

OREGON



WATER RESOURCES
DEPARTMENT

Drought and Water Conditions Update

Water Resources Commission
June 16, 2022

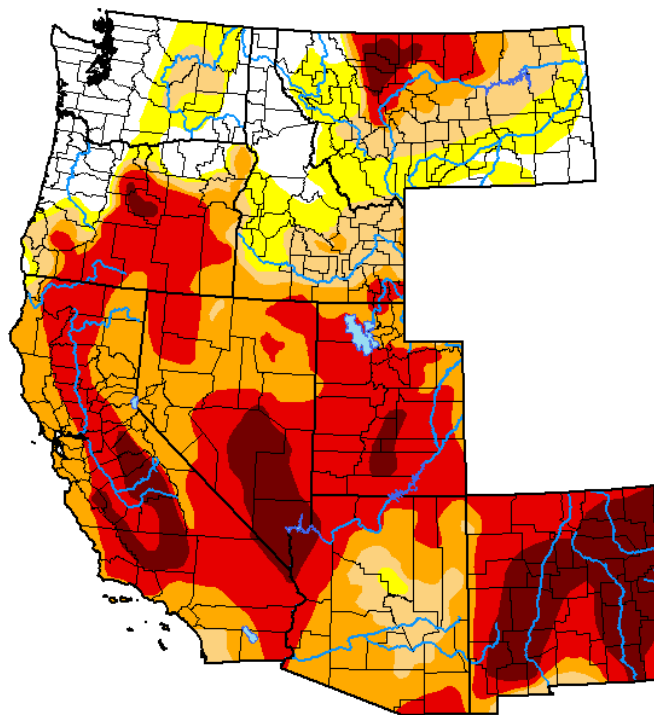
Ryan Andrews, Surface Water Hydrologist
Chair of Water Supply Availability Committee
Co-Chair of Drought Readiness Council

Drought in Western US

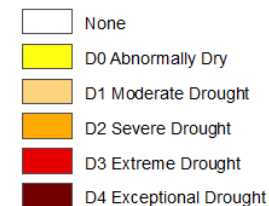
- Worst megadrought in 1,200 years¹
 - Southwestern North America
- Driest 22-year period since 800 CE in terms of soil moisture
 - 2000-2021
- Driest, hottest 22-year period since 1901

U.S. Drought Monitor West

June 14, 2022
(Released Thursday, Jun. 16, 2022)
Valid 8 a.m. EDT



Intensity:



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:

Adam Hartman
NOAA/NWS/NCEP/CPC



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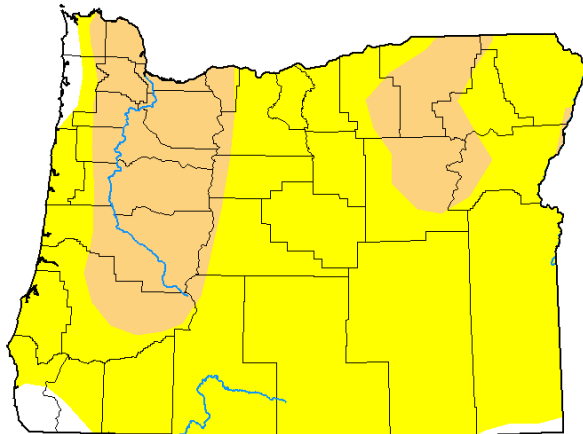
1. Williams, A.P, Cook, B.I., & Smerdon, J.E. 2022. Rapid intensification of the emerging southwestern North American megadrought in 2020-2021. *Nature Climate Change*, 22, 232-234.

