BEFORE THE BOARD OF COMMISSIONERS

FOR LINCOLN COUNTY, OREGON

In the Matter of:	)	**ORDER NO.** 08-23-332
Declaration of Local Disaster and Request To Declare a State Drought Emergency For Lincoln County, Oregon	)	***Amending Order No. 08-23-314***

WHEREAS on this 16th day of August, 2023, the Lincoln County Board of Commissioners finds that the Lincoln County resource based (including but not limited to, forestry, agricultural, fisheries, industries, and tourism) and related economy are suffering widespread and severe economic damage, potential injuries and loss of property resulting from extreme weather conditions within the County; and

WHEREAS annual water supplies available for farm, forest, recreation and natural uses as well as municipal water supplies within Lincoln County are a function of available water in the County watersheds and in various tributaries. Water supplies are in serious jeopardy this year; and

WHEREAS the Seasonal Climate Forecast for August through October 2023 was issued on July 20, 2023 (attached as Exhibit A and incorporated herein by reference) and predicts below average precipitation for the Oregon Coast and above average temperatures for August 2023 (page 13 of Exhibit A); and below average precipitation for September 2023 (page 14 of Exhibit A); and while there is less forecast confidence based on the wide variety of weather conditions during the analog years compared for the forecasts, the precipitation data from June 2023 for Lincoln County is "abnormally dry" and "moderate drought" through July 13, 2023 (page 21 of Exhibit A); and

WHEREAS the Siletz River as of July 23, 2023, is flowing at 83 cubic feet per second (CFS) at the USGS gaging station upstream of Siletz which is 46% of average for this date. (Current Local Drought Impacts and Forecast, Gibson Family Farms letter dated July 23, 2023 attached as Exhibit B and incorporated herein by reference). The Siletz River flows have regularly established historical daily minimums this summer based on records from the years spanning 1906-2022. (Exhibit B citing https://www.nwrfc.noaa.gov/rfc/). The Alsea River is discharging 113 CFS, which is 70% of average for this date and the Yachats River is flowing at 17.3 CFS on July 22, which is 66.2% of average for July. (Exhibit B citing https://www.nwrfc.noaa.gov/rfc/); and

WHEREAS historically the next two months are usually the driest time period for our region with significant rainfall not occurring until late September or early October; and

WHEREAS in September of 2020 Lincoln County and the State of Oregon experienced one of the most severe wildfire seasons in the County's history. The Echo Mountain Complex Wildfire ravaged a large area of north Lincoln County, destroying or damaging over 300 residences and structures, and requiring the evacuations of thousands of persons. Survivors are still engaged in recovery and rebuilding as another fire season is imminent; and

WHEREAS the Oregon Department of Forestry (ODF) is maintaining Industrial Fire Precaution Level (IFPL) 1 (Fire Season) or IFPL 2 (Limited Shutdown) for areas of Lincoln County. (Exhibit B). Public fire danger in the Western Oregon District is "Moderate." (Exhibit B citing https://www.oregon.gov/odf/fire/Pages/restrictions.aspx); and

WHEREAS multiple priority instream water rights on the Siletz River have already been invoked to protect the aquatic life, recreation and fish and wildlife flows protected by those priority rights. Junior rights holders have been regulated off use of their water rights and will not be able to draw water in those circumstances. This will result in a loss of economic stability, lost growing season, and decreased water supplies for Lincoln County agricultural producers and municipal water suppliers. In addition, river water temperatures are already at unseasonable highs and restricted fishing access will likely be put in place very soon to protect fish stocks; and

WHEREAS the Lincoln County Board of Commissioners determines that extraordinary measures must be taken to alleviate suffering of people, natural resources and to protect or mitigate economic loss, begin water conservation and curtailment plans and actions, and to be responsive to the threat of wildfires.

NOW, THEREFORE, BE IT ORDERED by the Lincoln County Board of Commissioners that:

1. A state of emergency exists within Lincoln County due to drought conditions.

2. An appropriate response is beyond the capability of Lincoln County. We are declaring a state of emergency for the purpose of assessment, evaluation and acquiring the ability to provide appropriate available resources.

3. Request: The Honorable Tina Kotek, Governor of Oregon, declare a Drought Declaration for all of Lincoln County under the provisions of ORS 536 due to severe and continuing drought conditions beginning at this time and continuing for an unknown period of time; and direct the Oregon Department of Water Resources to make available in Lincoln County appropriate and available tools and resources to alleviate drought conditions and impacts and to provide other federal and state drought assistance and programs as needed.

4. In addition, we call on the Mid-Coast Conservation Consortium and other public and private water purveyors to begin water conservation education and specific curtailment activities as appropriate to address the current drought conditions and the continued drought emergencies that are expected this summer and fall.

5. This Order shall take effect immediately.

Dated this 16th day of August, 2023

LINCOLN COUNTY BOARD OF COMMISSIONERS

Kaety Jacobson

KAETY JACOBSON, Chair

Claire Hall

CLAIRE HALL, Commissioner

EXCUSED

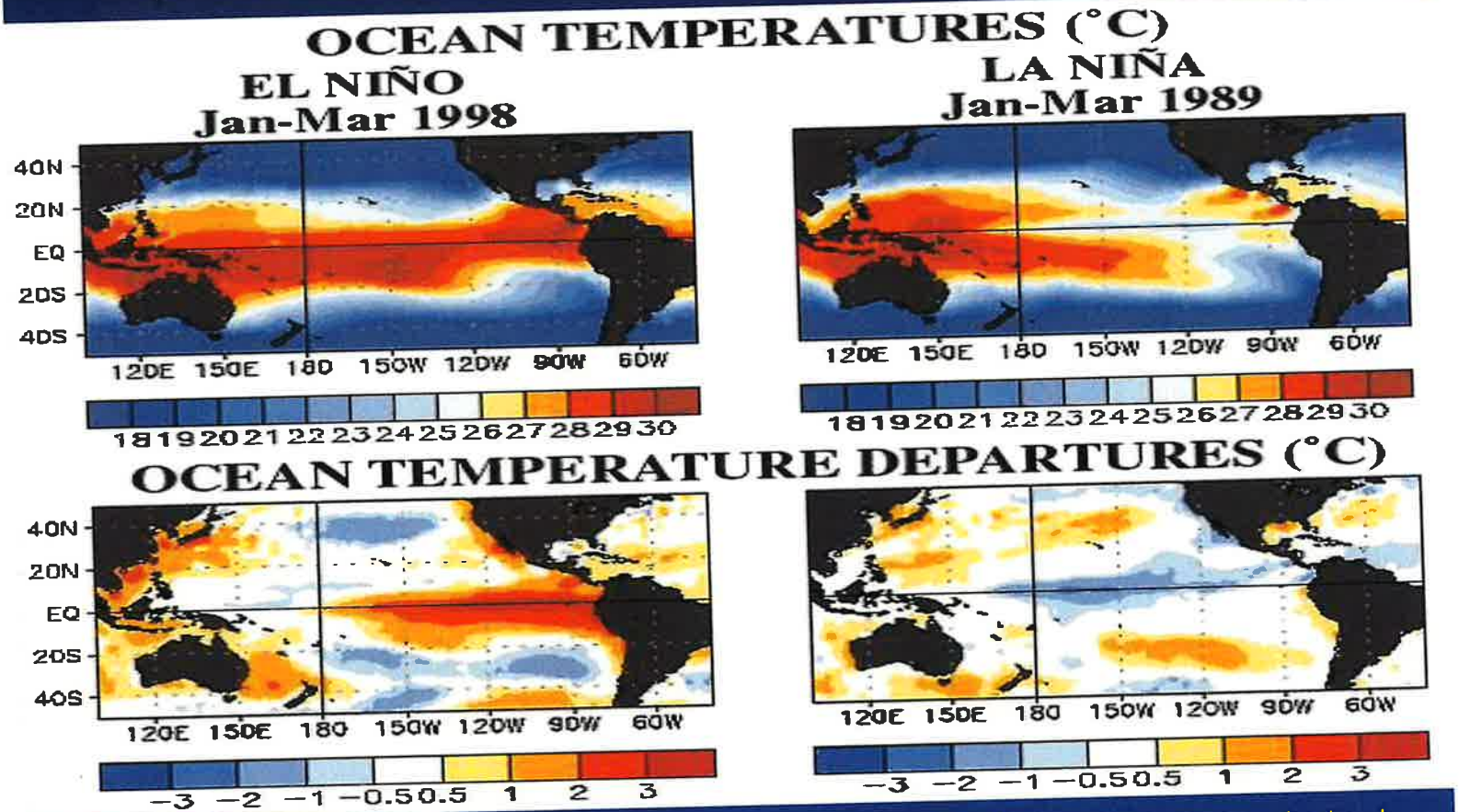
CASEY MILLER, Commissioner

EXHIBIT A


Seasonal Climate Forecast
August – October 2023
Issued: July 20, 2023
Contact: ODF Lead Meteorologist Pete Parsons
503-945-7448 or peter.g.j.parsons@odf.oregon.gov
ODA production support: Diana Walker; Andy Zimmerman; Jenn Ambrose
ODF production support: Julie Vondrachek; Kristin Cody
Photo: Pete Parsons

