The Great Western Snow Drought of 2026: A Test of Resilience

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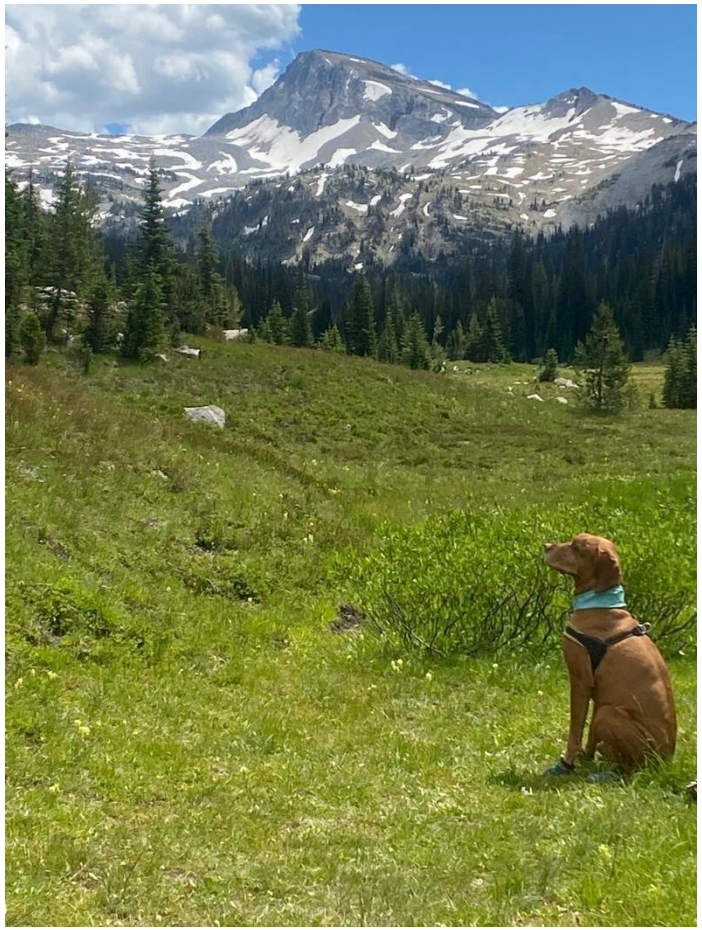


Key points

- Conditions during 2026 are closely following those of 2015 due to a historically low snowpack, low precipitation, and historically warm temperatures
- A wet winter no longer guarantees a drought free summer: Increased springtime evaporation and snowpack variability is increasingly decoupling winter weather from summer drought conditions
- Drought has occurred more frequently since 2000 due in part to climate change
- Drought is projected to occur more frequently and be more intense due to increasing evaporative demand and a sharp decline in seasonal mountain snowpack

What were conditions that lead us to this point?

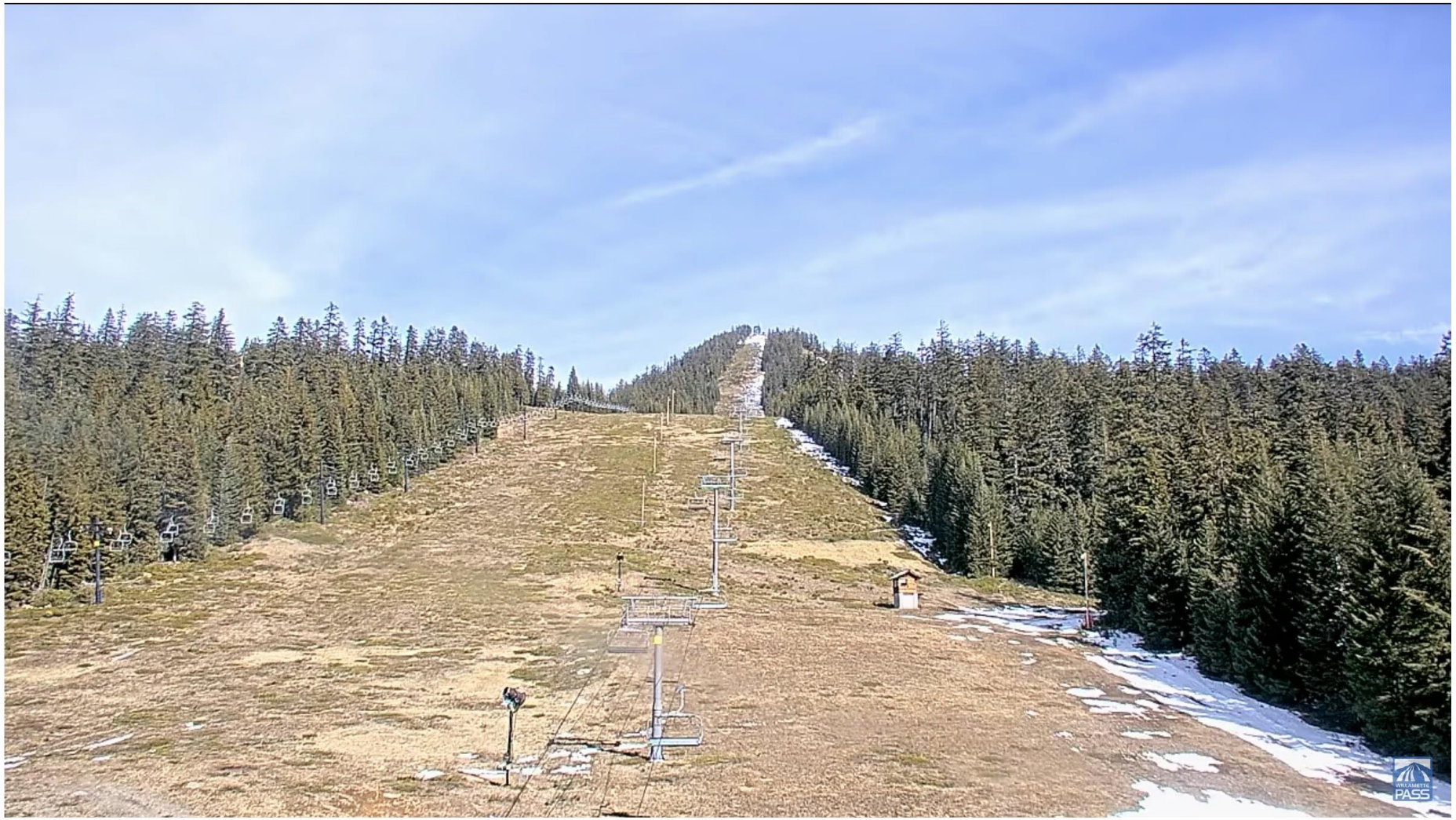
WEATHER

Mid-winter dry spell continues across Pacific Northwest

By Amanda Linares (OPB)
Jan. 22, 2026 3:48 p.m.

Prolonged dry, warm conditions this winter have led to the worst snowpack levels the state has seen since 1981, according to Oregon's state climatologist Larry O'Neill.

Base of Willamette Pass Ski Resort on Monday, March 16, 2026



Base of Willamette Pass Ski Resort on Monday, March 16, 2026

This is not normal, and it is not good.

Josh Cozart @joshcozartwx.bsky.social · 53m

A rare March wildfire has prompted "Level 3: Go NOW!" evacuations for parts of the La Pine, OR area Tuesday.
Details: www.koin.com/news/wildfir...
@koin6.bsky.social #Oregon

4:29 PM · Mar 17, 2026 Everybody can reply

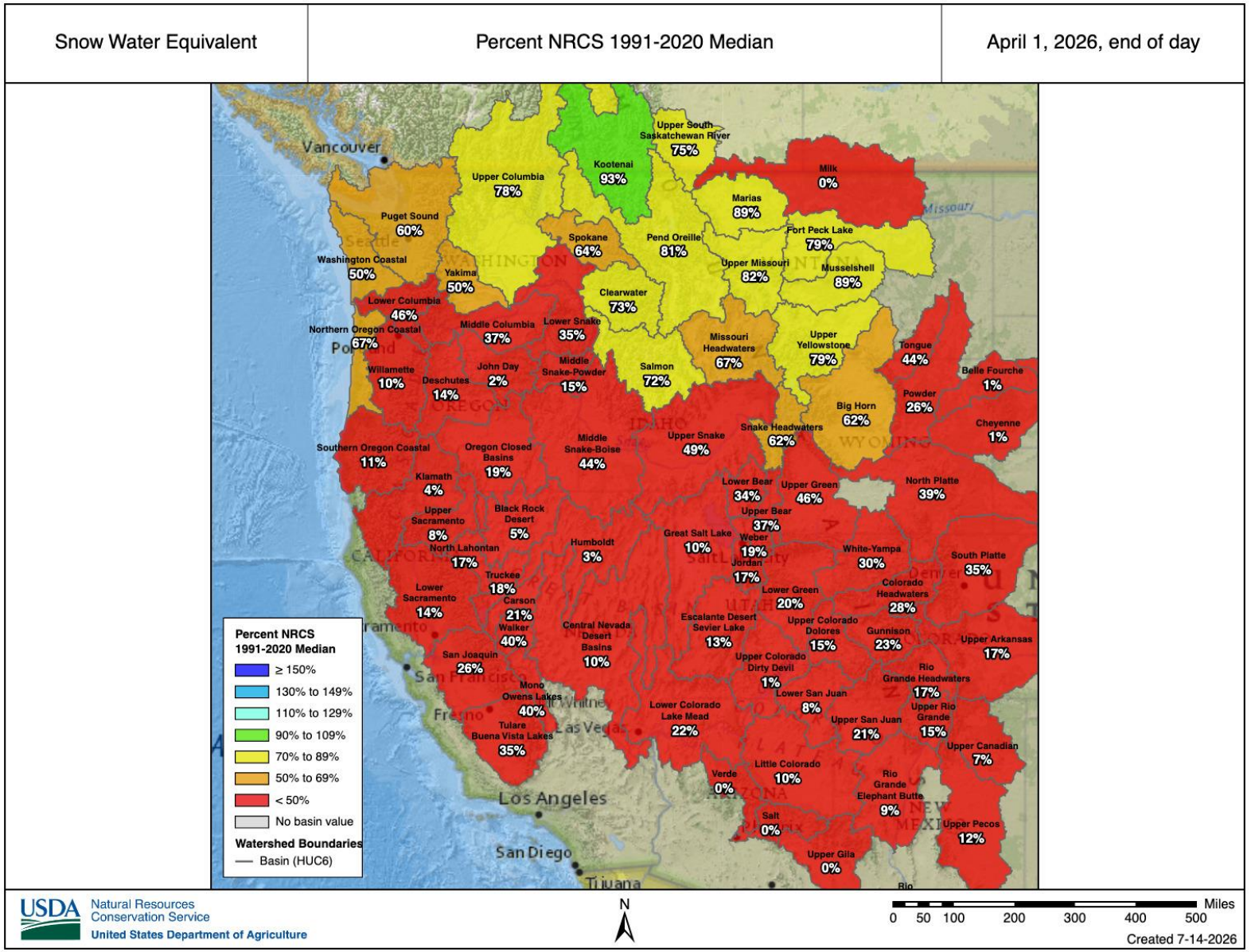
3 likes

Weather conditions for:
US97 SB at LaPine MP167, OR (ODOT - PDT)
Elev: 4232.0 ft; Lat/Lon: 43.67427/-121.50113