Oregon Drought Development

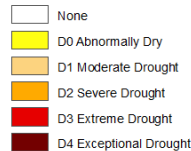
- This multi-year drought cycle began early 2020 (left)
- At peak in September 2021, over 76% of state D3-D4 (right)
- Record low precipitation, streamflow and extreme temperatures
- Elevated evapotranspiration and water supply demands

**U.S. Drought Monitor
Oregon**

January 7, 2020
(Released Thursday, Jan. 9, 2020)
Valid 7 a.m. EST



Intensity:



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Author:

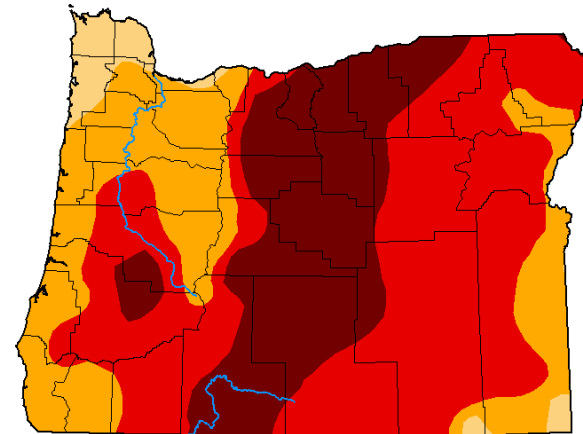
Curtis Riganti
National Drought Mitigation Center



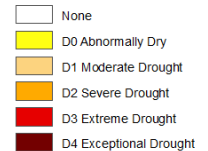
droughtmonitor.unl.edu

**U.S. Drought Monitor
Oregon**

September 21, 2021
(Released Thursday, Sep. 23, 2021)
Valid 8 a.m. EDT



Intensity:



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:

Brad Rippey
U. S. Department of Agriculture

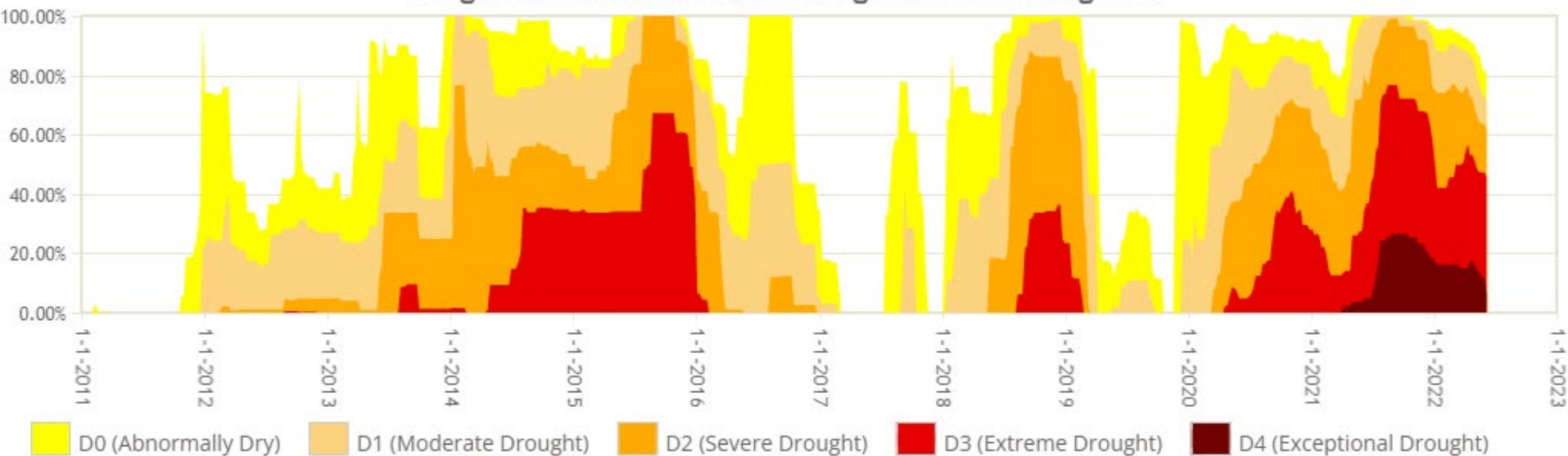


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Drought Persistence and Impacts

- Drought persisted statewide throughout previous wet seasons
- Below average snowpack and early, rapid meltout
- Early onset of low summer streamflows
- Stressed soil moisture profiles