El Niño vs La Niña

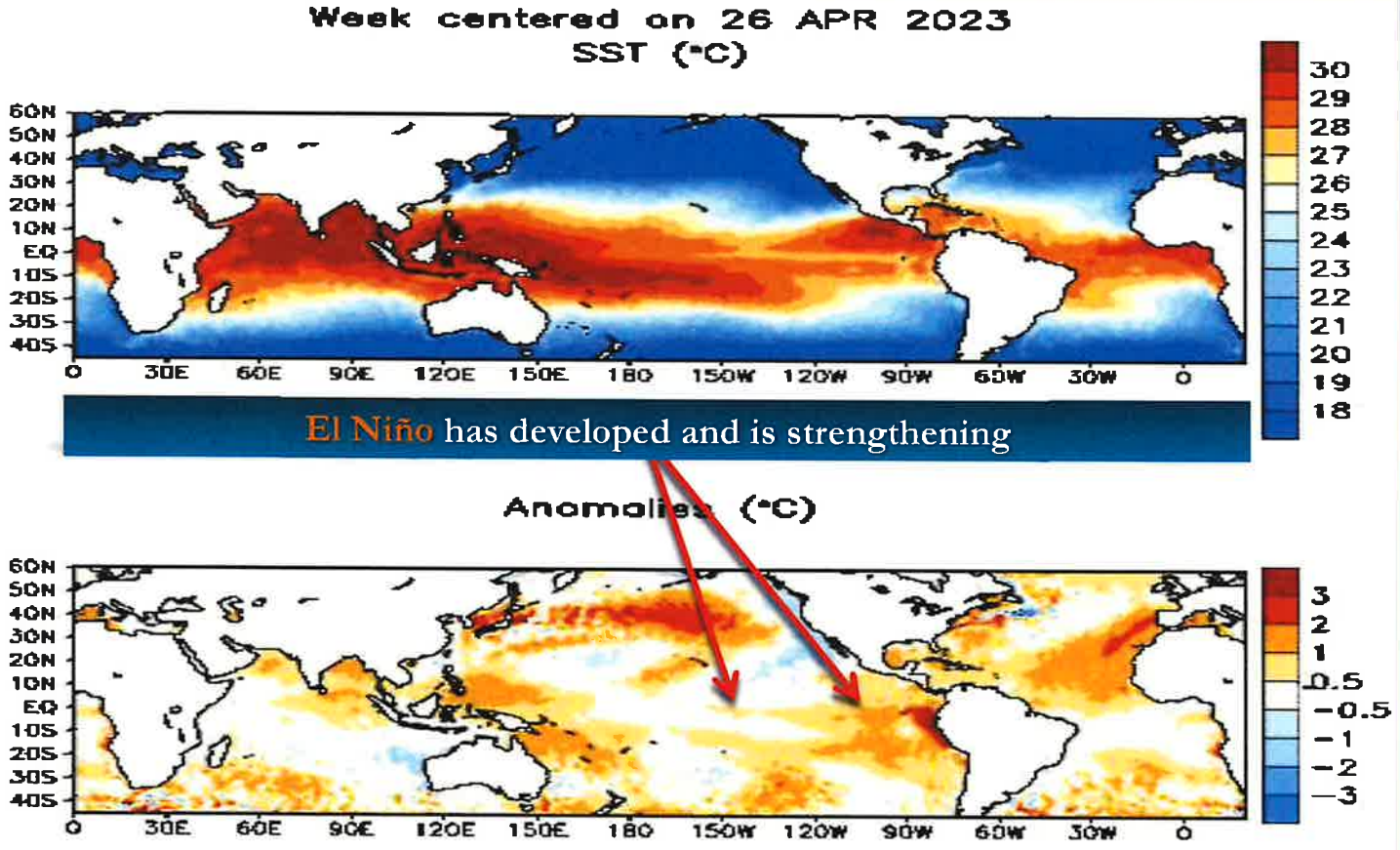
(SST Patters in the Tropical Pacific Ocean)



Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensocycle/ensocycle.shtml

Sea Surface Temperatures (SSTs)

Animated (PowerPoint only) SSTs (top) / Anomalies (bottom)



Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/gsstanim.shtml

El Niño Southern Oscillation (ENSO) Current Status and Forecast

- The Southern Oscillation Index (SOI) rose from -1.0, in May, to +0.3 in June, reflecting a slight increase in the easterly trade winds across the tropical Pacific Ocean. That should reverse, as El Niño strengthens...

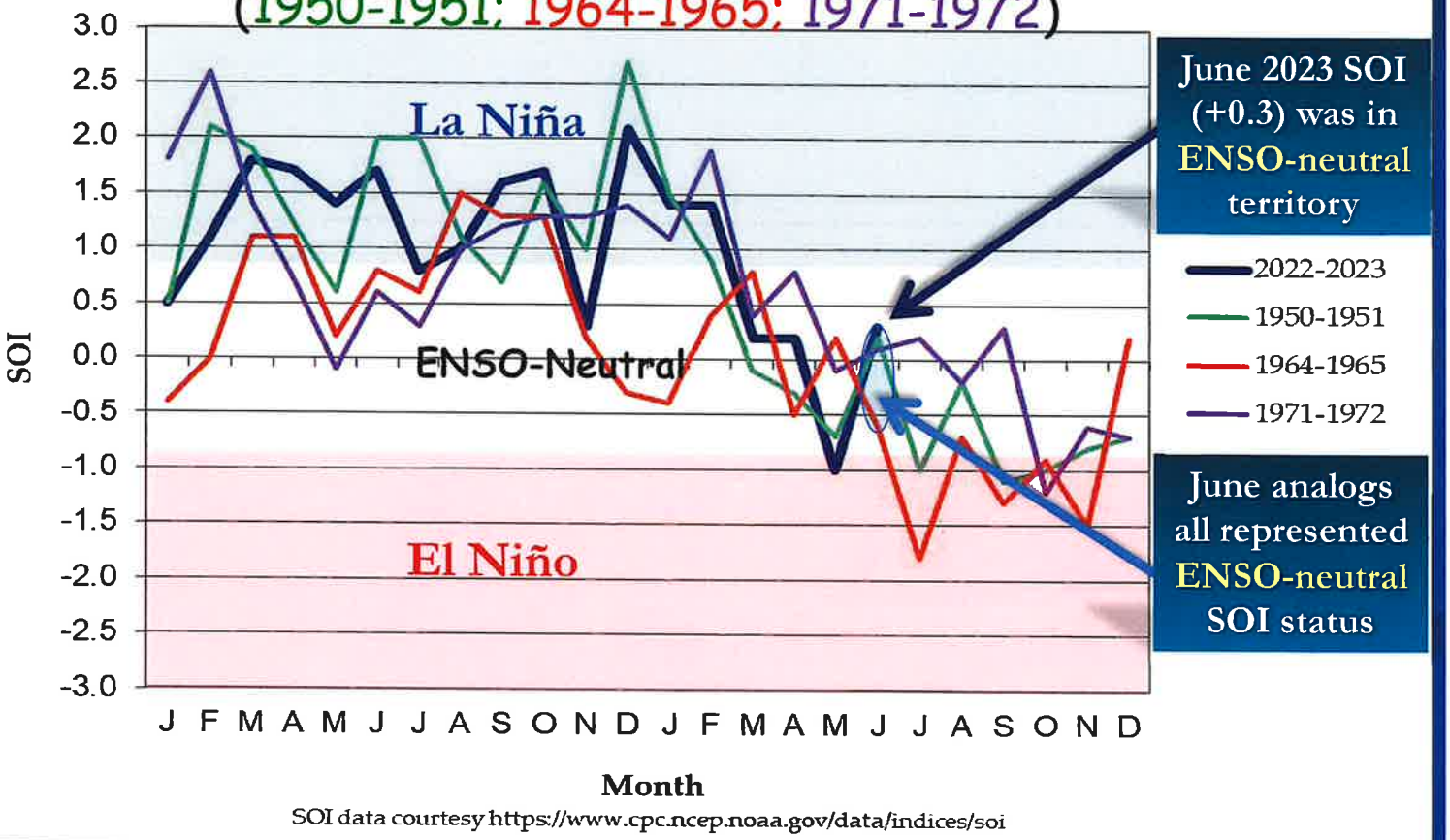
- The Apr. – Jun. 2023 Oceanic Niño Index (ONI +0.5°C) has warmed into weak El Niño range. This index lags the real-time sea surface temperatures (SSTs), which show additional warming...