For selected observations near this location: click here

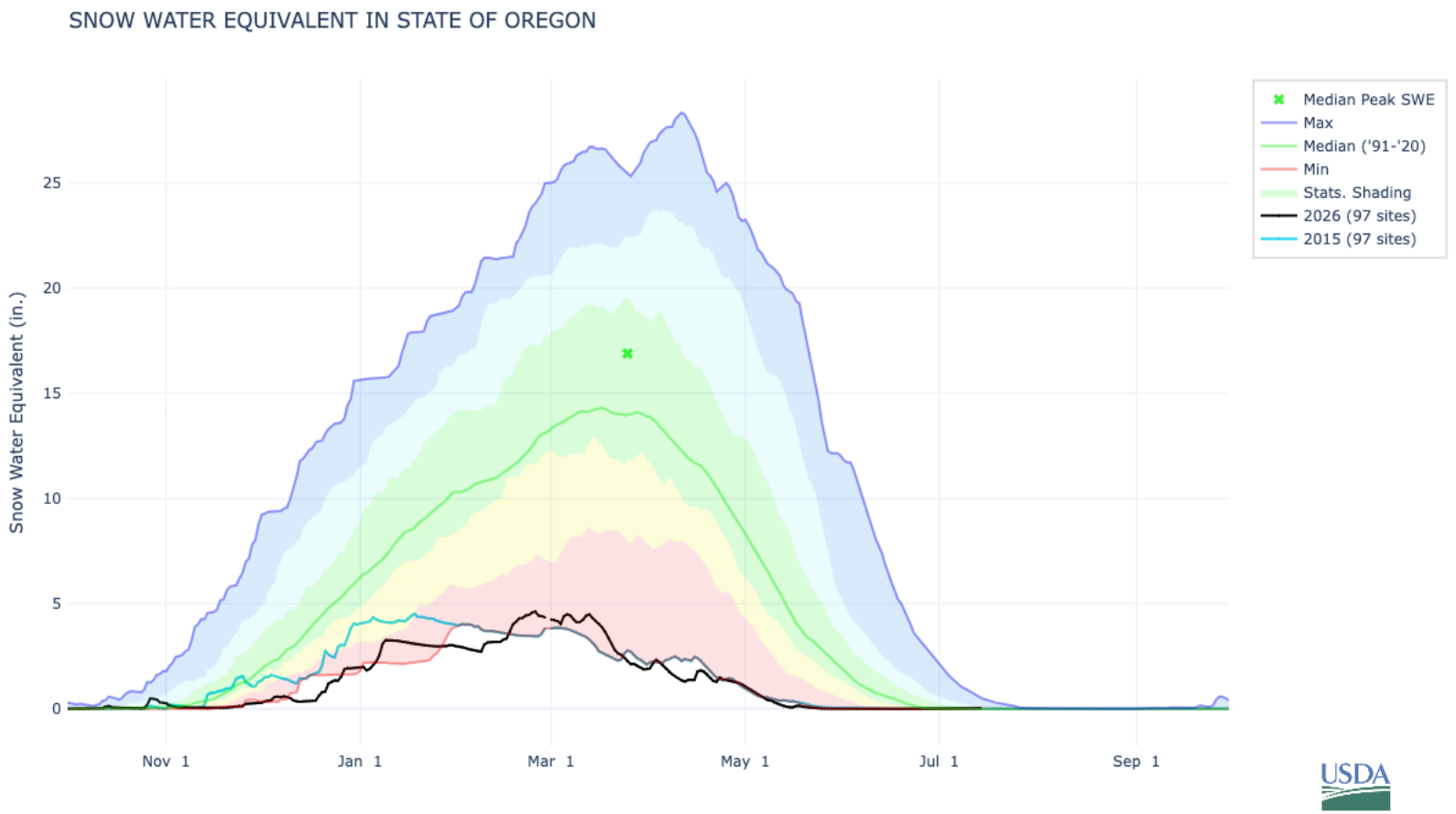
Date/Time (L)	Temp. (°F)	Dew Point (°F)	Relative Humidity (%)	Wind Chill (°F)	Wind Direction	Wind Speed (mph)
Mar 17, 4:15 pm	74	18	12		SW	11G24
Mar 17, 4:05 pm	73	17	12		SW	16G27
Mar 17, 3:55 pm	71	16	12		SW	14G25
Mar 17, 3:45 pm	73	17	12		SW	12G25
Mar 17, 3:35 pm	73	17	12		SSW	15G25
Mar 17, 3:25 pm	73	18	12		SW	12G25
Mar 17, 3:15 pm	71	18	13		SSW	12G26
Mar 17, 3:05 pm	74	19	12		SW	11G22
Mar 17, 2:55 pm	71	18	13		SSW	11G25
Mar 17, 2:45 pm	73	21	14		SW	6G19
Mar 17, 2:35 pm	72	18	13		SW	11G22
Mar 17, 2:25 pm	72	17	12		SW	14G24
Mar 17, 2:15 pm	72	15	11		SW	15G25
Mar 17, 2:05 pm	72	17	12		SW	14G26
Mar 17, 1:55 pm	72	15	11		SSW	15G25
Mar 17, 1:45 pm	72	15	11		SSW	17G25
Mar 17, 1:35 pm	72	14	11		SSW	16G29
Mar 17, 1:25 pm	72	15	11		SSW	16G29
Mar 17, 12:54 pm	74	16	11		SW	10G21
Mar 17, 12:44 pm	73	17	12		SSW	14G22
Mar 17, 12:34 pm	72	18	13		S	9G21
Mar 17, 12:24 pm	71	18	13		SSW	12G21
Mar 17, 12:14 pm	71	17	13		SSW	14G24
Mar 17, 12:04 pm	71	19	14		SSW	12G19
Mar 17, 11:54 am	72	20	14		SW	7G17
Mar 17, 11:44 am	70	19	14		SSW	8G16
Mar 17, 11:34 am	70	23	17		SW	3G13
Mar 17, 11:24 am	67	22	18		S	8G13
Mar 17, 11:14 am	67	23	19		S	4G11

Snowpack in the U.S. west



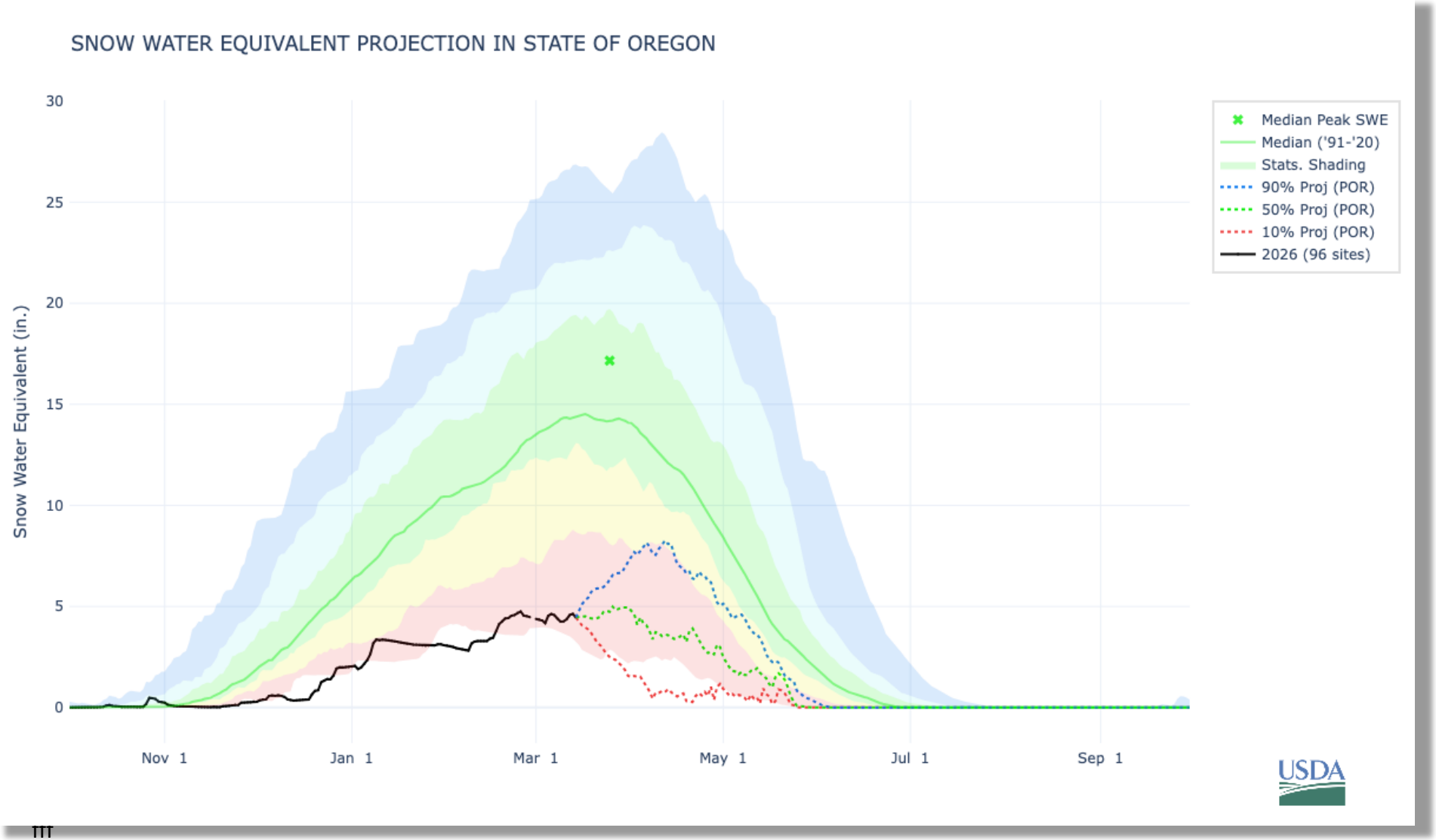
Snowpack was very low across most of the U.S. west this winter

2026 Snowpack in Oregon



If warm and dry conditions continue, this snow season may end close to the worse on record, which was the infamous 2015 snow season

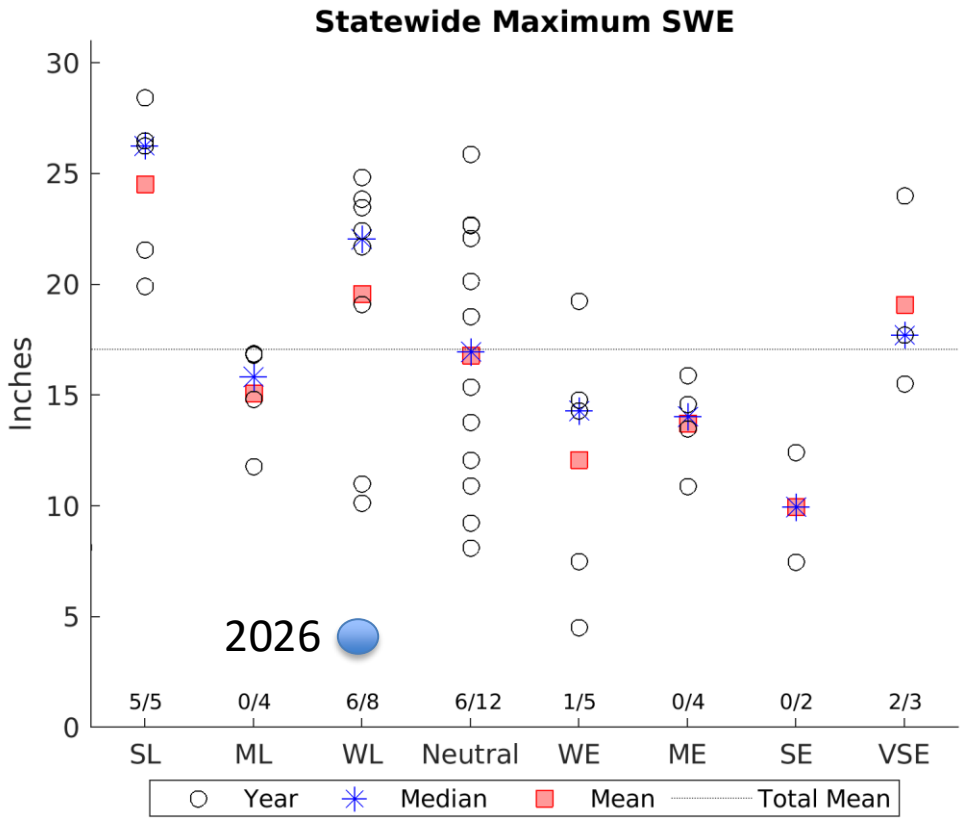
2026 Snowpack in Oregon



A big recovery in the snowpack is not likely based on the historical snowfall Oregon receives from this day forward (a miracle March is unlikely)

Based on conditions within the last few days and current forecasts and outlooks, the snowpack may have peaked for the season

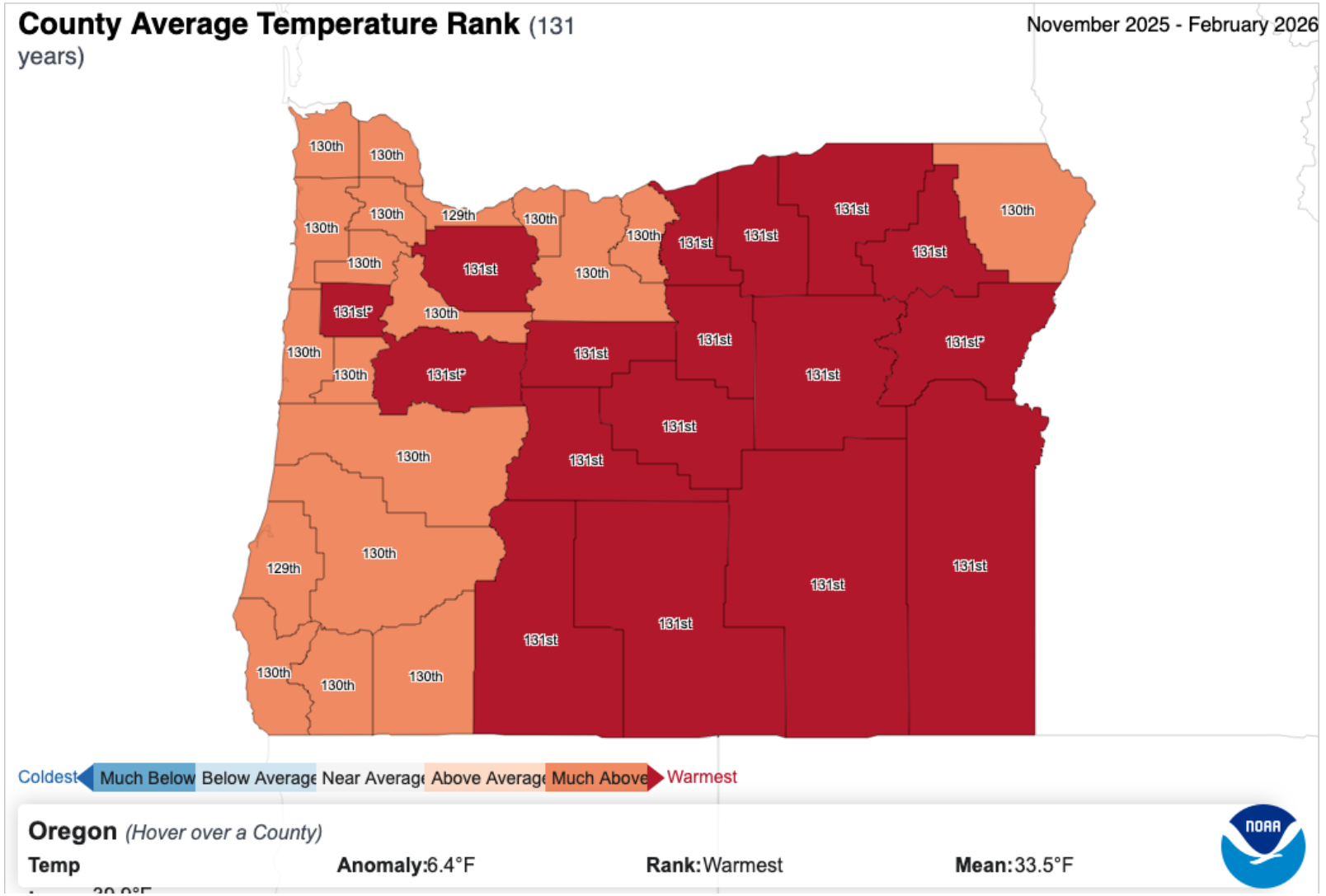
Oregon Annual Maximum SWE vs ENSO Phase



This weak La Niña has not produced a snowpack consistent with previous occurrences