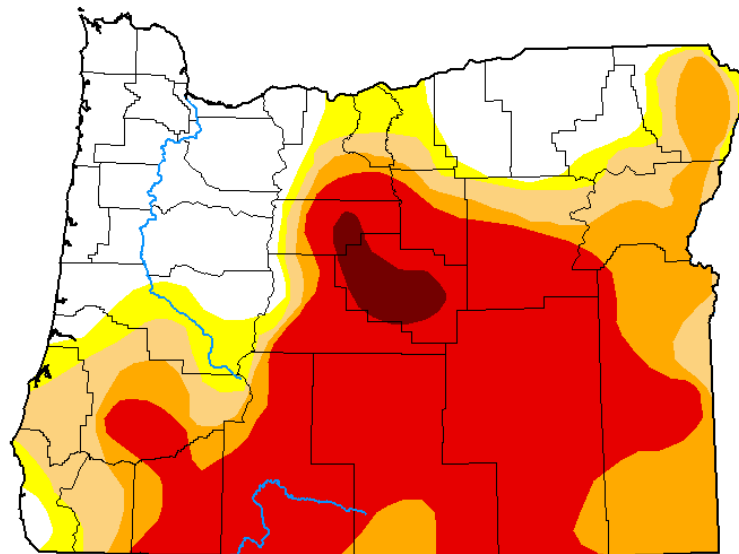
Oregon Percent Area in U.S. Drought Monitor Categories









Current Drought Conditions

U.S. Drought Monitor
Oregon

June 14, 2022
(Released Thursday, Jun. 16, 2022)
Valid 8 a.m. EDT



Intensity:

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

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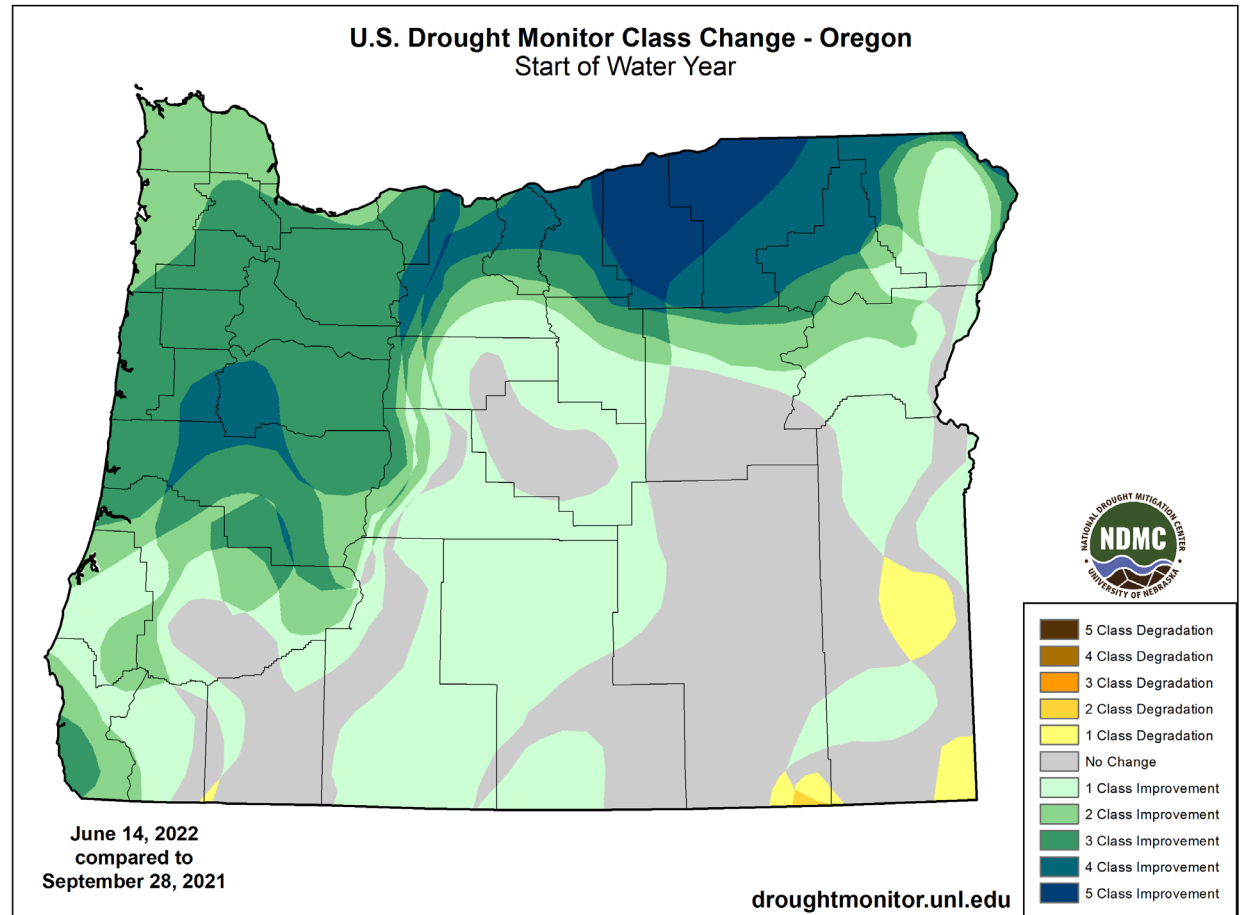