- NOAA's Climate Prediction Center (CPC) has issued an El Niño Advisory. Their modeling predicts additional warming of tropical Pacific SSTs with moderate-to-strong El Niño conditions by this winter.

Important Note: This "Seasonal Climate Forecast" does not consider NOAA's ENSO forecast. It uses only historical and current ENSO conditions to find "analog years" that most-closely match the evolution of the current ENSO state.

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

Southern Oscillation Index (SOI)

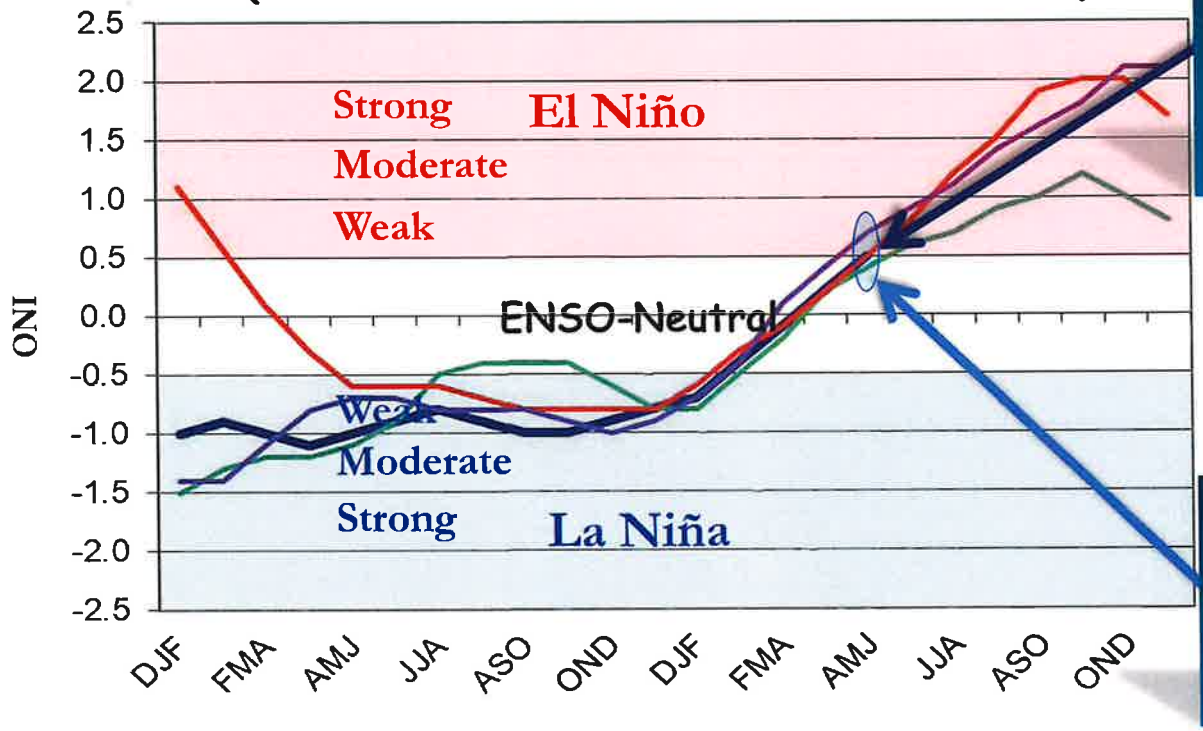


SOI data courtesy https://www.cpc.ncep.noaa.gov/data/indices/soi

Oceanic Niño Index (ONI)

ONI values from the top "analog years" compared with the current period (2022-2023)

(1950-1951; 1964-1965; 1971-1972)



Apr. – Jun. 2023 ONI (+0.5°C) showed a transition into Weak El Niño

2022-2023

1950-1951

1964-1965

1971-1972

Apr. – Jun. ONI analogs were all transitioning into El Niño

3-Month Running Mean

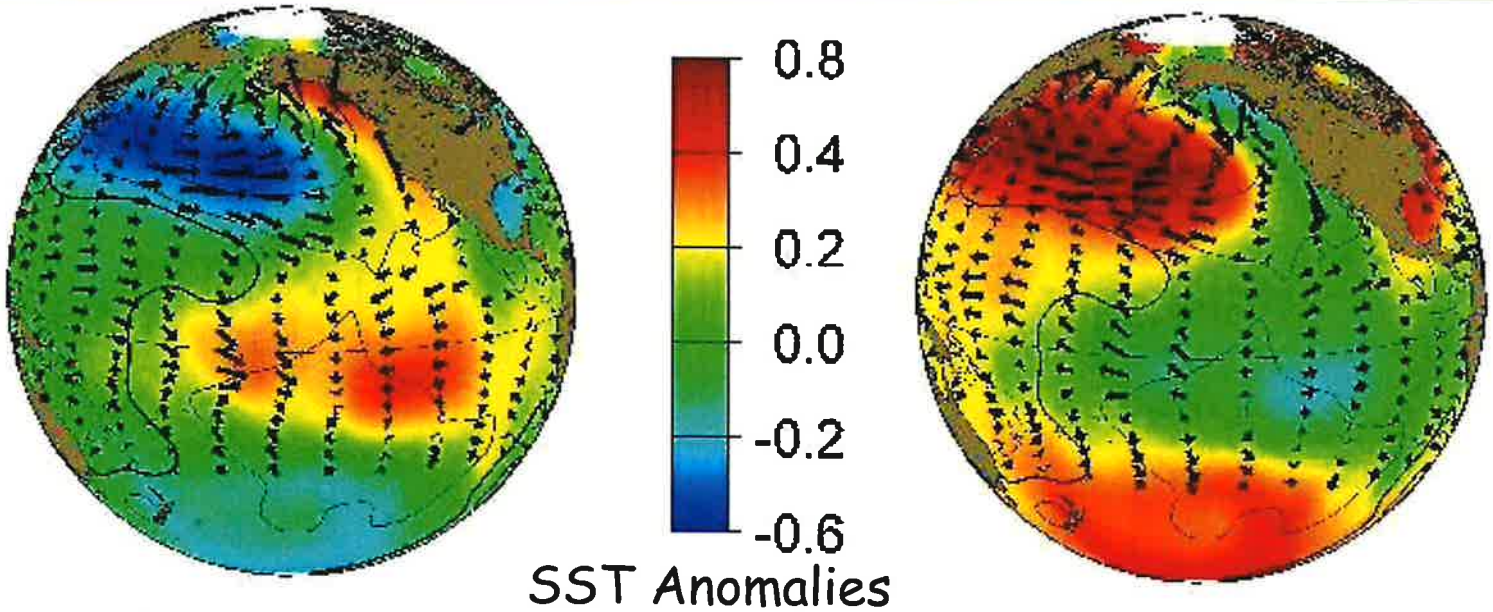
ONI data courtesy https://origin.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ONI_v5.php