Figure produced by Rosie Una (OSU) for the 7th Oregon Climate Assessment, January 2025

Average Temperature Ranking
November 2025-February 2026



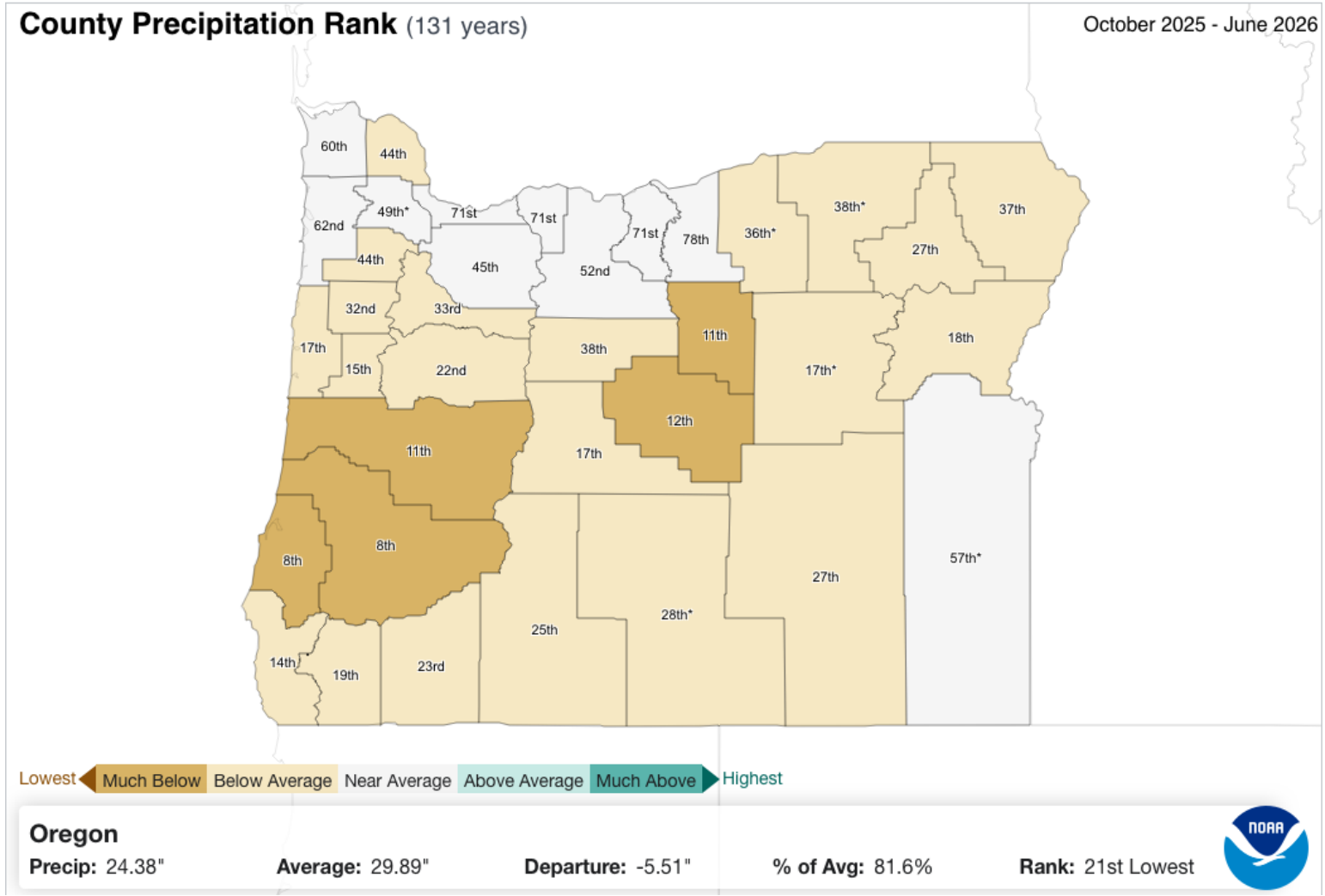
The last 4 full months have been the warmest on record across Oregon

Statewide average temperature has been 6.4°F warmer than normal

Precipitation fell mainly as rain rather than snow at higher elevations

NOAA/NCEI Climate at a Glance, accessed March 16, 2026

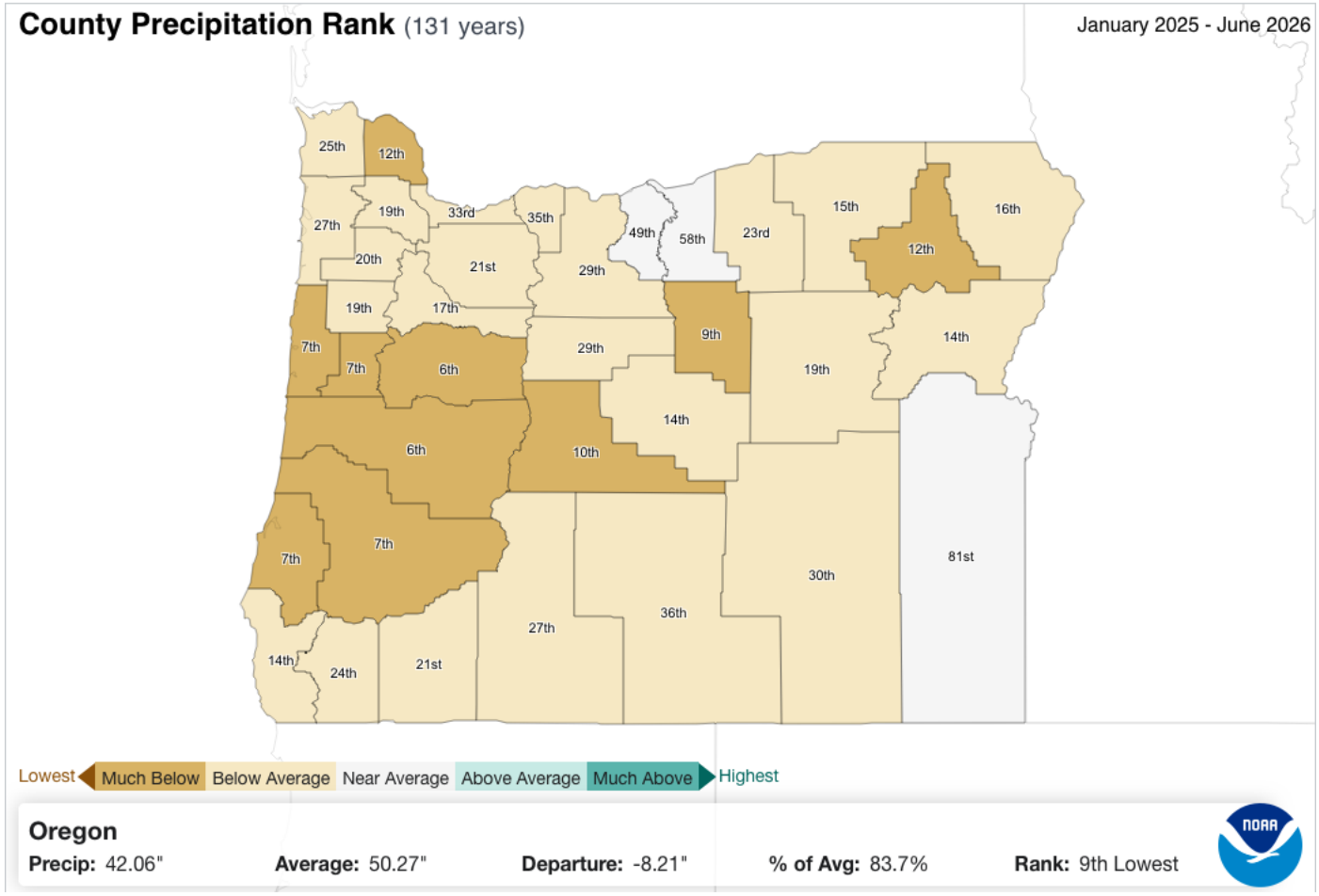
Total Precipitation Ranking
October 2025-June 2026 (Water Year 2026 to date)



Not only has it been warm, but it has also been a mildly dry start to the water year

NOAA/NCEI Climate at a Glance, accessed March 16, 2026

Total Precipitation Ranking
January 2025-June 2026

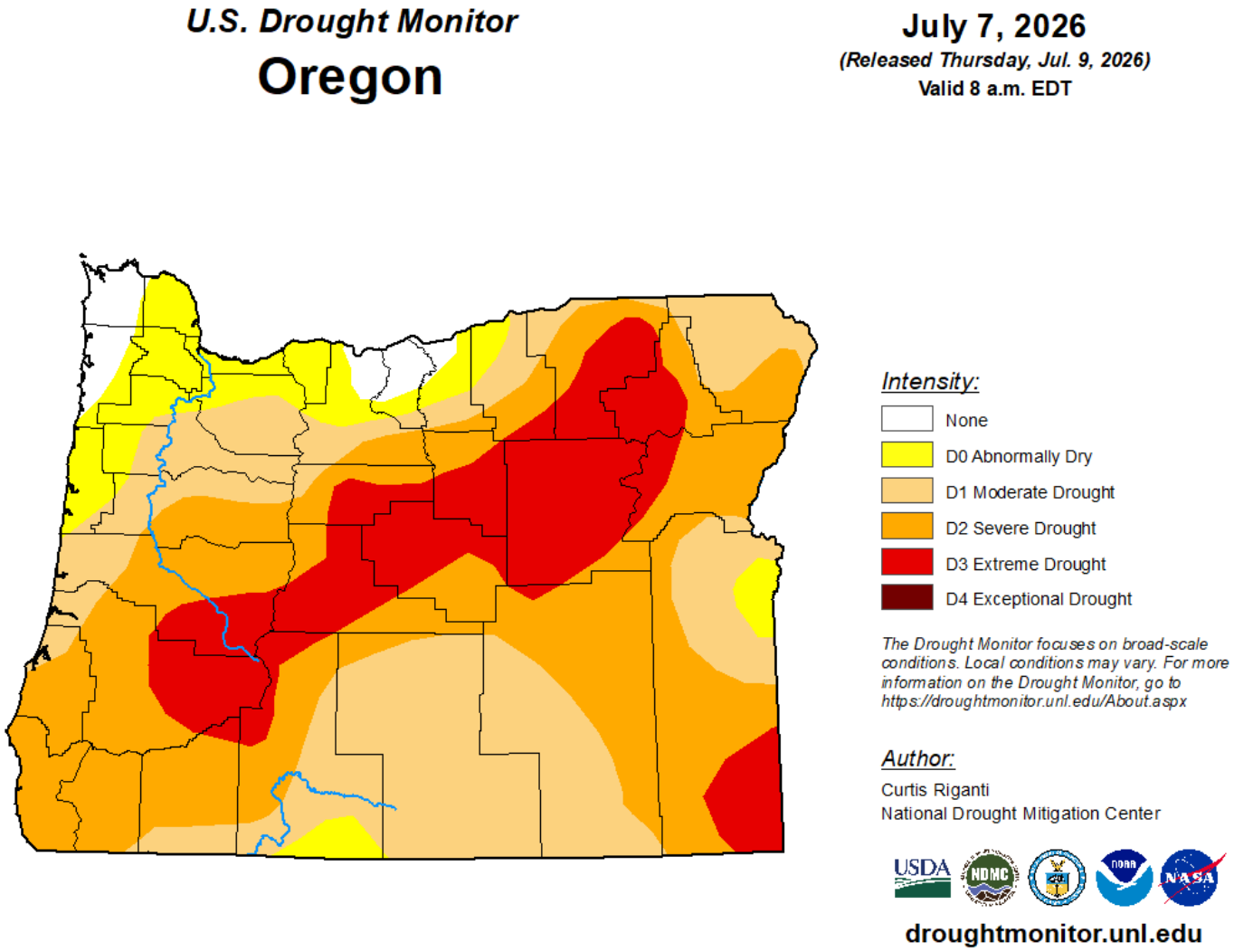


Large precipitation deficits have been building in much of Oregon since January 2025 (18 months ago)

It's been the 9th driest 18 month period since 1895

NOAA/NCEI Climate at a Glance, accessed March 16, 2026

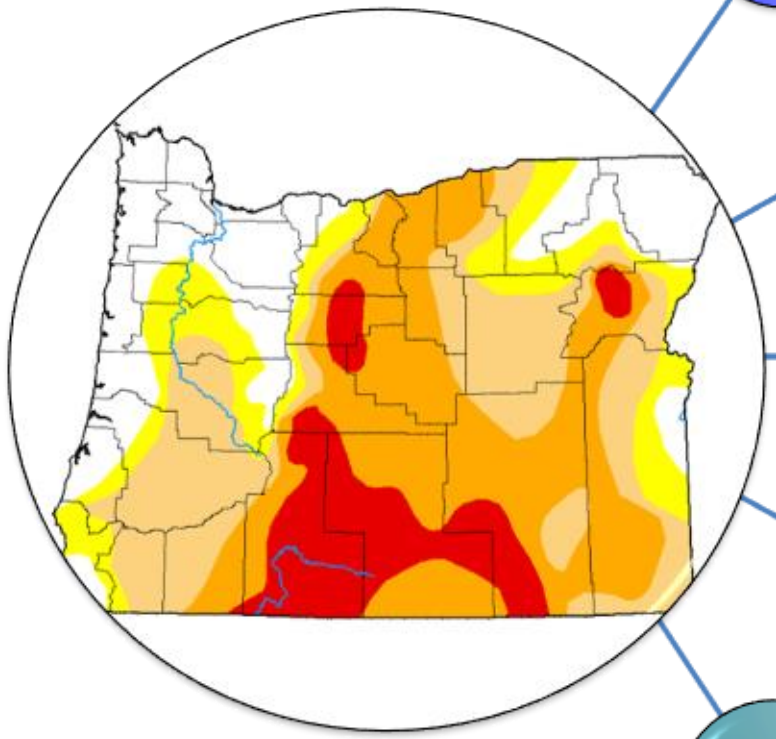
U.S. Drought Monitor (USDM)