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Category	D0-D4	D1-D4	D2-D4	D3-D4	D4
Percent Cover	76%	68%	57%	40%	2%

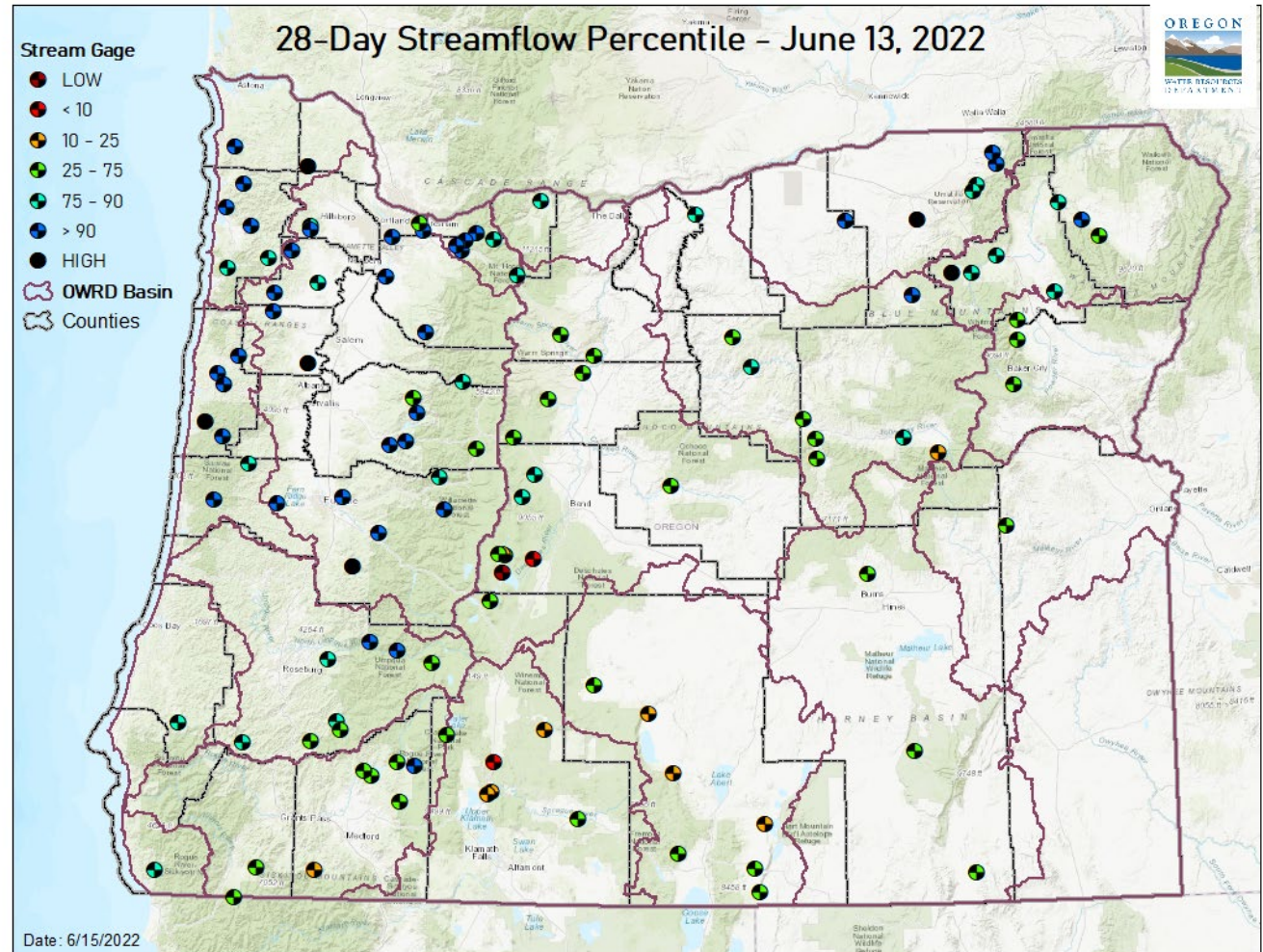
Reduced Drought Severity

- Since October 1, 2021
- Above average precipitation and below average temperatures statewide in April and May
