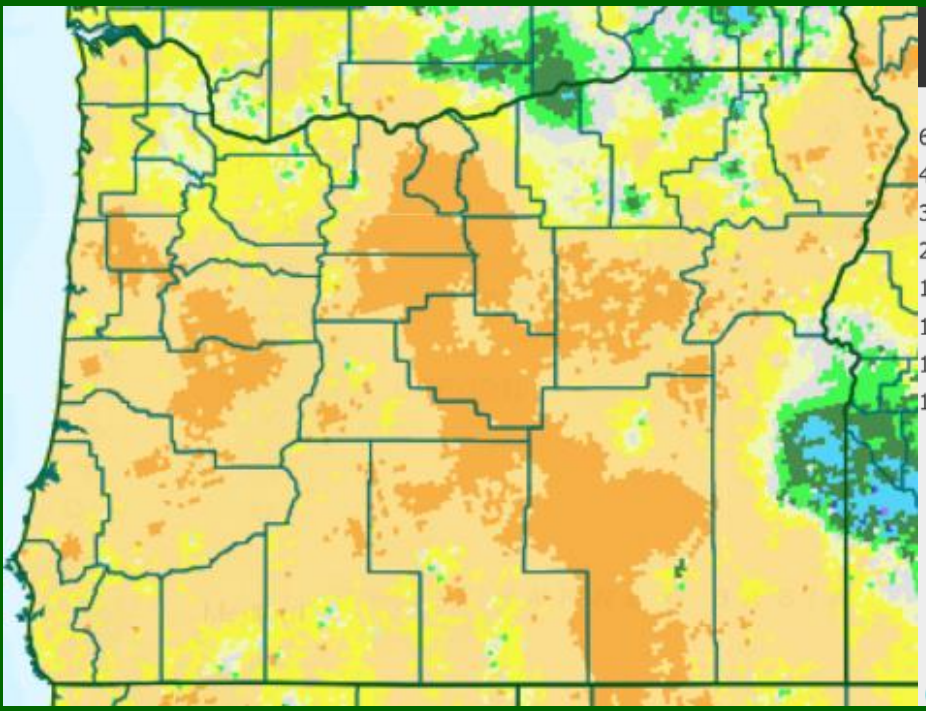
March 2023 Update for Precipitation & Temperatures

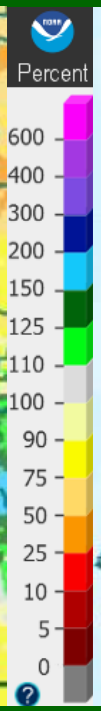
NOAA National Weather Service
Weather Forecast Office
Portland, Oregon

Water Year Precipitation

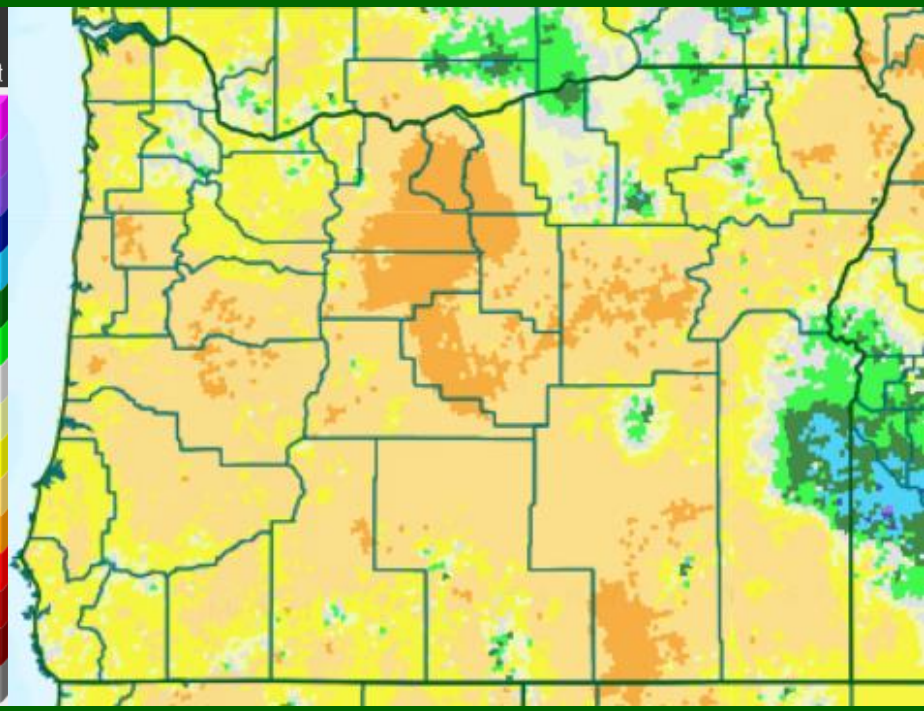
National Weather Service AHPS

% Normal, February 14, 2023





% Normal, March 14, 2023

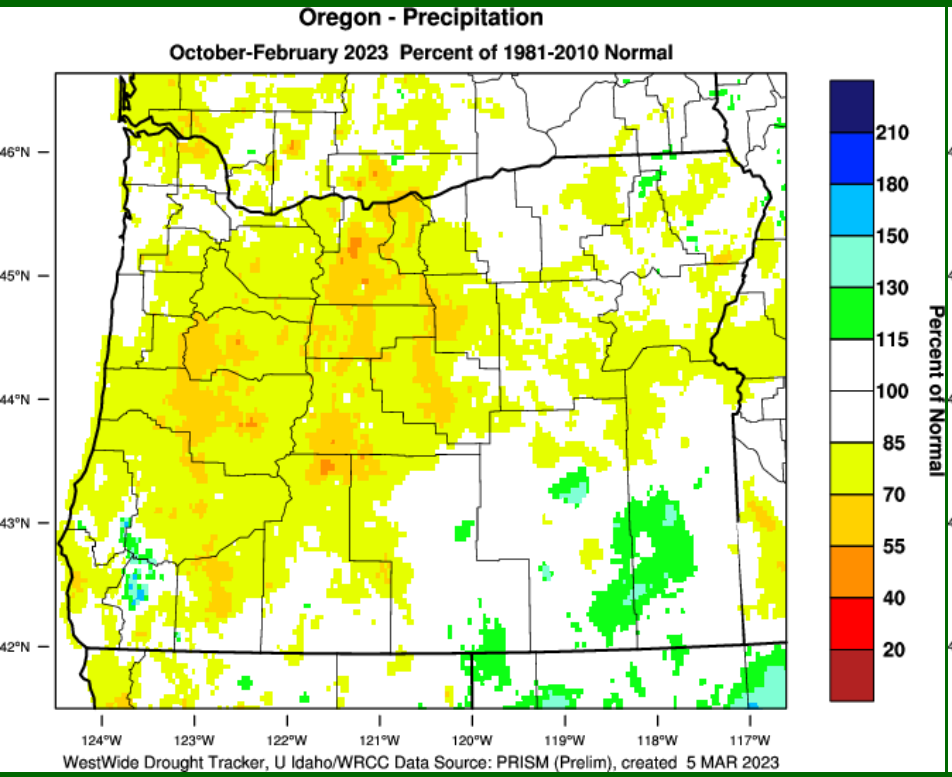


water.weather.gov/precip/index.php

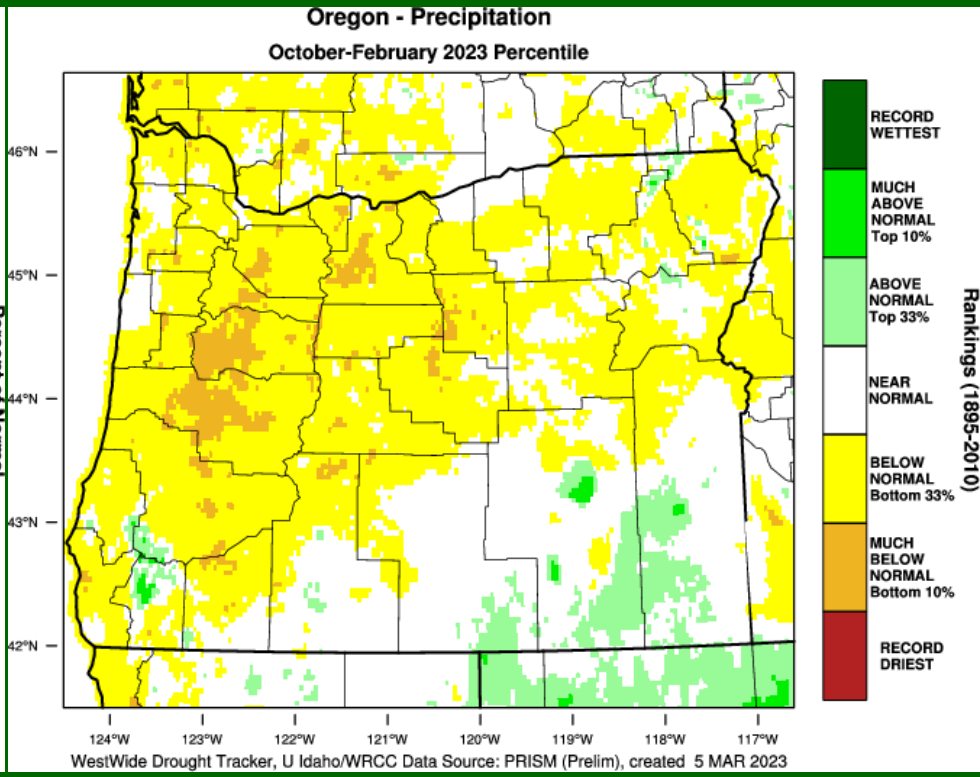
Water Year Precipitation

Western Regional Climate Center

% Normal, Oct - Feb



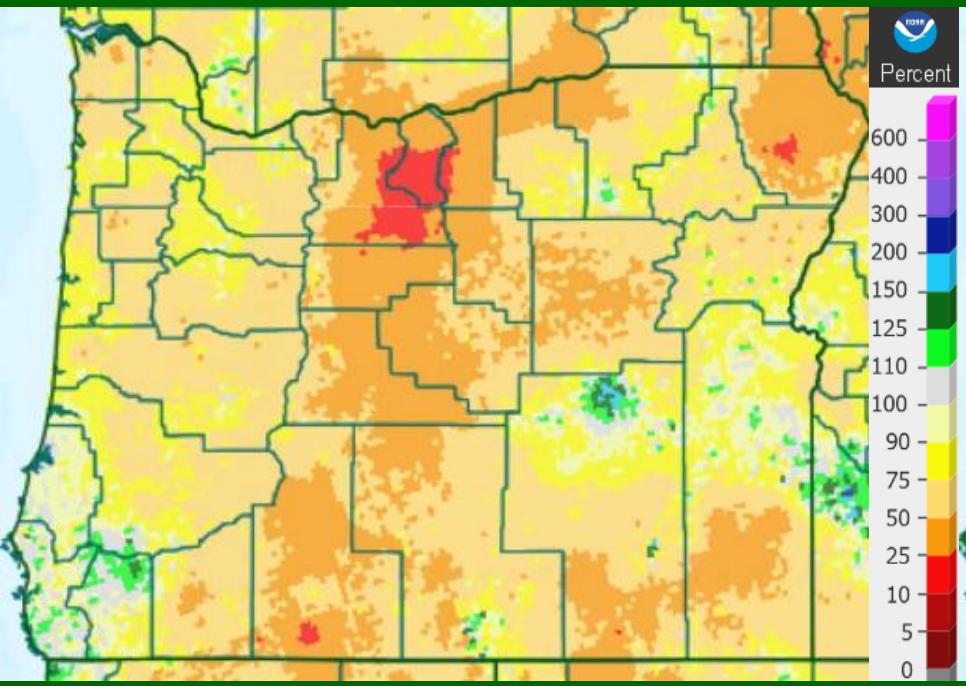
Percentile, Oct - Feb



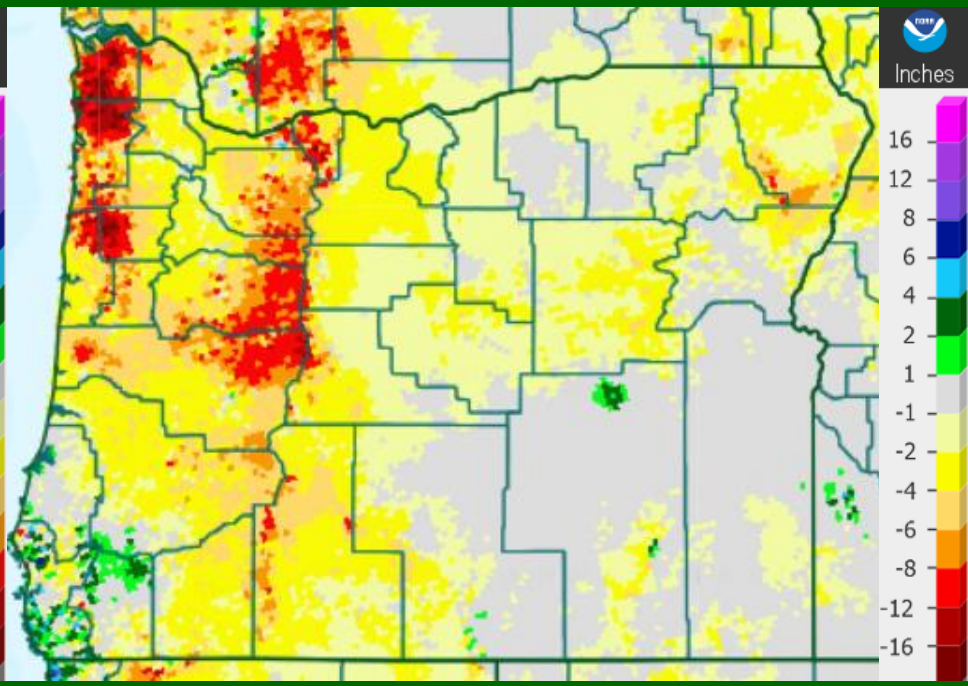
https://wrcc.dri.edu/wwdt/index.php?region=pnw

Precipitation – Past 60 Days

% Normal



Departure from Normal

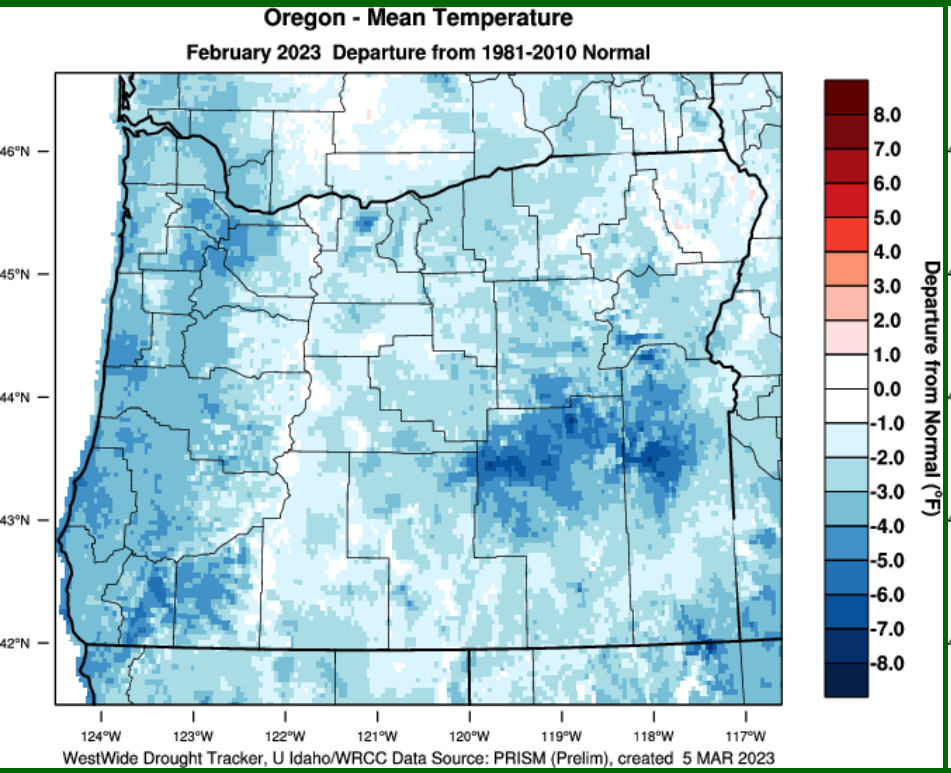


Precipitation Data as of March 14, 2023

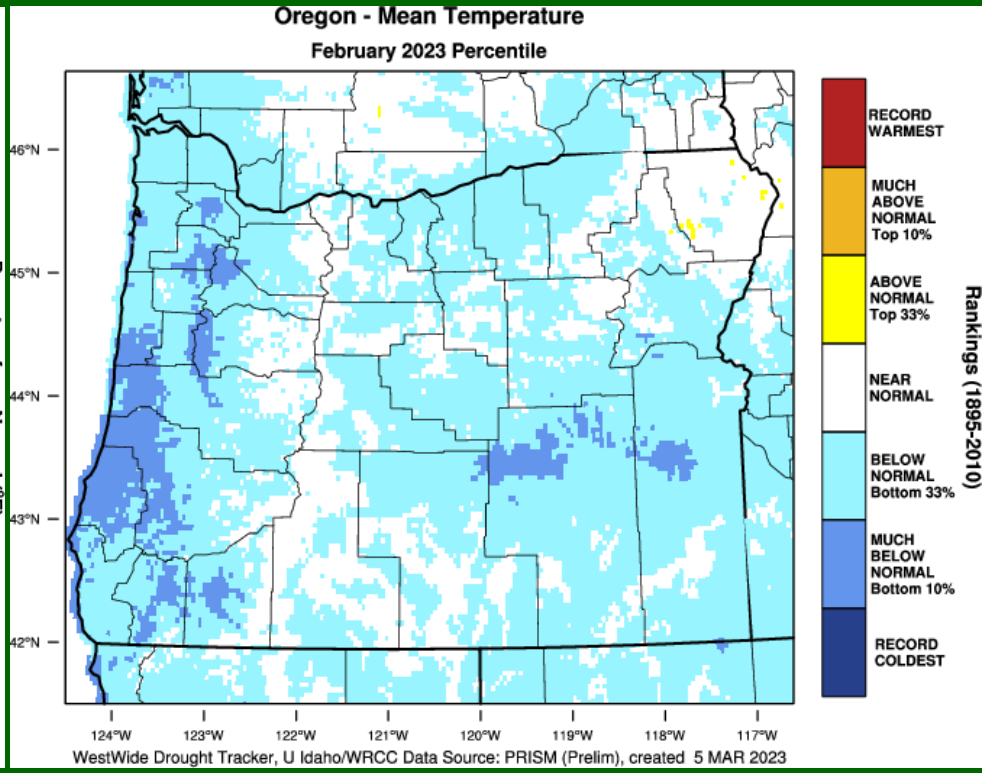
water.weather.gov/precip/index.php

February Temperatures

Departure from Normal

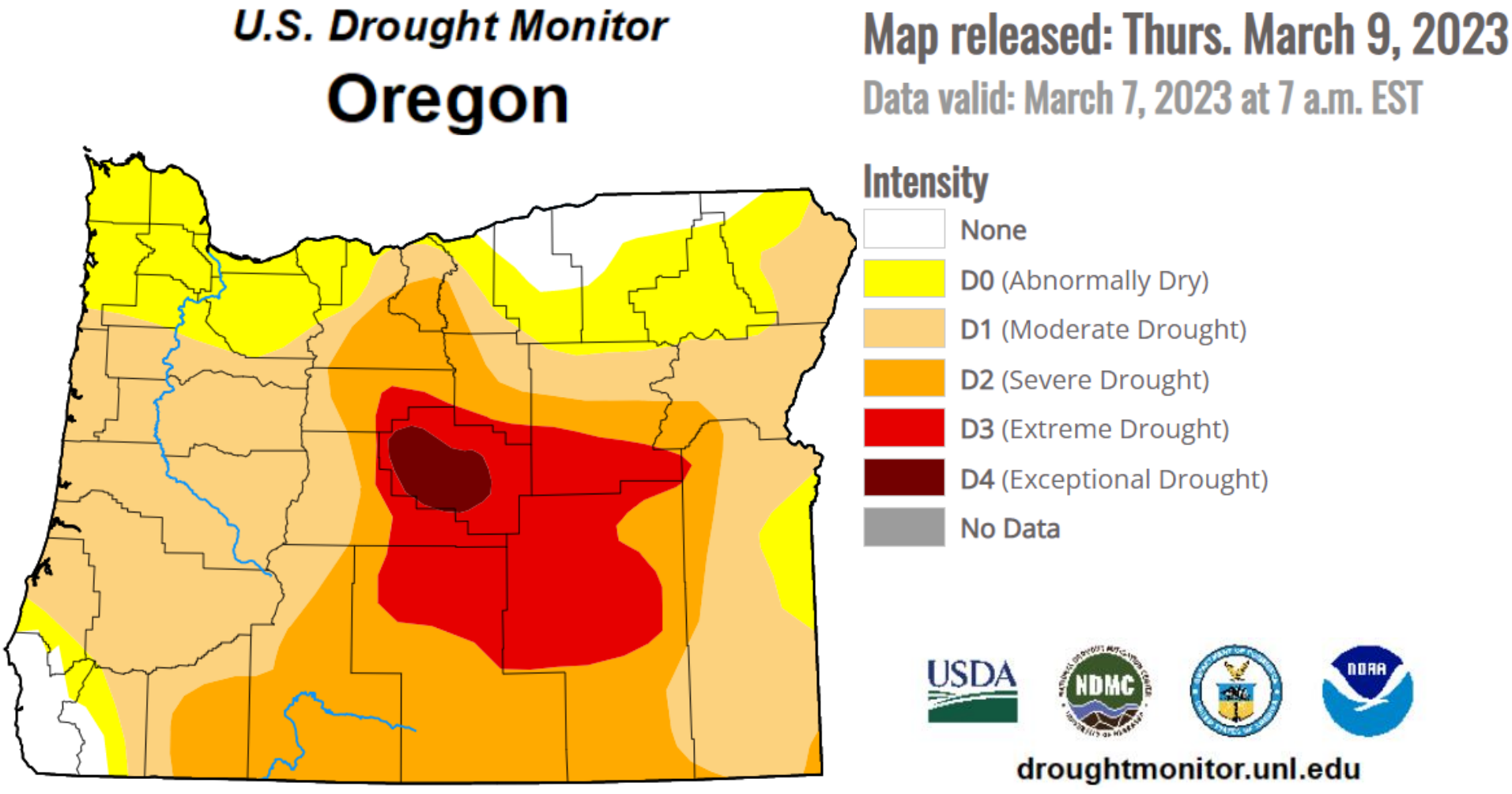


Percentile



https://wrcc.dri.edu/wwdt/index.php?region=pnw

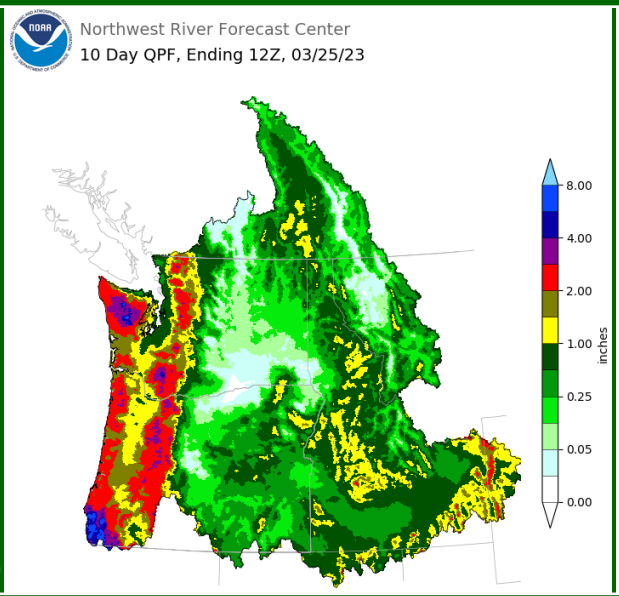
Drought Monitor

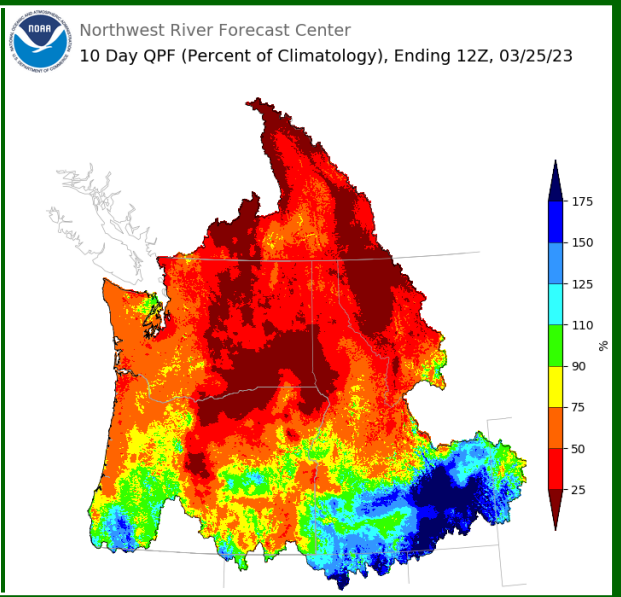


Mid March Outlook

NWRFC
10-DAY
PRECIPITATION
FORECAST
as of 3/15/2023

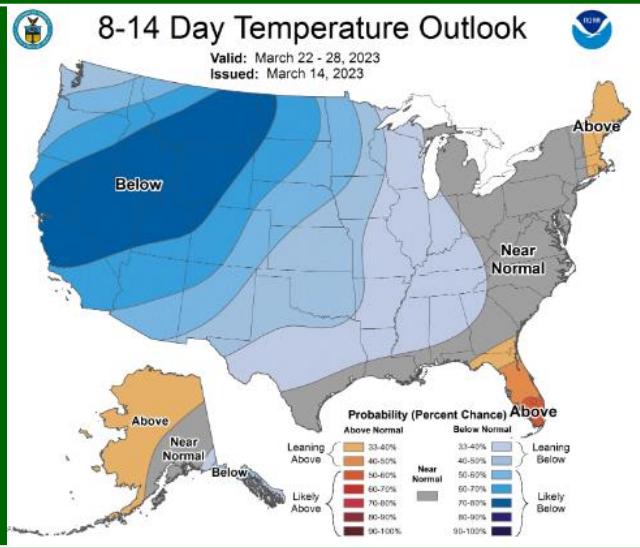
www.nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php