- USDM is updated weekly
- Oregon has a Drought Monitor Advisory Committee (DMAC) that assesses conditions and contributes suggestions nearly every week to the National author
  - Representatives from all local NWS offices (Portland, Medford, Pendleton, and Boise), Oregon USDA/NRCS, Oregon Water Resources Dept (OWRD), and the USGS
- Approximately monthly drought coordination meetings with NOAA/NIDIS PacNW Drought Early Warning System, the state climate offices in Washington and Idaho, WA Dept of Ecology, OCCRI, OWRD, and USDA/NRCS
- Monthly meetings of the Oregon Water Supply Availability Committee and the Drought Readiness Council

Source: U.S. Drought Monitor (USDM)

Key objective drought indicators for Oregon



- Streamflow
- Seasonal runoff

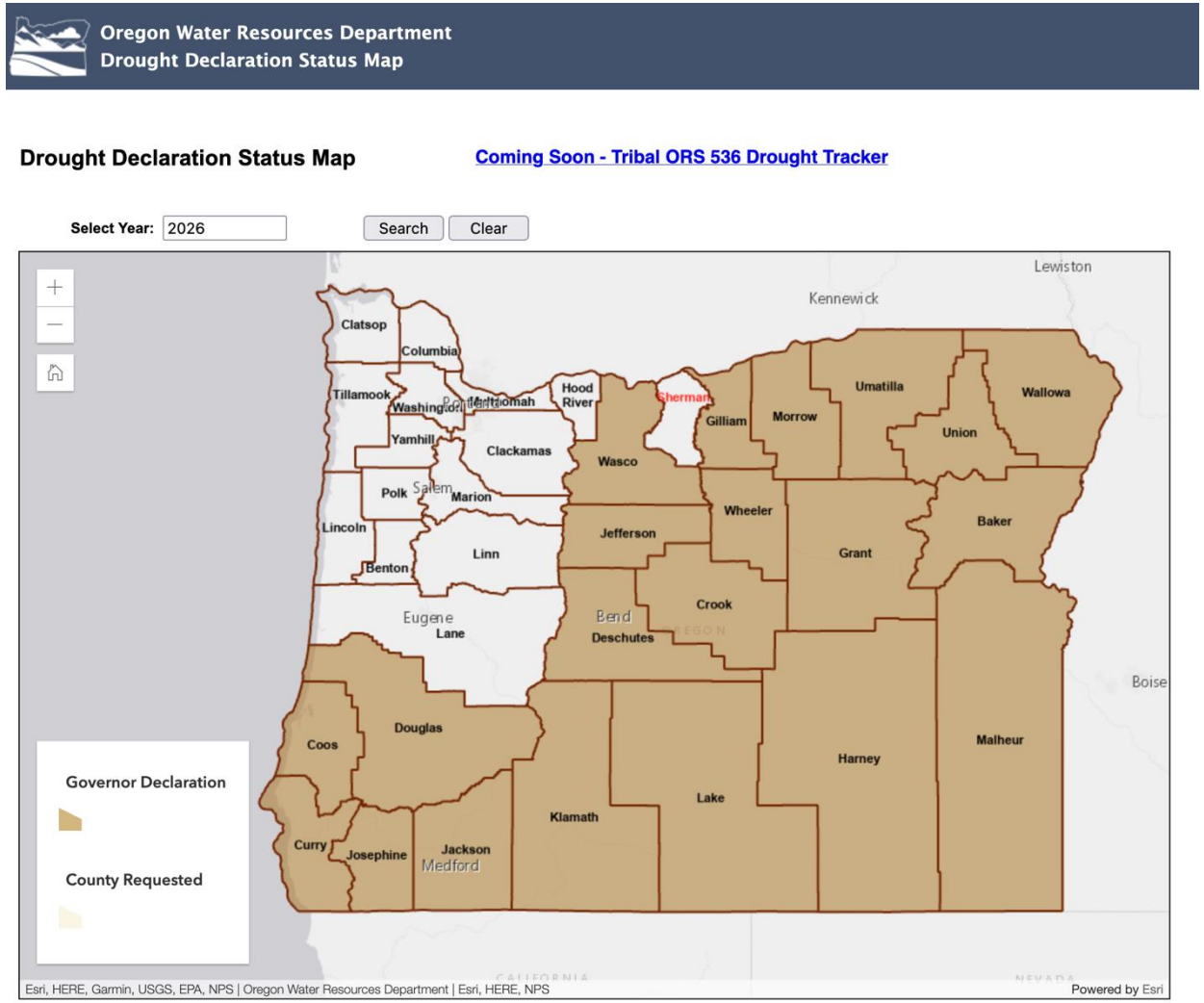
- Precipitation
- Standardized Precipitation Index (SPI)

- Snowpack
- Snow Water Equivalent (SWE)

- Soil moisture
- Shallow groundwater

- Evapotranspiration
- Air Temperature
- Standardized Precipitation-Evaporation Index (SPEI)

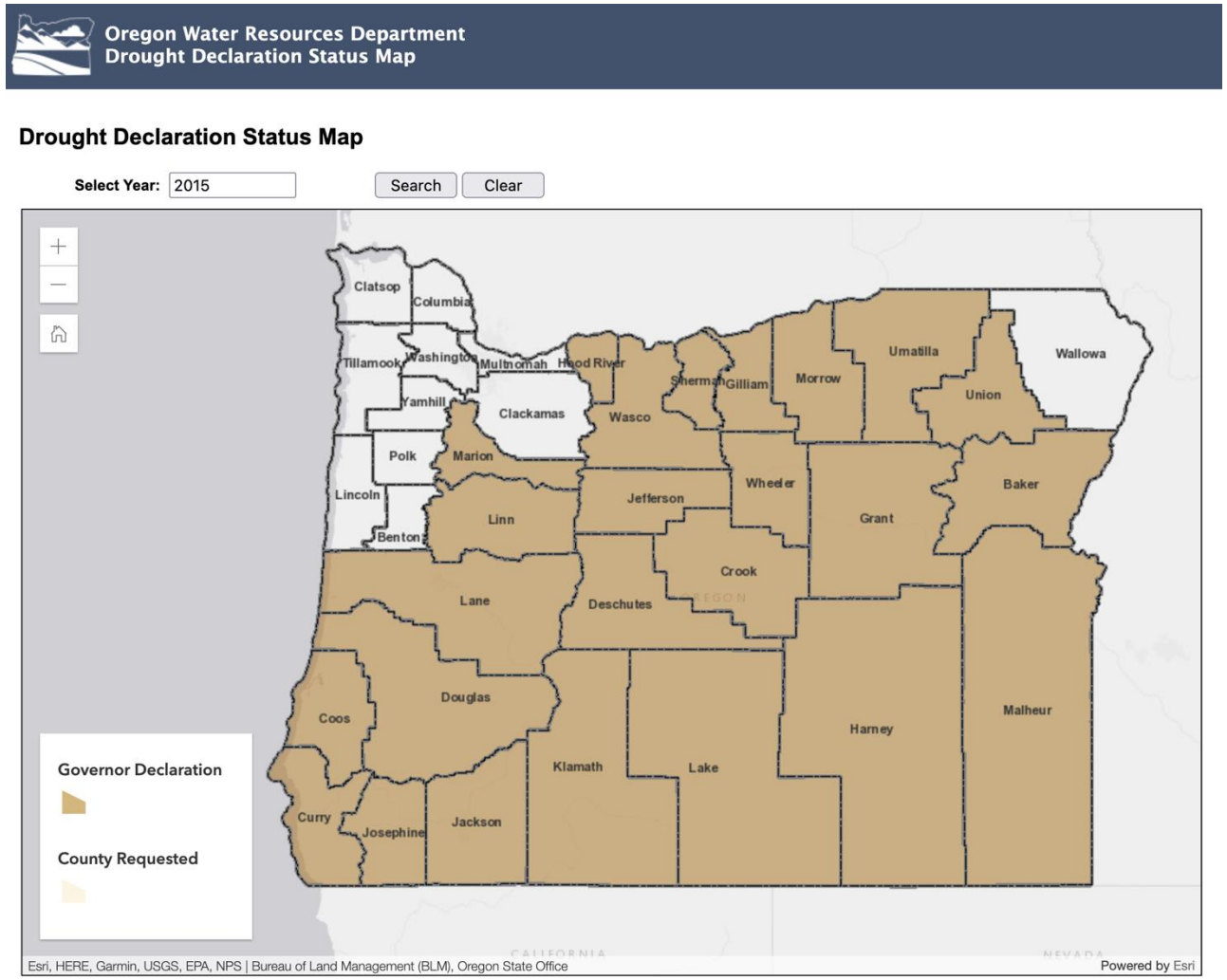
County Drought Emergencies Requested thus far in 2026



So far this year, 21 of 36 Oregon counties have received state-issued emergency drought declarations

Source: Oregon Water Resources Department
https://apps.wrd.state.or.us/apps/WR/drought_dashboard/Default.aspx

County drought emergencies declared during 2015

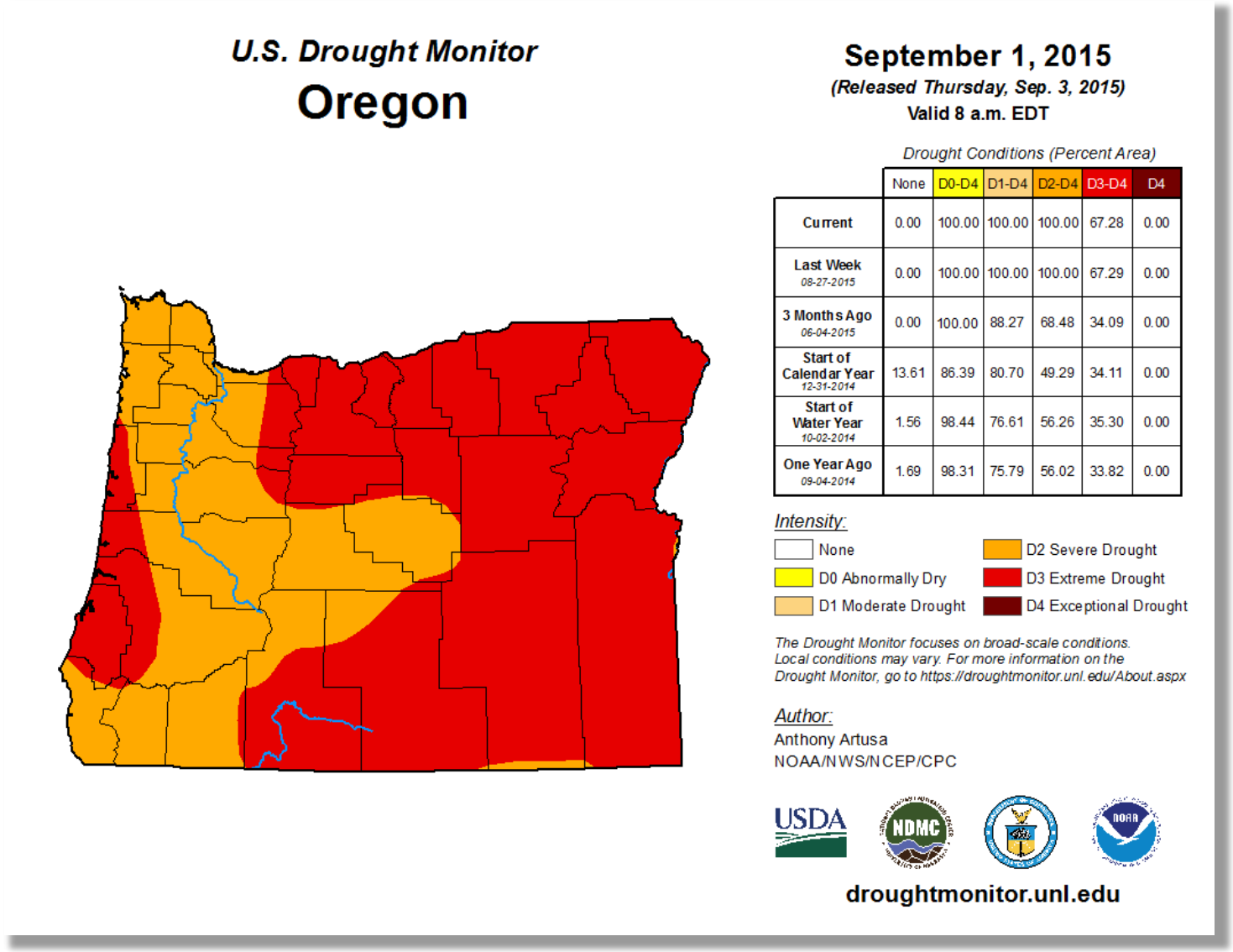


Source: Oregon Water Resources Department

During 2015, 25 of 36 Oregon counties received state-issued emergency drought declarations