- Improved soil moisture profiles and sustained streamflows
- Normal timing snow meltout



Streamflow Conditions

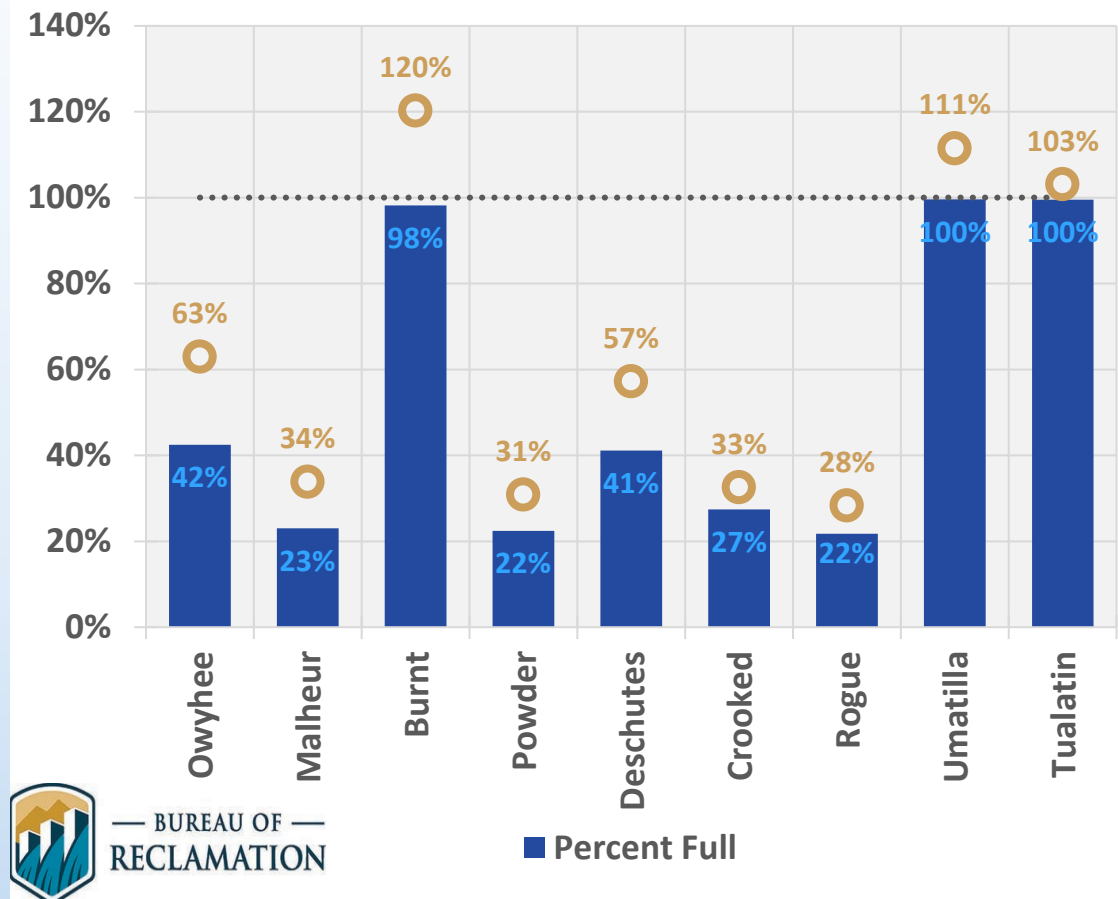
- Percentiles compare current flows to entire periods of record
- Improved streamflows over past 7- and 28-day periods
- Average to record high throughout much of state