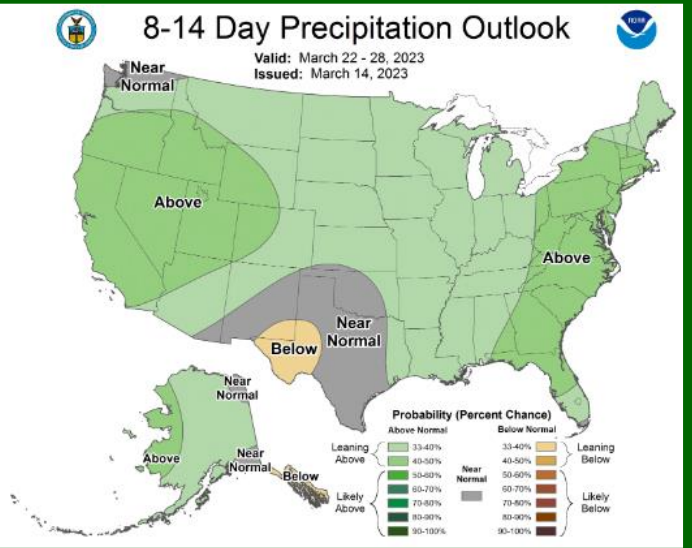




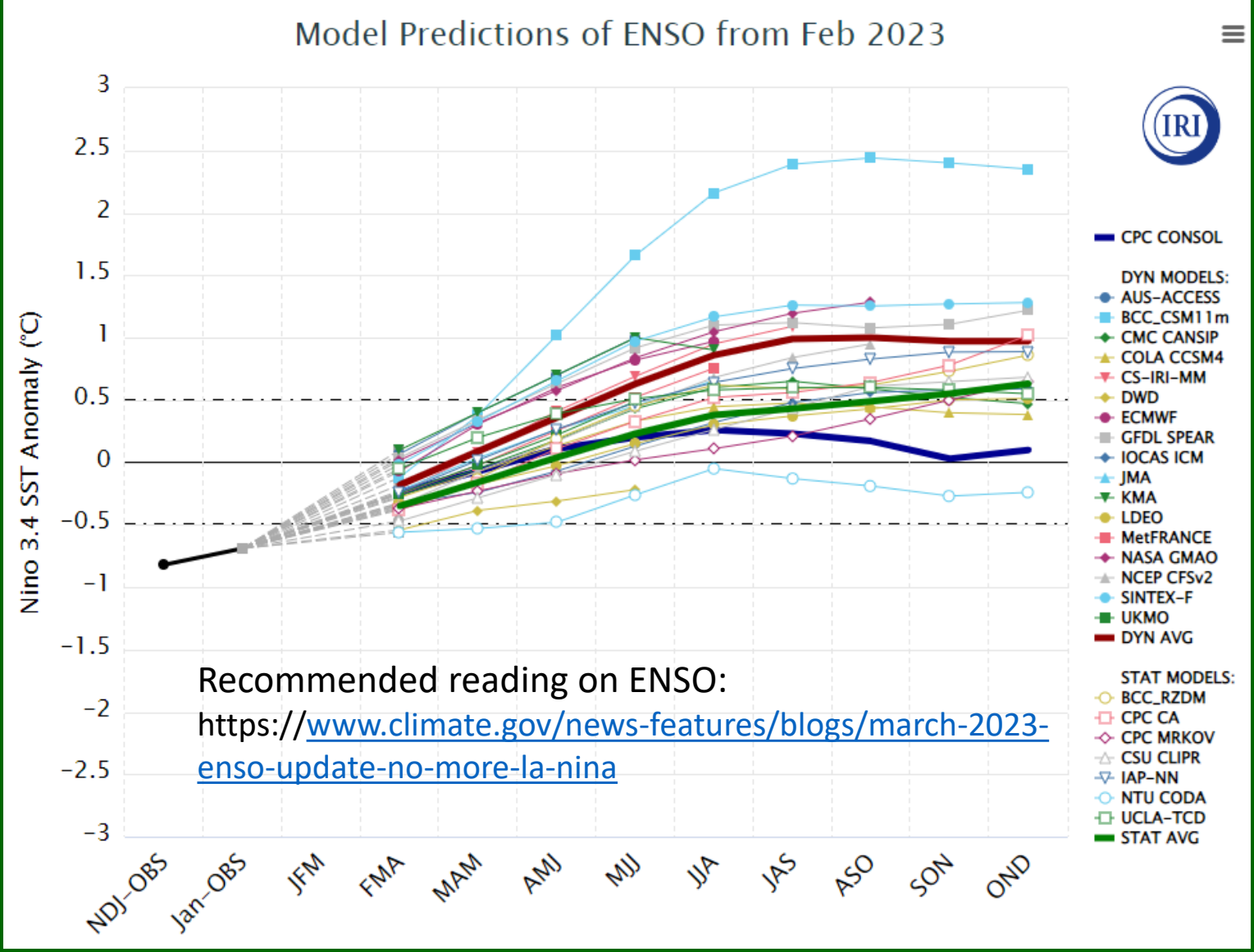
CPC
8 – 14 DAY
OUTLOOK

www.cpc.ncep.noaa.gov





ENSO Status & Prediction

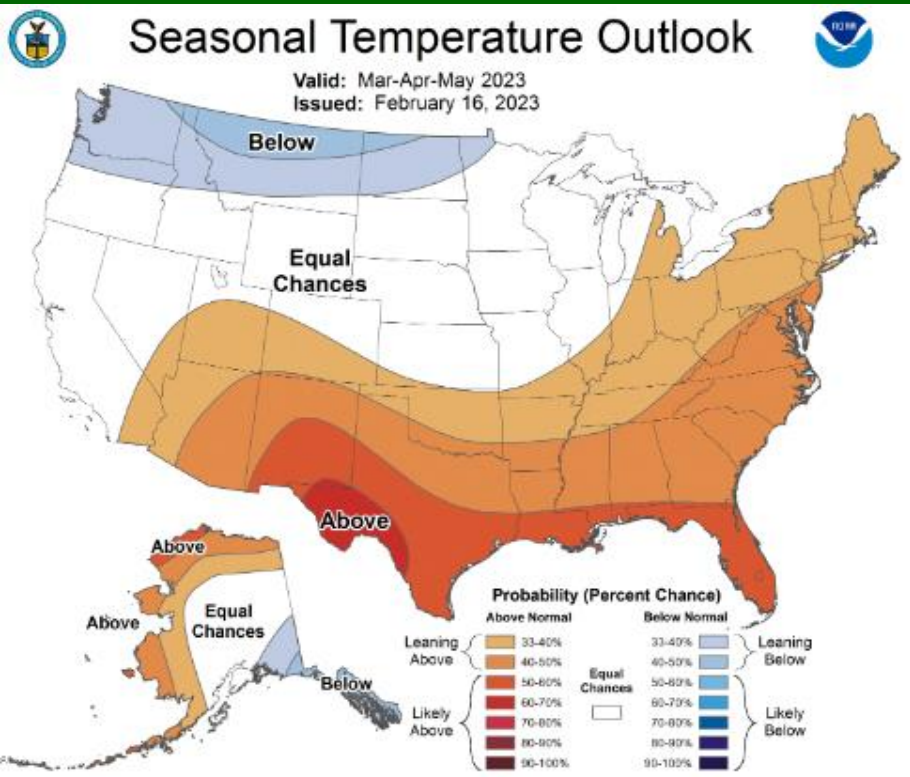


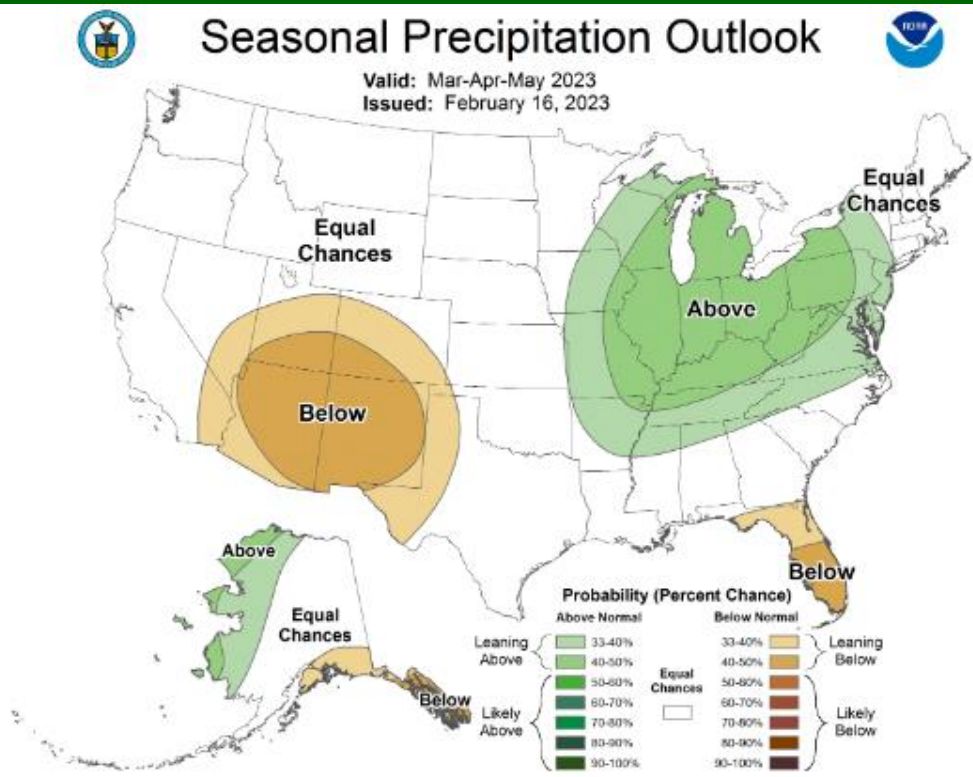
Recommended reading on ENSO:
https://www.climate.gov/news-features/blogs/march-2023-enso-update-no-more-la-nina

https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-sst_table

Climate Prediction Center Outlook

March – May 2023

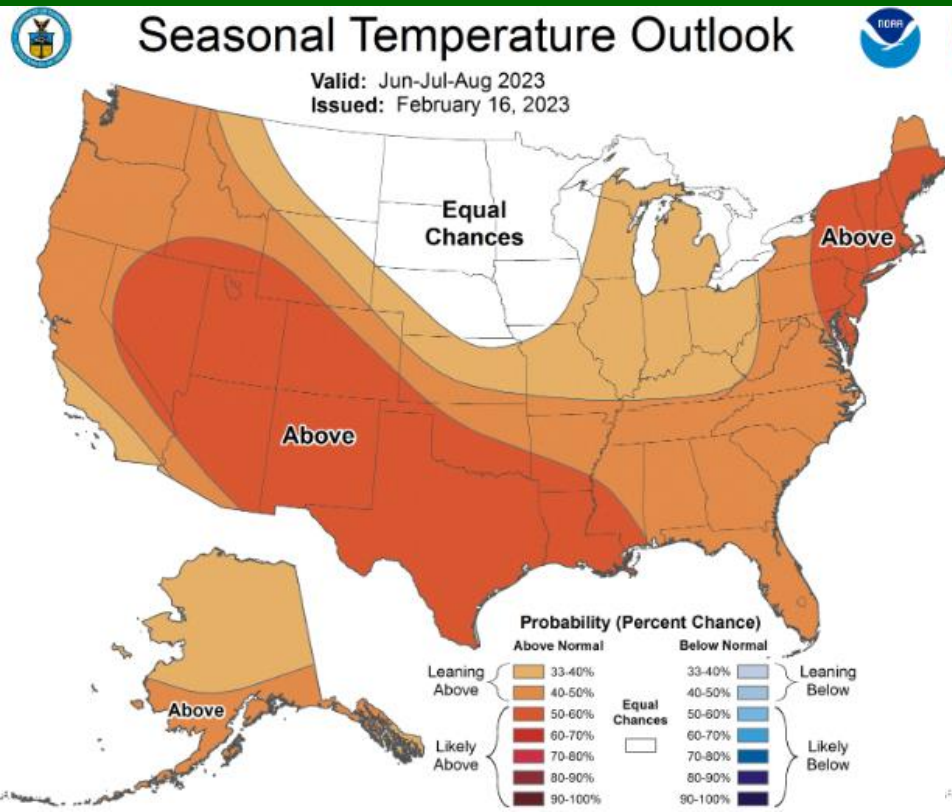


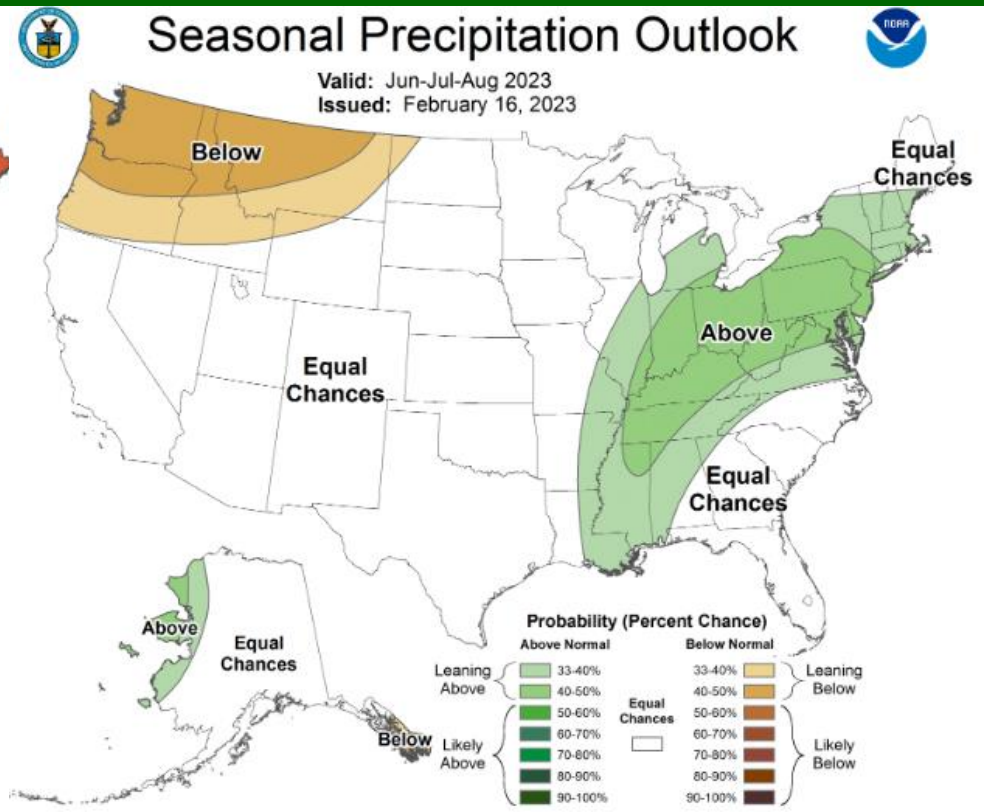


www.cpc.ncep.noaa.gov

Climate Prediction Center Outlook

June – August 2023



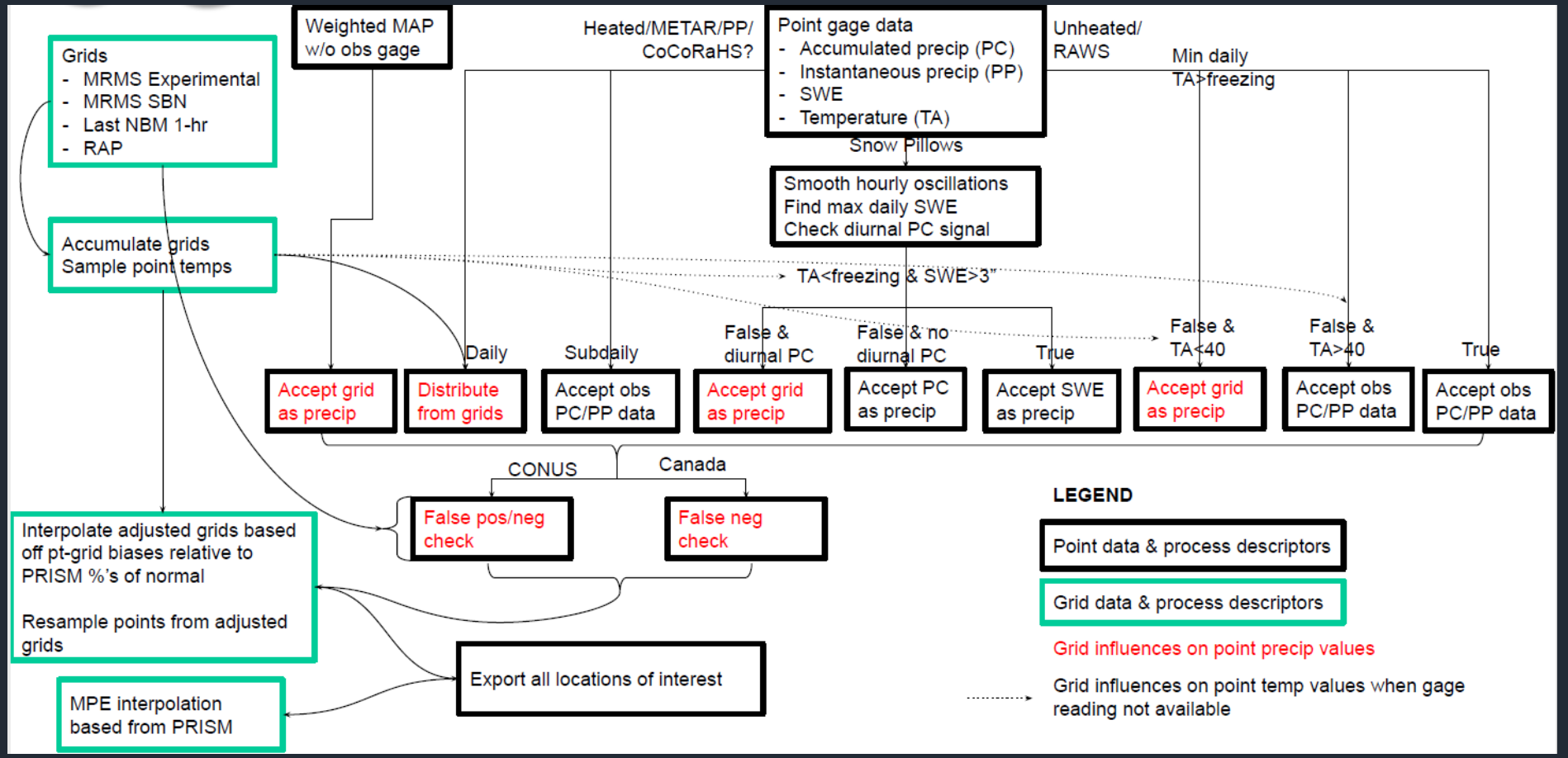


www.cpc.ncep.noaa.gov

March 2023 Update for River Forecasts

NOAA National Weather Service

Observed Precipitation Generation

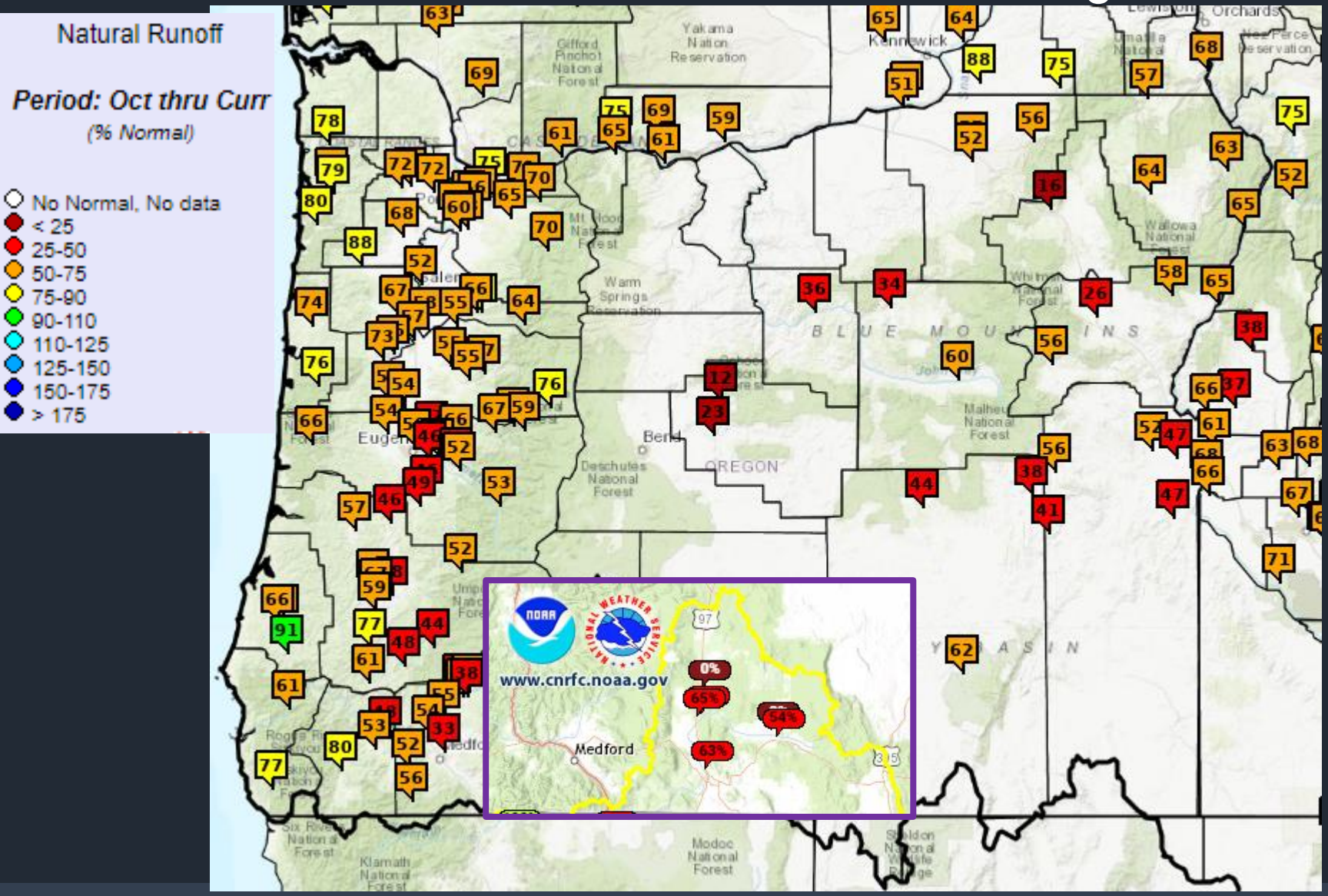


QPE Challenges: process is weakest when poor/no radar coverage and low station density

SE Oregon: 3 gages during winter. Limited stations + poor MRMR grids + limited interpolation (January 7th changed from IDW to Kriging)

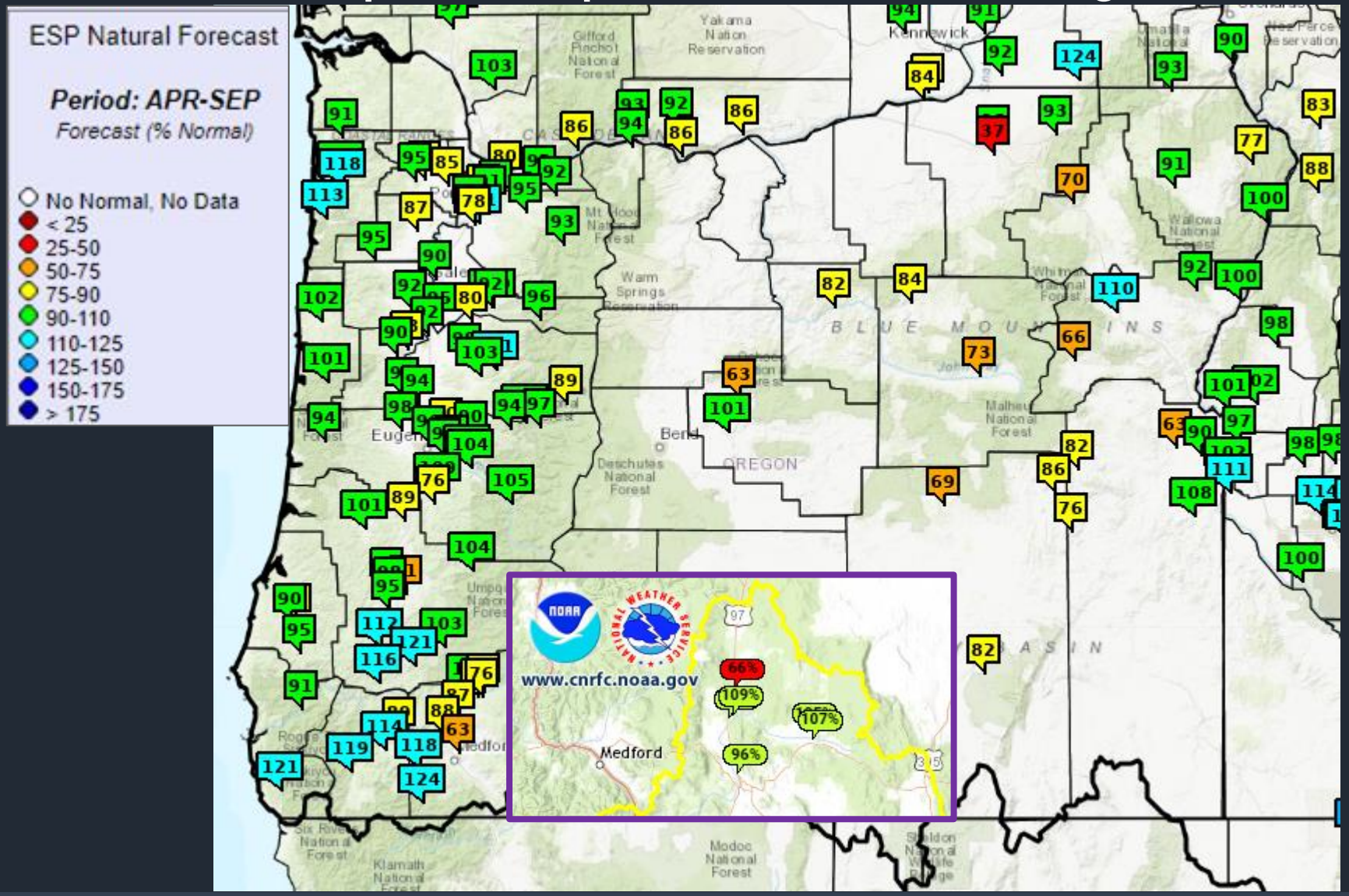
Observed Runoff

October – Present % of Average



Forecast

April – September % of Average



Natural Volume Forecast
Willamette at Salem

WILLAMETTE - AT SALEM (SLMO3)
Forecasts for Water Year 2023

Natural Forecast

ESP with 10 Days QPF ***Ensemble:*** 2023-03-14 ***Issued:*** 2023-03-14

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	3347	4562	90	6328	5067
APR-JUL	2995	4056	90	5760	4509
JAN-SEP	7034	8412	69	10301	12139
JAN-JUL	6682	7897	68	9795	11581
OCT-SEP	9626	11004	67	12892	16497

Experimental

HEFS with 15 days EQPF ***Ensemble:*** 2023-03-14 ***Issued:*** 2023-03-14

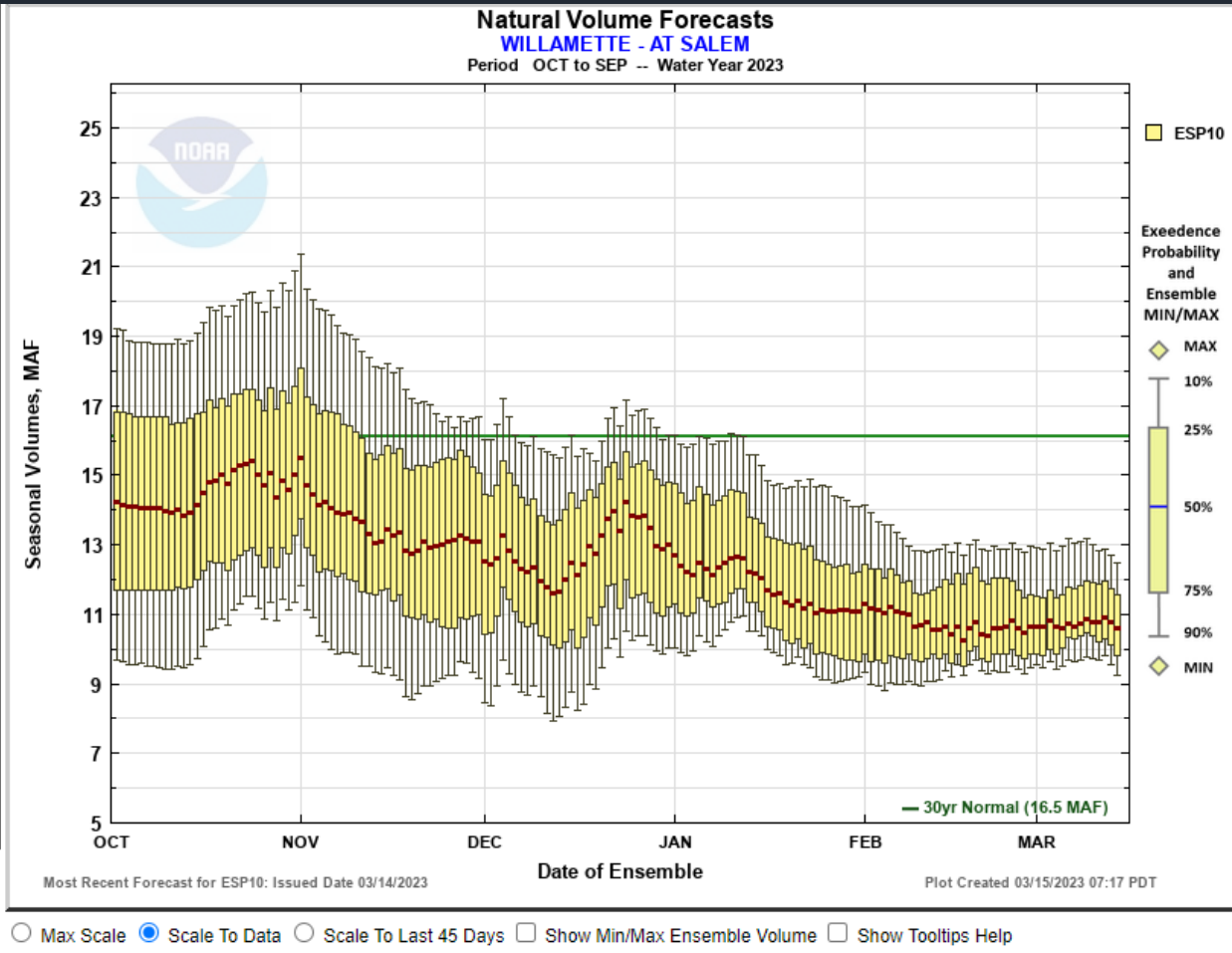
APR-SEP	3371	4439	88	6306	5067
APR-JUL	3010	3915	87	5771	4509
JAN-SEP	7287	8210	68	10658	12139
JAN-JUL	6927	7748	67	10151	11581
OCT-SEP	9879	10802	65	13249	16497

Reference

ESP with 0 Days QPF ***Ensemble:*** 2023-03-14 ***Issued:*** 2023-03-14

APR-SEP	3319	4477	88	6371	5067
APR-JUL	2961	3968	88	5854	4509
JAN-SEP	7308	8551	70	10743	12139
JAN-JUL	6892	8023	69	10196	11581
OCT-SEP	9899	11142	68	13334	16497