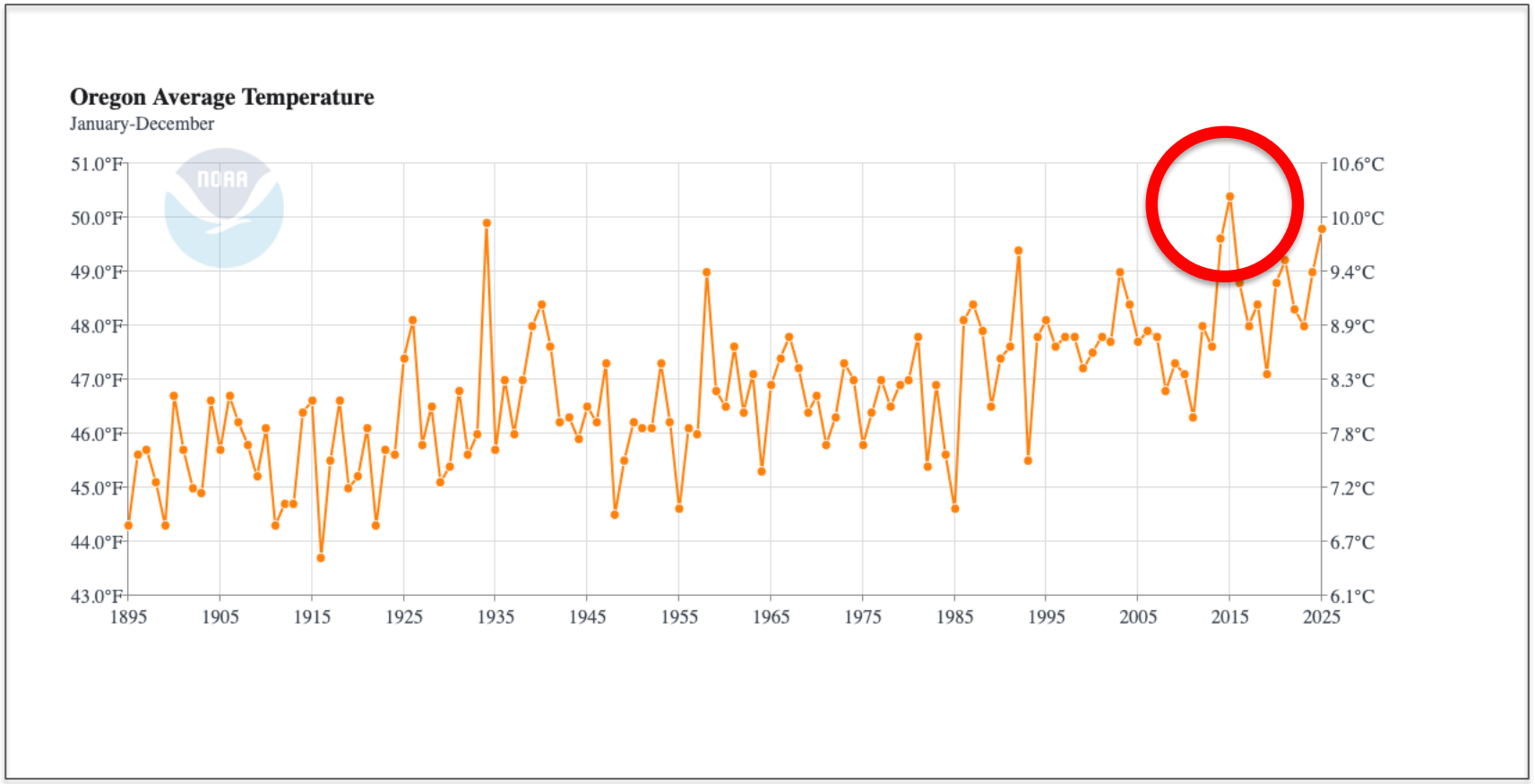
Lack of snow was a primary contributor to drought conditions that year

Projected changes in extreme 1-day precipitation events



In September 2015, Oregon was completely in severe or extreme drought

Oregon Annual Temperature Time Series

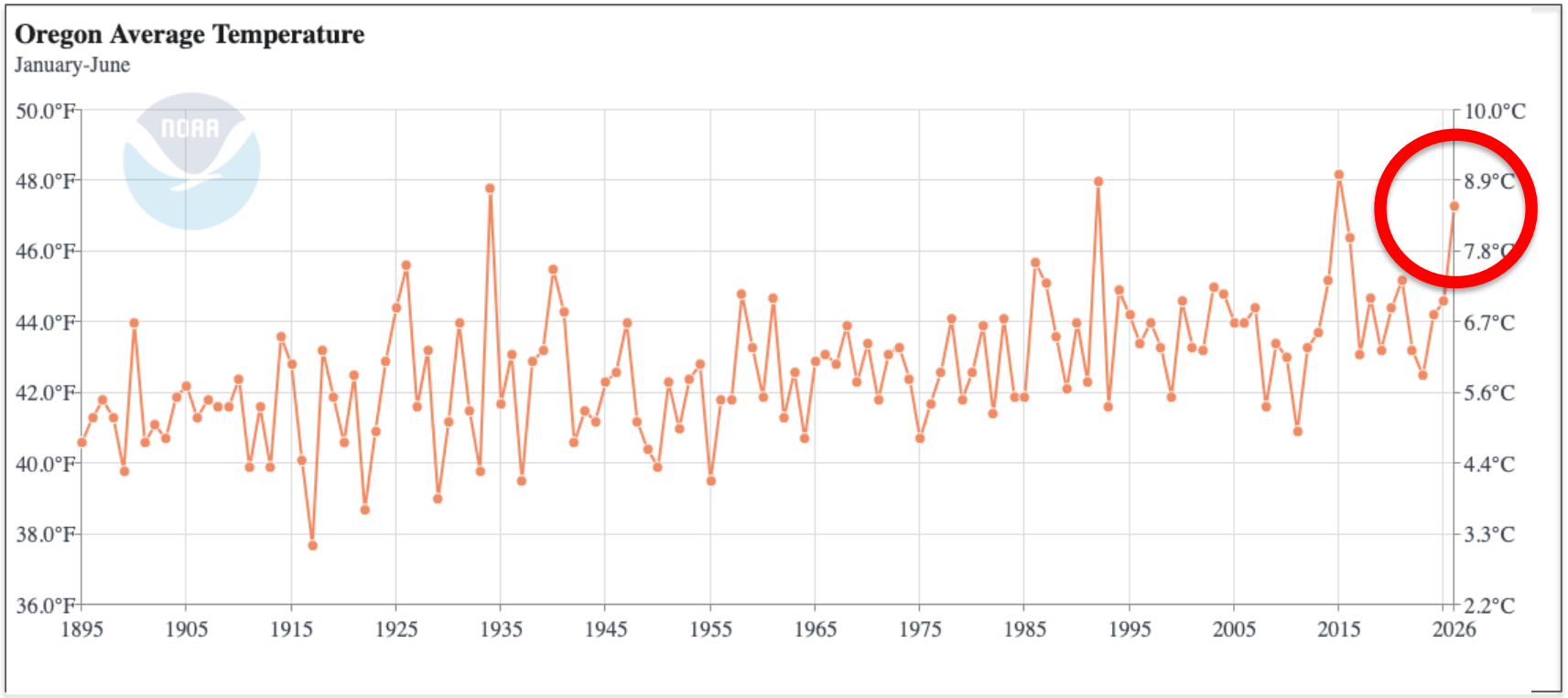


2015 was Oregon's warmest calendar year on record

2025 was Oregon's third warmest despite the weak La Nina (which usually leads to cooler years)

Source: NOAA/NCEI Climate at a Glance

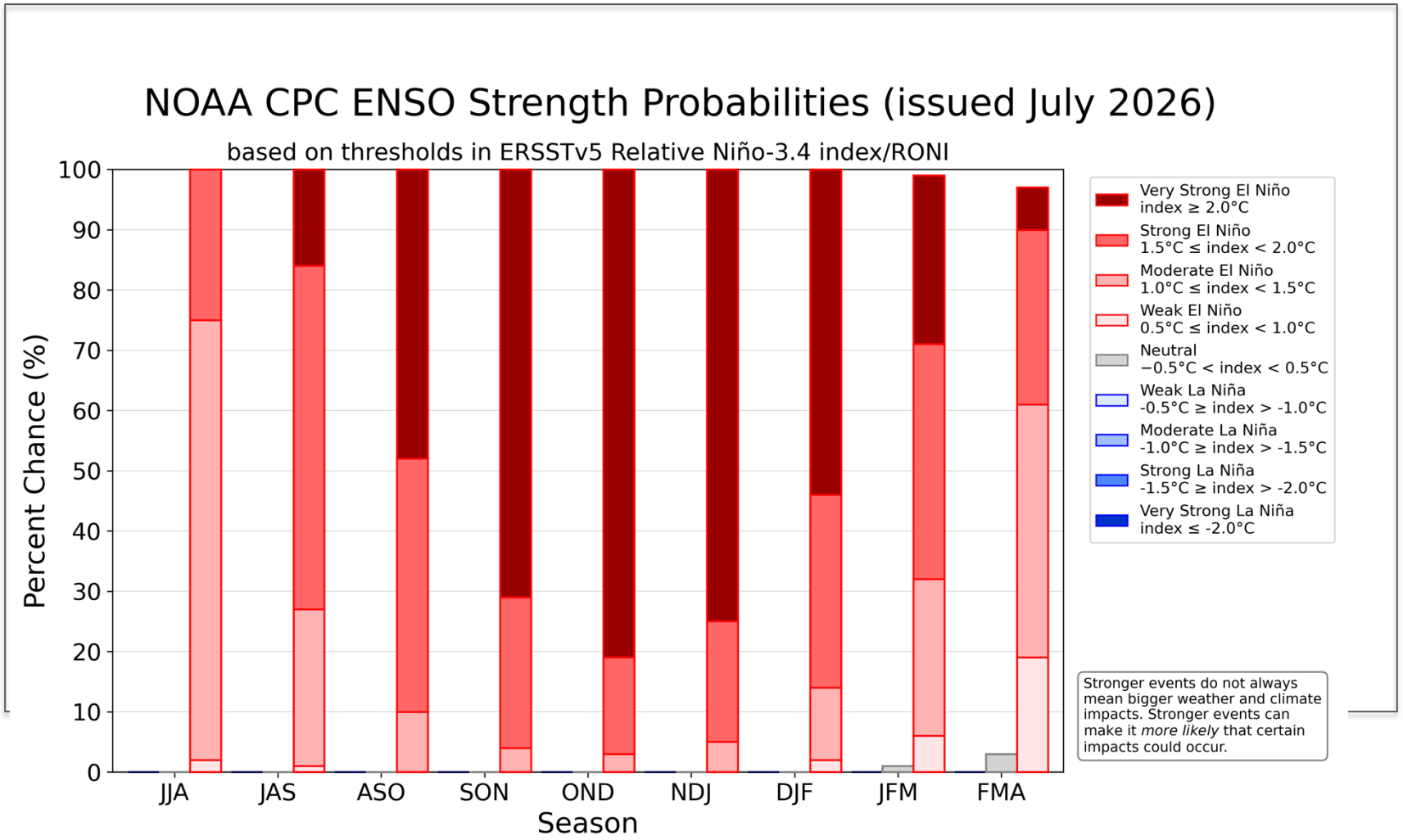
Oregon January-July Average Temperature



This year, Oregon experienced its fourth warmest start to a calendar year

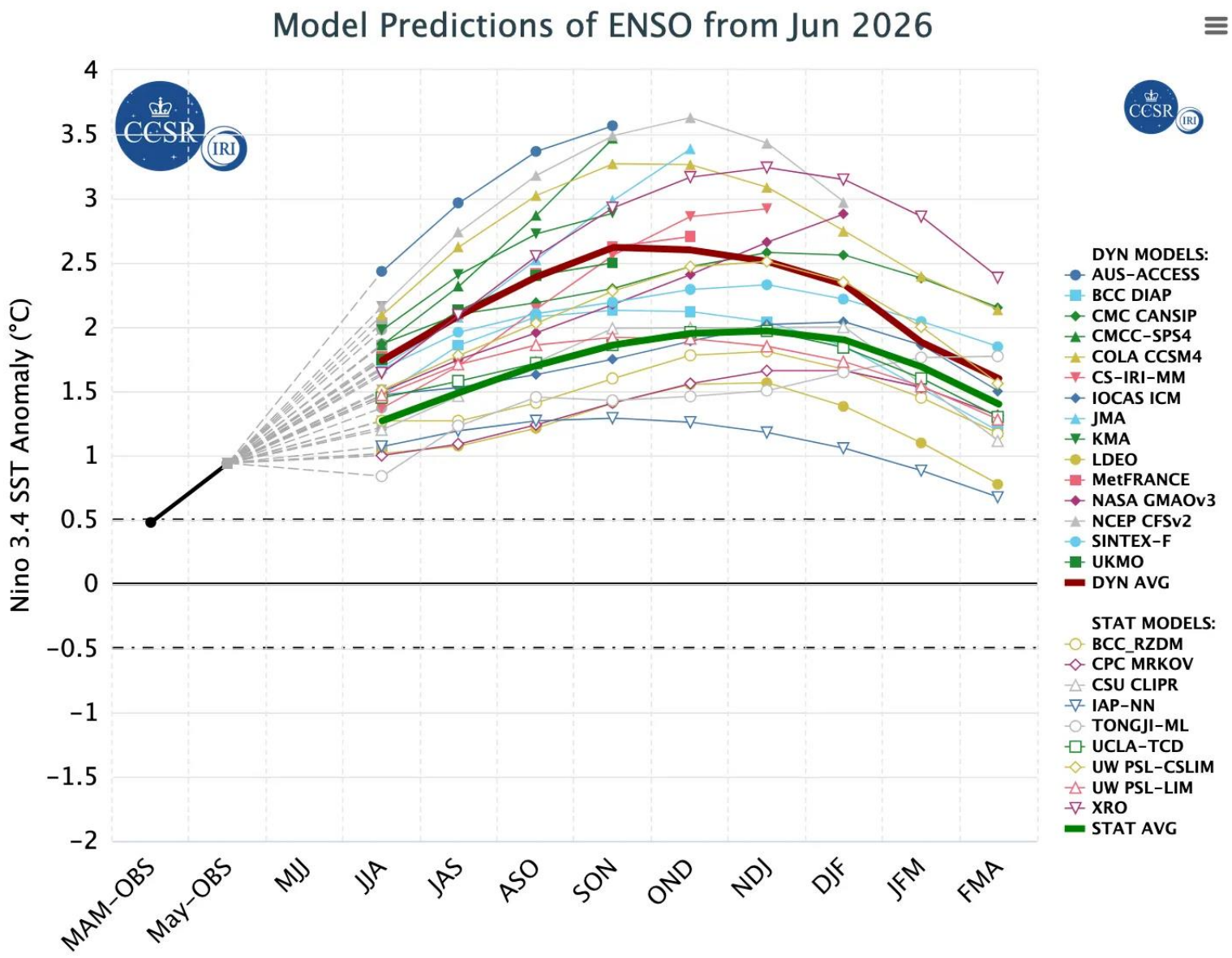
Source: NOAA/NCEI Climate at a Glance

ENSO Probabilistic Forecast



Eerily similar to 2015, a significant El Nino event may emerge this summer and fall