The Pacific Decadal Oscillation (PDO)

(Reflects SST "Phase" in the North Pacific Ocean)

Positive (Warm) "Phase"

Negative (Cool) "Phase"



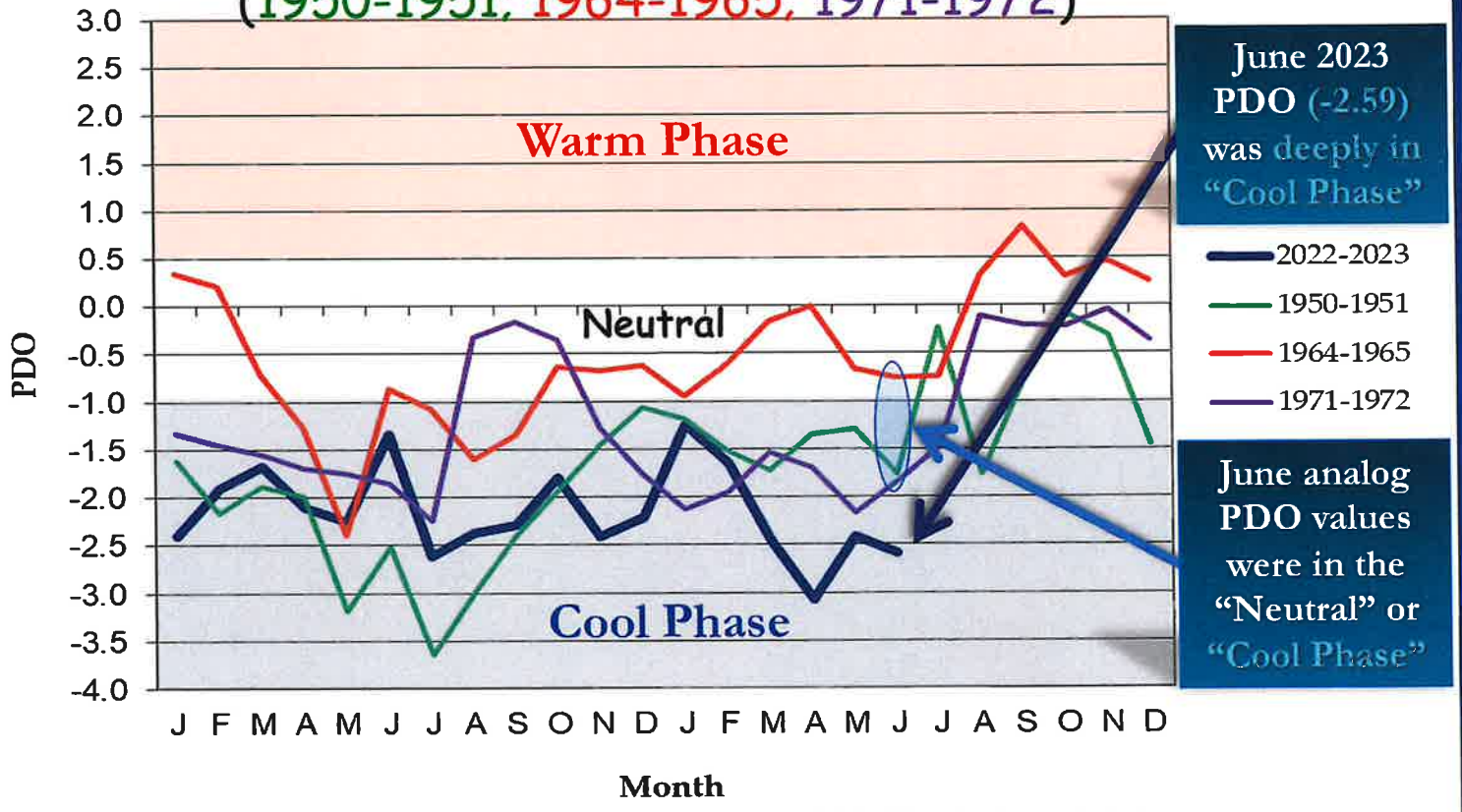
Courtesy: http://research.jisao.washington.edu/pdo/img/pdo_warm_cool.jpg

North Pacific Ocean

(Poleward of 20°N Latitude)

PDO values from the top "analog years" compared with the current period (2022-2023)

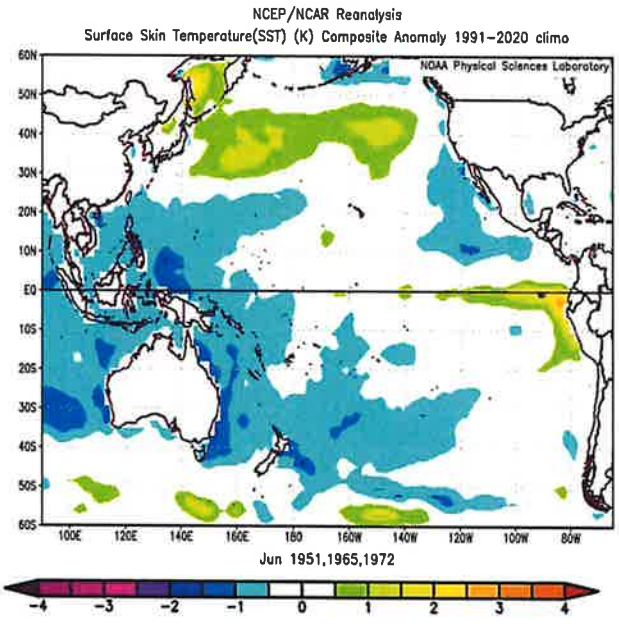
(1950-1951; 1964-1965; 1971-1972)



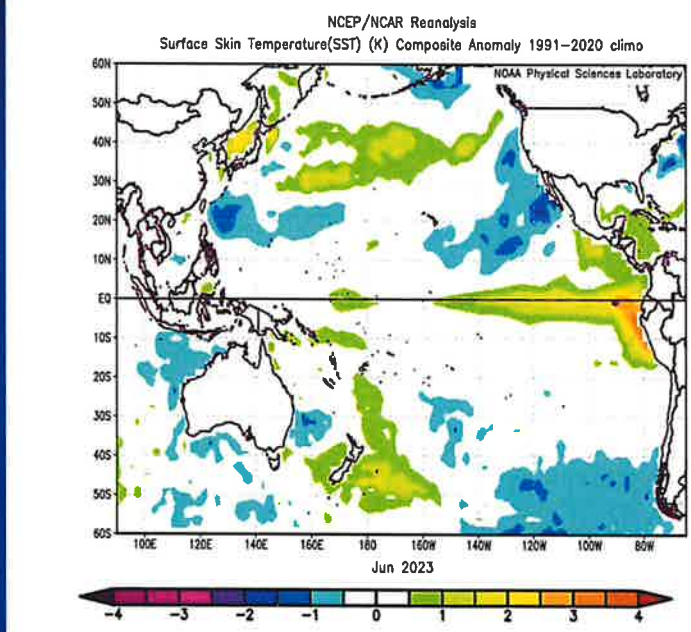
PDO data courtesy https://www.ncei.noaa.gov/pub/data/cmb/ersst/v5/index/ersst.v5.pdo.dat