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

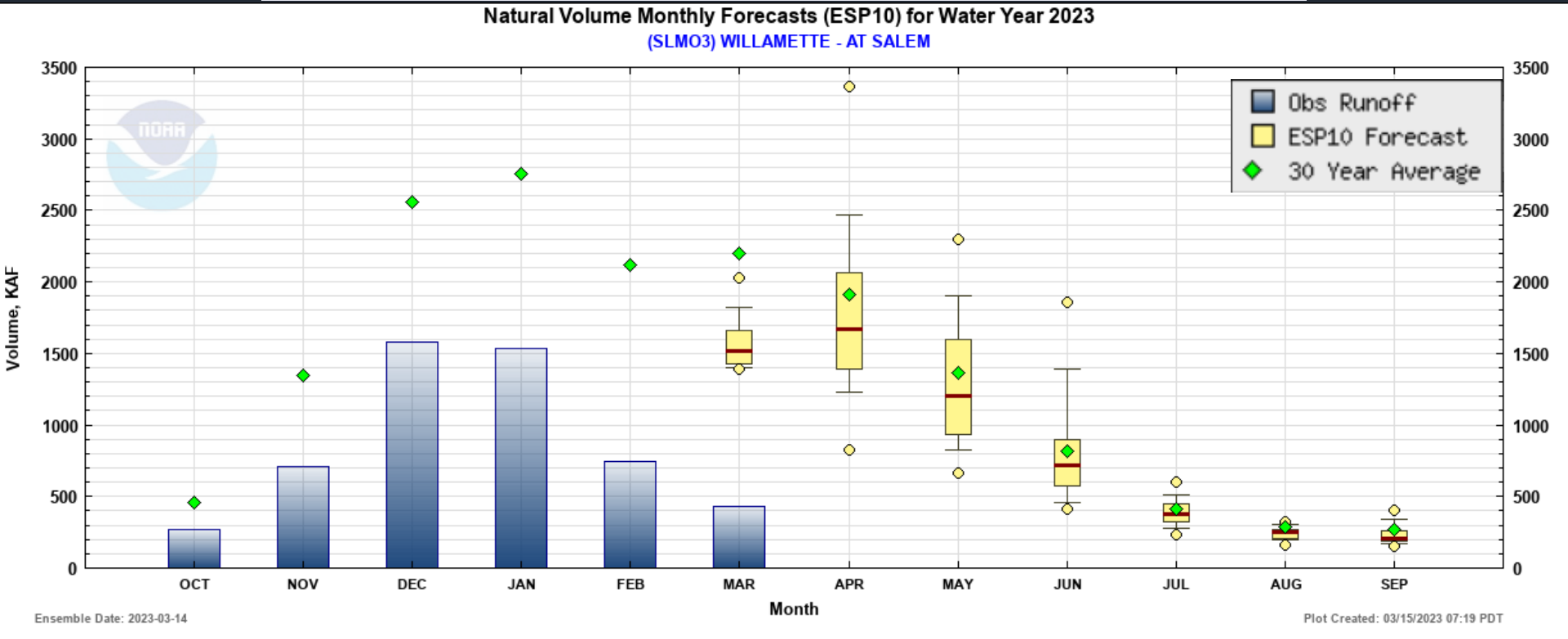


https://www.nwrfc.noaa.gov/natural/plot/nat_forecasts.php?id=SLMO3

Monthly Natural Volumes

Willamette R at Salem

Period	Last Month %	Recent %
Apr – Sep	85	90
Water Year	67	67

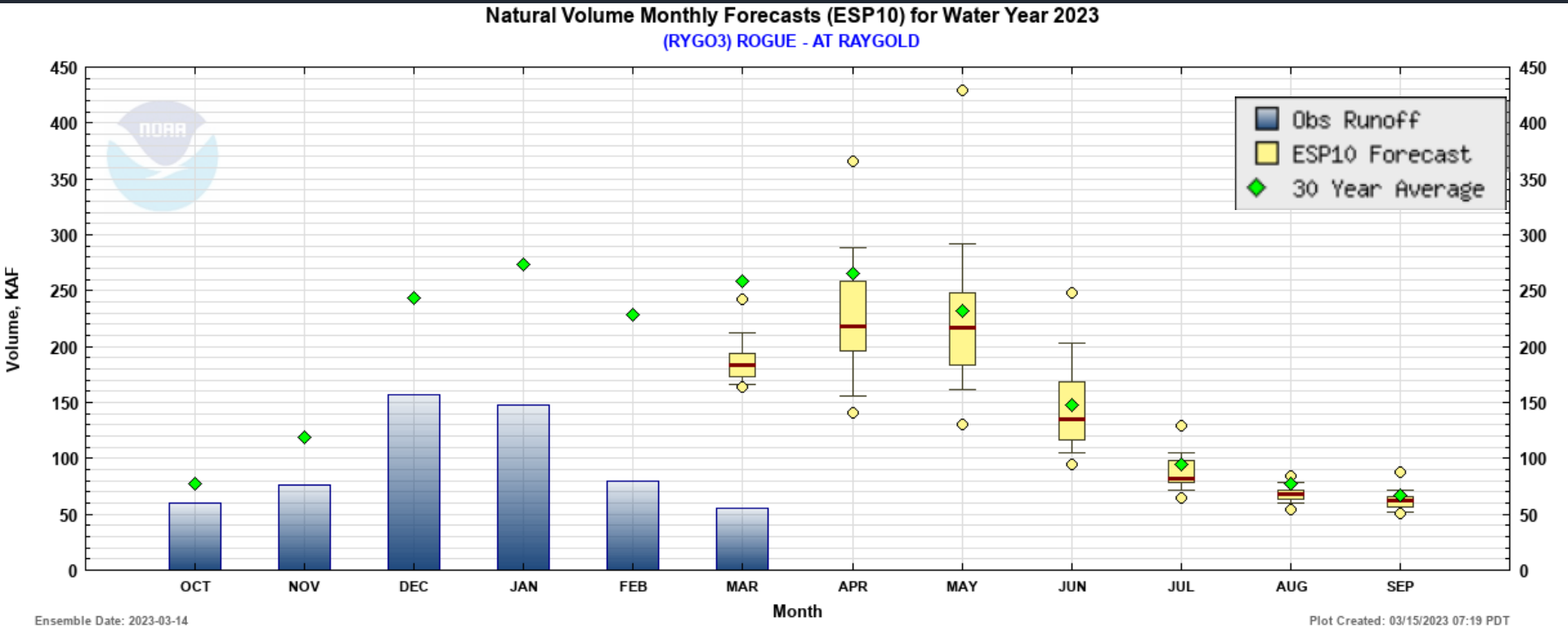


https://www.nwrfc.noaa.gov/natural/plot/nat_forecasts.php?id=SLMO3

Monthly Natural Volumes

Rogue R near Raygold

Period	Last Month %	Recent %
Apr – Sep	78	88
Water Year	67	71

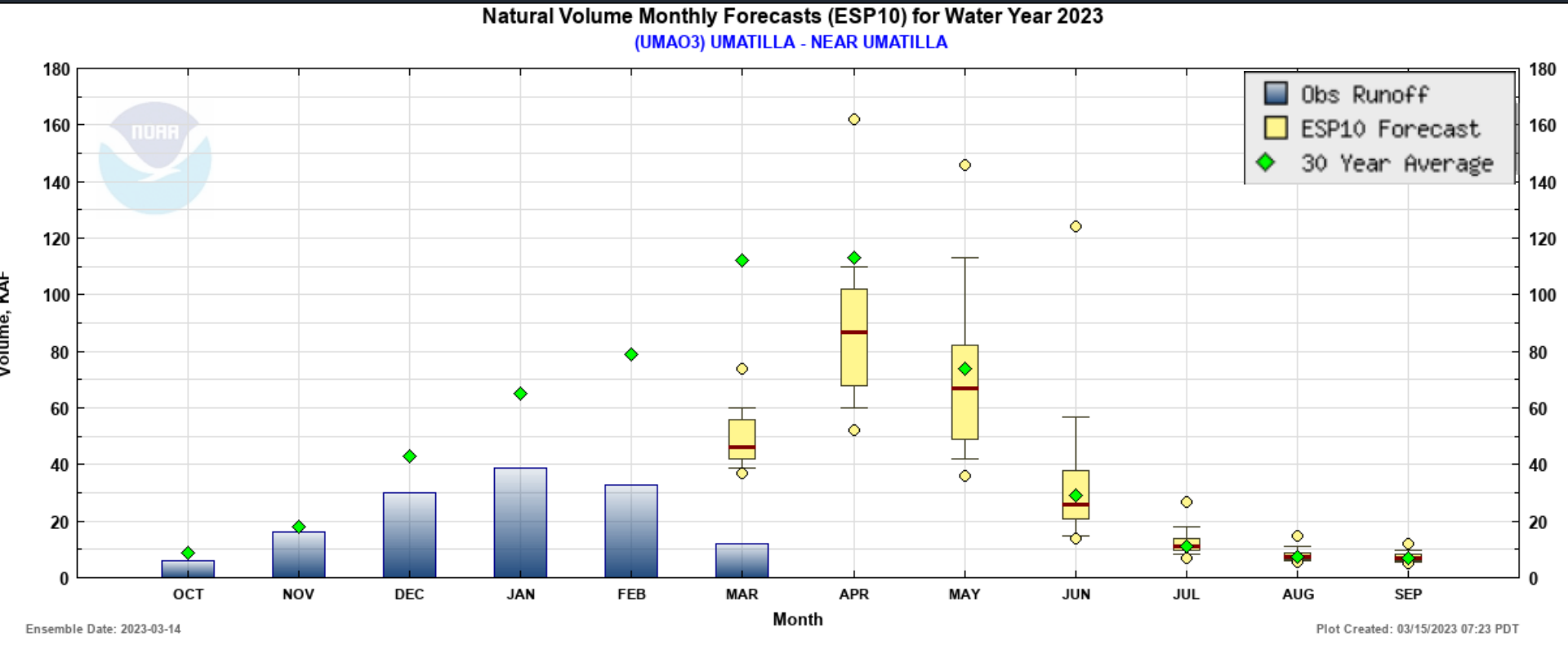


https://www.nwrfc.noaa.gov/natural/plot/nat_forecasts.php?id=RYGO3

Monthly Natural Volumes

Umatilla R near Umatilla

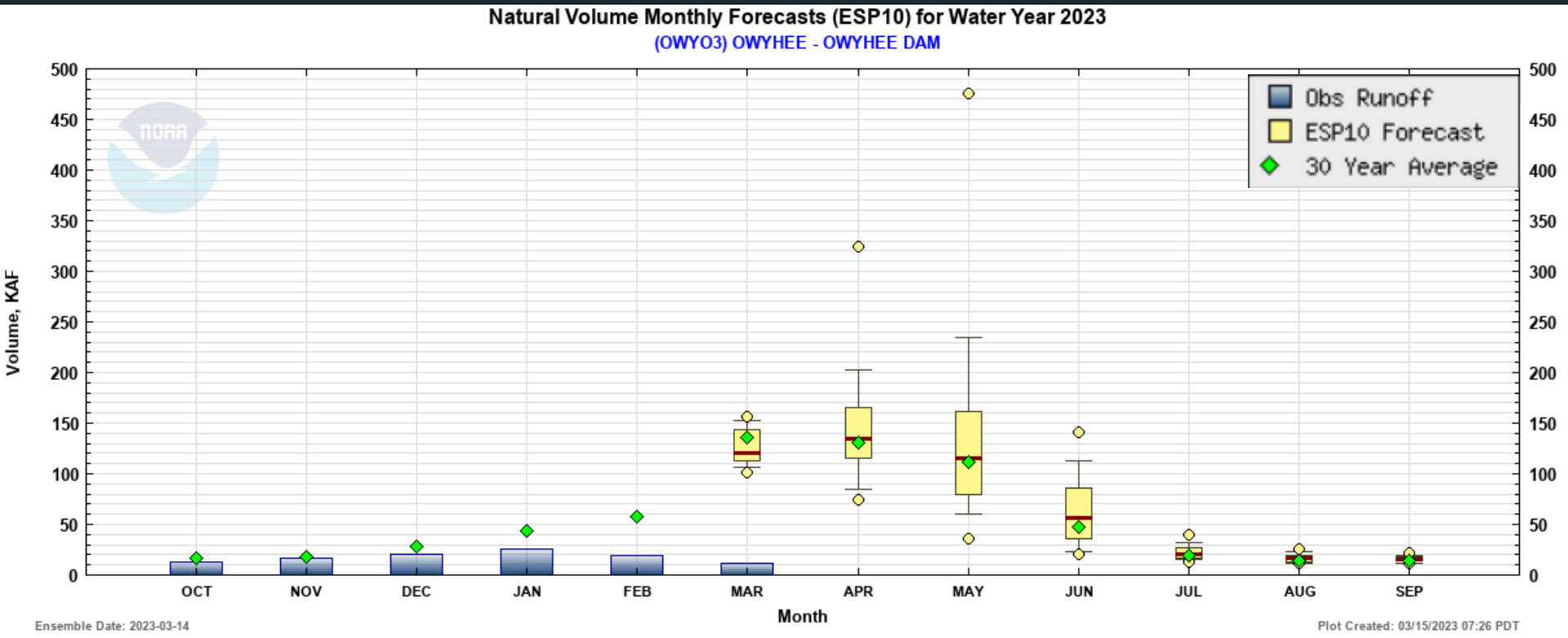
Period	Last Month %	Recent %
Apr – Sep	80	84
Water Year	71	66



https://www.nwrfc.noaa.gov/natural/plot/nat_forecasts.php?id=UMAO3

Monthly Natural Volumes
Owyhee R at Owyhee Dam

Period	Last Month %	Recent %
Apr – Sep	92	108
Water Year	86	93



https://www.nwrfc.noaa.gov/natural/plot/nat_forecasts.php?id=OWYO3

Monthly Natural Volumes
Owyhee R at Owyhee Dam

2023 Schedule for *Live* Water Supply Briefings					
Jan	Feb	Mar	Apr	May	Jun
5	2	2	6	4	TBD
All presentations held at 10:00am PDT/PST, unless noted otherwise					
Click here for Registration Information					

Info: https://www.nwrfc.noaa.gov/water_supply/ws_schd.cgi?version=20190204v1
Webinar Registration: https://register.gotowebinar.com/rt/9001532798339394573

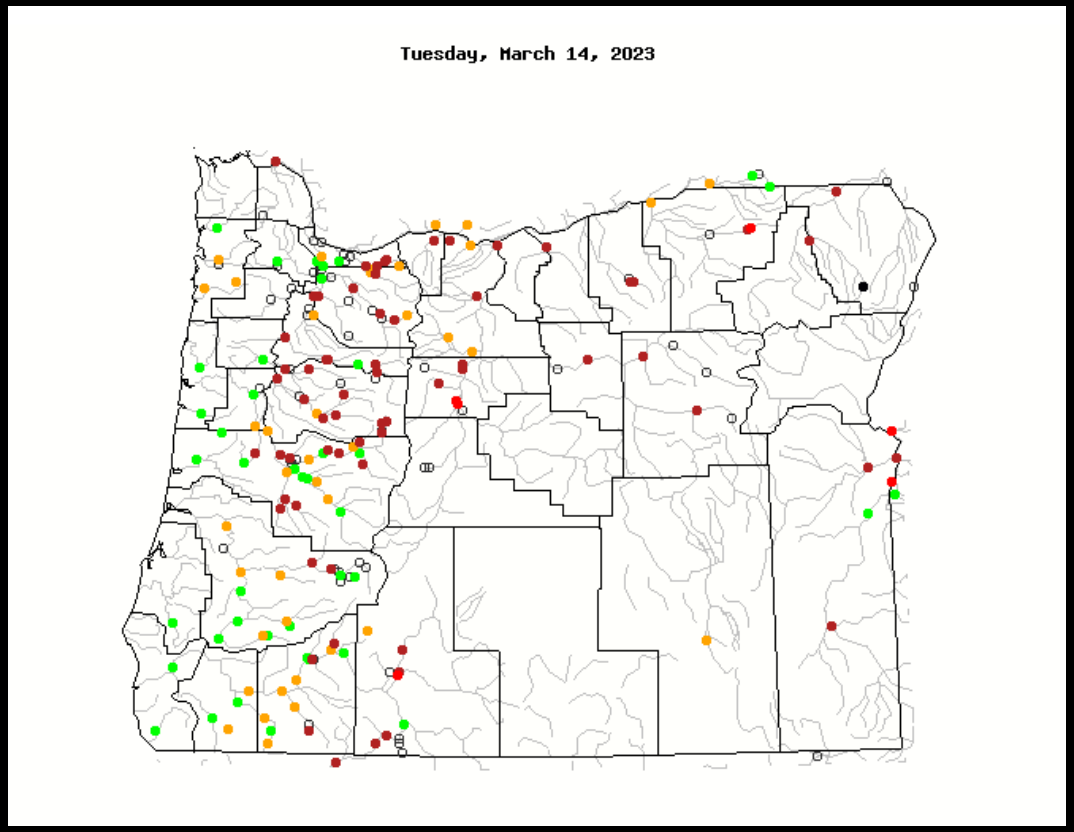
Oregon Water Supply Availability Meeting

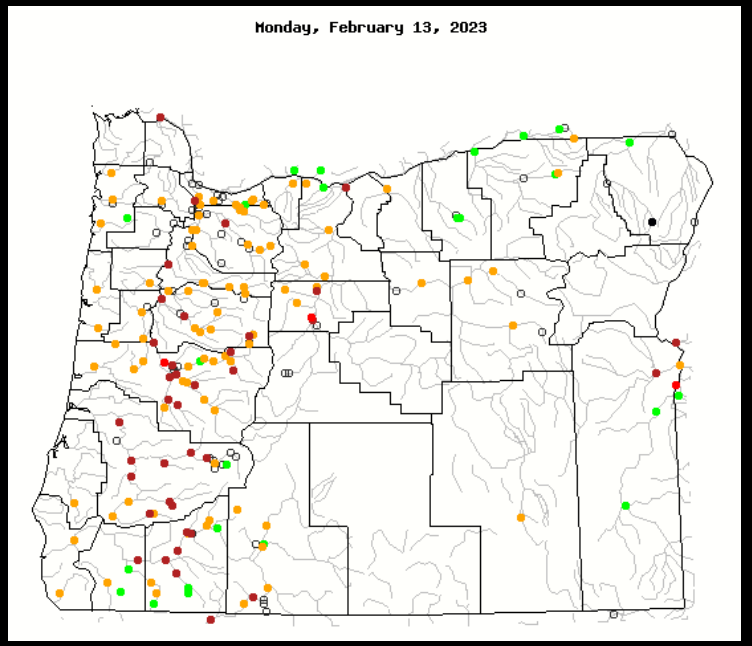
February 2023

U.S. Department of the Interior
U.S. Geological Survey

Streamflow Conditions

28-day Average Streamflow (as compared to Historical Record)



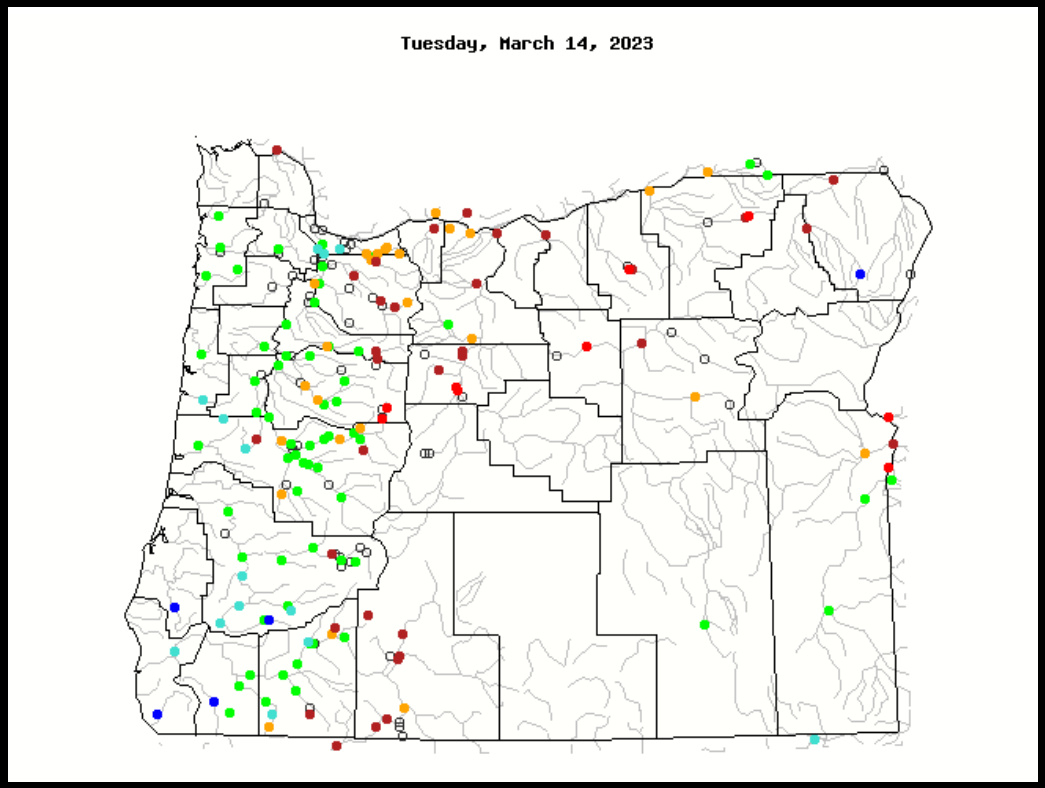


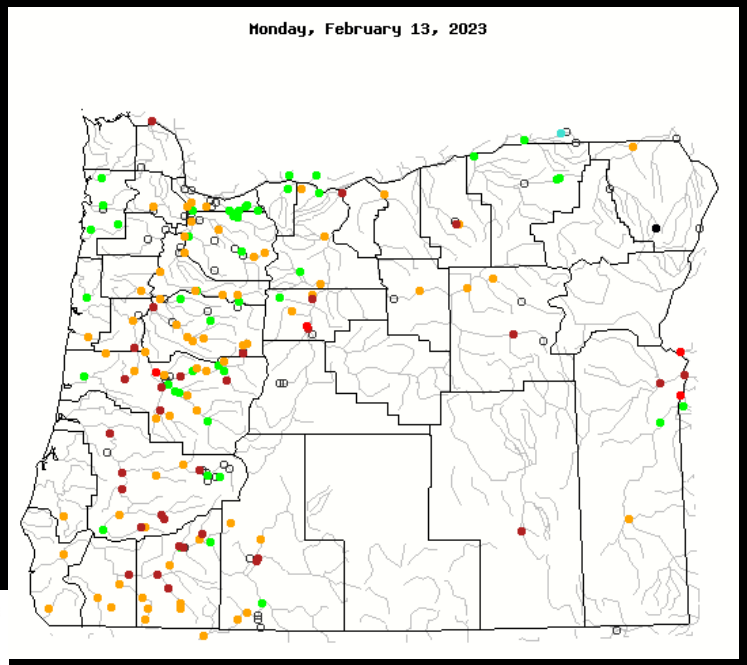
USGS

Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Streamflow Conditions

7-day Average Streamflow (as compared to Historical Record)