Reservoir Storage and Impacts

- Some reservoirs began WY 2022 with record low carryover
- Impacts to irrigation allotments
 - Klamath, Rogue, Deschutes, Owyhee, Malheur
- Recent precipitation suppressed demand
- Willamette system reservoirs full

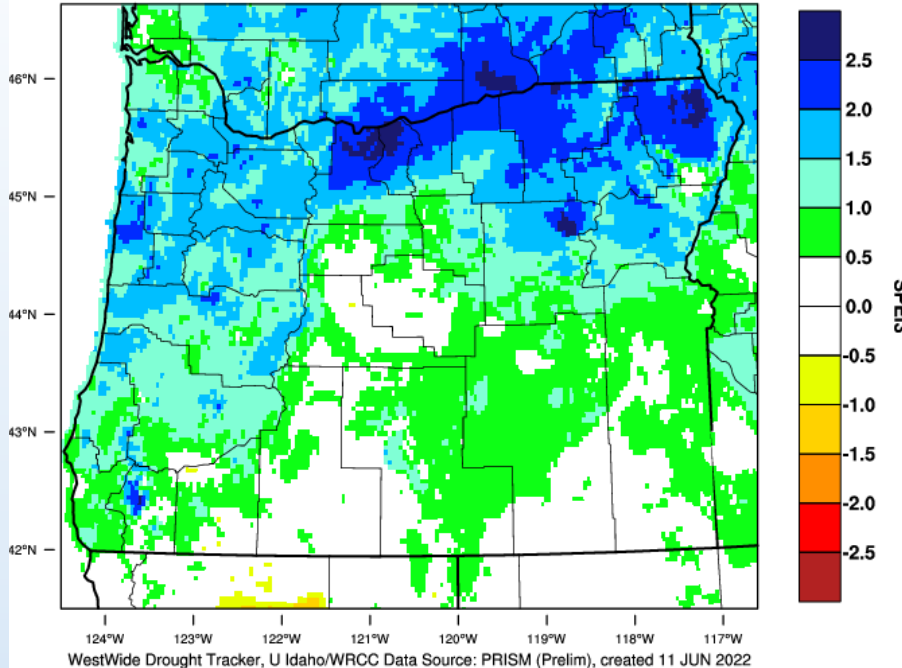
June 13 Reservoir Storage



Short- vs Long-term Drought

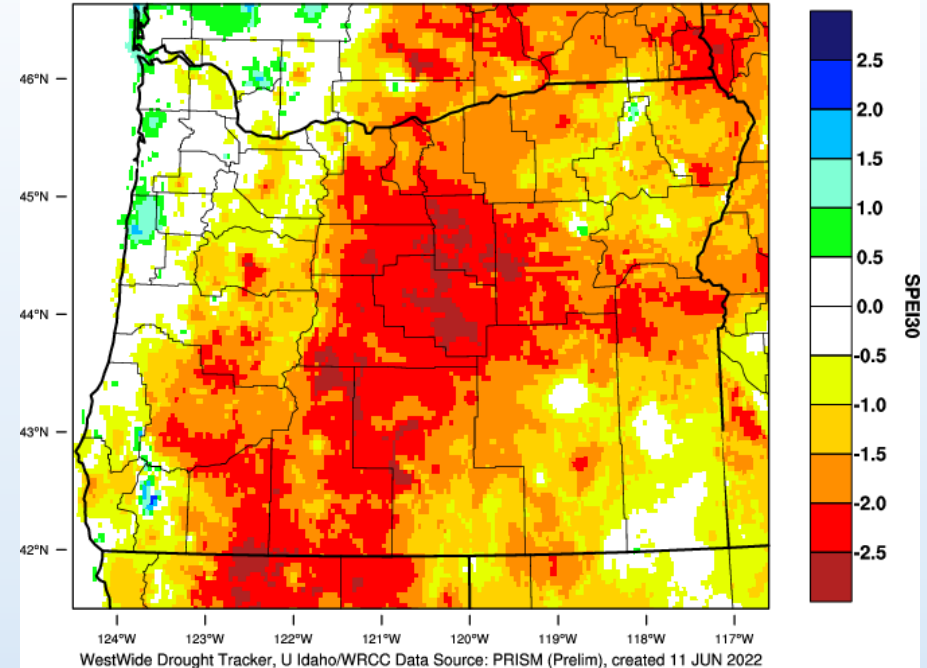
Since March 2022

Oregon - 3 month SPEI
May 2022



Since December 2019

Oregon - 30 month SPEI
May 2022

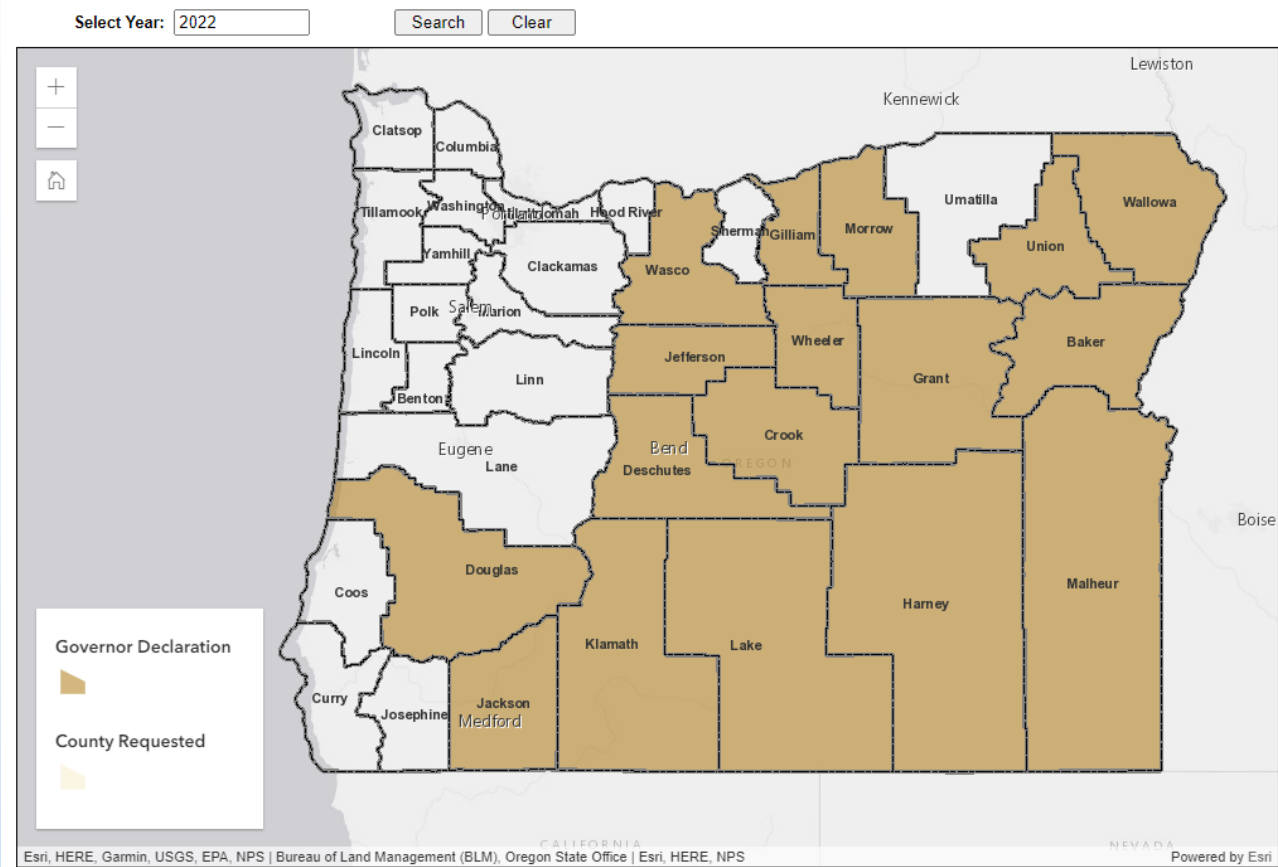


- Standardized Precipitation Evapotranspiration Index is drought metric that incorporates precipitation and temperature to provide measure of wet/dry
- Long-term drought metric indicative of moisture deficit exacerbated by warm temperatures
- While recent precipitation and cooler temperatures brought short-term relief, not enough to overcome long-term deficit

Current Drought Declarations

- 17 counties with state declarations under ORS 536
- 29 counties with USDA Crop Disaster Designation due to drought conditions
- Declaration under ORS 401*
 - *Counties with ORS 536 in place are eligible

Drought Declaration Status Map



Available Management Tools

- Drought declaration under ORS 536
 - Allows OWRD to offer certain tools for water rights holders in drought-declared counties