SST Anomalies Comparison

June Analogs

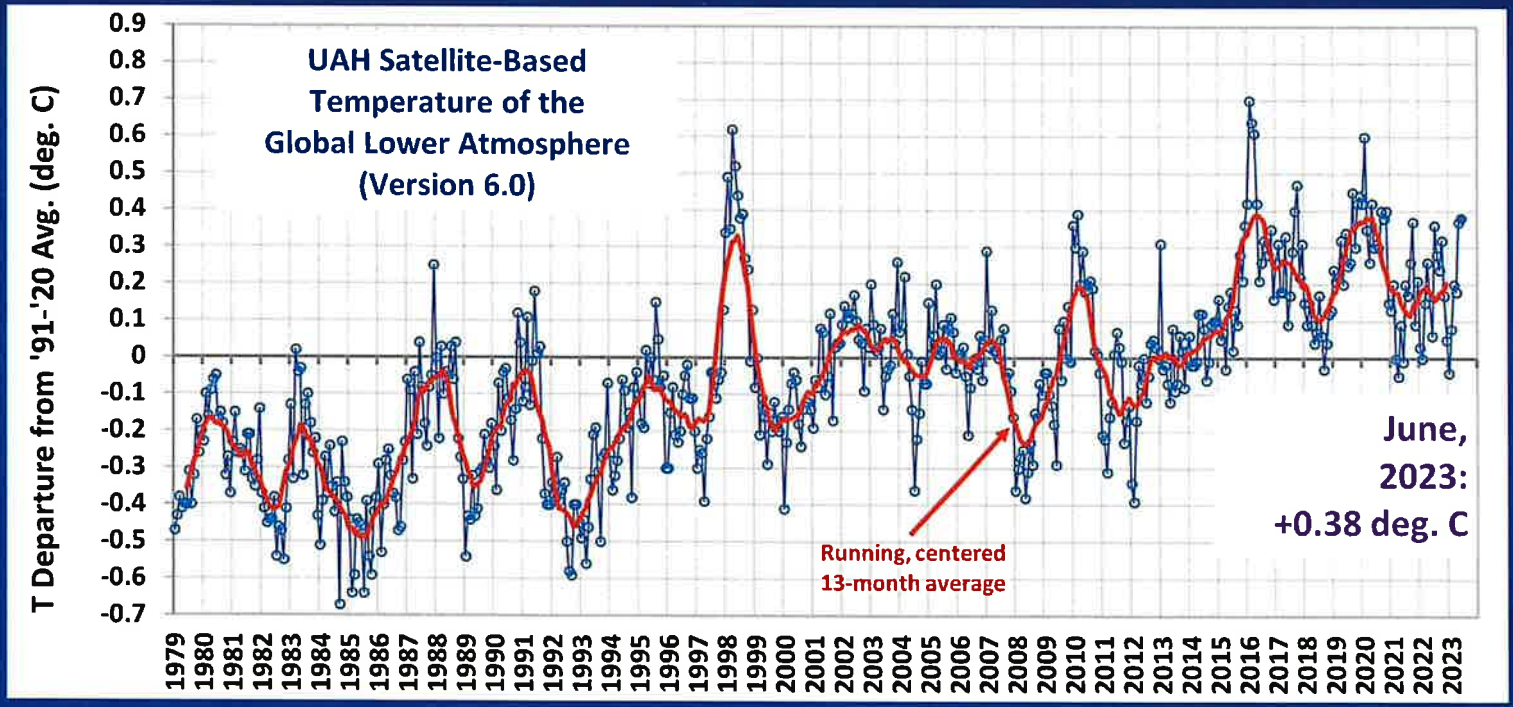


June 2023



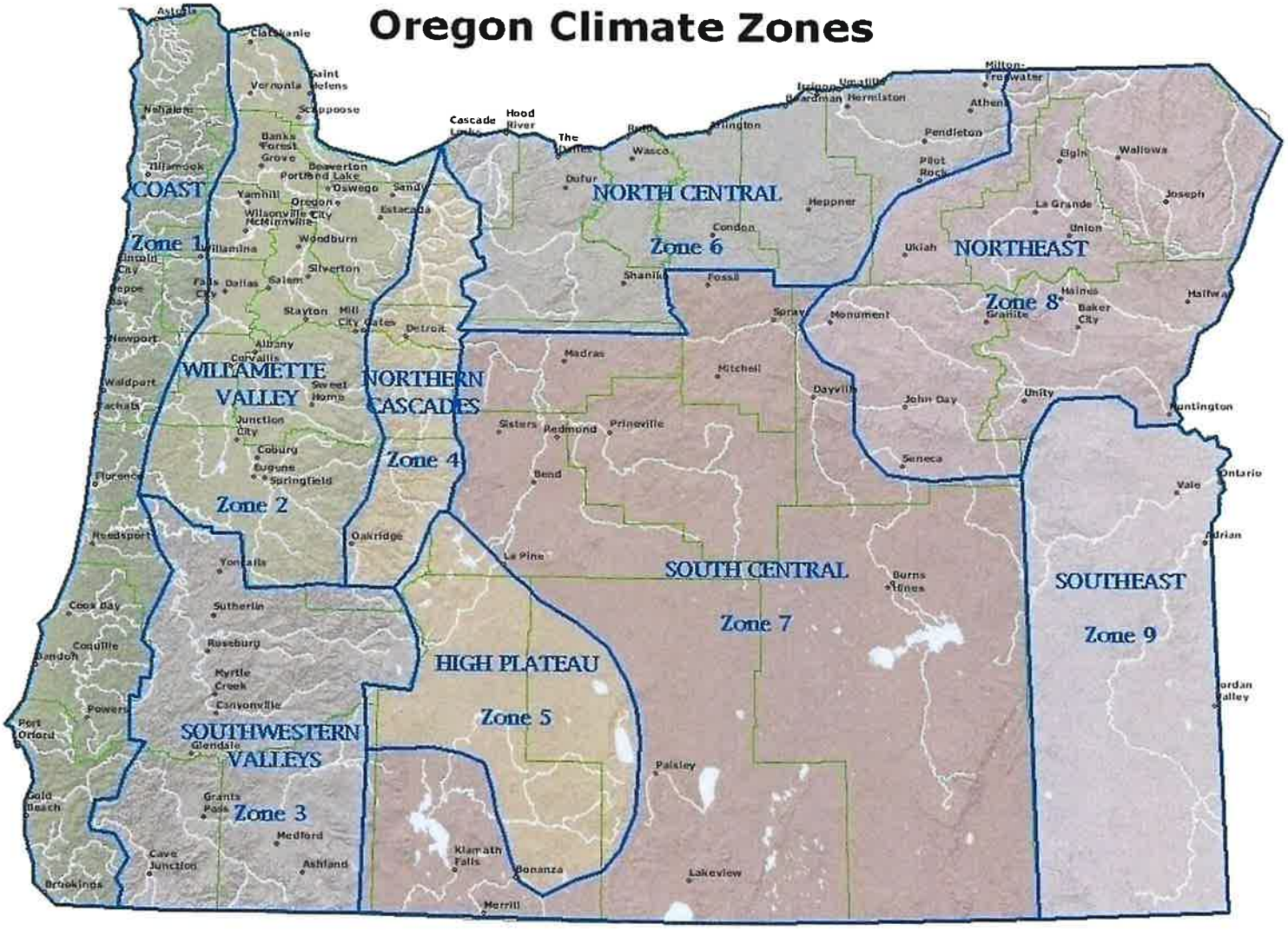
- The June analog composite (left) has a similar SST anomaly pattern ("good match"), compared to that of June 2023 (right).
- Both charts show developing El Niño (warming) conditions, in the tropical Pacific, and "cool phase" PDO conditions in the north Pacific.

Global Temperature Changes Increase Error in Analog Forecasts!