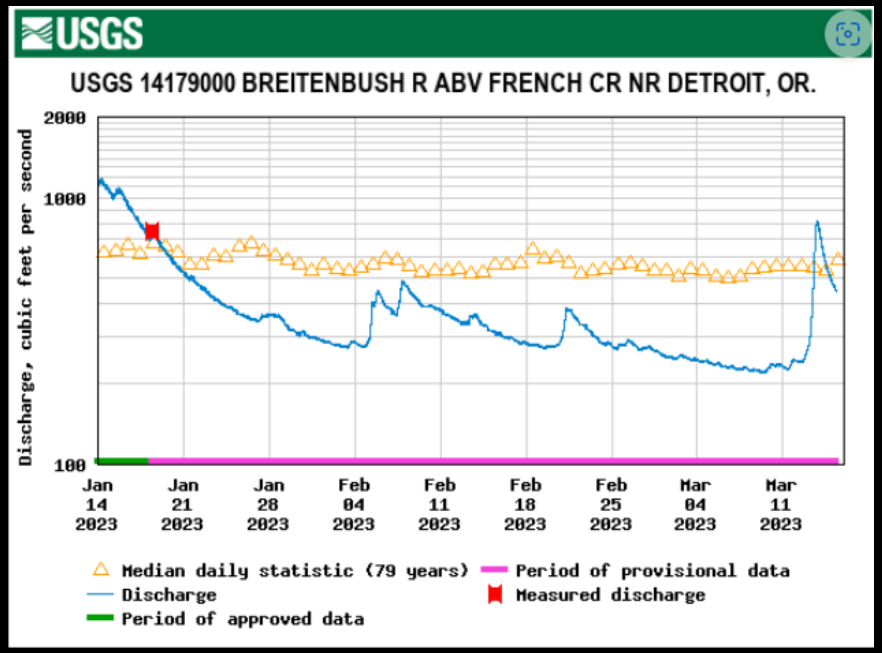


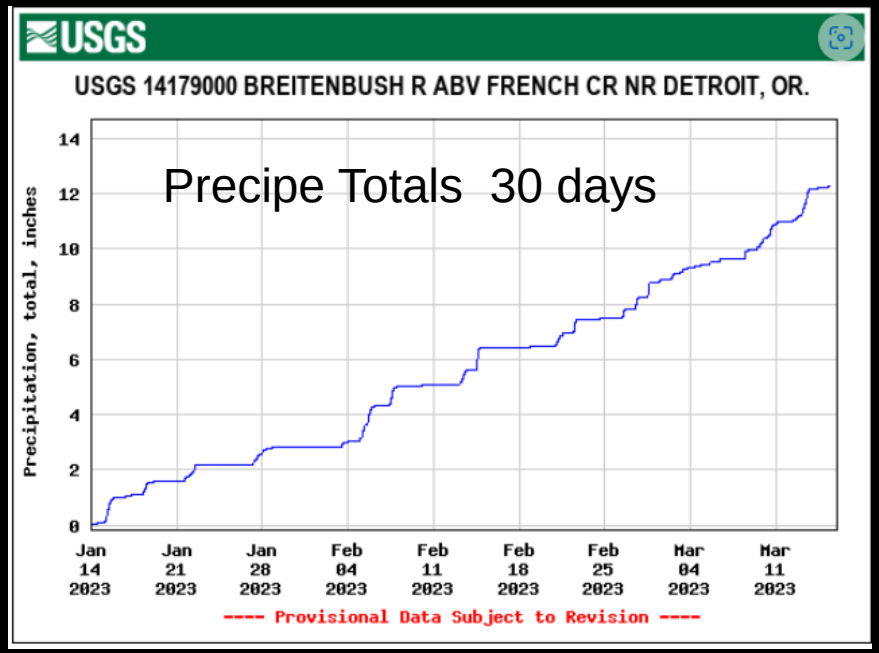


USGS

Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

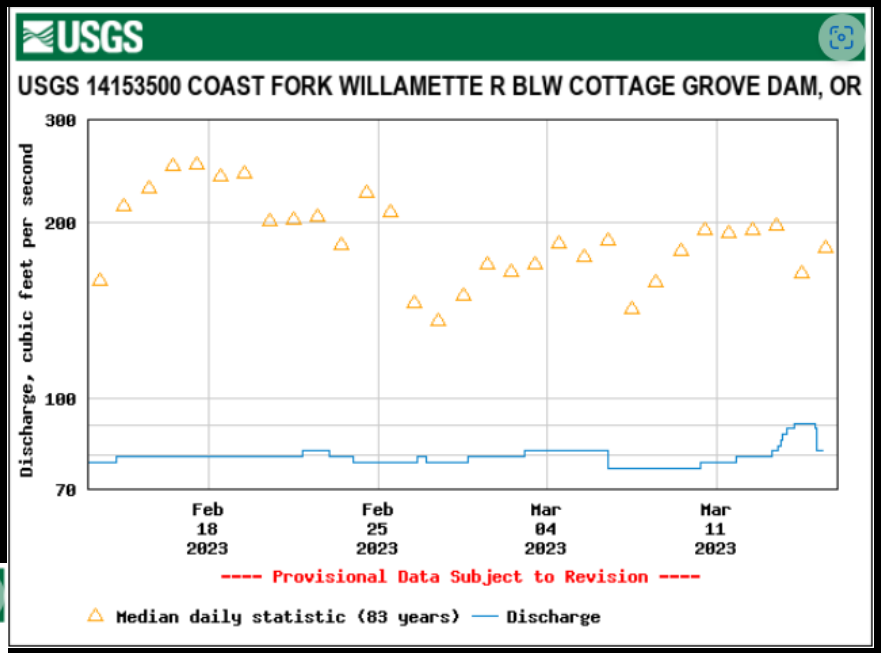
Northwestern OR

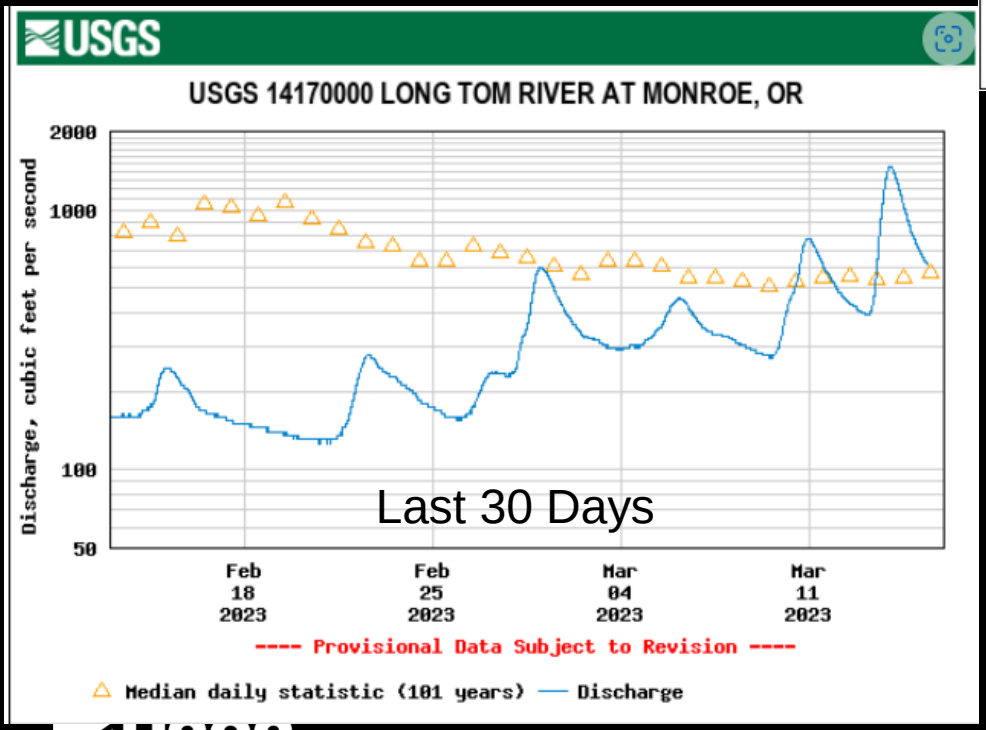




USGS

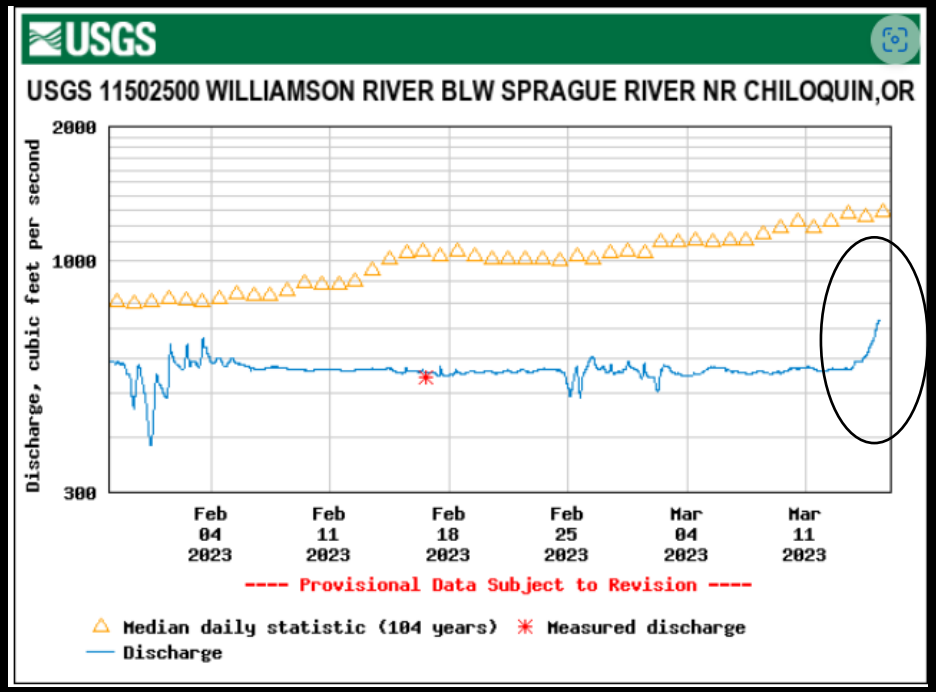
Northwestern OR

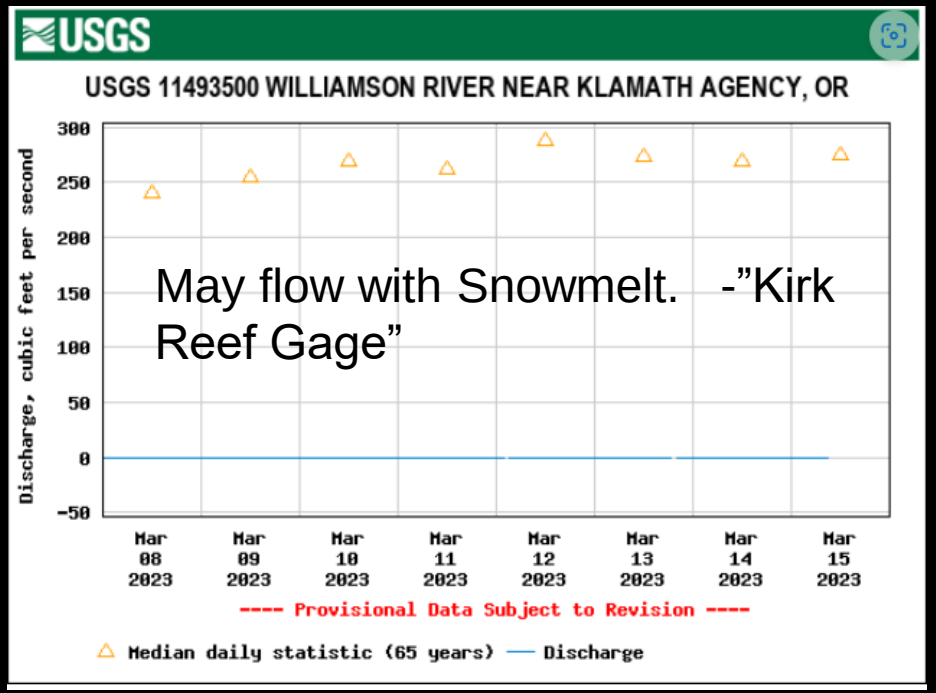




USGS

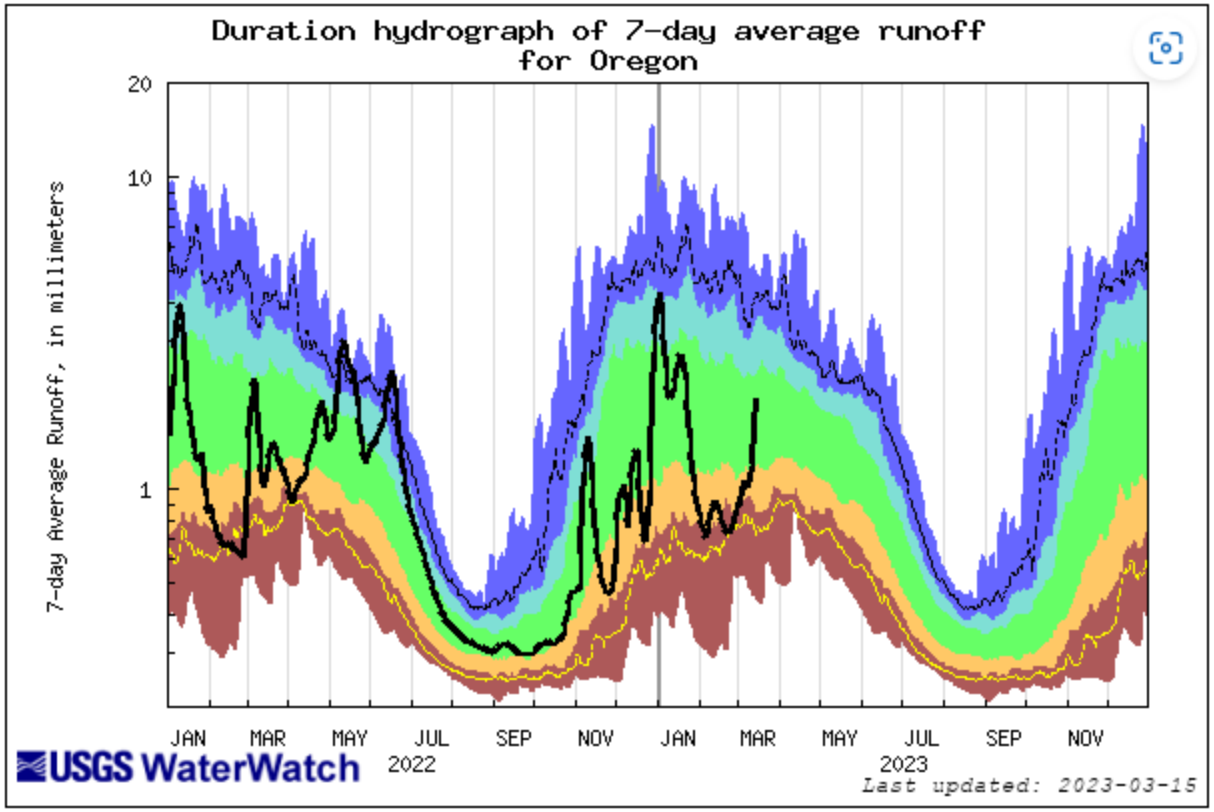
Klamath





May flow with Snowmelt. -"Kirk Reef Gage"

USGS


Duration hydrograph of 7-day average runoff
for Oregon
7-day Average Runoff, in millimeters
20
10
1
JAN
MAR
MAY
JUL
SEP
NOV
JAN
MAR
MAY
JUL
SEP
NOV
2022
2023
USGS WaterWatch
Last updated: 2023-03-15

USGS

Water Supply Availability Committee
Oregon Water Resources Department
Ryan Andrews
March 15th, 2022

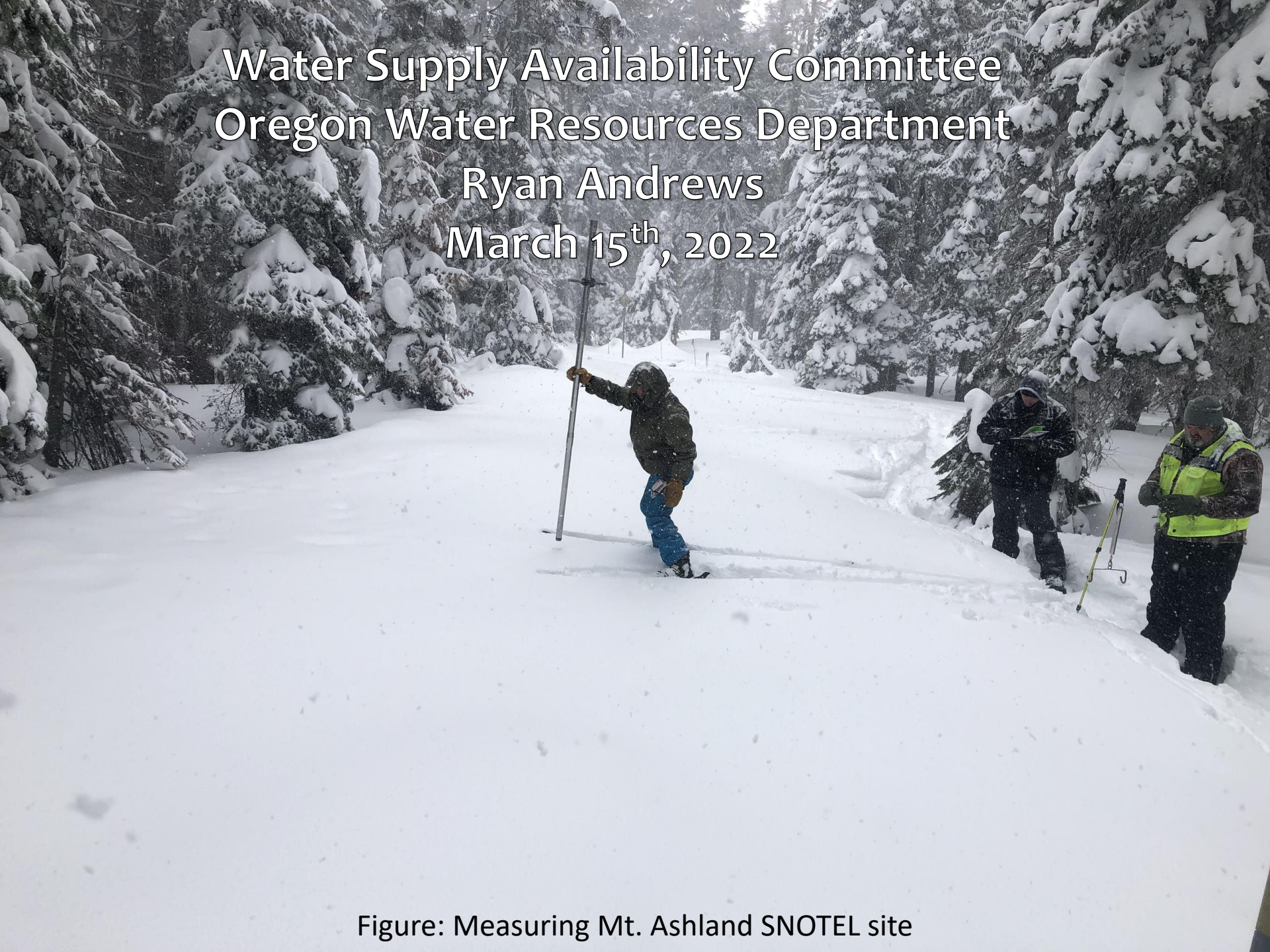
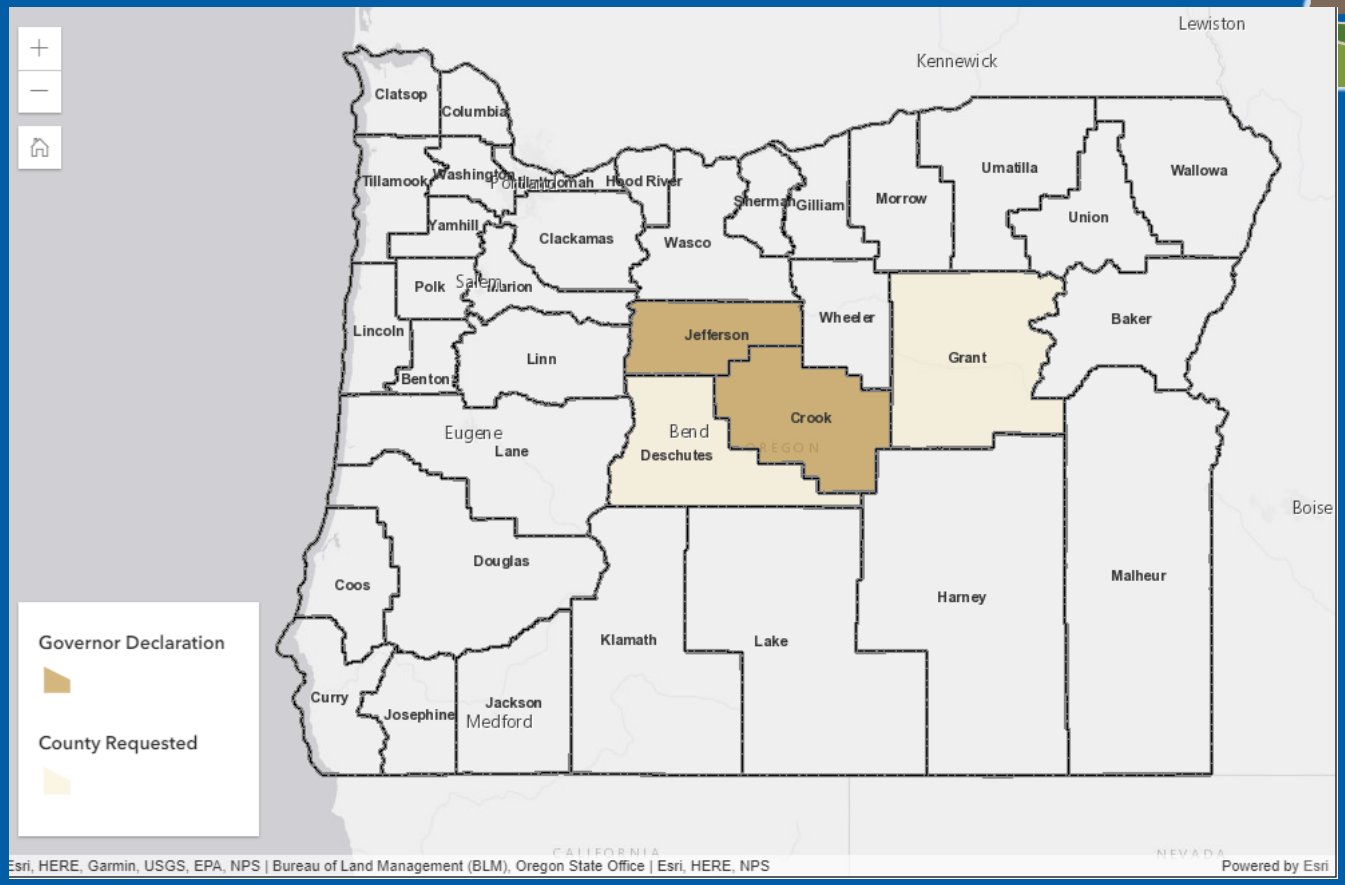
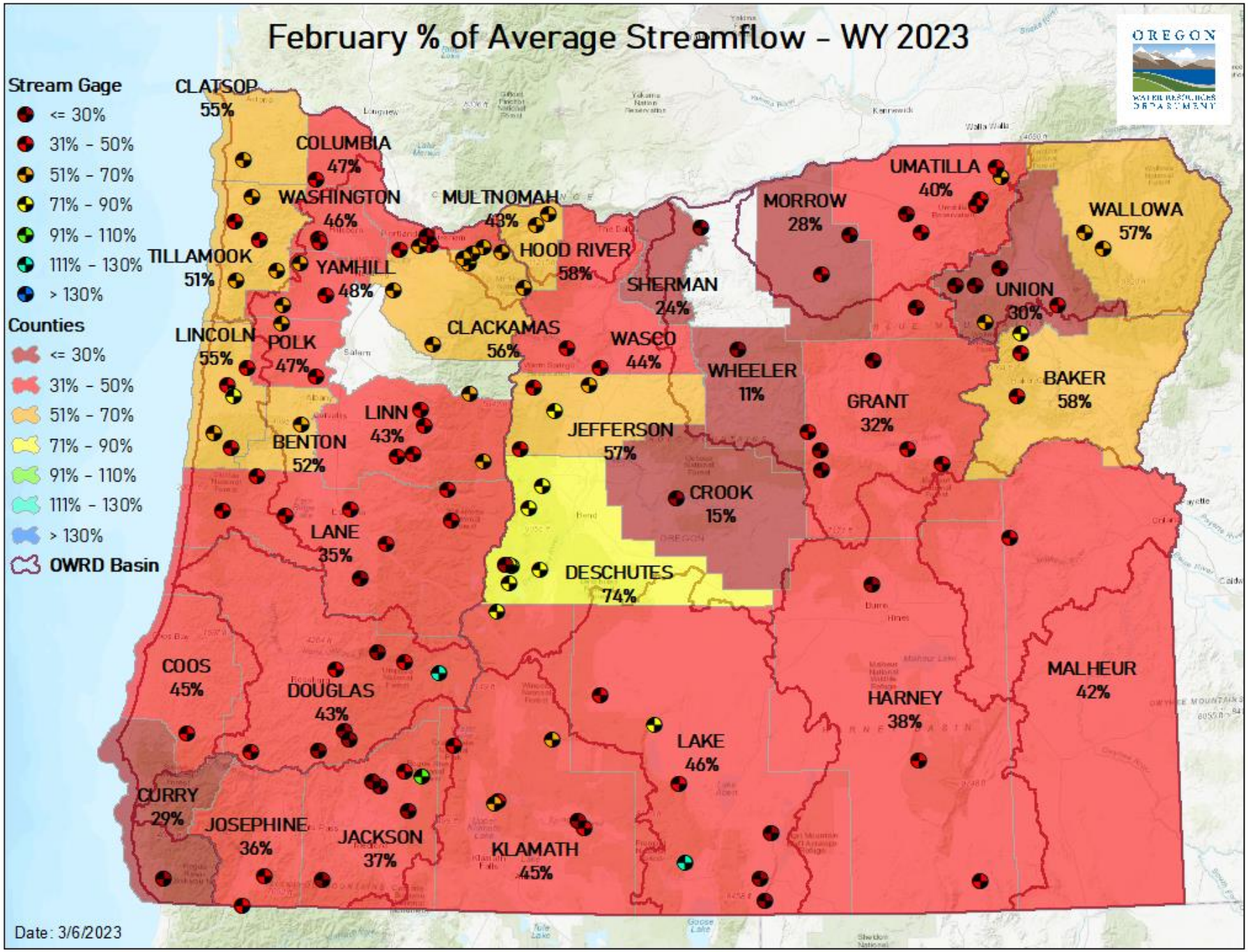


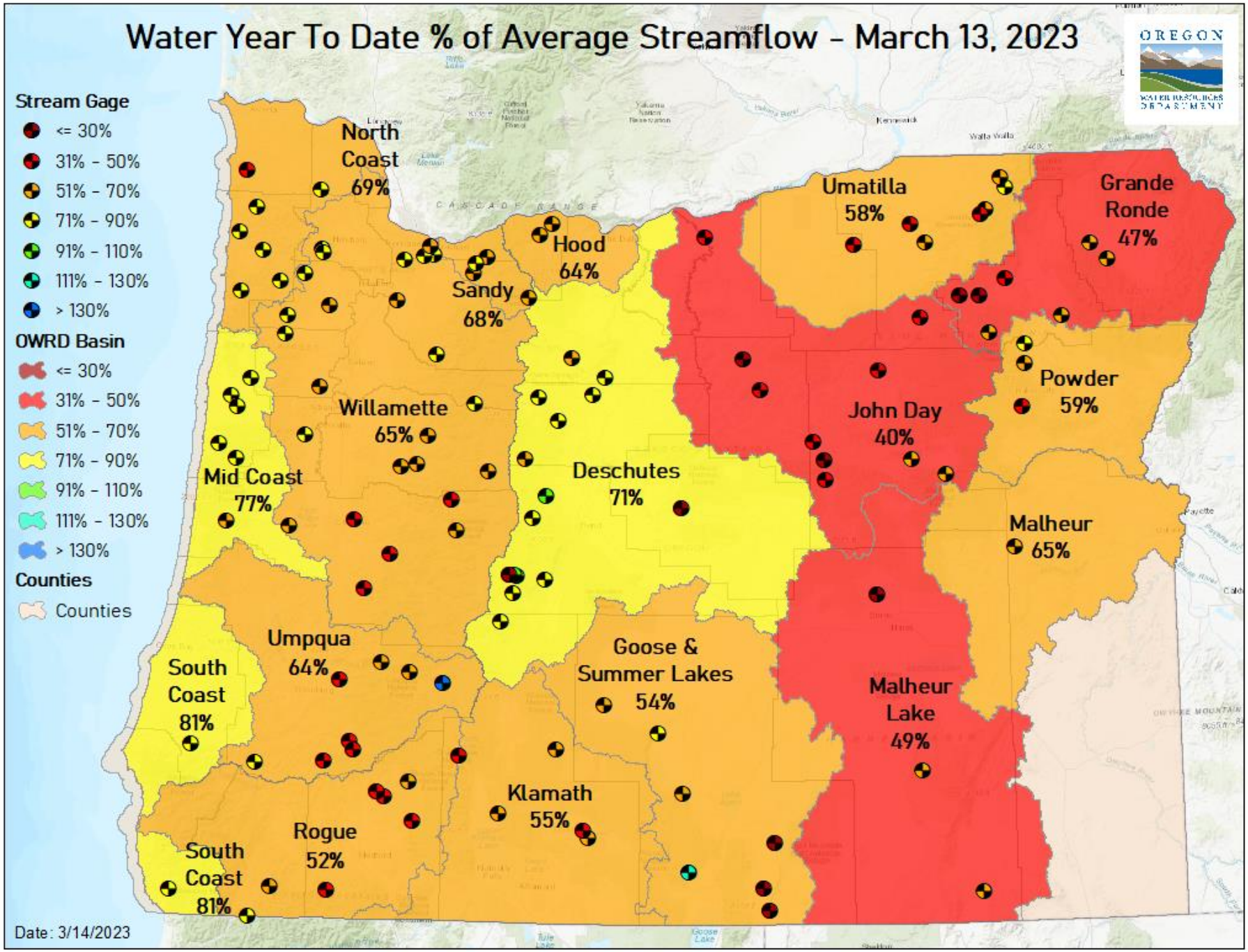
Figure: Measuring Mt. Ashland SNOTEL site