While forecasts for its magnitude are uncertain, it appears that it could be a stronger one


Model Predictions of ENSO from Jun 2026
Nino 3.4 SST Anomaly (°C)
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
MAM-OBS
May-OBS
MJJ
JJA
JAS
ASO
SON
OND
NDJ
DJF
JFM
FMA
DYN MODELS:
AUS-ACCESS
BCC DIAP
CMC CANSIP
CMCC-SPS4
COLA CCSM4
CS-IRI-MM
IOCAS ICM
JMA
KMA
LDEO
MetFRANCE
NASA GMAOv3
NCEP CFSv2
SINTEX-F
UKMO
DYN AVG
STAT MODELS:
BCC_RZDM
CPC MRKOV
CSU CLIPR
IAP-NN
TONGJI-ML
UCLA-TCD
UW PSL-CSLIM
UW PSL-LIM
XRO
STAT AVG
Highcharts.com

Damage caused by flash floods in Huachipa, east of Lima, Peru in 2017, where water distribution systems collapsed during heavy downpours. Photograph: Ernesto Benavides/AFP/Getty Images

El Niño is back with a vengeance – and fears of 'Godzilla' strength may be the least of our worries

UN's World Food Programme and agriculture agency issue joint appeal for funds to avert global hunger crisis before it happens

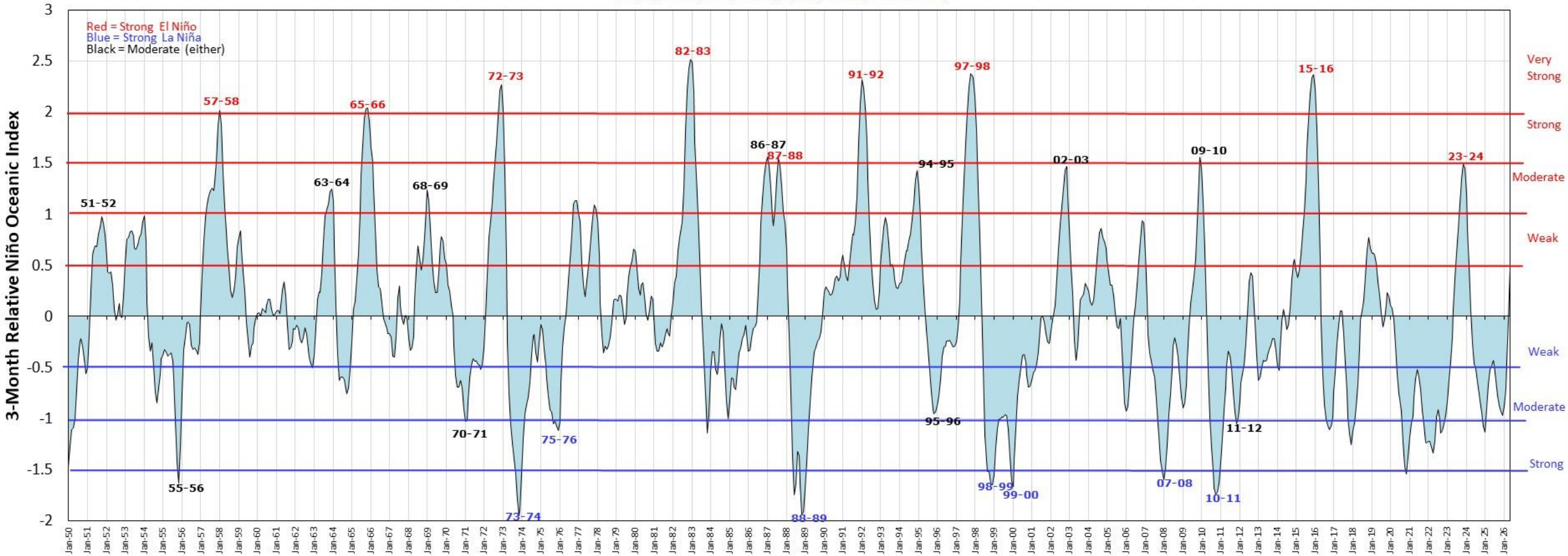
By Ajit Niranjan

Sun 21 Jun 2026 09.00 EDT

Adugna Woyessa was a little boy the first time drought tore his country apart. As harvests failed in rain-starved regions of Ethiopia in the early 1970s, and his school turned a classroom into

Relative Oceanic Niño Index (RONI)

https://www.cpc.ncep.noaa.gov/data/indices/RONI.ascii.txt



Hydroclimate outcomes of ENSO phases and magnitudes

	Number of water years above average		
ENSO phase and strength	Temperature	Precipitation	Peak annual snow water equivalent
Very Strong El Niño	2 of 3	3 of 3	2 of 3
Strong El Niño	4 of 5	1 of 5	0 of 2
Moderate El Niño	2 of 7	3 of 7	0 of 4
Weak El Niño	9 of 12	6 of 12	1 of 5
ENSO-Neutral	10 of 18	7 of 18	6 of 12
Weak La Niña	6 of 15	7 of 15	6 of 8
Moderate La Niña	3 of 6	3 of 6	0 of 4
Strong La Niña	2 of 7	5 of 7	5 of 5

Figure produced by Rosie Una (OSU) for the 7th Oregon Climate Assessment, January 2025

Snow Drought

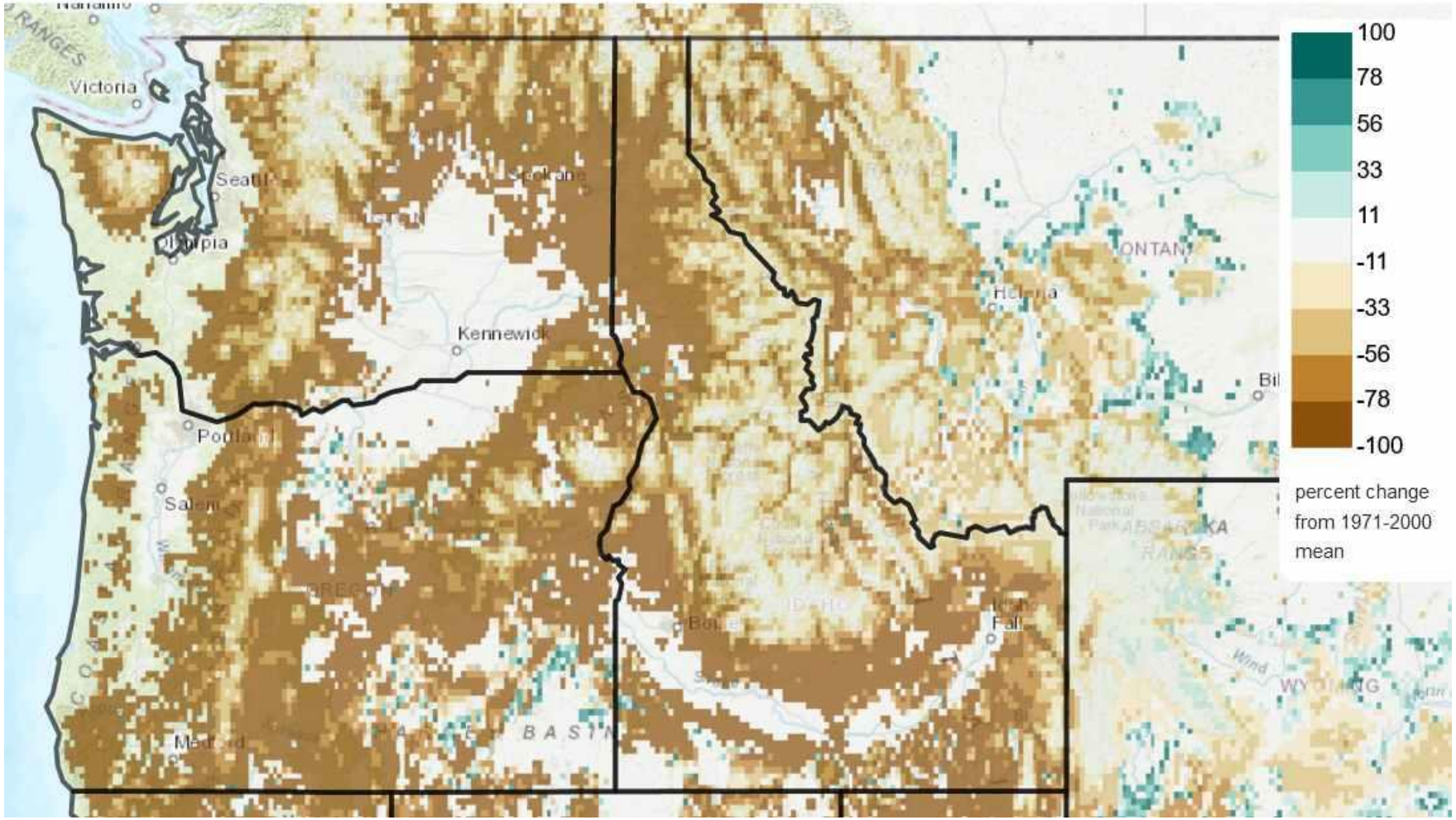
Warmer winter temperatures are causing less precipitation to fall as snow in the Northern Hemisphere, including in key regions like the Oregon and Washington Cascades and the Sierra Nevada of California

The snowpack condition entering spring is a reliable predictor of hydrological drought in the following summer and fall in the Pacific Northwest

Projected Change in Snow Water Equivalent, April 1st

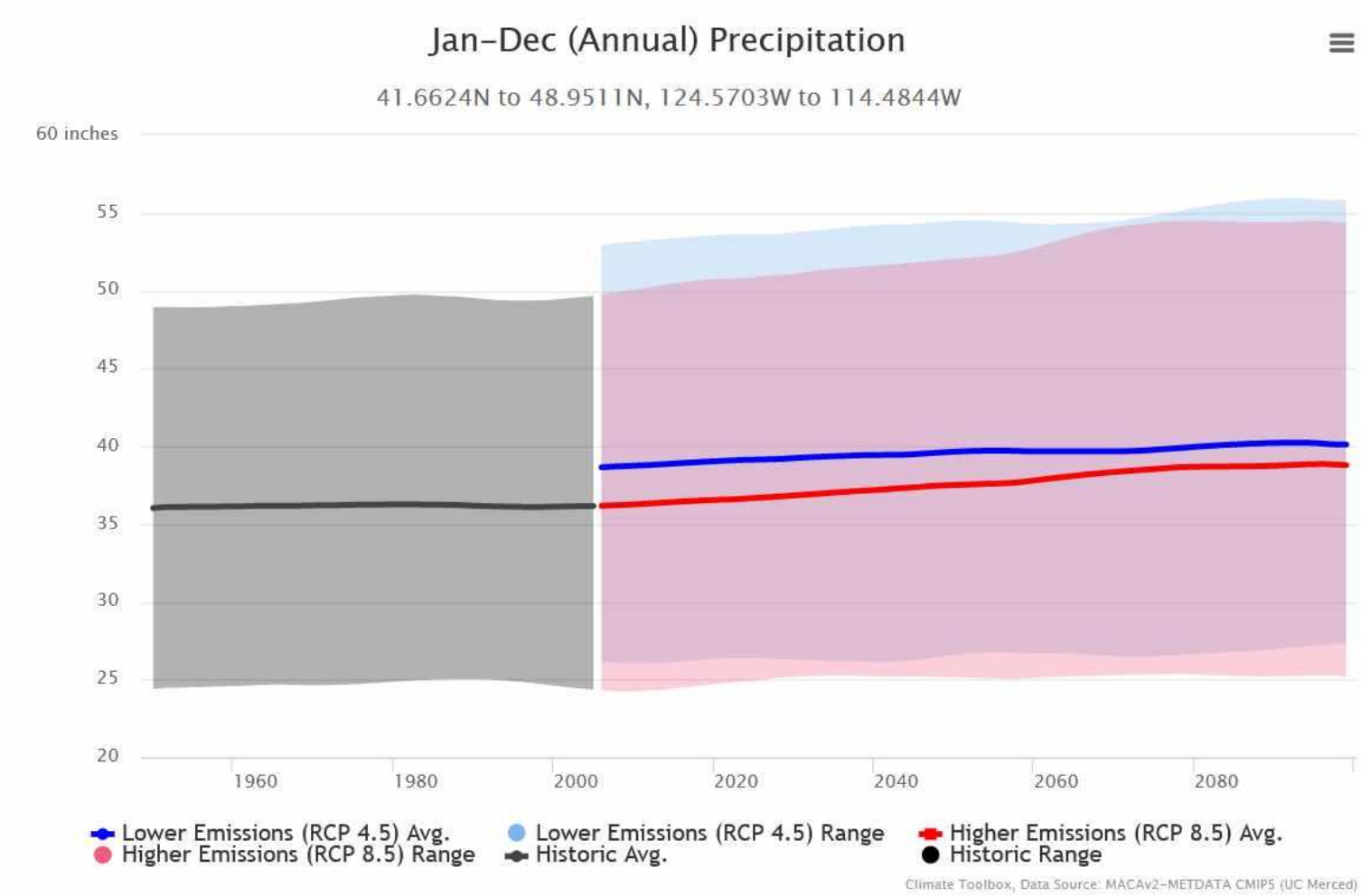
Higher Emissions (RCP 8.5) 2040-2069 vs. historical simulation 1971-2000, mean change