 - Intended as short-term solutions to water supply challenges
- Water Management and Conservation Plan
- Dry Well Reporting Form
 - Users submit reports of dry wells or significant reductions in well output

Emergency Permits and Transfers

- Due to pervasive drought conditions and declining groundwater levels, the Department has issued only one emergency groundwater use permit in the Klamath Basin
- Analysis of groundwater levels revealed declines of approximately 20 feet over the past two years, and total declines of up to 40 feet in some parts of the Klamath Basin since 2001

County	Apps Received	Apps Denied	Apps Approved	Transfers Requests	Transfers Approved
Baker	1				
Crook	1		1		
Jackson	11		8	1	
Klamath	3	3		8	1
Lake	1				
Malheur	1				

Dry or Reduced Domestic Wells

- Information on form allows tracking of groundwater issues
- Over 300 dry well complaints statewide for 2022
- About half of the complaints reported in Klamath Basin alone
- OWRD Well Abandonment, Repair and Replacement Fund (WARRF)
 - Launched in early June
 - Currently accepting applications

- Department accepting applications from low-to-moderate income households with domestic wells impacted by drought or wildfire
- Provides financial assistance to abandon, replace or repair domestic well
- Applicants must have submitted Dry Well Reporting Form and show primary residence is located in drought-afflicted area as qualified by:
 1. County with ORS 536 declaration or;
 2. County with USDA Secretarial Disaster Designation for drought within 6 months prior to submitting application

ORS 401 – Drought Emergency

- ORS 401 addresses water supply shortages that impact life safety
- Allows coordination of emergency actions at local level to meet immediate needs
 - Includes equipment procurement, coordination/contracting of water hauling, etc.
- Recent Executive Order (22-10) issues ORS 401 declaration for counties with existing ORS 536 in place
 - Not a statewide declaration
 - Other counties qualify after declaration under ORS 536
- Allows Office of Emergency Management to activate Emergency Operations Plan and coordinate resources across agencies

Summary

- Continuation of drought conditions outside of NW/NE Oregon
 - Reduction in severity due to precipitation, cool temperatures
 - Spring precipitation not enough to overcome long-term moisture deficits
 - Wet season delayed summer – proceed with caution in drought-afflicted areas
- Many reports of dry wells or reduced well output
 - Limited emergency groundwater permits in Klamath
 - Launched WARRF
- Executive Order issuing ORS 401 allows for preemptive planning and coordination to respond to water supply emergencies



Questions?