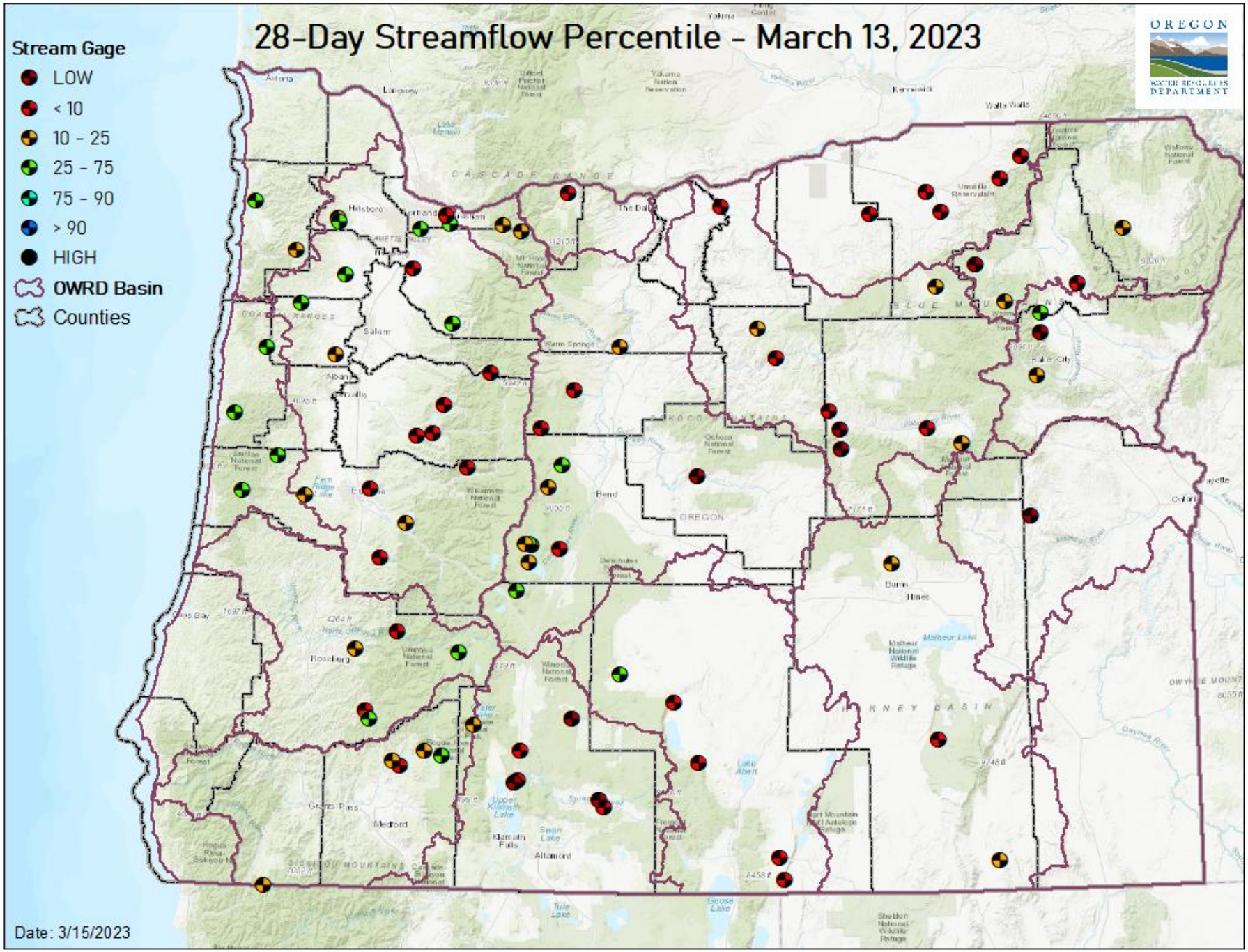
Drought Declarations

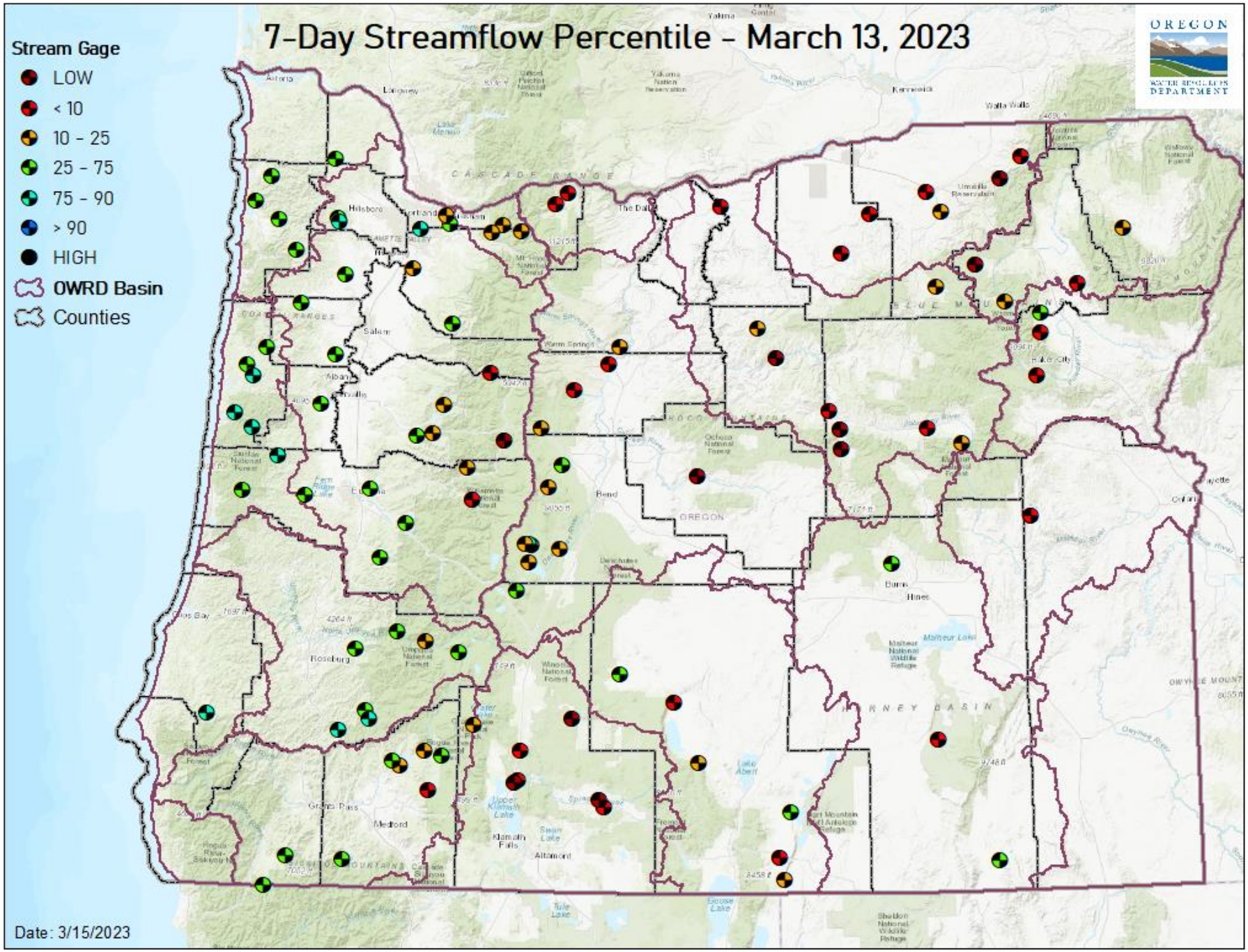


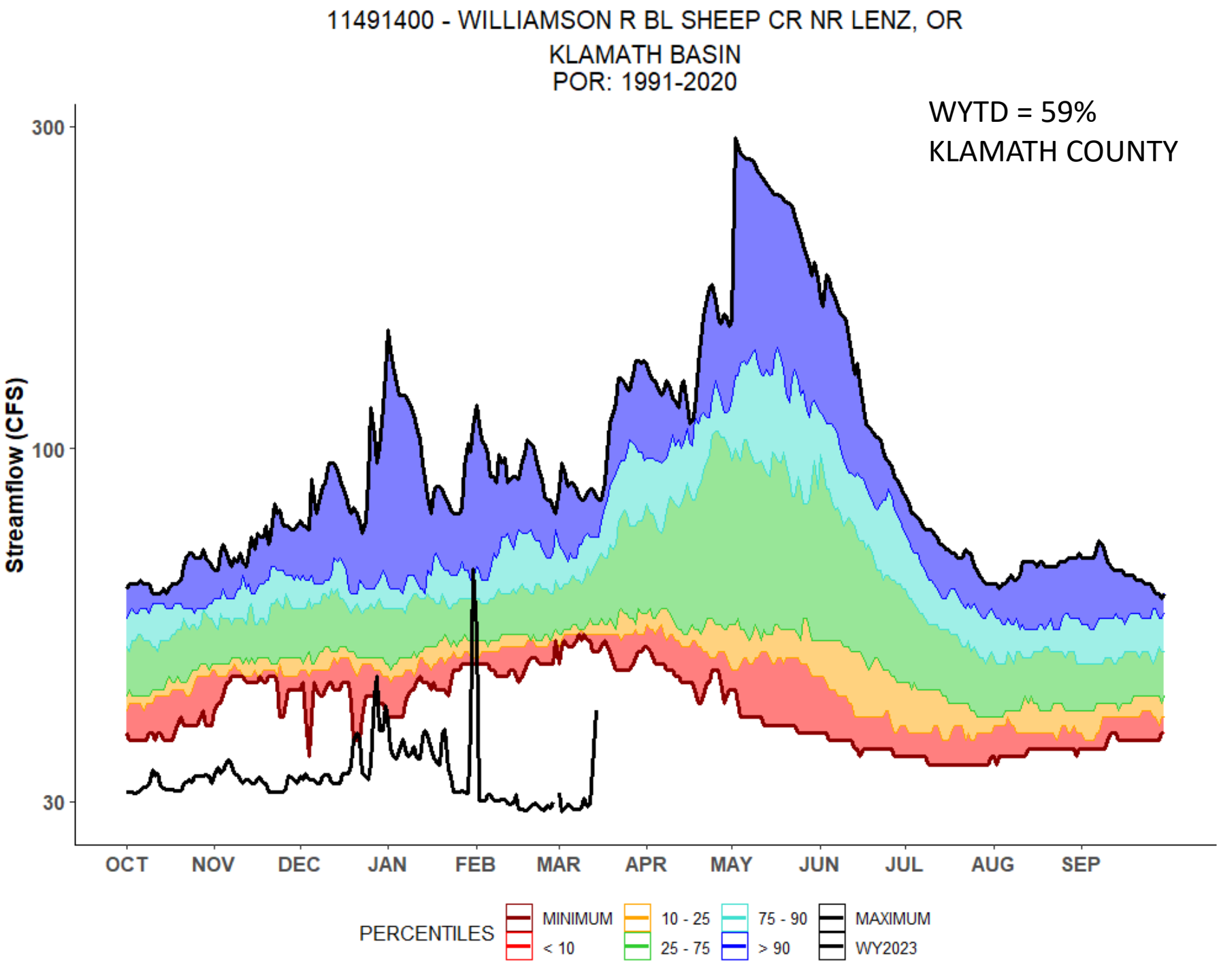
- Two counties with Executive Orders for drought declarations under ORS 536
- Grant and Deschutes County requests forwarded to Governor's Office

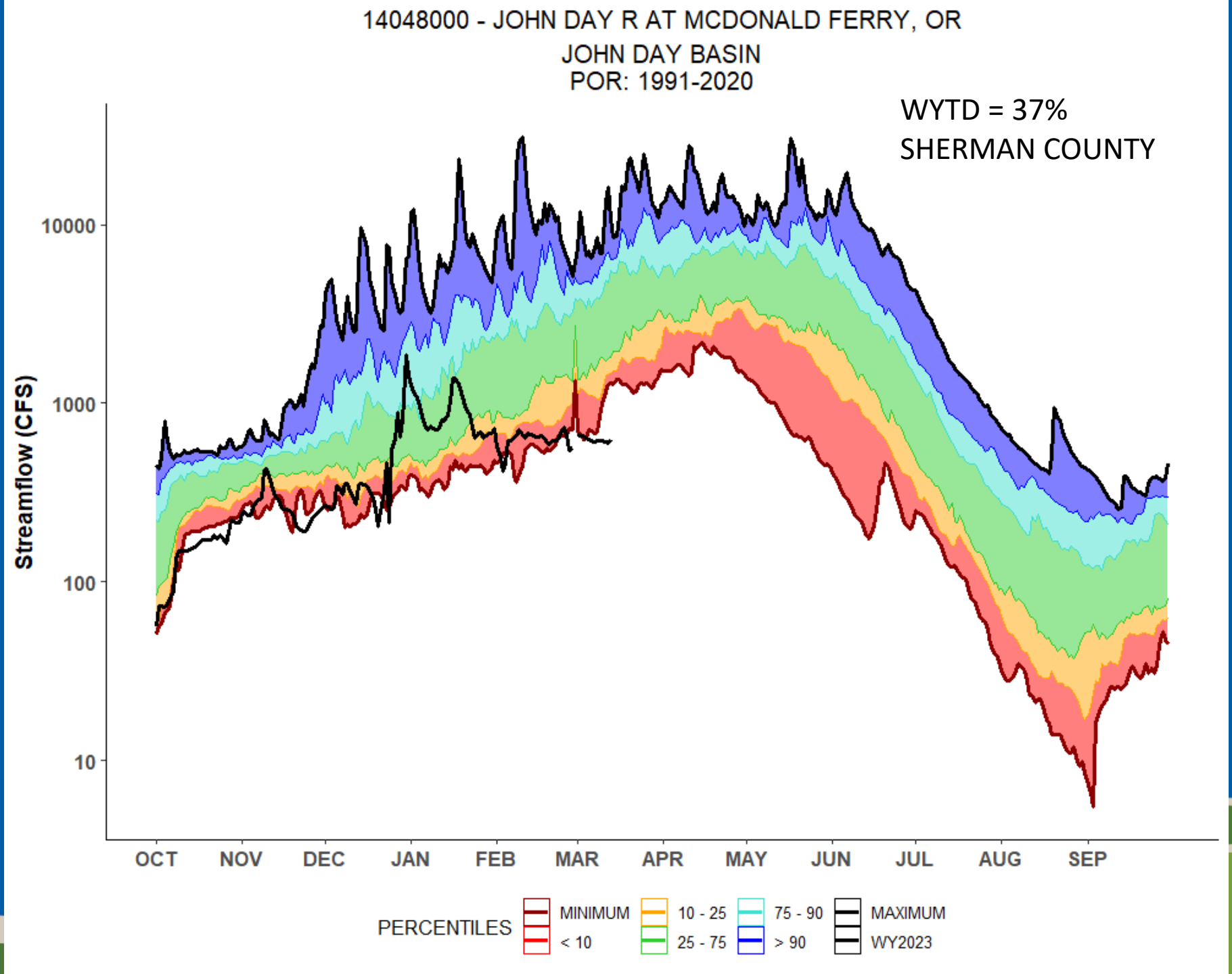

February % of Average Streamflow - WY 2023
OREGON
WATER RESOURCES DEPARTMENT
Stream Gage
<= 30%
31% - 50%
51% - 70%
71% - 90%
91% - 110%
111% - 130%
> 130%
Counties
<= 30%
31% - 50%
51% - 70%
71% - 90%
91% - 110%
111% - 130%
> 130%
OWRD Basin
CLATSOP 55%
COLUMBIA 47%
WASHINGTON 46%
MULTNOMAH 43%
TILLAMOOK 51%
YAMHILL 48%
HOOD RIVER 58%
SHERMAN 24%
MORROW 28%
UMATILLA 40%
WALLOWA 57%
UNION 30%
LINCOLN 55%
POLK 47%
CLACKAMAS 56%
WASCO 44%
WHEELER 11%
BAKER 58%
GRANT 32%
LINN 43%
BENTON 52%
JEFFERSON 57%
CROOK 15%
LANE 35%
DESCHUTES 74%
COOS 45%
DOUGLAS 43%
HARNEY 38%
MALHEUR 42%
LAKE 46%
CURRY 29%
JOSEPHINE 36%
JACKSON 37%
KLAMATH 45%
Date: 3/6/2023

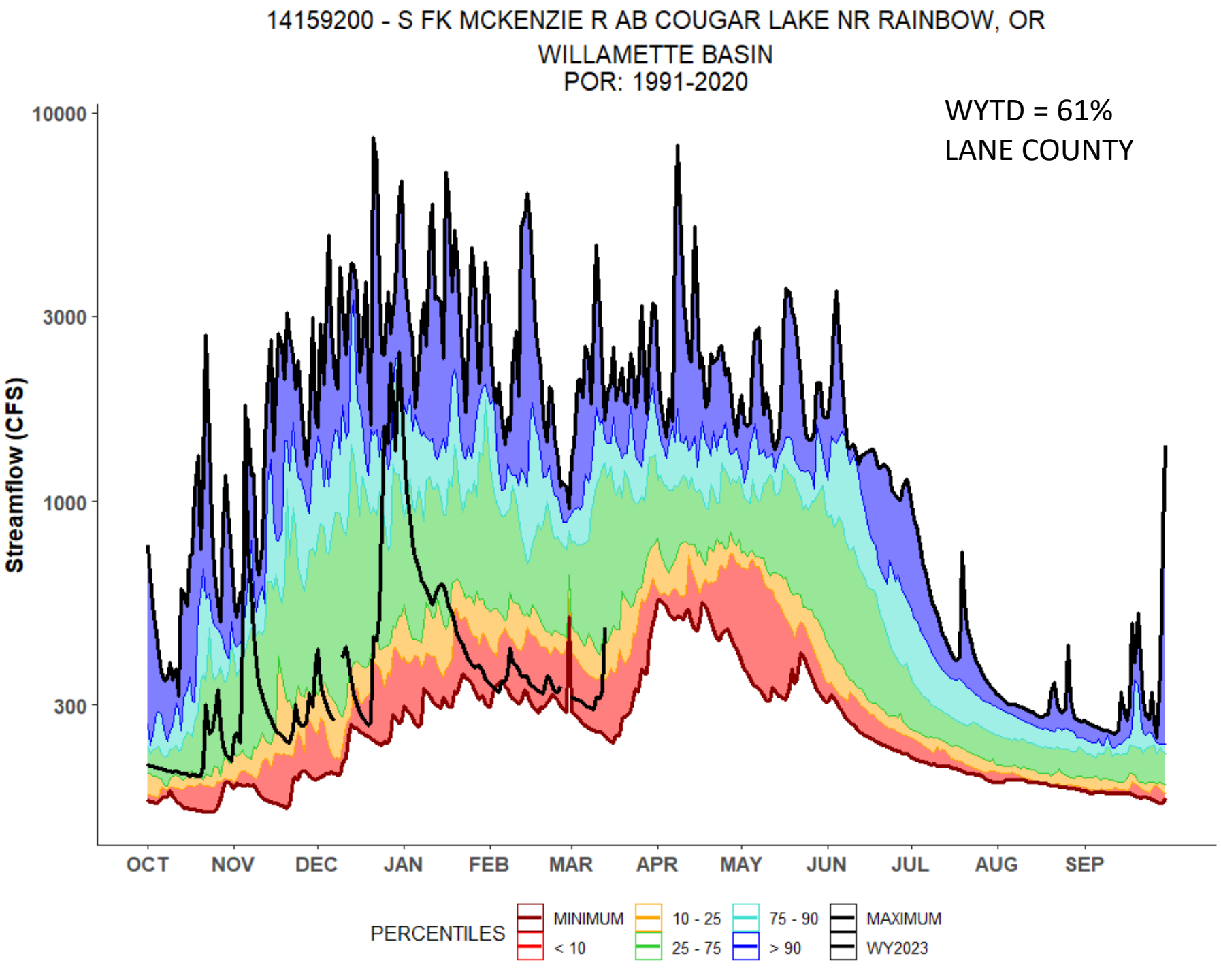

Water Year To Date % of Average Streamflow - March 13, 2023
OREGON
WATER RESOURCES DEPARTMENT
Stream Gage
<= 30%
31% - 50%
51% - 70%
71% - 90%
91% - 110%
111% - 130%
> 130%
OWRD Basin
<= 30%
31% - 50%
51% - 70%
71% - 90%
91% - 110%
111% - 130%
> 130%
Counties
Counties
North Coast 69%
Hood 64%
Sandy 68%
Willamette 65%
Mid Coast 77%
Umatilla 58%
Grande Ronde 47%
Powder 59%
John Day 40%
Deschutes 71%
Malheur 65%
Umpqua 64%
South Coast 81%
Goose & Summer Lakes 54%
Malheur Lake 49%
Klamath 55%
Rogue 52%
South Coast 81%
Date: 3/14/2023

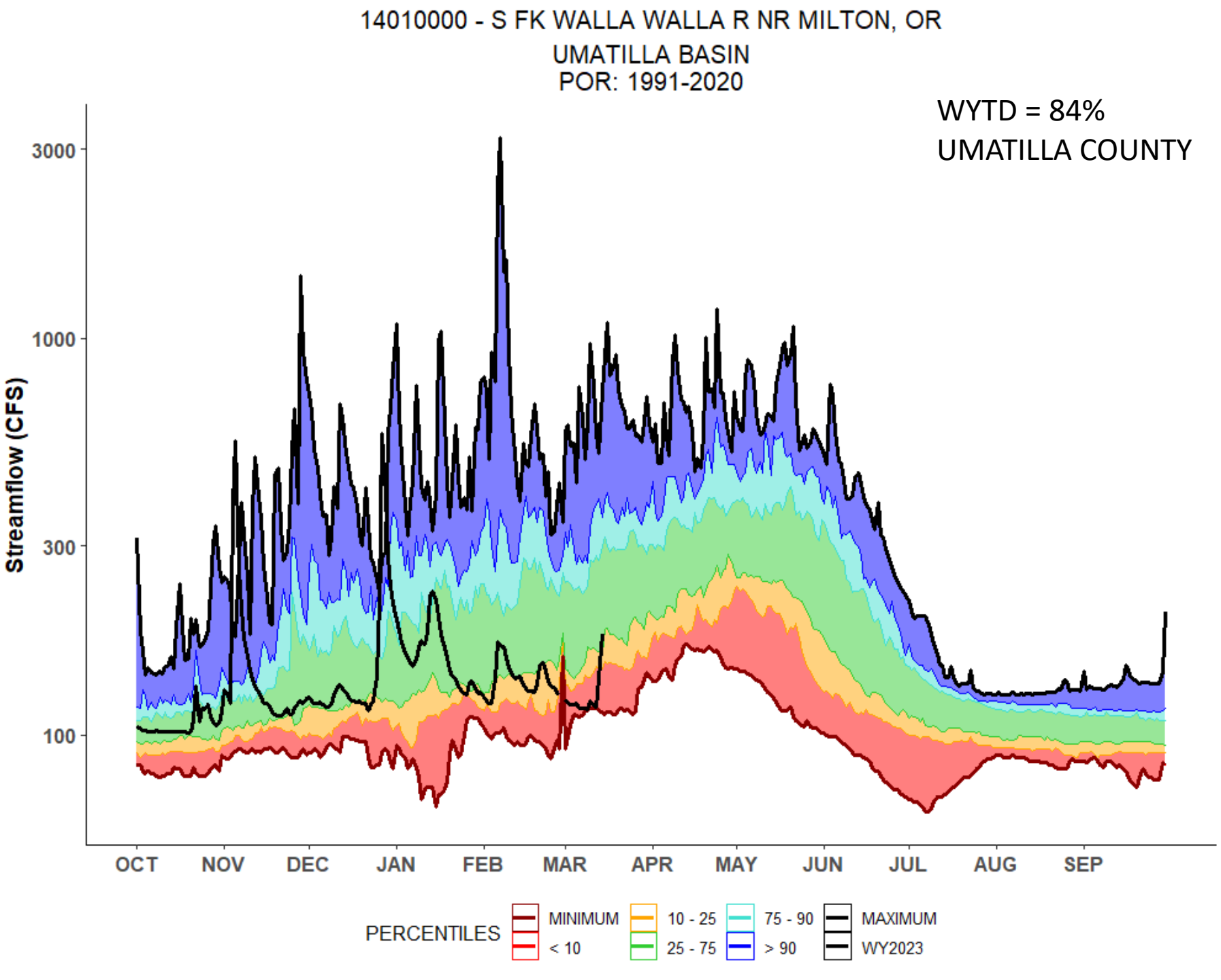

28-Day Streamflow Percentile - March 13, 2023
Stream Gage
LOW
< 10
10 - 25
25 - 75
75 - 90
> 90
HIGH
OWRD Basin
Counties
OREGON
WATER RESOURCES DEPARTMENT
Date: 3/15/2023

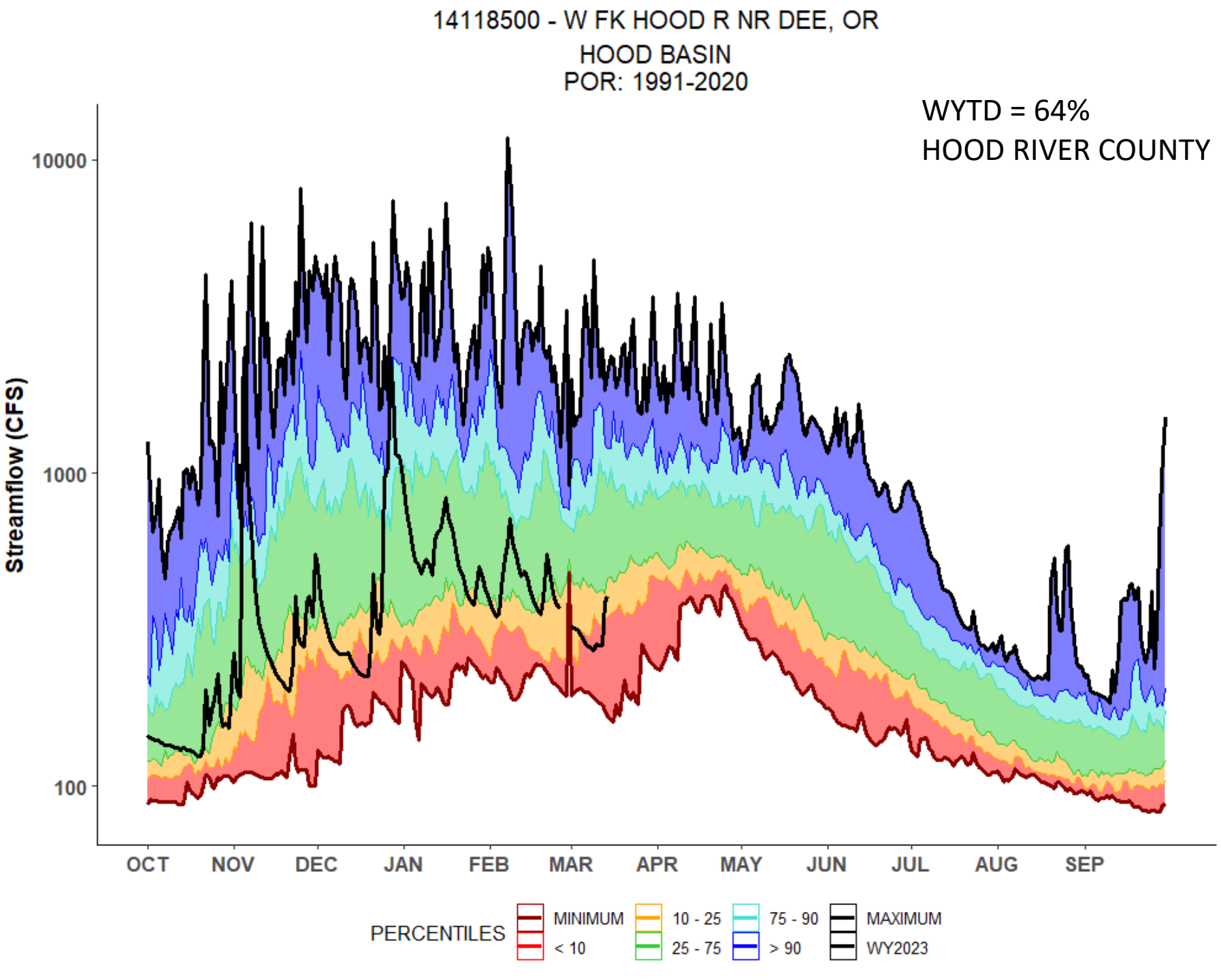

7-Day Streamflow Percentile - March 13, 2023
OREGON
WATER RESOURCES DEPARTMENT
Stream Gage
LOW
< 10
10 - 25
25 - 75
75 - 90
> 90
HIGH
OWRD Basin
Counties
Date: 3/15/2023


11491400 - WILLIAMSON R BL SHEEP CR NR LENZ, OR
KLAMATH BASIN
POR: 1991-2020
WYTD = 59%
KLAMATH COUNTY
Streamflow (CFS)
300
100
30
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
PERCENTILES
MINIMUM
< 10
10 - 25
25 - 75
75 - 90
> 90
MAXIMUM
WY2023


14048000 - JOHN DAY R AT MCDONALD FERRY, OR
JOHN DAY BASIN
POR: 1991-2020
WYTD = 37%
SHERMAN COUNTY
Streamflow (CFS)
10000
1000
100
10
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
PERCENTILES
MINIMUM
< 10
10 - 25
25 - 75
75 - 90
> 90
MAXIMUM
WY2023


14159200 - S FK MCKENZIE R AB COUGAR LAKE NR RAINBOW, OR
WILLAMETTE BASIN
POR: 1991-2020
WYTD = 61%
LANE COUNTY
Streamflow (CFS)
10000
3000
1000
300
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
PERCENTILES
MINIMUM
< 10
10 - 25
25 - 75
75 - 90
> 90
MAXIMUM
WY2023


14010000 - S FK WALLA WALLA R NR MILTON, OR
UMATILLA BASIN
POR: 1991-2020
WYTD = 84%
UMATILLA COUNTY
Streamflow (CFS)
3000
1000
300
100
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
PERCENTILES
MINIMUM
< 10
10 - 25
25 - 75
75 - 90
> 90
MAXIMUM
WY2023


14118500 - W FK HOOD R NR DEE, OR
HOOD BASIN
POR: 1991-2020
WYTD = 64%
HOOD RIVER COUNTY
Streamflow (CFS)
10000
1000
100
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
PERCENTILES
MINIMUM
< 10
10 - 25
25 - 75
75 - 90
> 90
MAXIMUM
WY2023

Summary

- Grant and Deschutes Counties drought requests submitted to Governor's Office

- Flows are still very low – dependent on upcoming snowmelt

QUESTIONS?