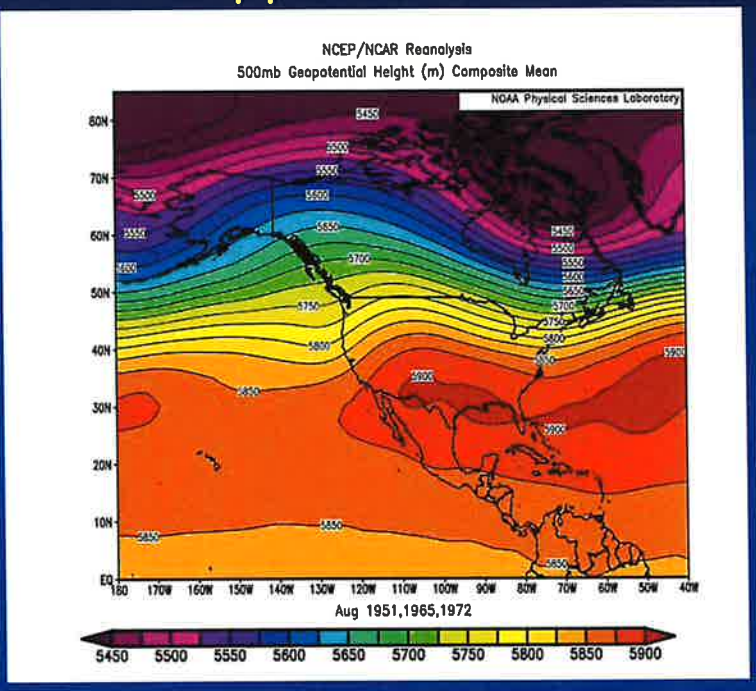
Courtesy: http://www.drroyspencer.com/latest-global-temperatures/

Oregon Climate Zones

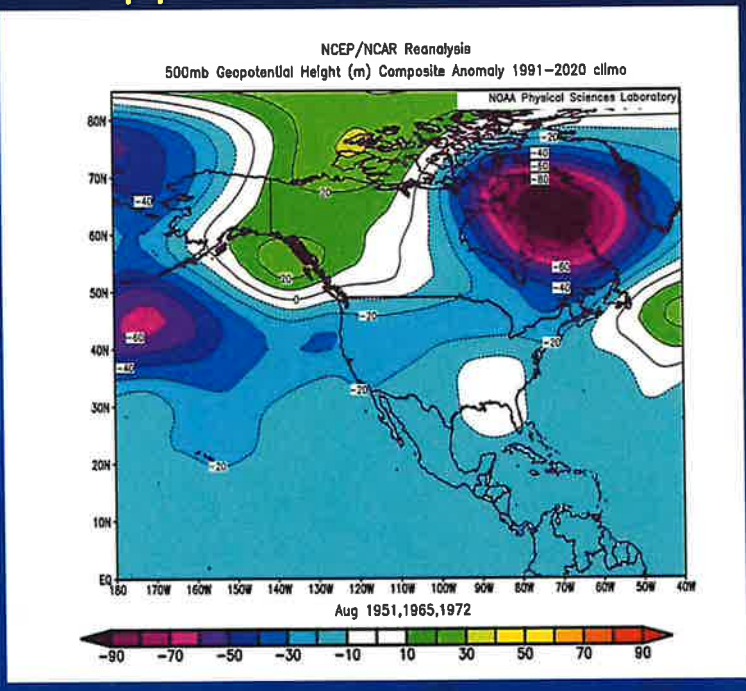


August 2023 Forecast

Mean Upper-Air Pattern



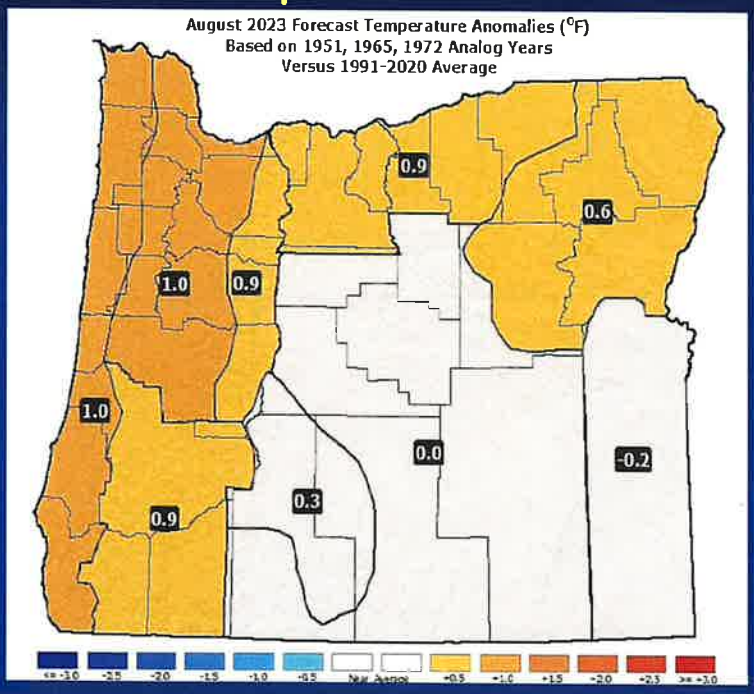
Upper-Air Anomalies



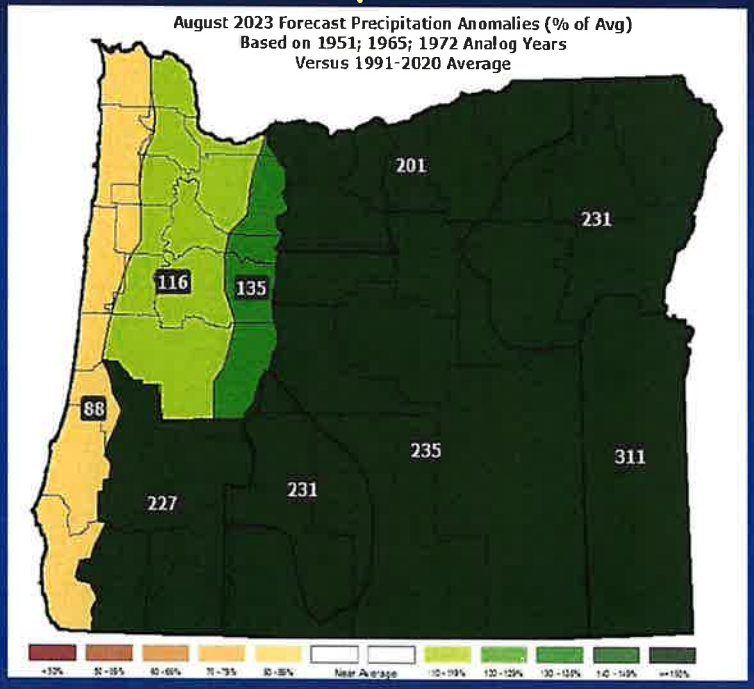
- Analogs all had prevailing SW flow aloft over Oregon.
- Slight differences in the upper-air flow led to varying degrees of thunderstorm development, mainly east of the Cascades.

