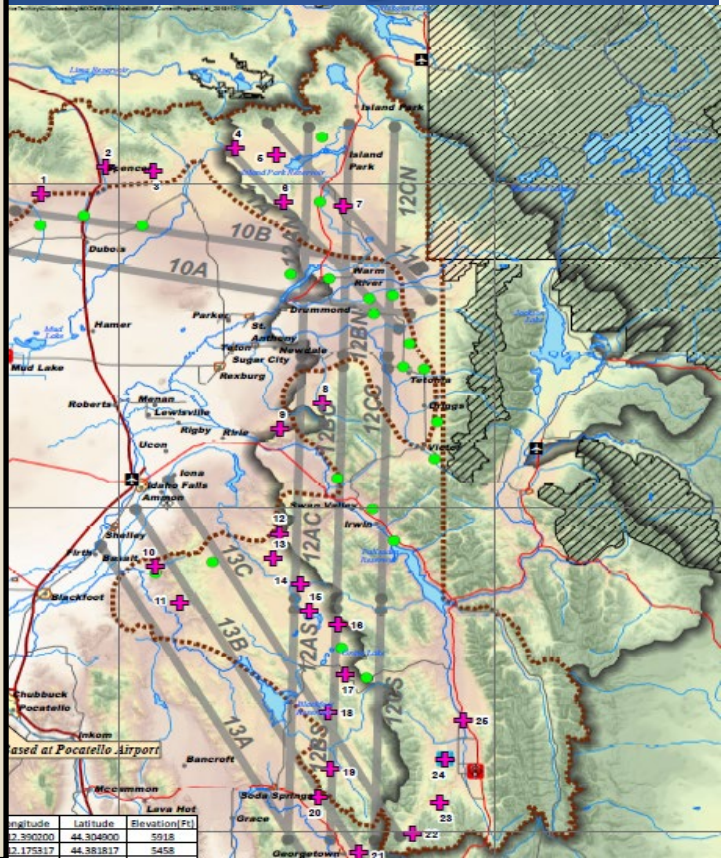
Idaho Collaborative Cloud Seeding Program Update



December 10, 2021



WY 2022
Idaho Collaborative Cloud Seeding Program



Cloud Seeding Operations WY2022

	WY 2022 Nov	Operations (WY 2017 - 2021) November		
		Max	Mean	Min
Central Mountains				
Generator Hours	14.6	362.6	258.3	139.7
Flight Hours	22.1	43.7	27	14.6
BIP Flares	104	282	160	28
EJ Flares	239	1208	542	102
Upper Snake				
Generator Hours	37.8	343.4	179.3	26.2
Flight Hours	15.3	22.1	11.5	4.4
BIP Flares	102	187	70	14
EJ Flares	200	222	92	0

Questions?