BUREAU OF RECLAMATION

Unity Dam
June 22, 2005
Photo Credit: Dave Walsh

Reclamation Storage Update

Oregon Water Supply Availability Committee Meeting

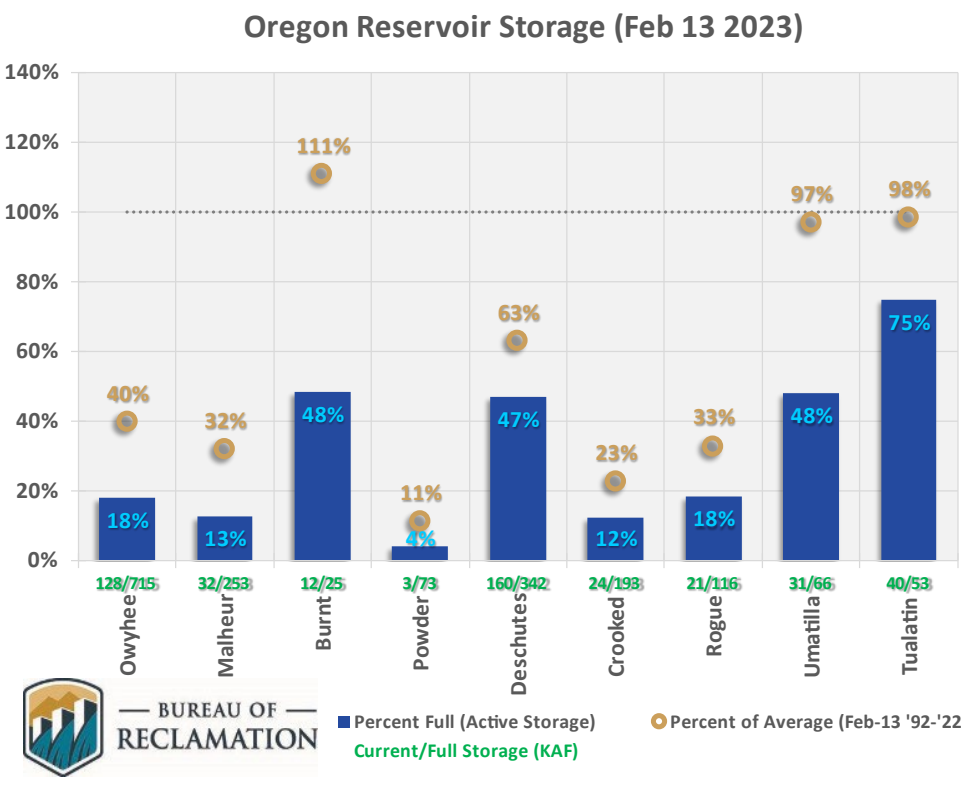
March 15, 2023

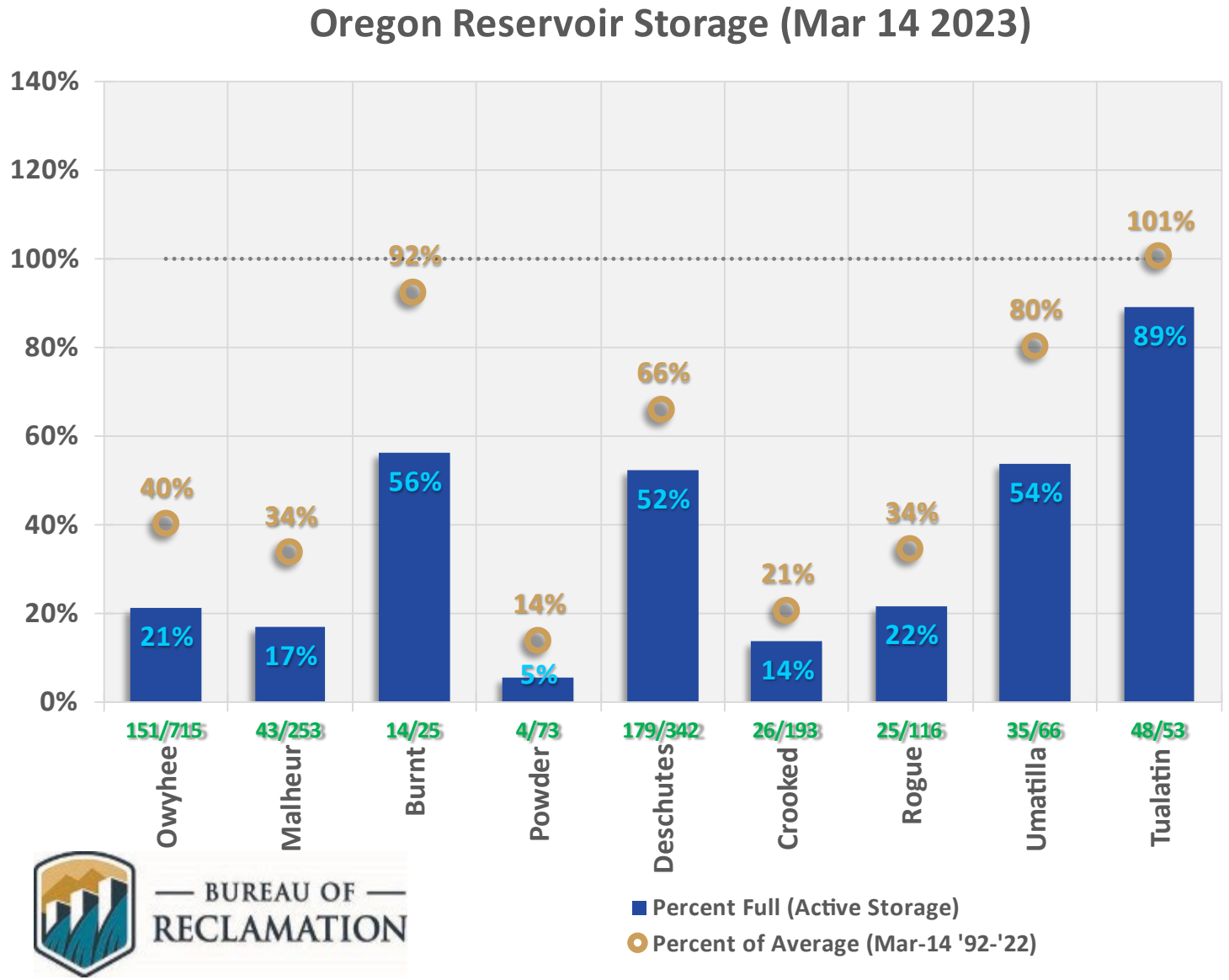
Basin Operations Summary

- Operations Activities:
  - Reservoirs are releasing winter minimums to continue filling
  - Irrigation startup is on the horizon
  - No FRM operations currently but likely at Scoggins in the coming days

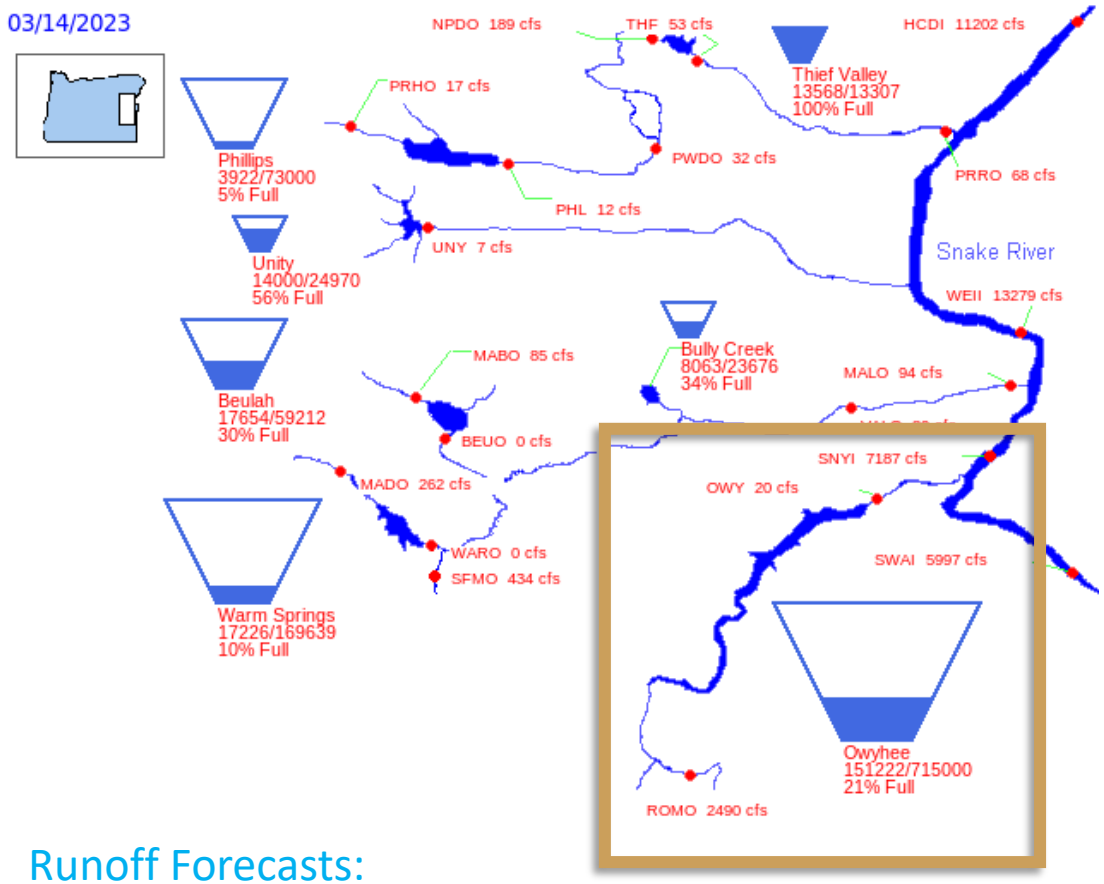
- Water Supply Notes
  - Inflows have started to respond with recent wet conditions
  - Much below normal storage content in most locations (exception Scoggins and Unity) due to low carryover, low baseflows, and delayed runoff
  - March forecasts generally saw around a 5-15% of average reduction compared to February forecasts due to dry February conditions and were below average at all facilities -- but . . . March has been really wet so far so could see a rebound in the April forecasts
  - Refill is unlikely at many facilities, but could be possible at some locations with wet spring conditions

Storage Conditions





Owyhee River Basin

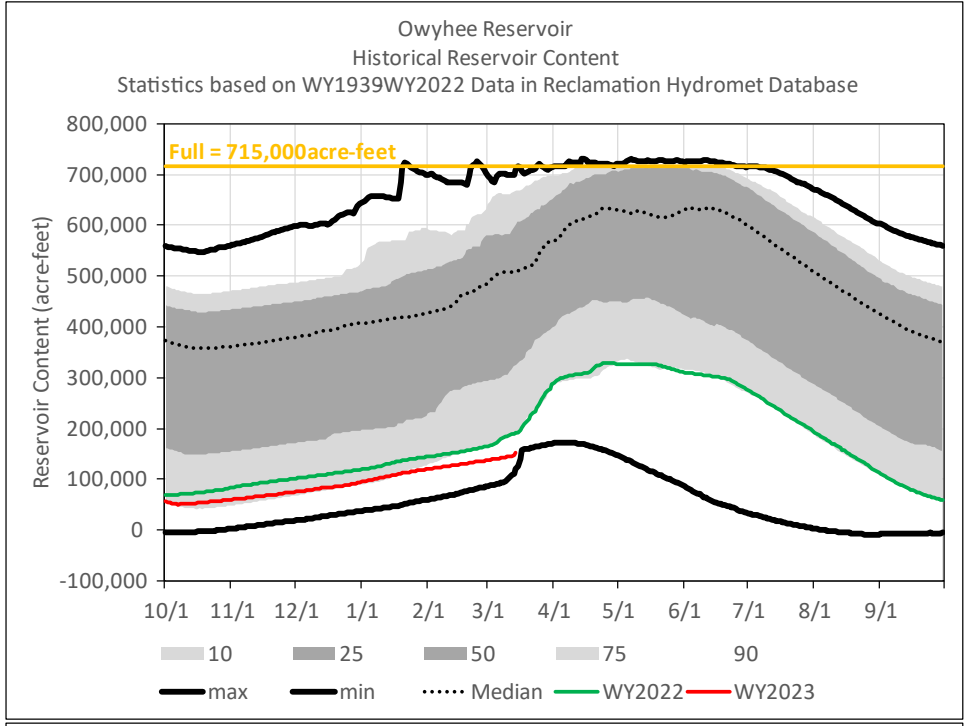


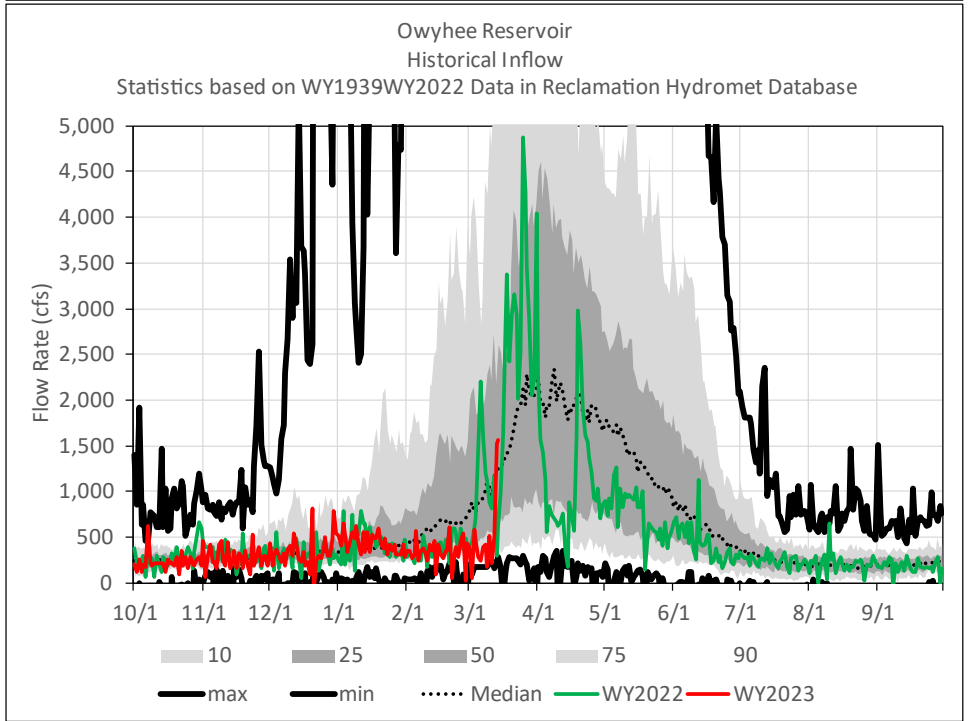
Runoff Forecasts:

Jan-Jun: 572 kaf (108% of 91-20 Ave)

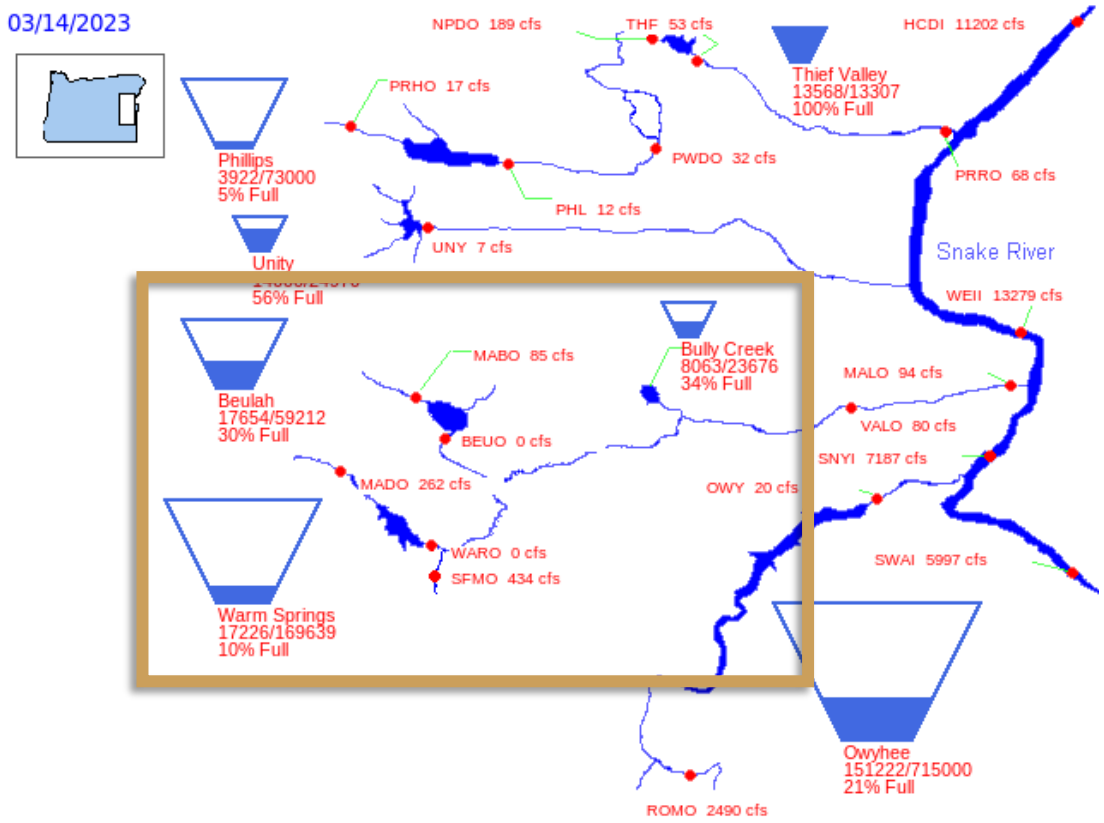
Feb-Jun: 593 kaf (122% of 91-20 Ave)

Mar-Jun: 388 kaf (91% of 91-20 Ave)

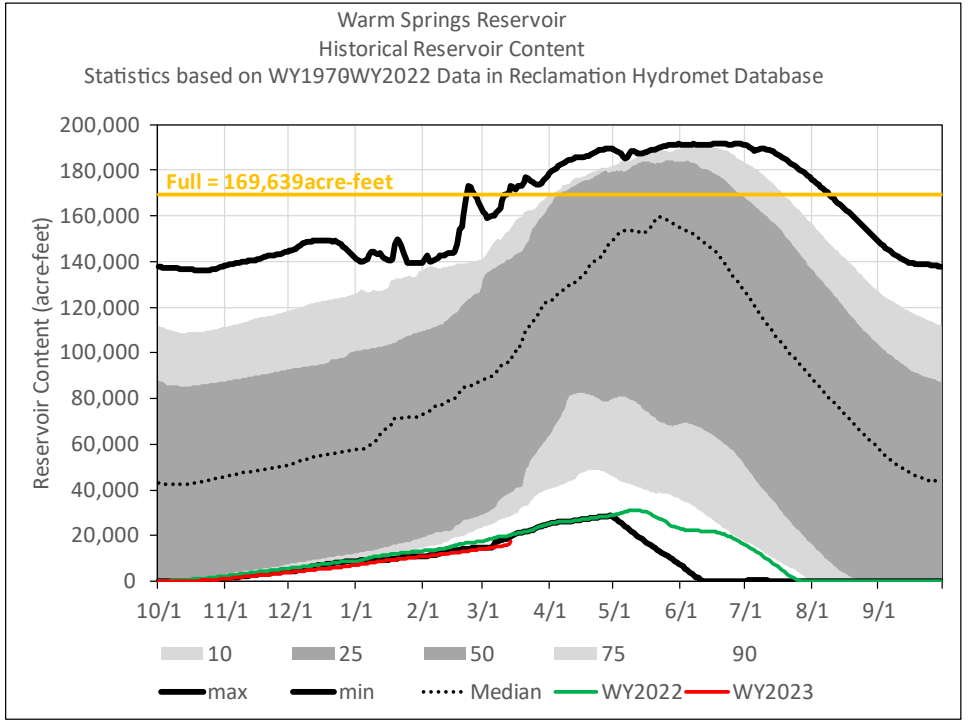


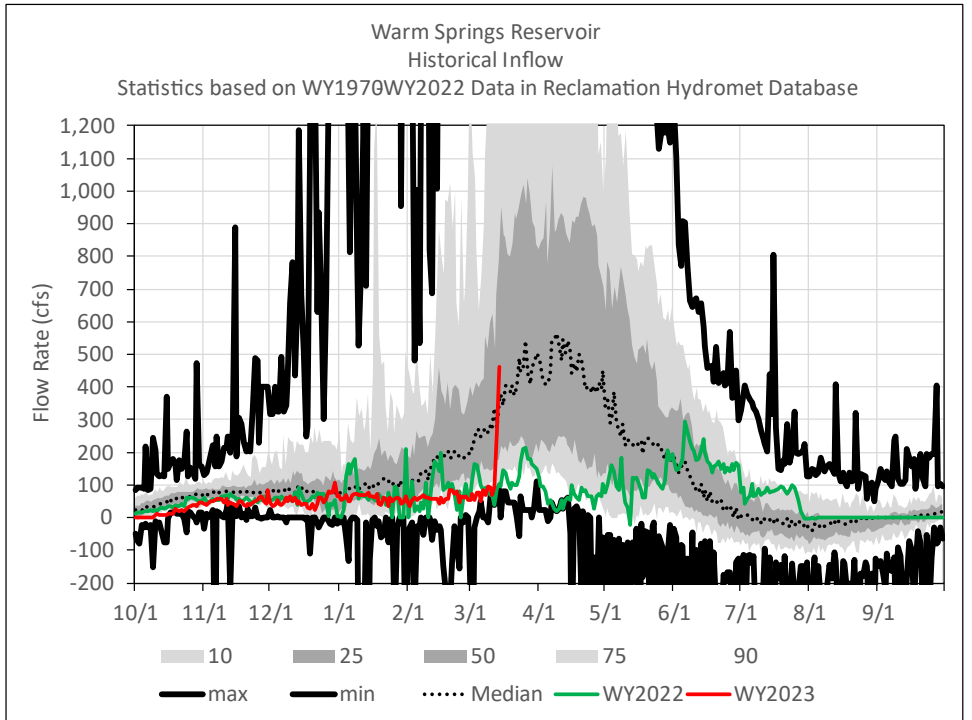


Malheur River Basin

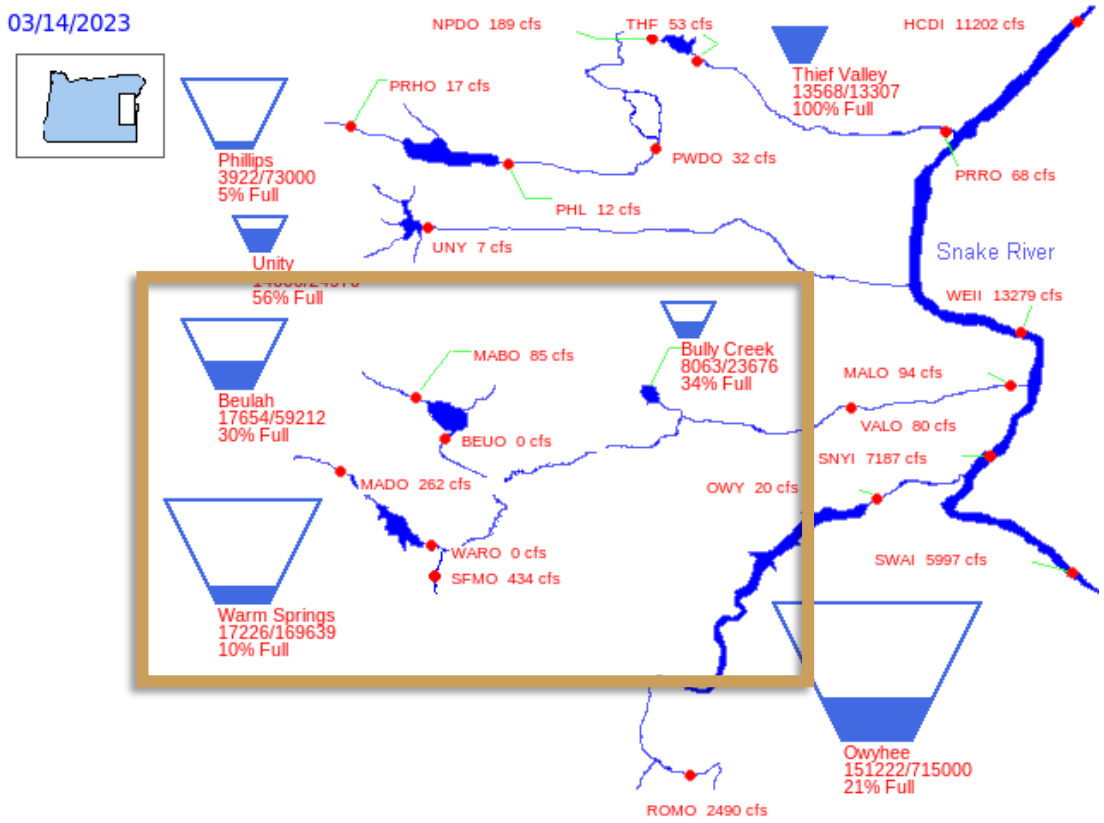


Runoff Forecasts:
Jan-Jun: 109 kaf (94% of 91-20 Ave)
Feb-Jun: 84 kaf (78% of 91-20 Ave)
Mar-Jun: 69 kaf (73% of 91-20 Ave)

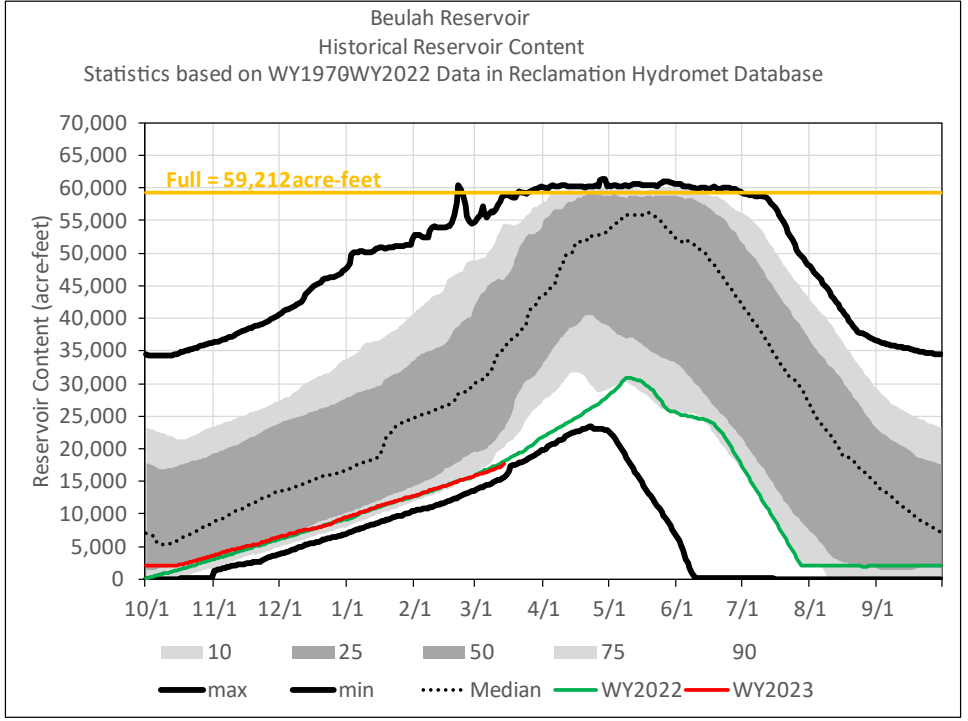


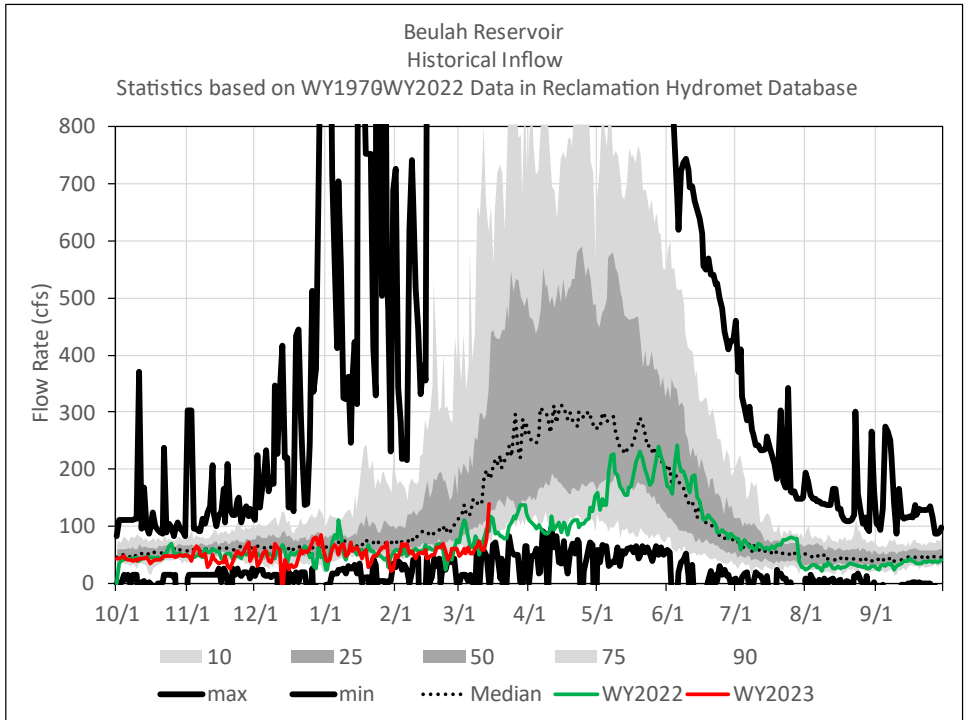


Malheur River Basin

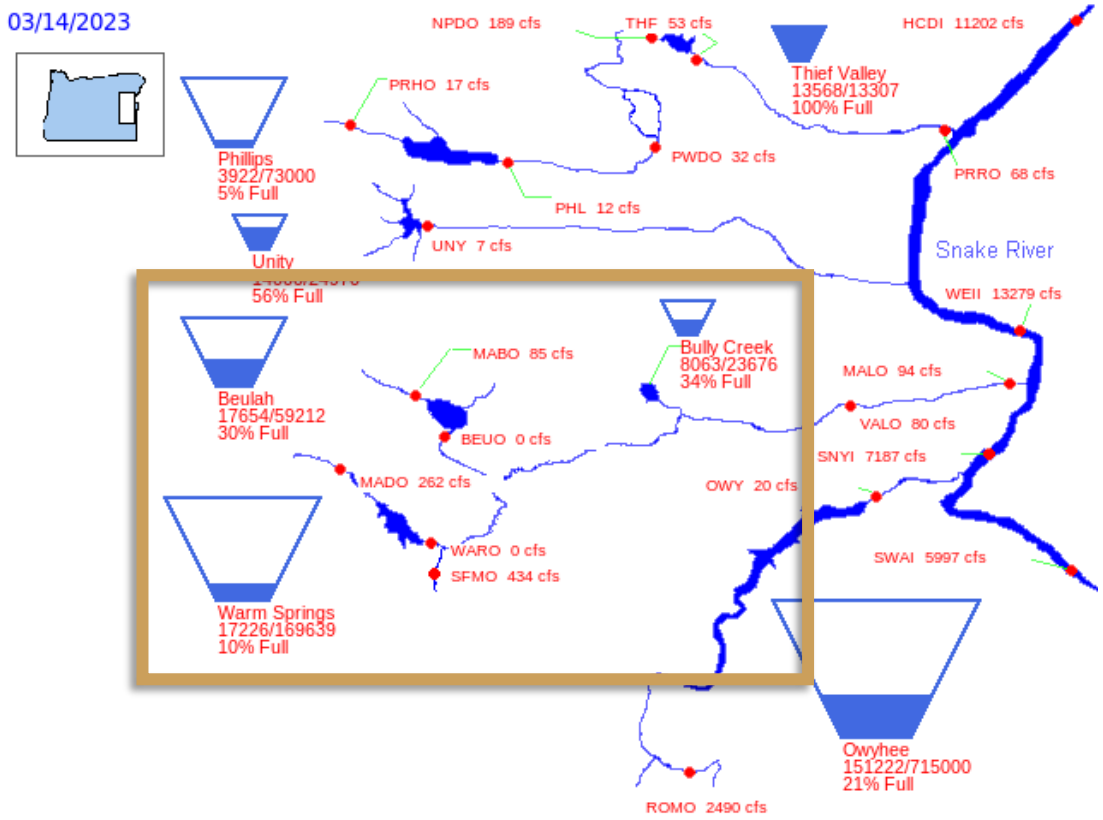


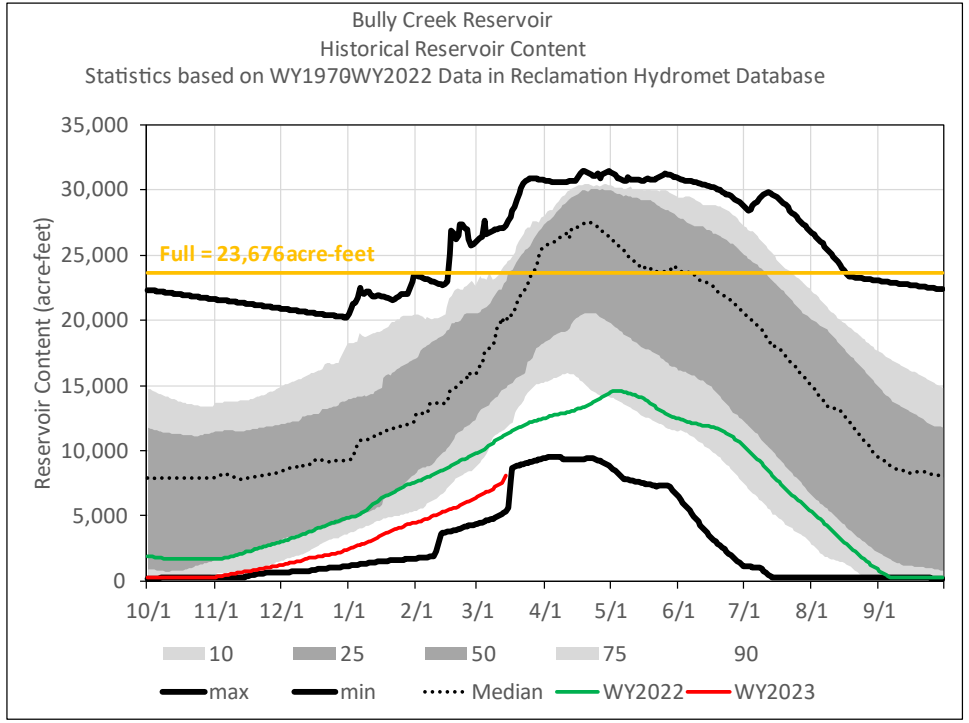
Runoff Forecasts:
Jan-Jun: 84 kaf (105% of 91-20 Ave)
Feb-Jun: 63 kaf (85% of 91-20 Ave)
Mar-Jun: 49 kaf (72% of 91-20 Ave)