August 2023 Forecast

Temperatures



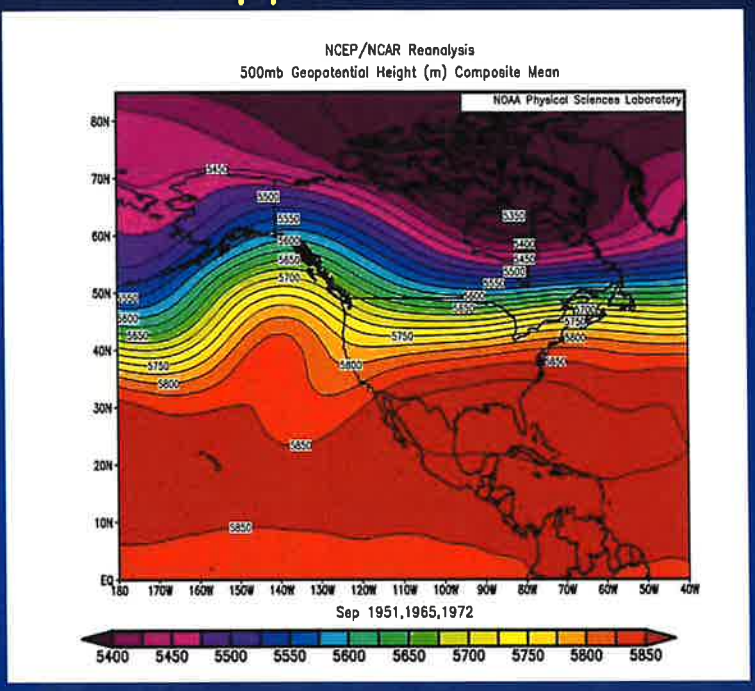
Precipitation



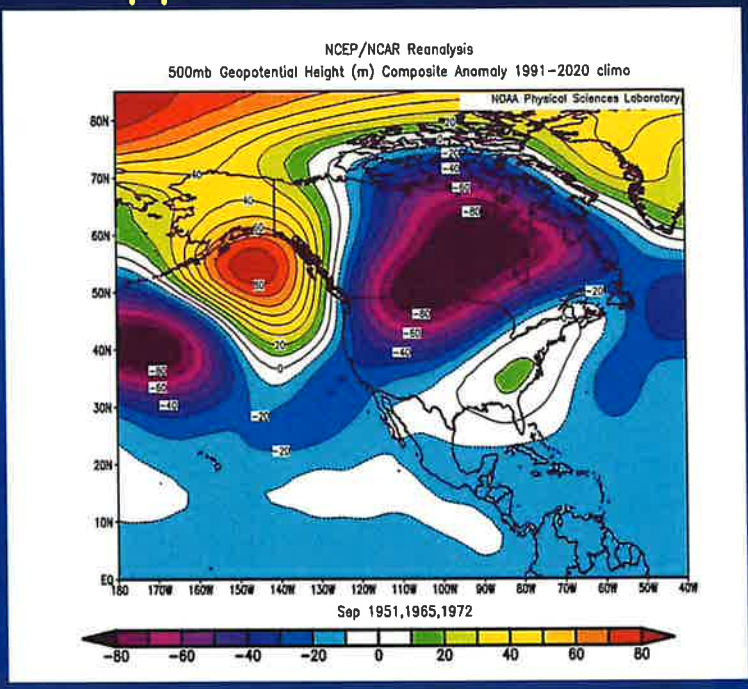
- Above-average temperatures likely west and NE. At least one hot spell with valley temperatures near over above 100°F is likely.
- Below-average precipitation for the coast. Increased threat of above-average rainfall, due to thundershowers, mainly Cascades eastward.

September 2023 Forecast

Mean Upper-Air Pattern



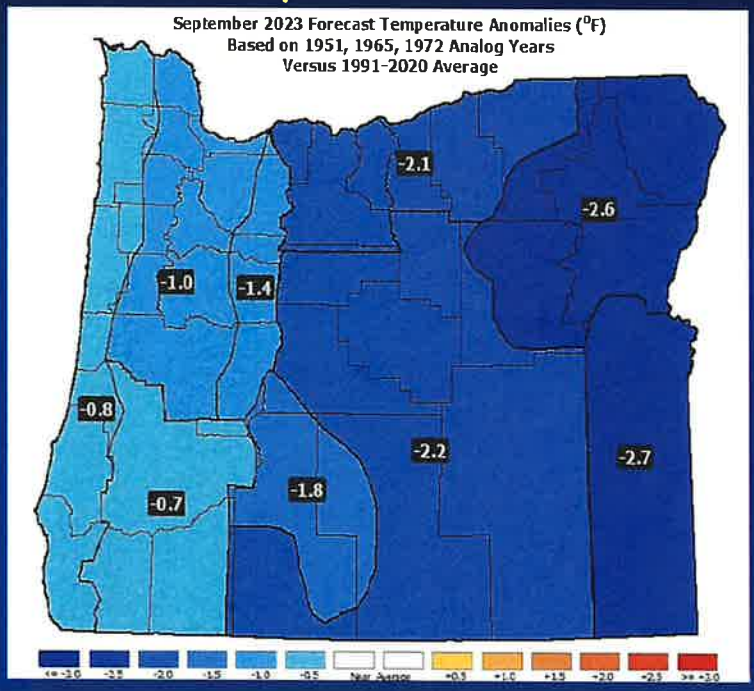
Upper-Air Anomalies



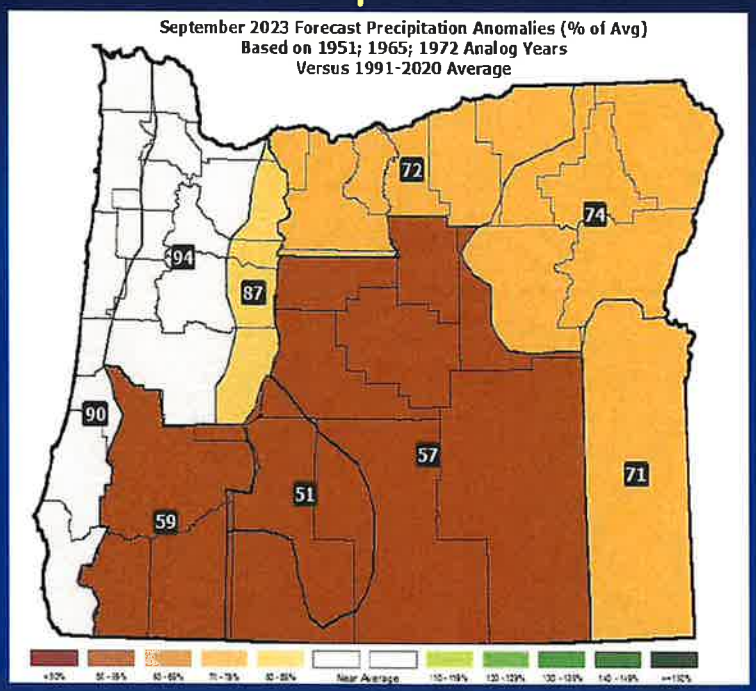
- Analogs all had anomalous ridging in the eastern Gulf of Alaska but not in the same location...leading to the blended solution shown above.
- Forecast confidence is lowered, because a slight east-or-west shift to the above pattern/anomalies would bring significant weather changes.

September 2023 Forecast

Temperatures



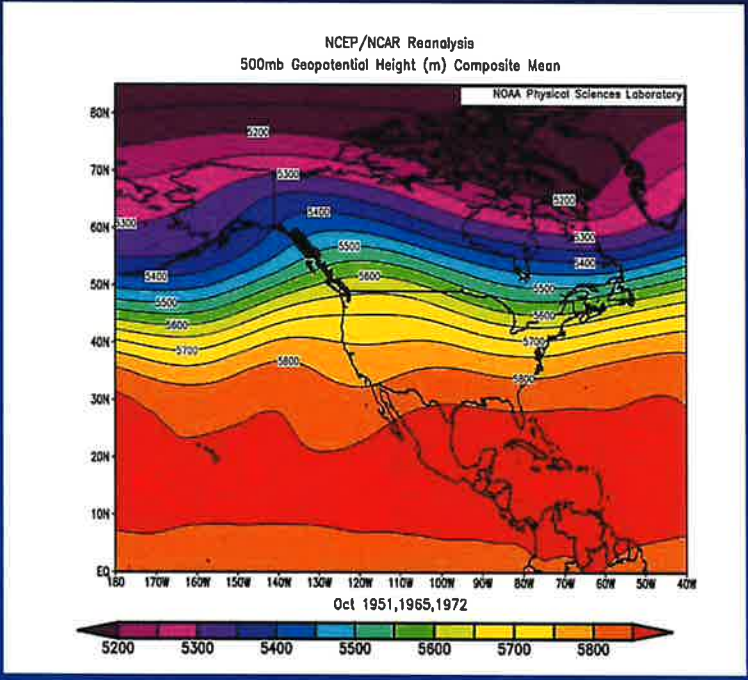
Precipitation



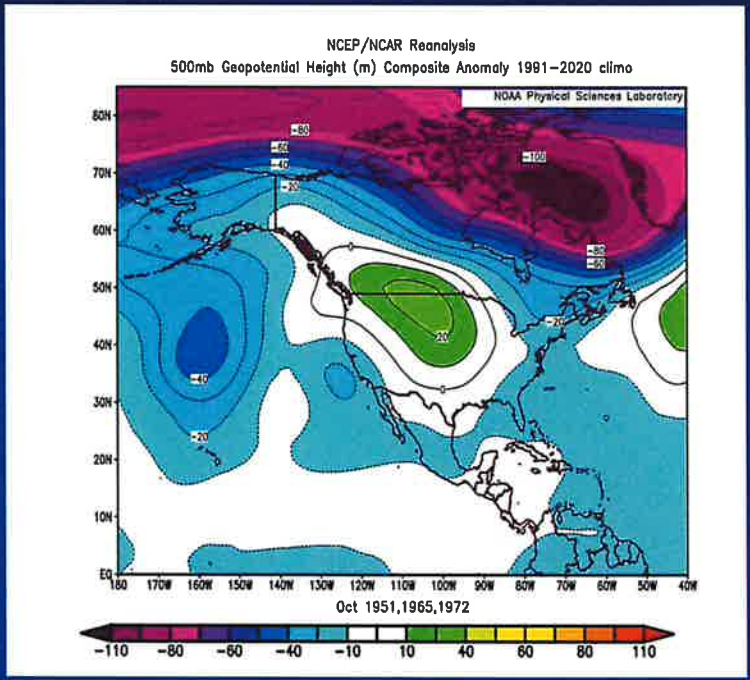
- Temperature forecast is skewed colder than normal by 1965 & 1972, but 1951 was warmer than normal (analogs lack consistency).
- Precipitation forecast shows drier than normal, but 1972 was wetter than average. Lack of analog consistency lowers forecast confidence.