IDAHO
Water Resource Board

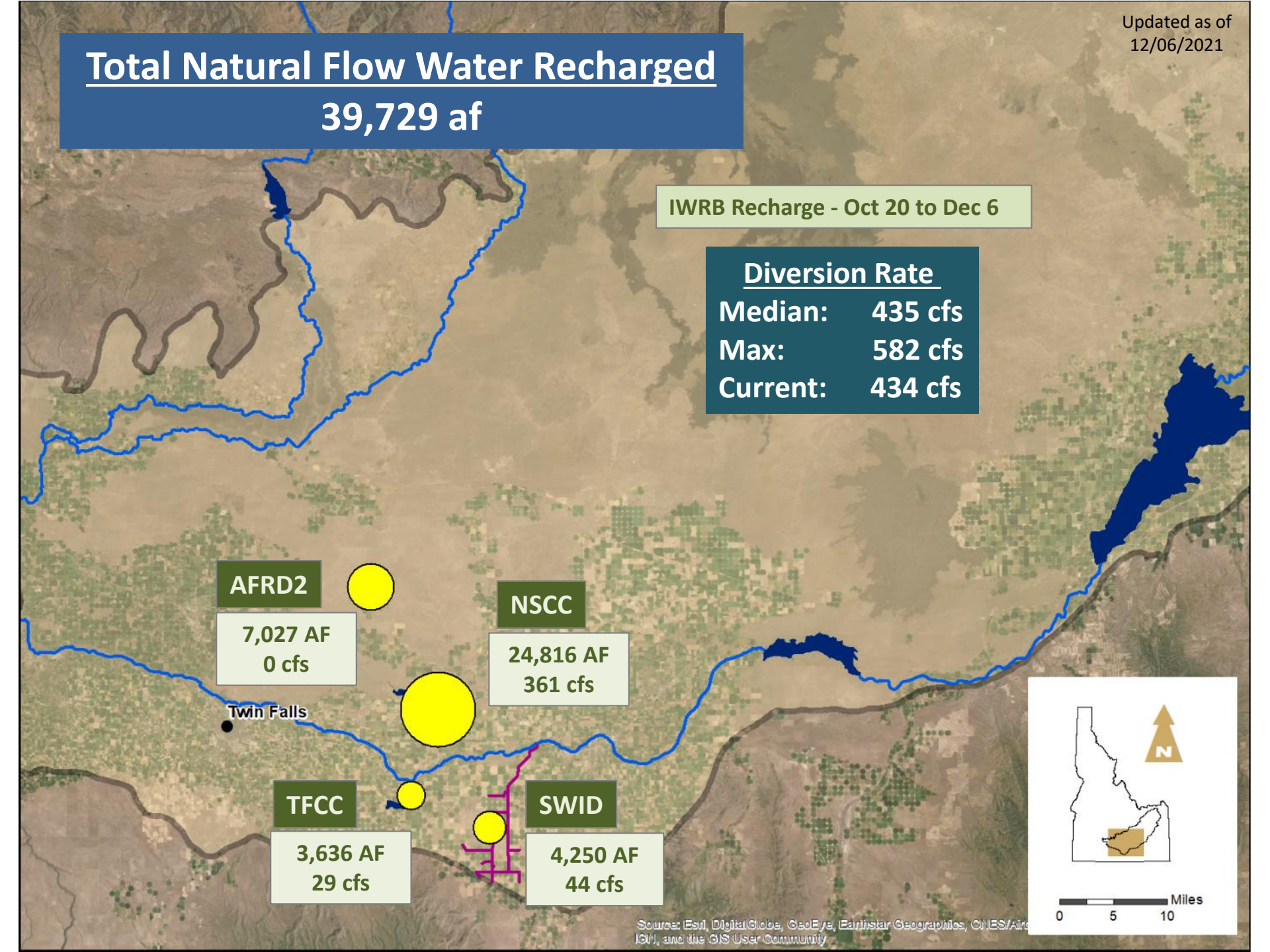
IWRB Managed Recharge Program

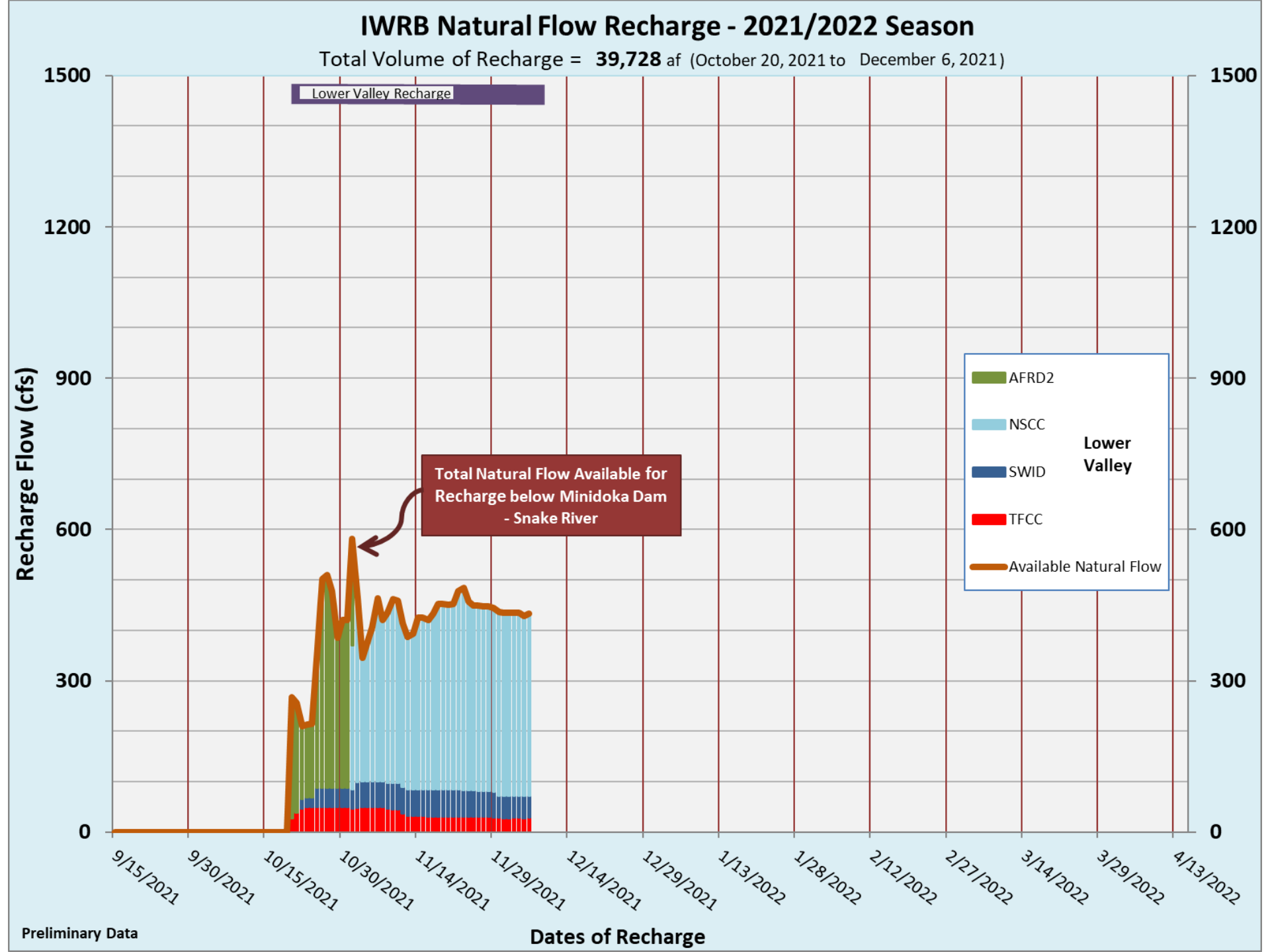
Upper Snake River Advisory Committee Meeting

Paul Thomas

Recharge Program Project Manager

December 10, 2021


Updated as of
12/06/2021
Total Natural Flow Water Recharged
39,729 af
IWRB Recharge - Oct 20 to Dec 6
Diversion Rate
Median: 435 cfs
Max: 582 cfs
Current: 434 cfs
AFRD2
7,027 AF
0 cfs
NSCC
24,816 AF
361 cfs
Twin Falls
TFCC
3,636 AF
29 cfs
SWID
4,250 AF
44 cfs
N
Miles
0
5
10
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Air
IGN, and the GIS User Community


IWRB Natural Flow Recharge - 2021/2022 Season
Total Volume of Recharge = 39,728 af (October 20, 2021 to December 6, 2021)
Lower Valley Recharge
Total Natural Flow Available for Recharge below Minidoka Dam - Snake River
AFRD2
NSCC
SWID
TFCC
Available Natural Flow
Lower Valley
Recharge Flow (cfs)
1500
1200
900
600
300
0
9/15/2021
9/30/2021
10/15/2021
10/30/2021
11/14/2021
11/29/2021
12/14/2021
12/29/2021
1/13/2022
1/28/2022
2/12/2022
2/27/2022
3/14/2022
3/29/2022
4/13/2022
Dates of Recharge
Preliminary Data

Questions