Malheur River Basin





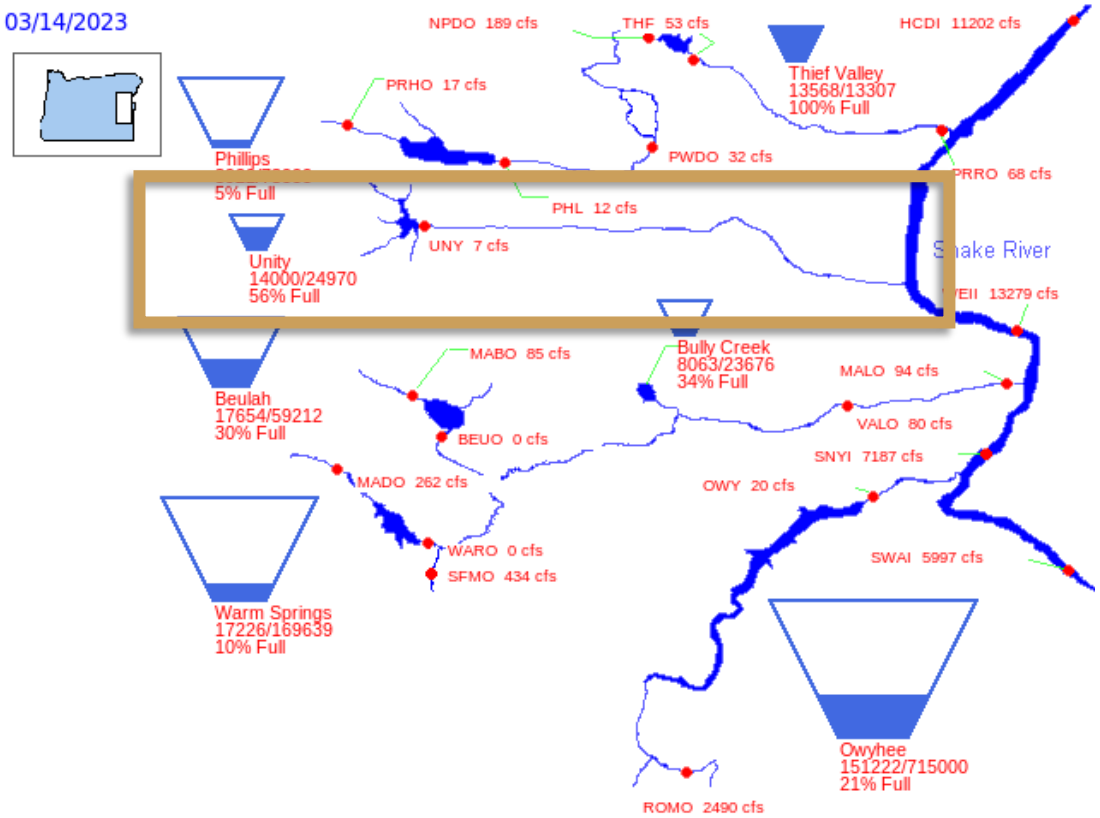
Runoff Forecasts:

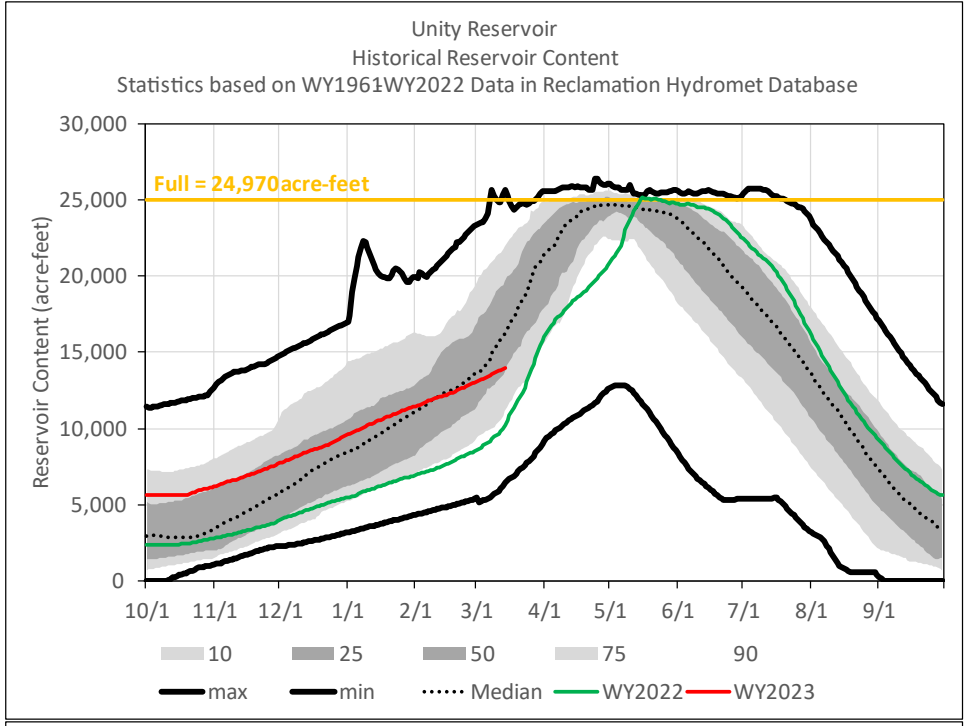
Jan-Jun: 31 kaf (105% of 91-20 Ave)

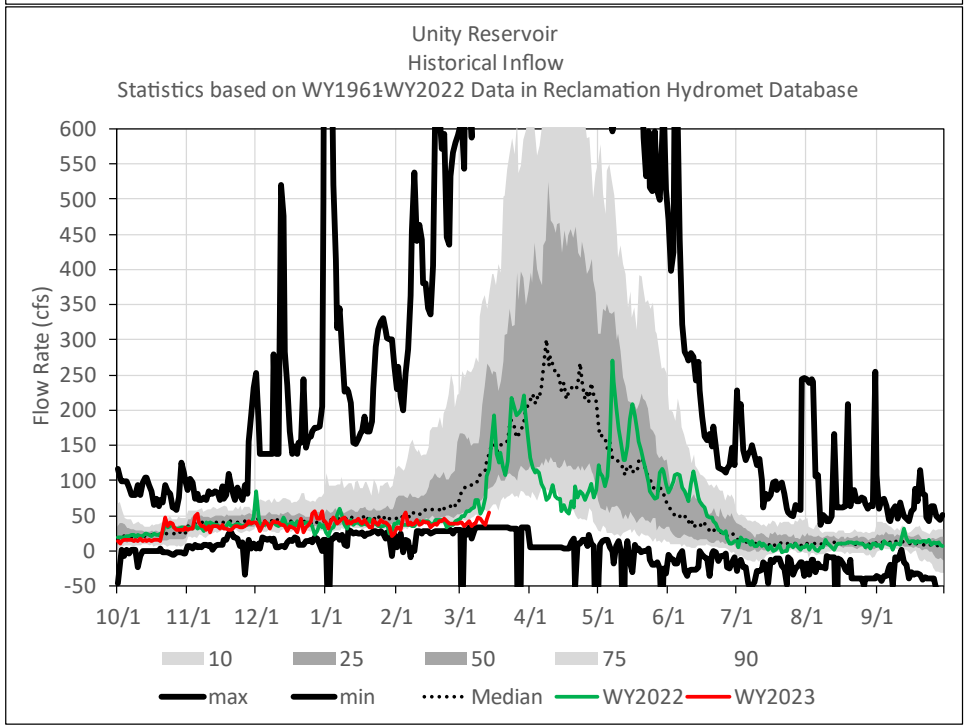
Feb-Jun: 25 kaf (96% of 91-20 Ave)

Mar-Jun: 18 kaf (85% of 91-20 Ave)

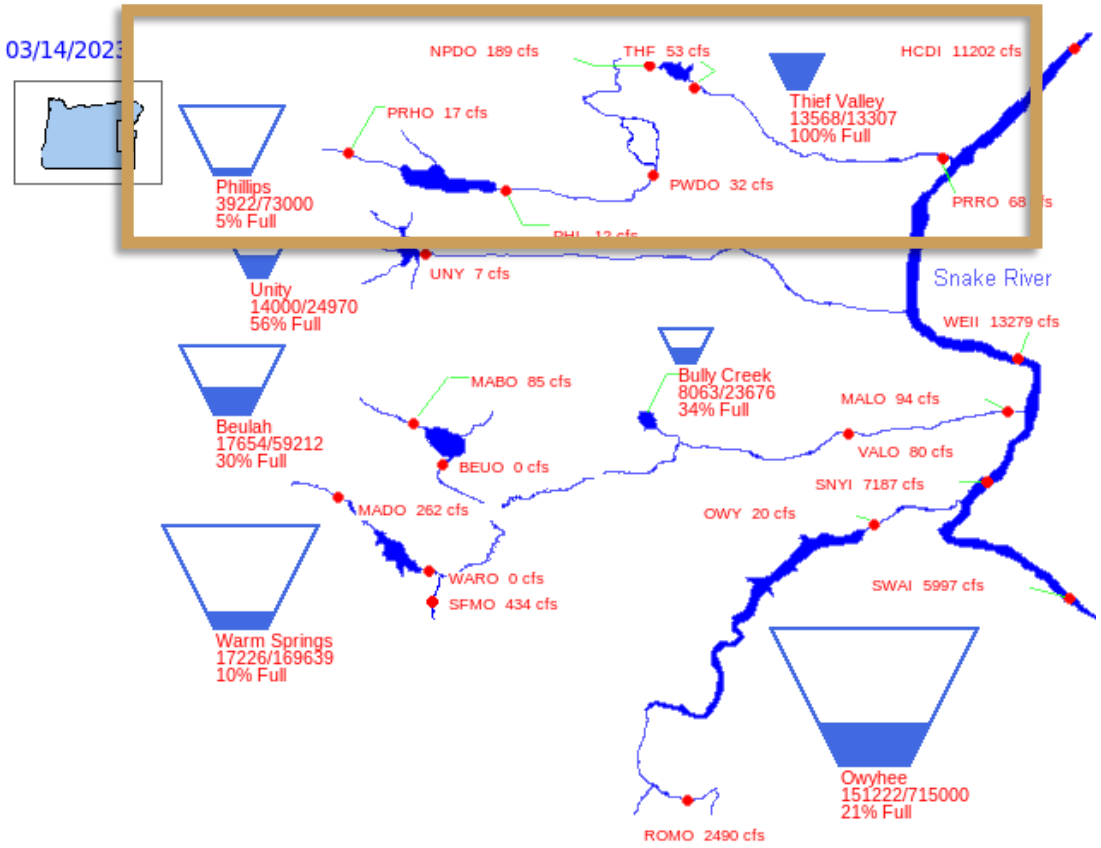
Burnt River Basin



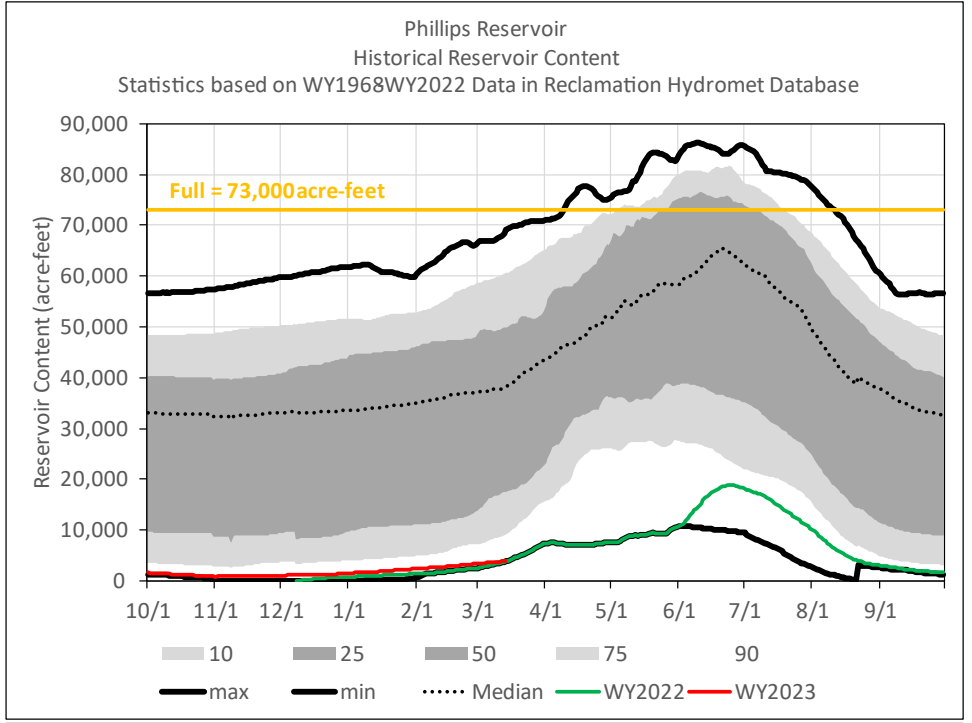


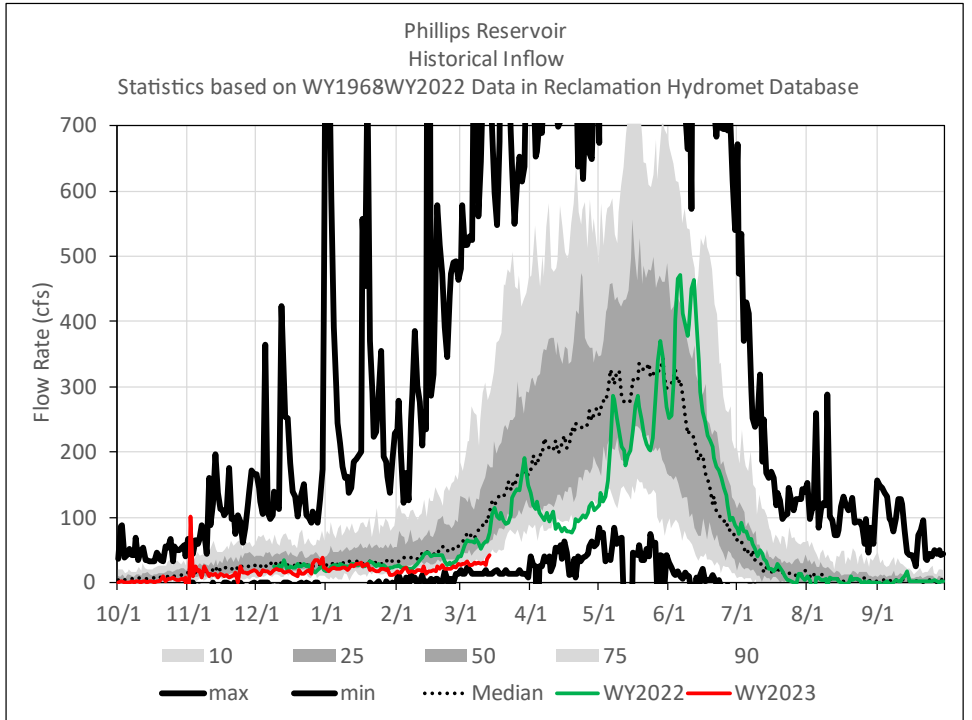


Powder River Basin

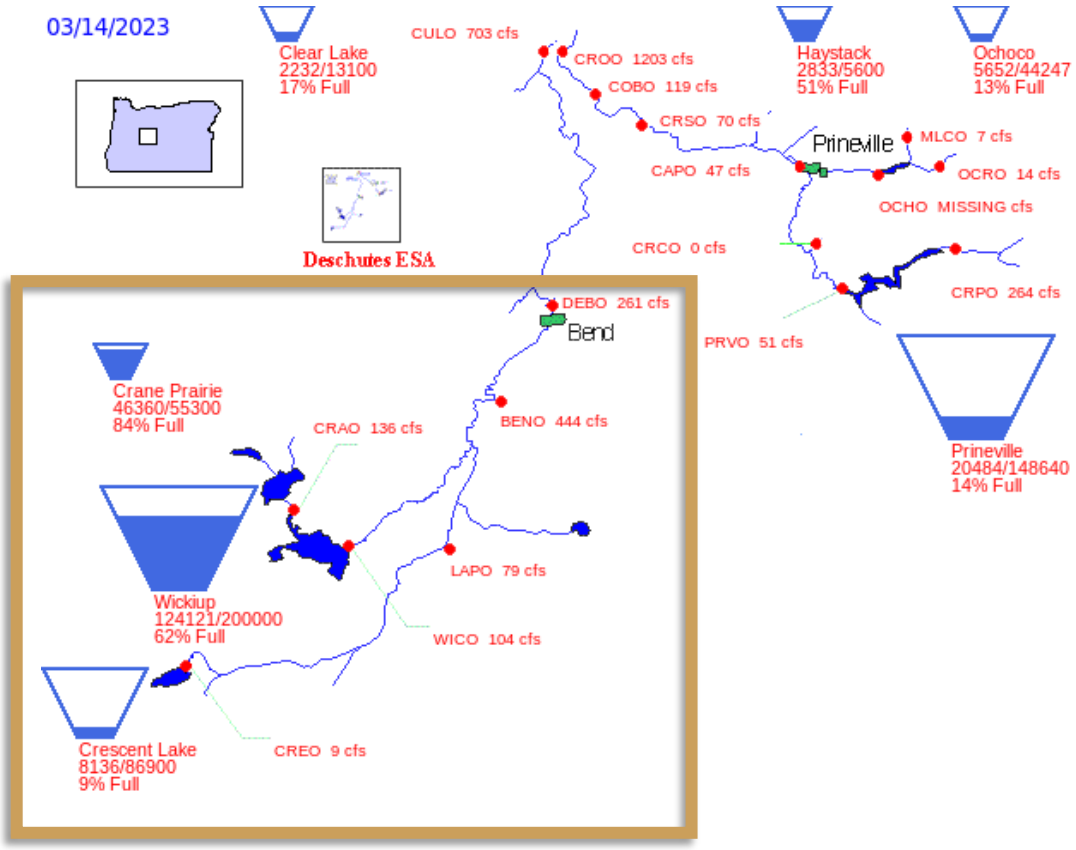


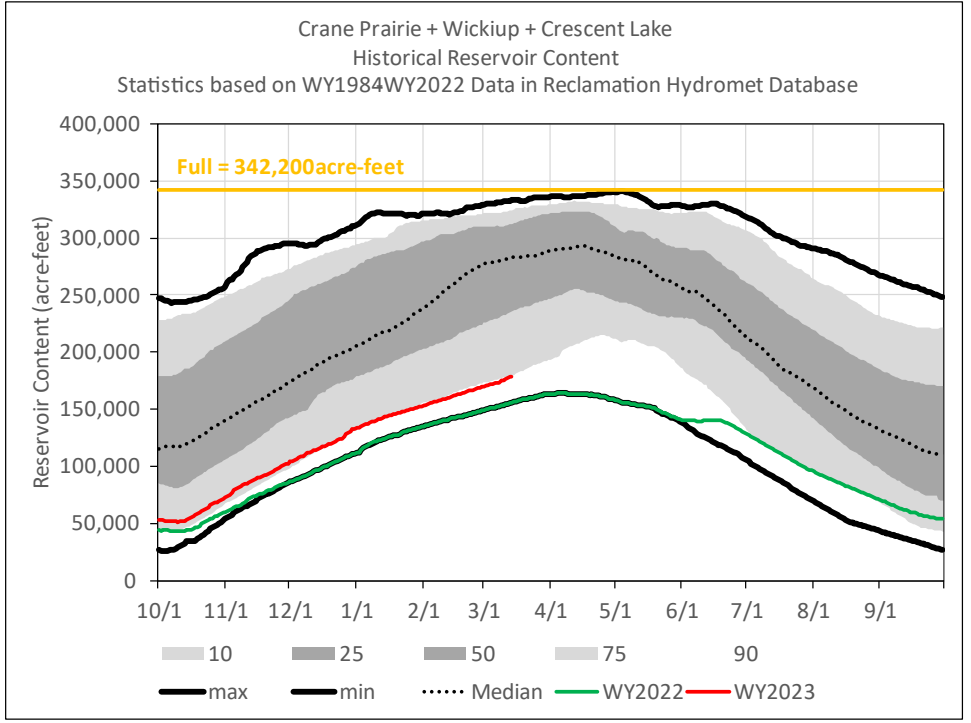
Runoff Forecasts:
Jan-Jul: 69 kaf (97% of 91-20 Ave)
Feb-Jul: 65 kaf (95% of 91-20 Ave)
Mar-Jul: 53 kaf (82% of 91-20 Ave)