Multi-model mean from 10 VIC runs forced by downscaled CMIP5 models



Source: Climate Toolbox

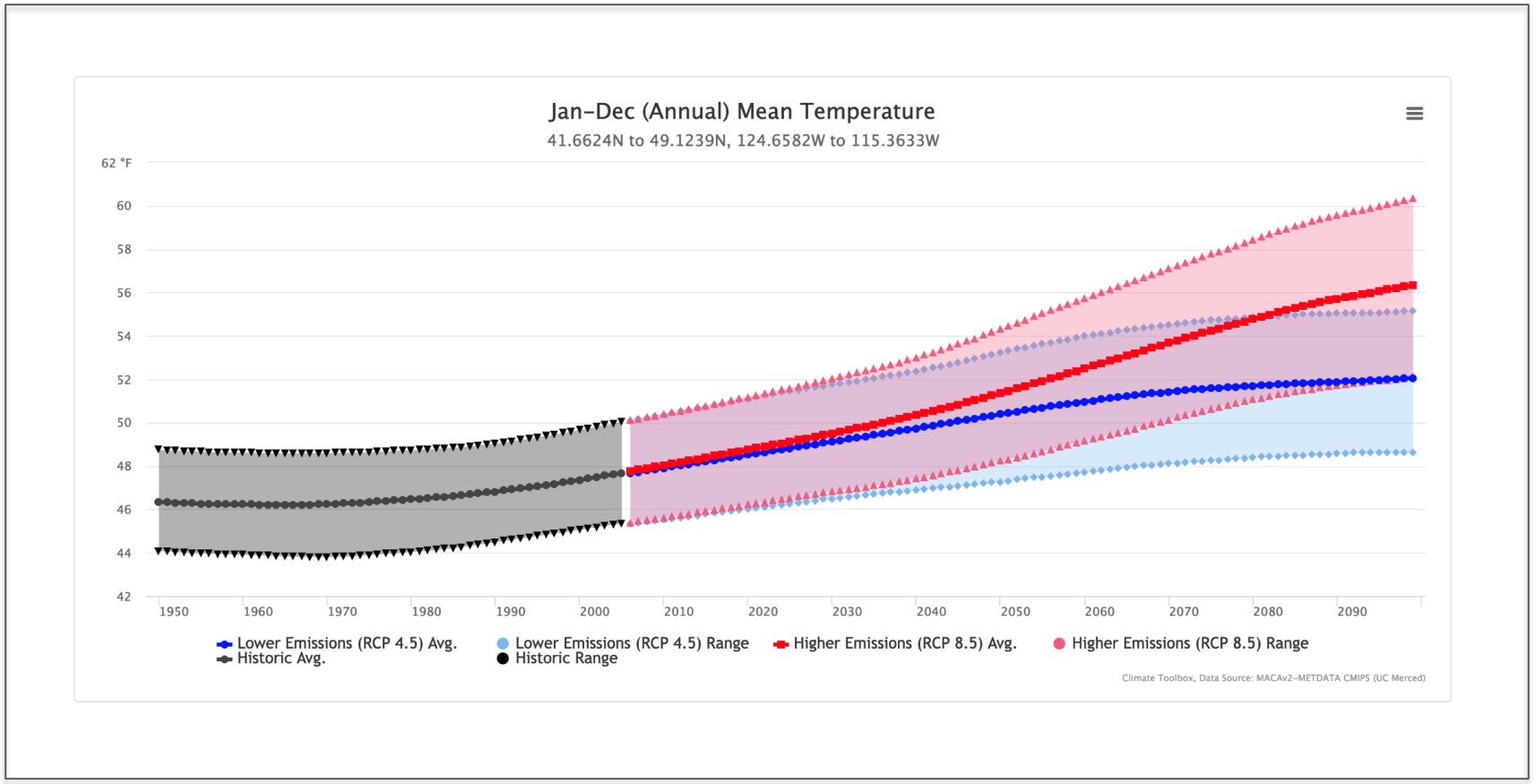
Annual Oregon Precipitation



Annual precipitation is not expected to change significantly in the Pacific Northwest through the end of the 21st century

climatetoolbox.org

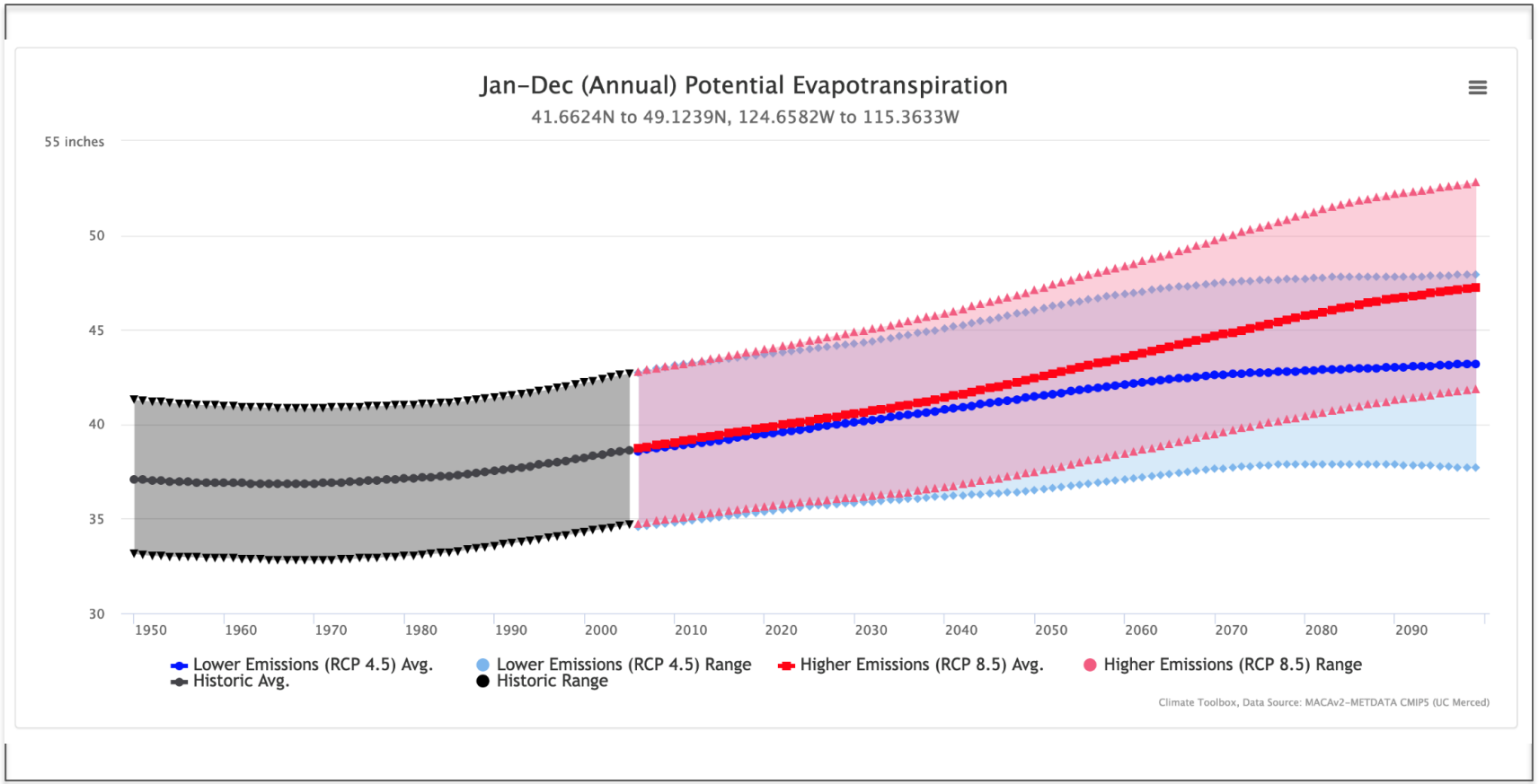
Pacific Northwest Temperature Projections



The annual average daily maximum temperature is expected to rise between 4-8˚F by the end of this century averaged over the entire Pacific Northwest

From the 7th Oregon Climate Assessment, released Jan 2025

Evapotranspiration trends in the Pacific Northwest



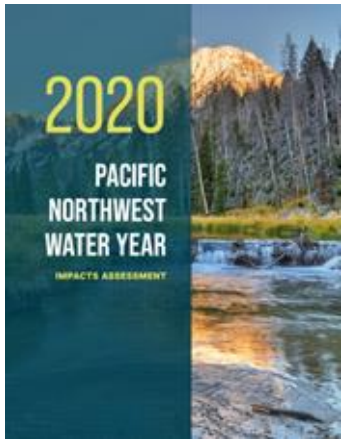
Annual evaporative water losses are expected to increase 10-20% by the end of this century

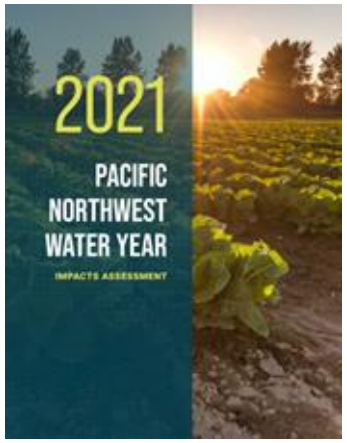
Because of this, precipitation will not go as far to meet the water needs of society or nature

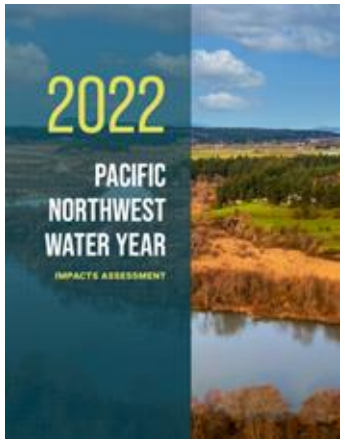
Source: Climate Toolbox

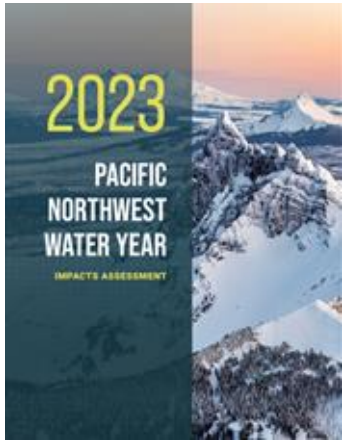
PNW Water Year Impacts Assessments

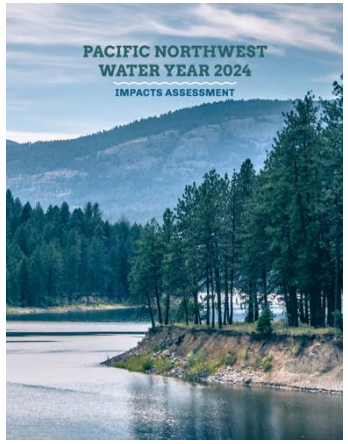
Purpose: To document water year impacts so that we can be better prepared for future change.











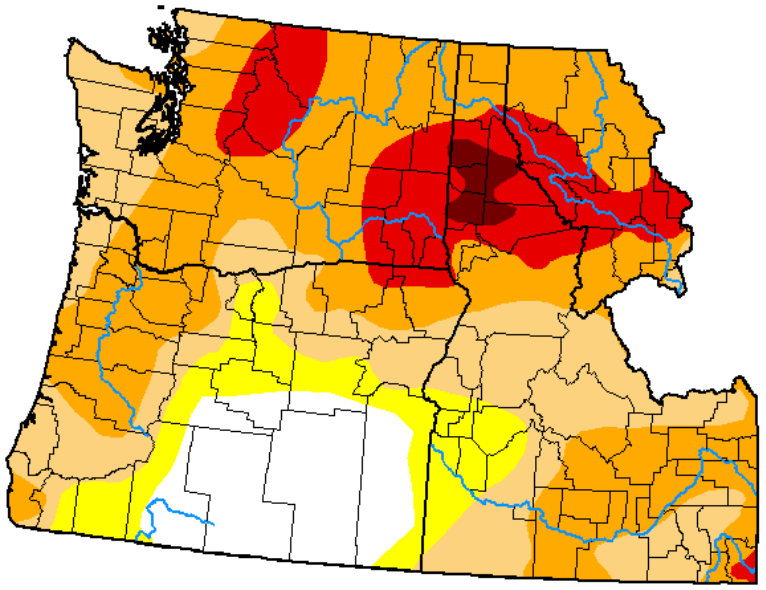
https://cig.uw.edu/projects/annual-assessment-of-water-year-impacts-in-the-pacific-northwest/

The 2025 Water Year Impacts Assessment will be released within the next week or so!

Water year 2025 ended with much of the Pacific Northwest in severe, extreme, and exceptional drought

U.S. Drought Monitor

Pacific Northwest DEWS



September 30, 2025

(Released Thursday, Oct. 2, 2025)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	11.69	88.31	78.44	52.23	14.33	1.28
Last Week *09-23-2025*	10.51	89.49	79.61	49.23	14.33	1.28
3 Months Ago *07-01-2025*	1.51	98.49	66.97	19.61	5.28	0.00
Start of Calendar Year *01-07-2025*	61.17	38.83	14.59	4.29	1.75	0.00
Start of Water Year *10-01-2024*	13.07	86.93	56.26	11.40	2.27	0.49
One Year Ago *10-01-2024*	13.07	86.93	56.26	11.40	2.27	0.49

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

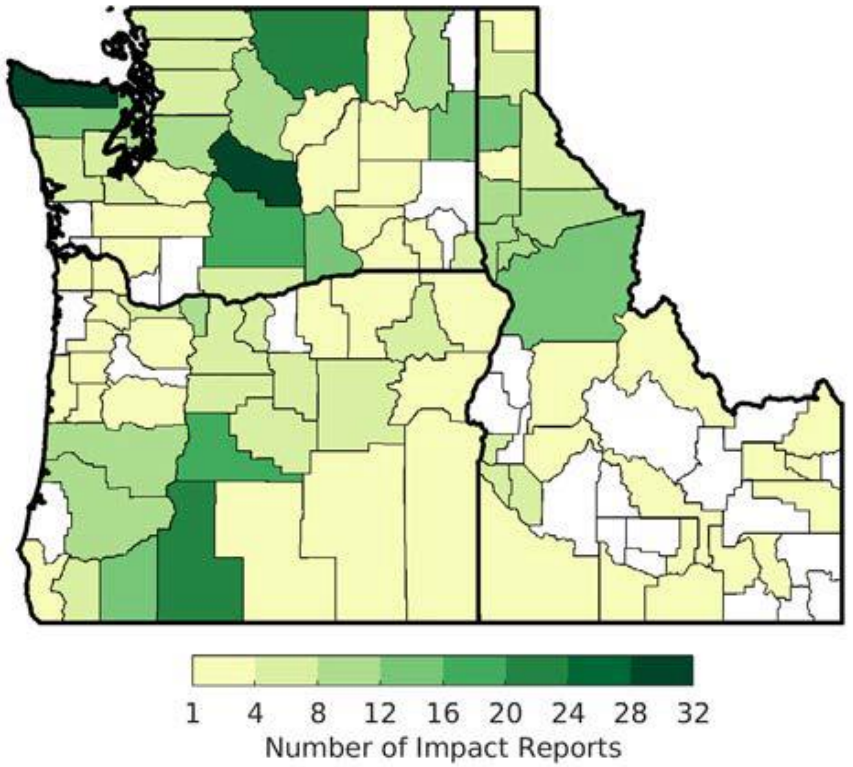
Author:

Curtis Riganti

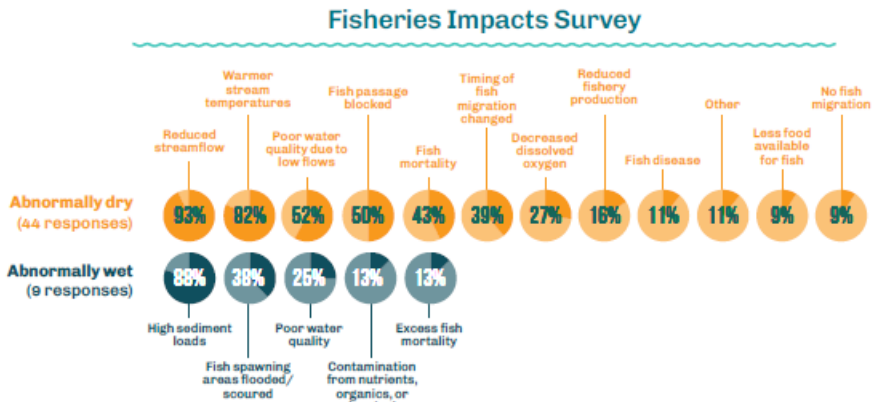
National Drought Mitigation Center

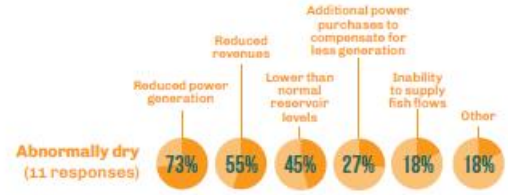
droughtmonitor.unl.edu

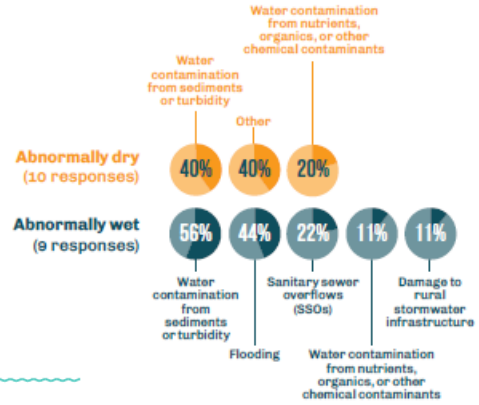
2024 SURVEY IMPACT REPORT DISTRIBUTION

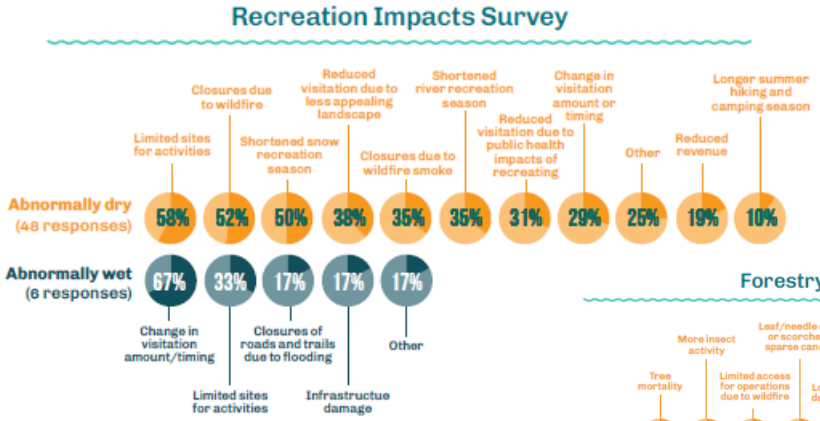


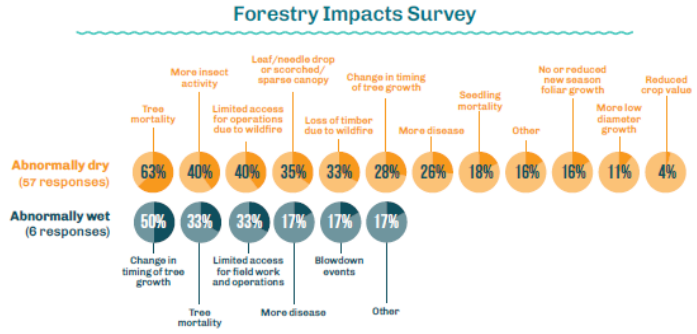
2024 SURVEY IMPACT REPORT CLASSIFICATION



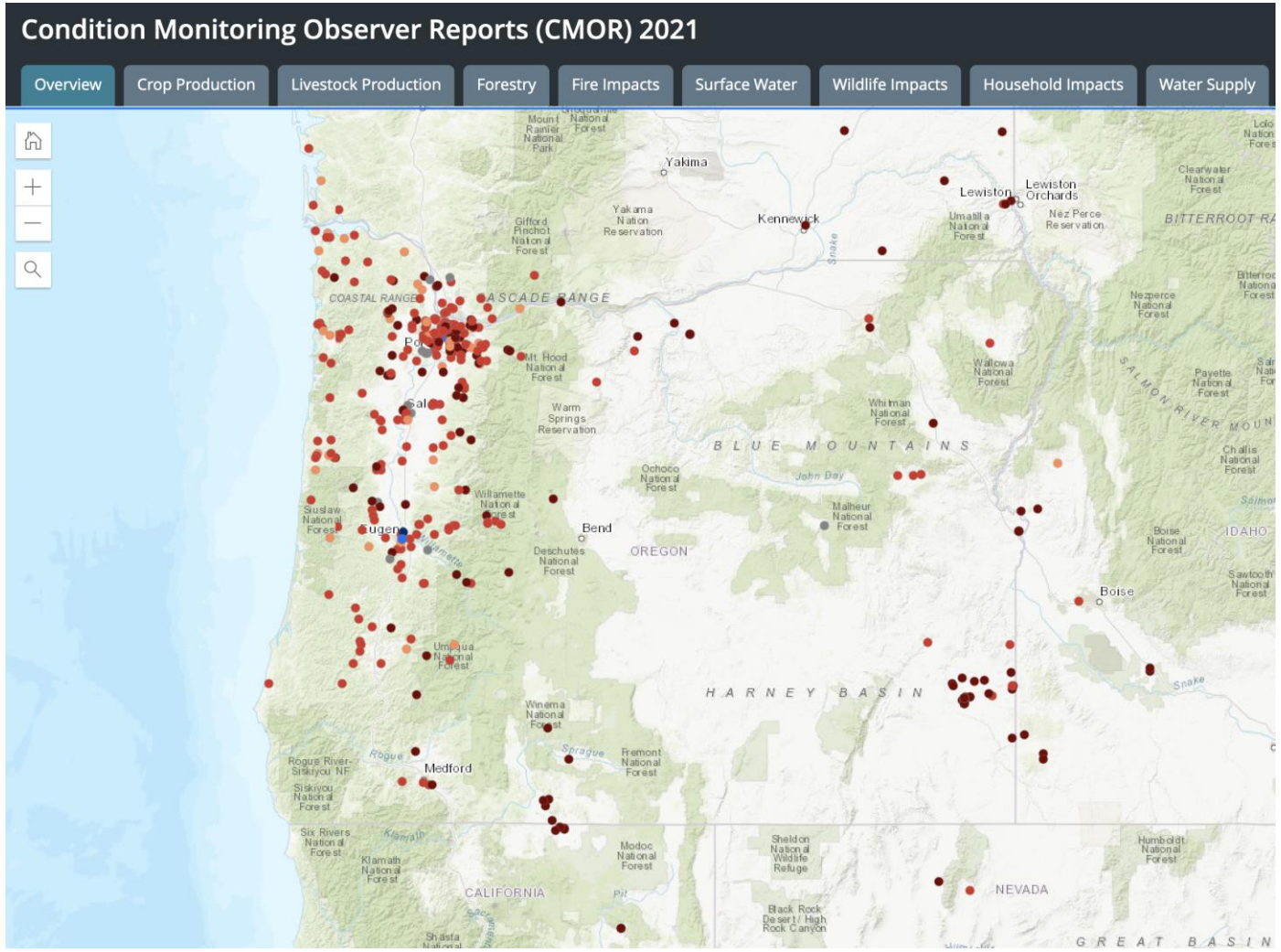








Condition Monitoring Observer Reports (CMOR)



Condition observer reports from a variety of sources assist in providing context to the meteorological and hydrological data, and sometimes point to areas where perhaps other objective data have not fully captured drought extent or evolution

Example below shows the CMOR dashboard service provided by the National Drought Mitigation Center (NDMC)

https://go.unl.edu/CMOR_drought

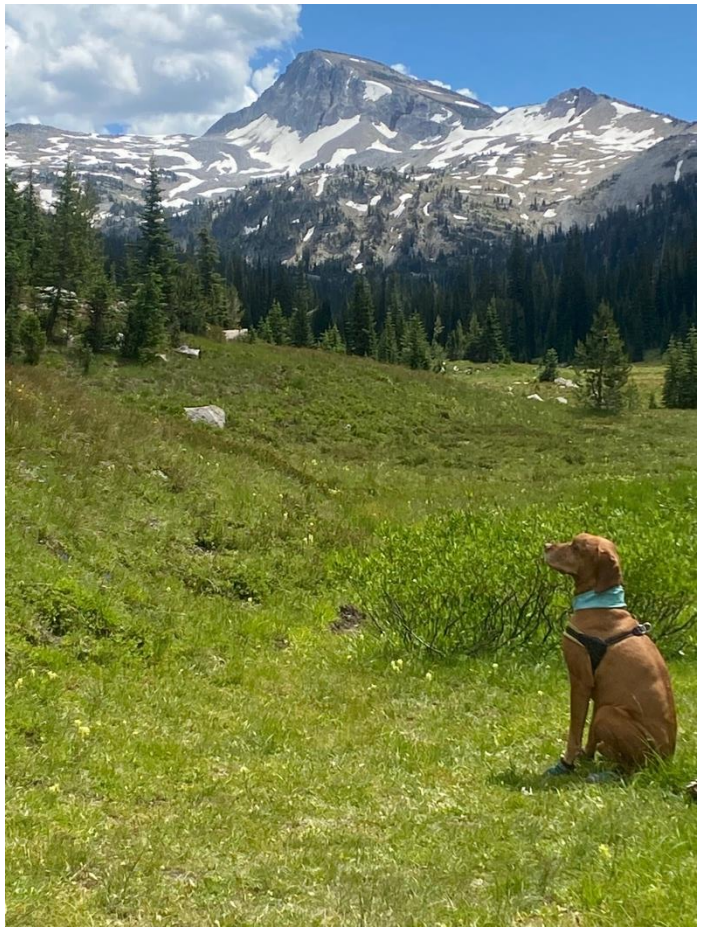
Each dot shows an impact report from this calendar year

Colors represent the reporter's assessment of drought conditions (reds being extreme drought)

156 impact reports received during 2021

The Great Western Snow Drought of 2026: A Test of Resilience

Larry O'Neill
Director, Oregon Climate Service
State Climatologist of Oregon
Professor, Oregon State University
larry.oneill@oregonstate.edu



Key points

- Conditions during 2026 are closely following those of 2015 due to a historically low snowpack, low precipitation, and historically warm temperatures
- A wet winter no longer guarantees a drought free summer: Increased springtime evaporation and snowpack variability is increasingly decoupling winter weather from summer drought conditions
- Drought has occurred more frequently since 2000 due in part to climate change
- Drought is projected to occur more frequently and be more intense due to increasing evaporative demand and a sharp decline in seasonal mountain snowpack