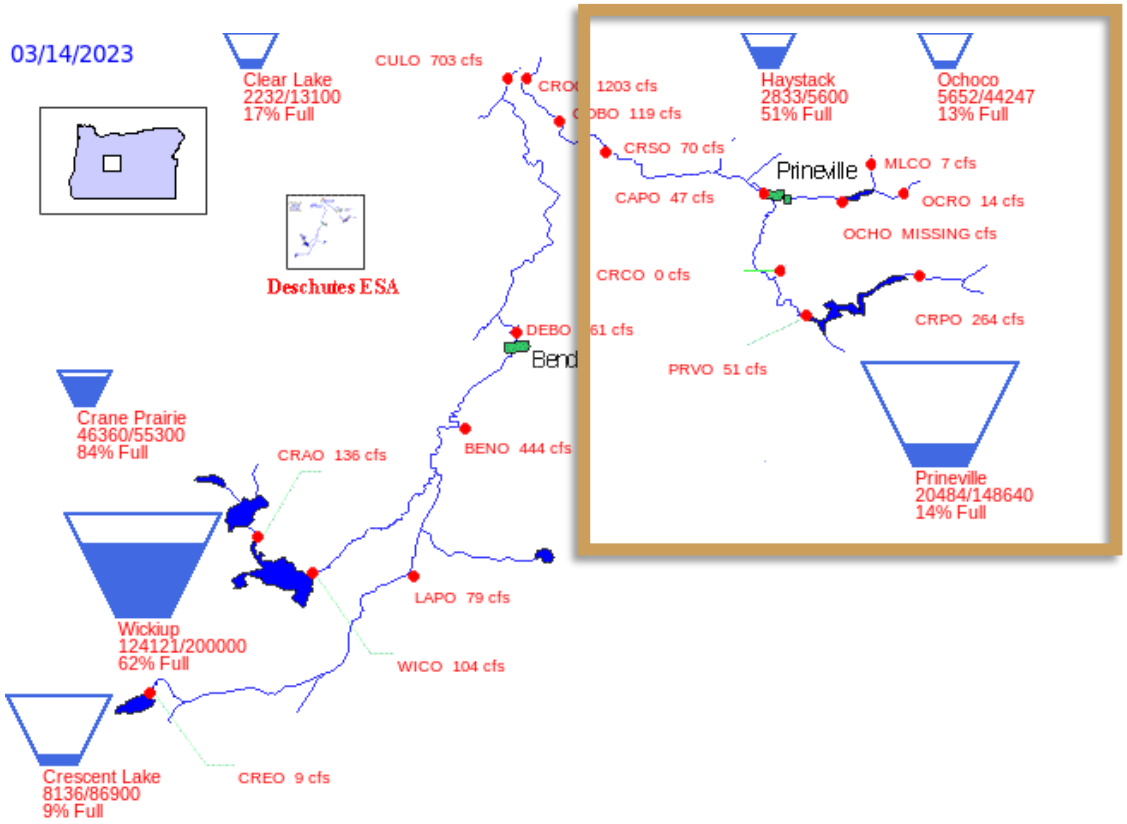


Deschutes River Basin

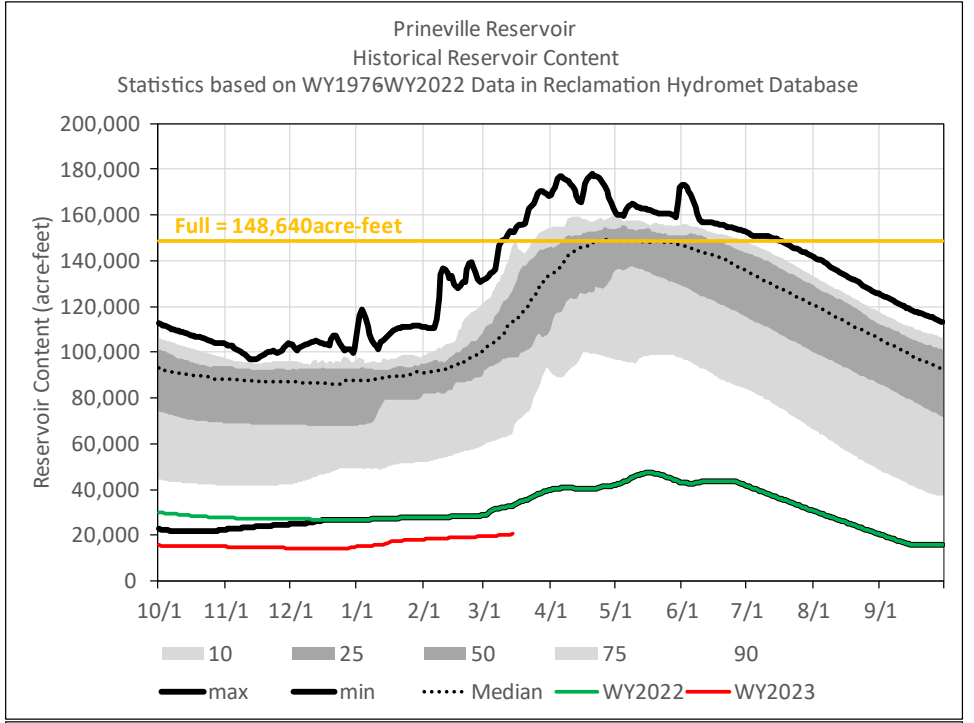


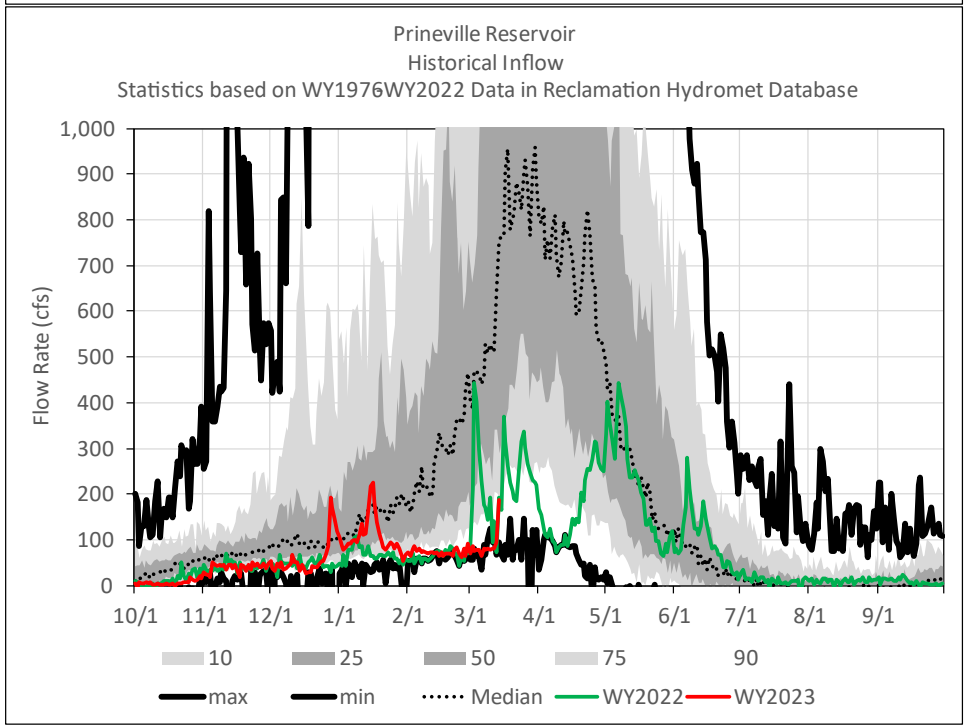


Crooked River Basin

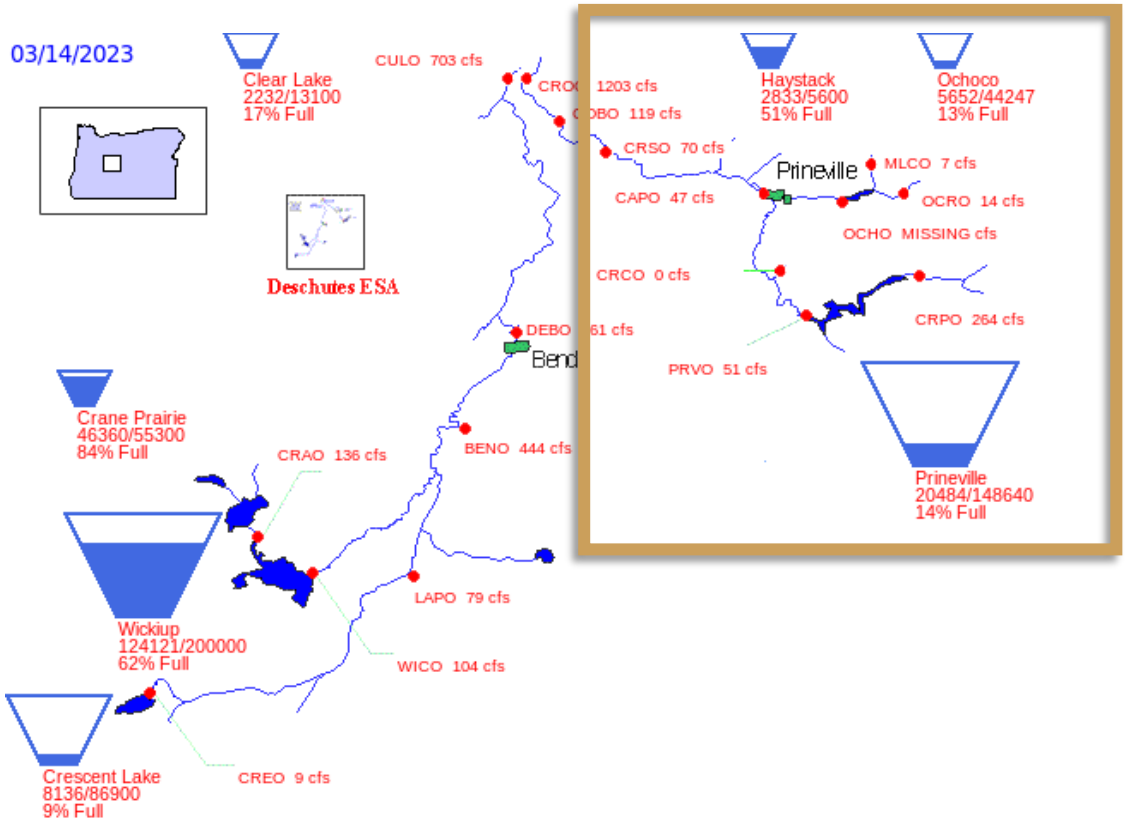


Runoff Forecasts:
Jan-Aug: 155 kaf (85% of 91-20 Ave)
Feb-Aug: 130 kaf (79% of 91-20 Ave)
Mar-Aug: 89 kaf (63% of 91-20 Ave)

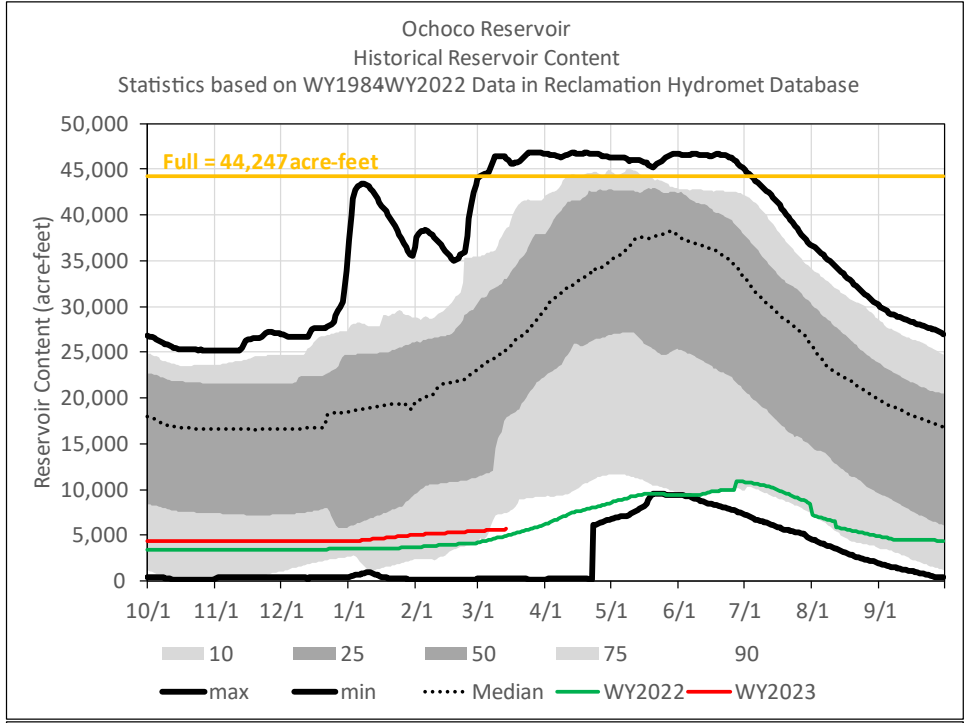


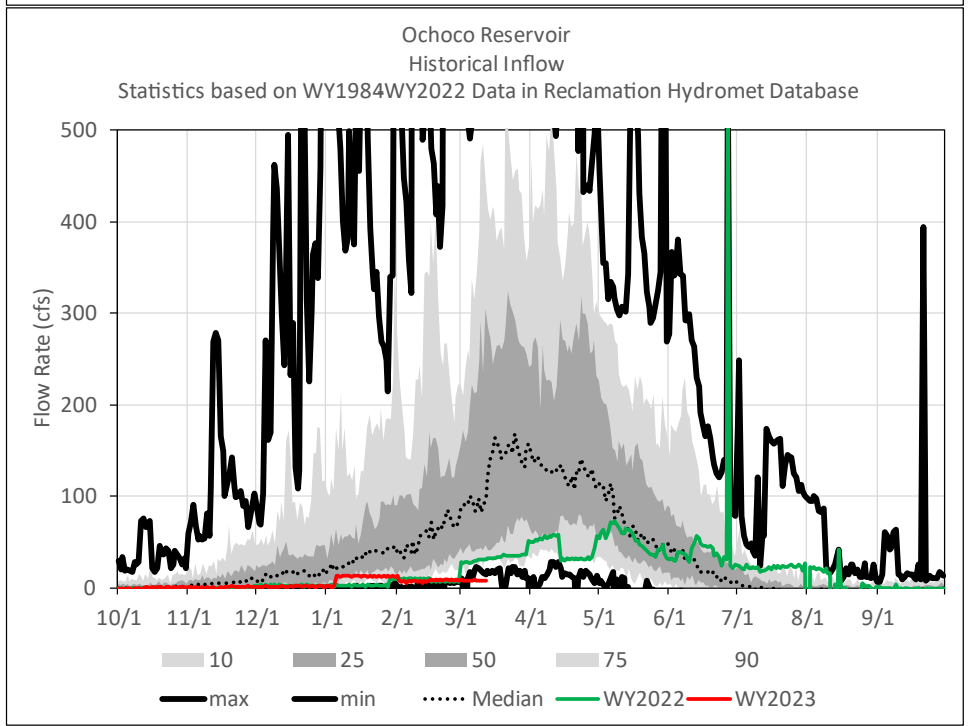


Crooked River Basin

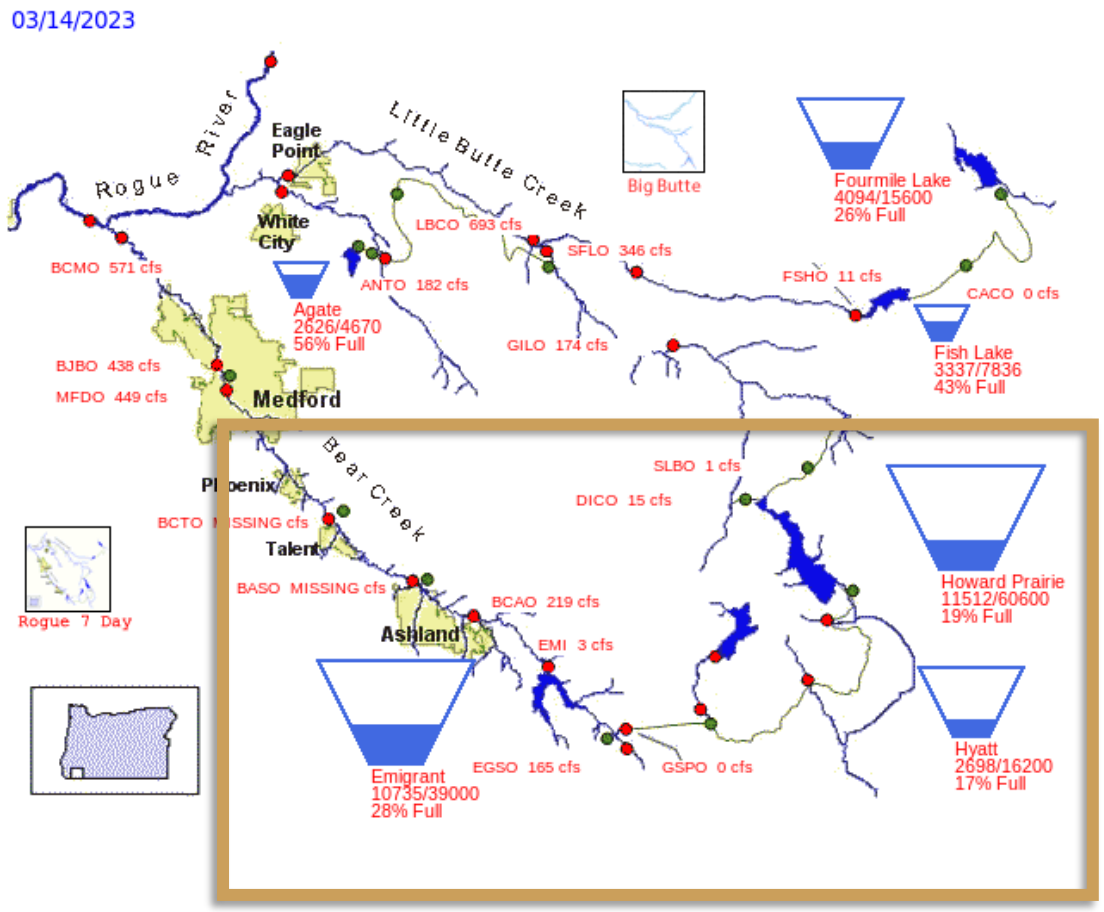


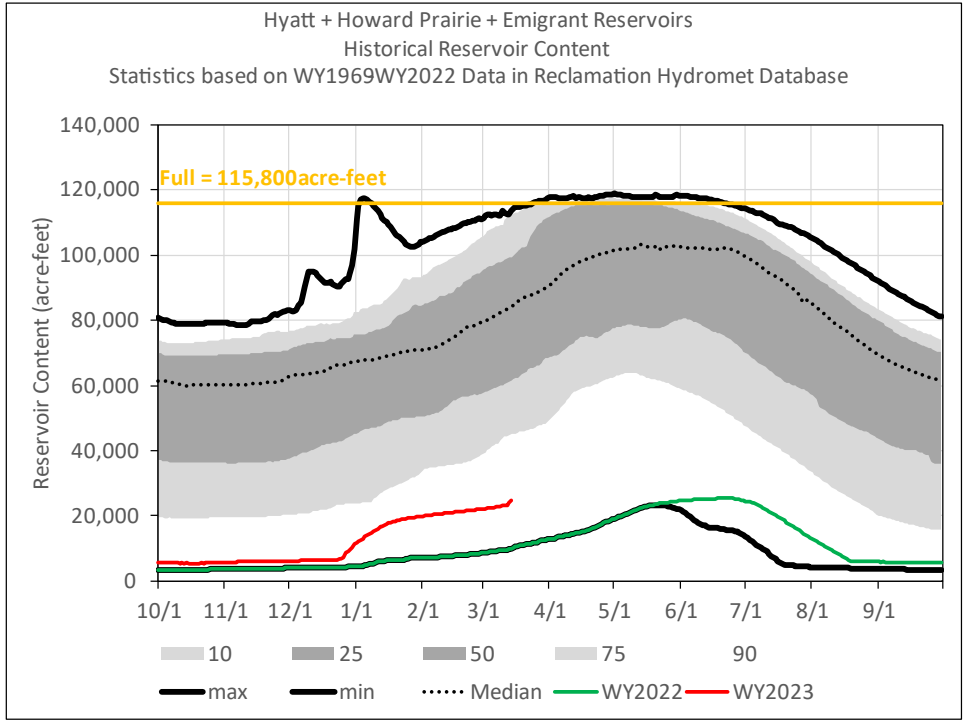
Runoff Forecasts:
Jan-Jun: 35 kaf (88% of 91-20 Ave)
Feb-Jun: 20 kaf (57% of 91-20 Ave)
Mar-Jun: 16 kaf (53% of 91-20 Ave)



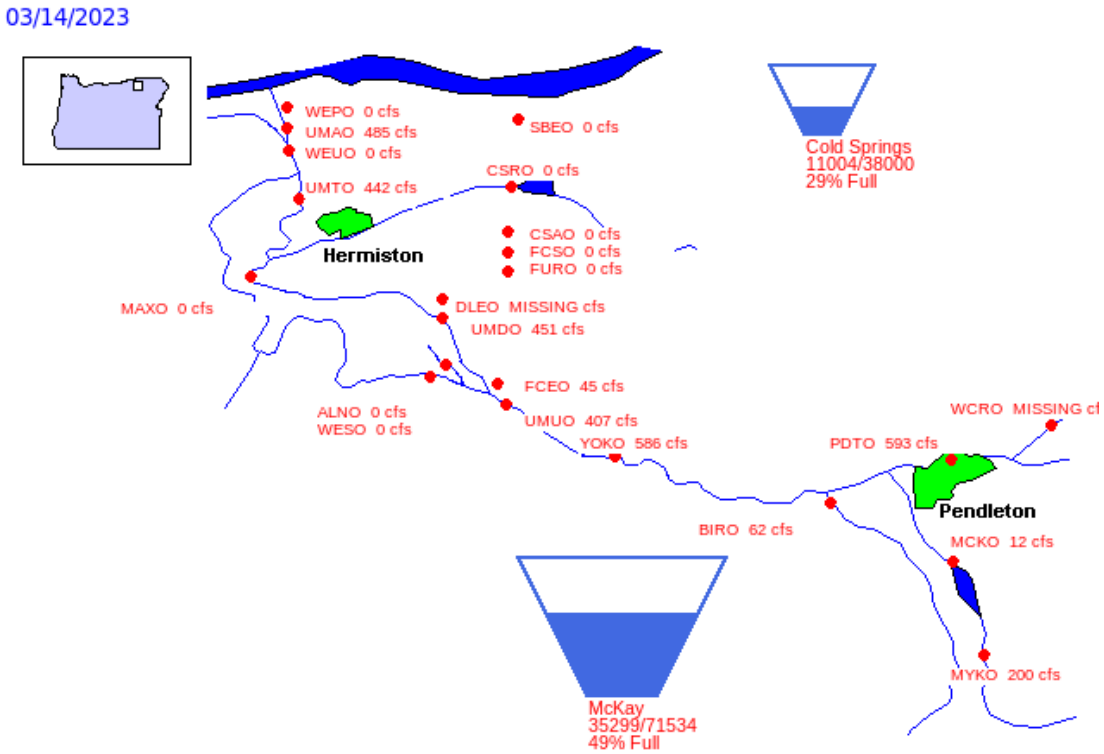


Rogue River Basin

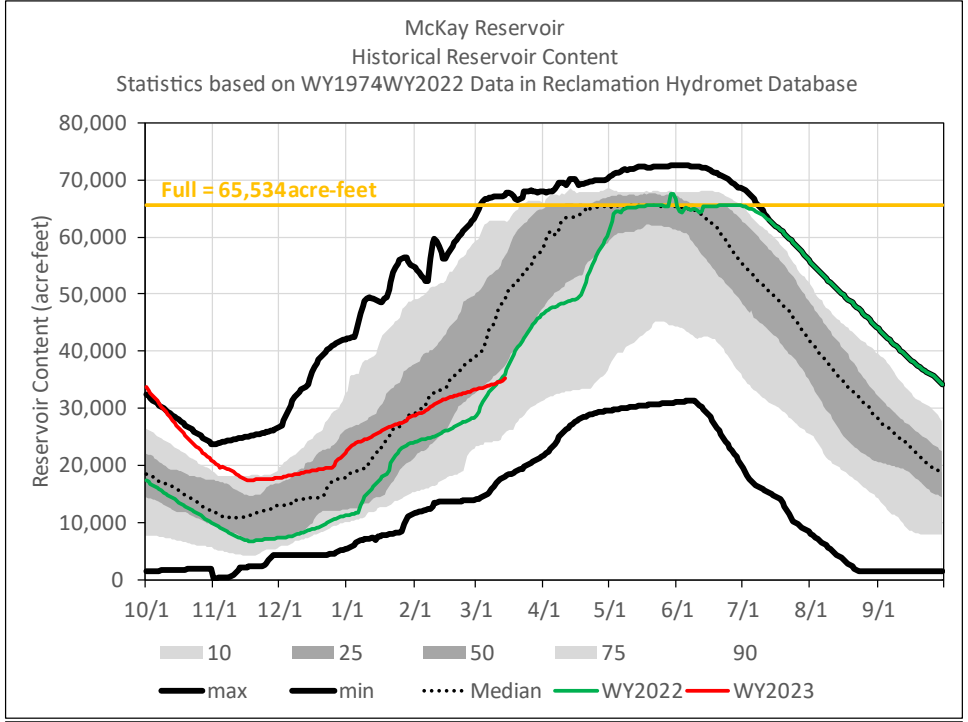


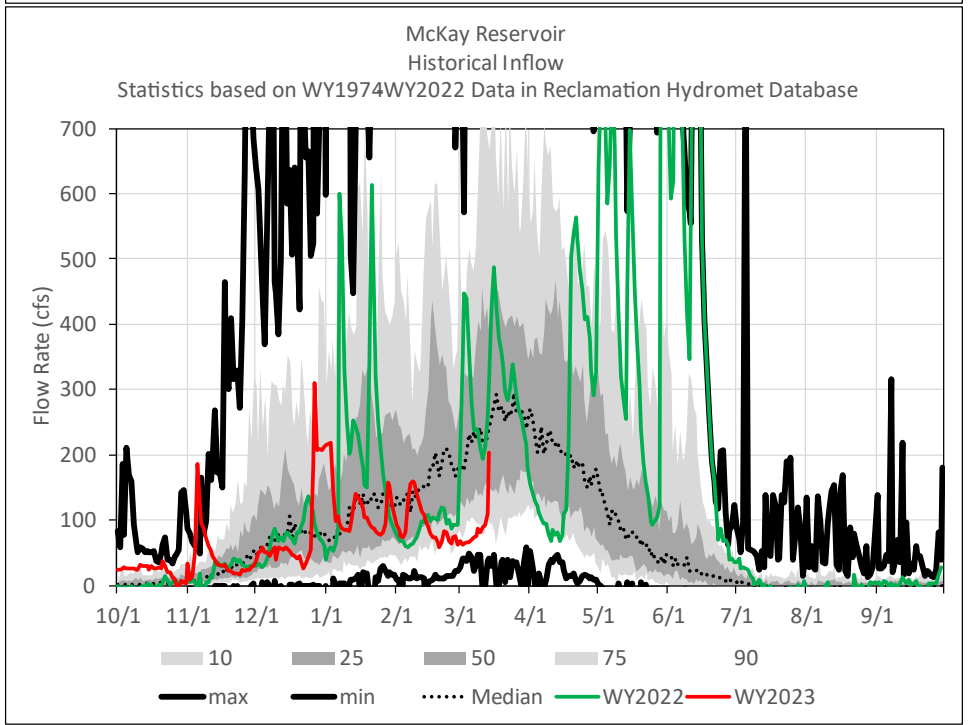


Umatilla River Basin

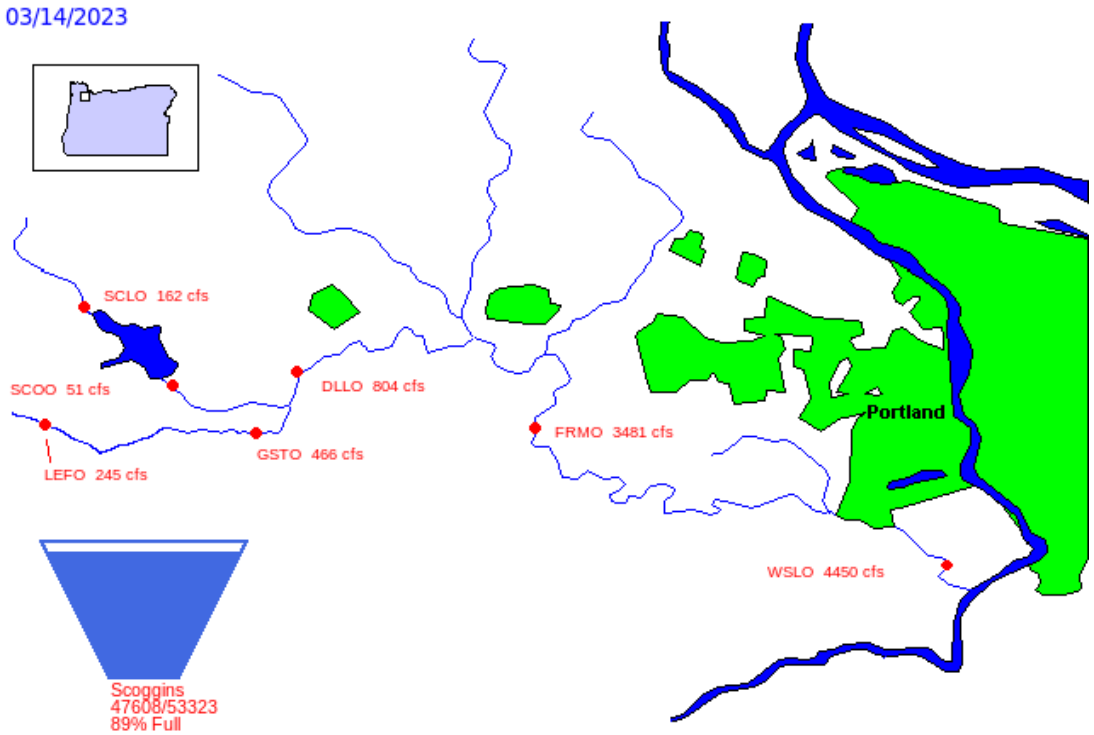


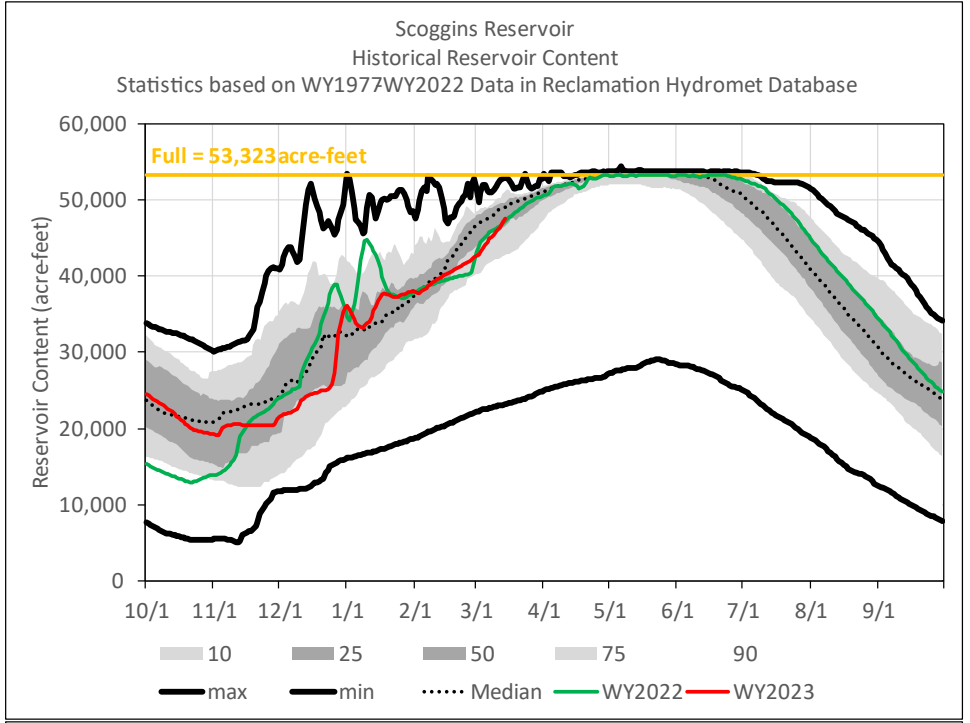
Runoff Forecasts:
Jan-Jun: 70 kaf (100% of 91-20 Ave)
Feb-Jun: 56 kaf (95% of 91-20 Ave)
Mar-Jun: 41 kaf (88% of 91-20 Ave)

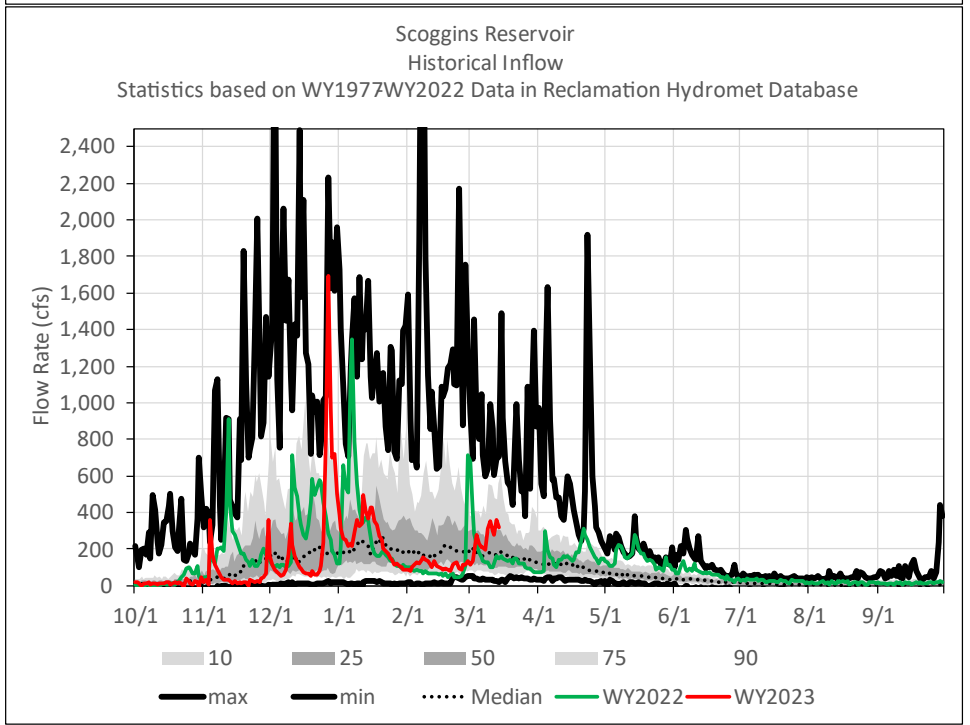




Tualatin River Basin







Peter Cooper – Columbia Pacific Northwest Regional Office

pcooper@usbr.gov

208.378.5037

BUREAU OF RECLAMATION

Ochoco Dam
7-9-2018
Photo Credit: Alexander Stephens