October 2023 Forecast

Mean Upper-Air Pattern



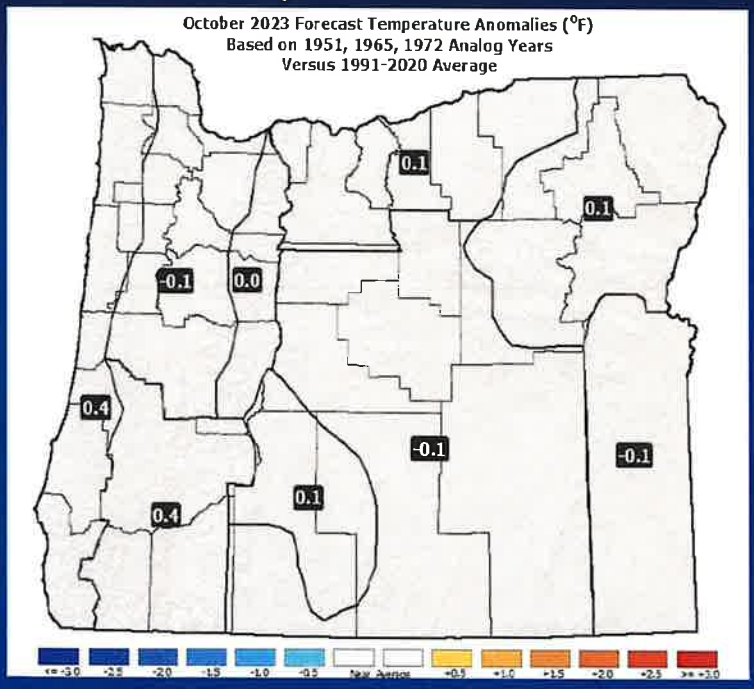
Upper-Air Anomalies



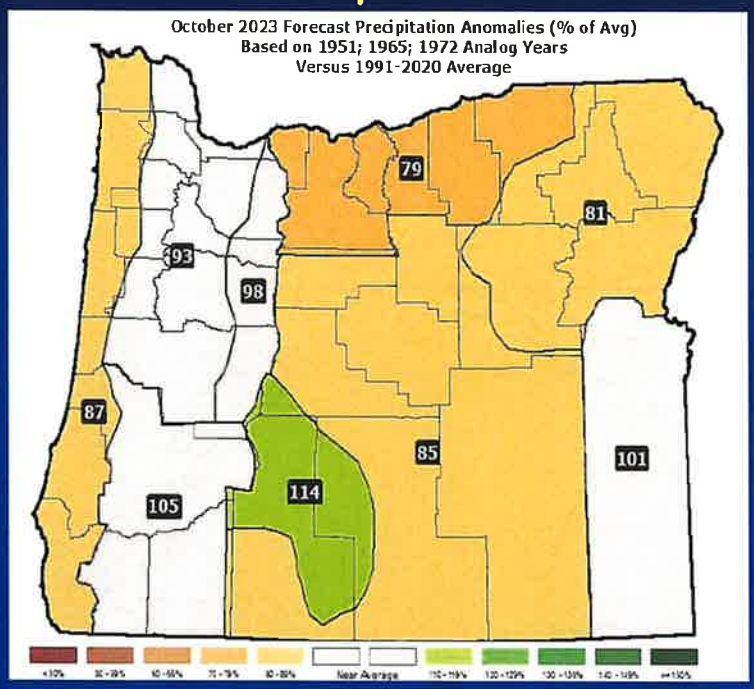
- Upper-air patterns range from anomalous troughing over Oregon (1951) to ridging (1965). 1972 puts more ridging offshore.
- Forecast confidence is lowered by huge differences in analog solutions. Their blend ("near-average" pattern shown above) could be misleading.

October 2023 Forecast

Temperatures



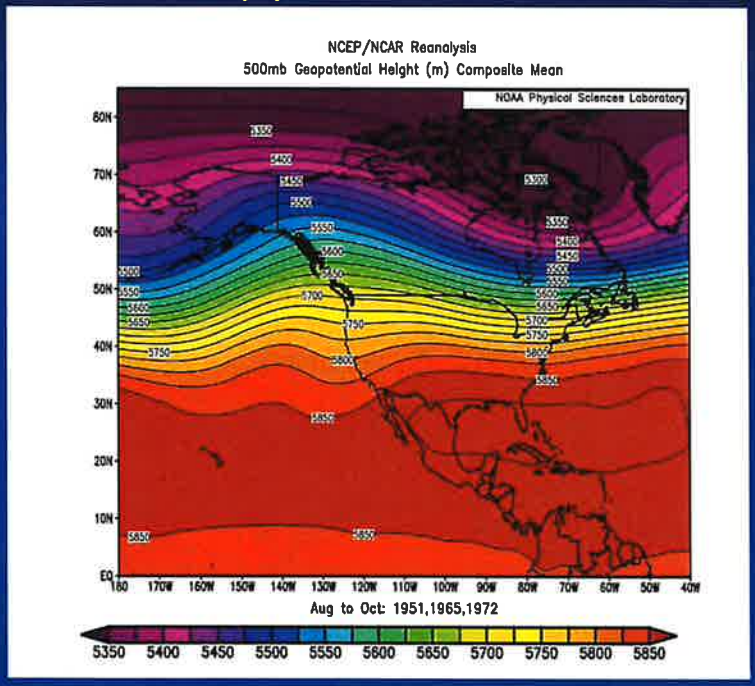
Precipitation



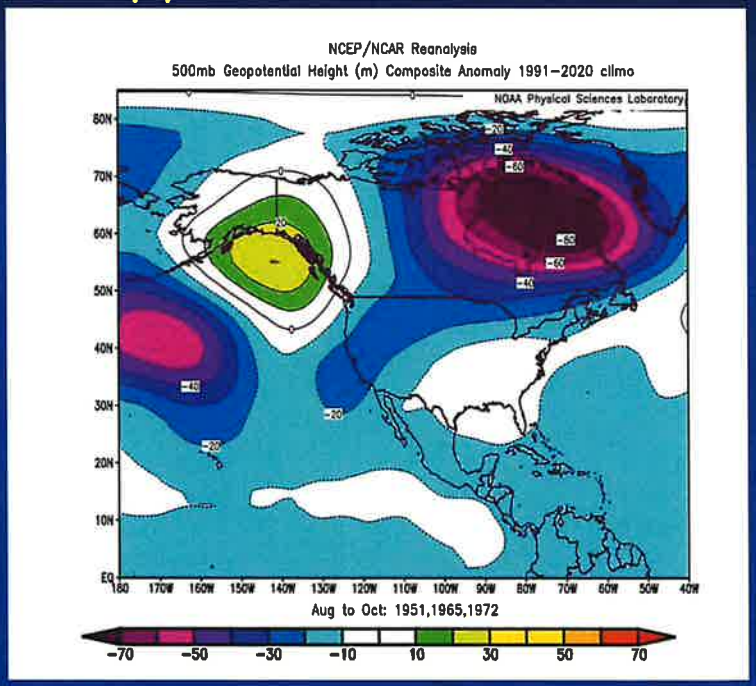
- The analog years have widely varying temperature departures. Their blend (above) yields near-average temperatures, but don't be misled...
- Precipitation graphic shows near or slightly below average rainfall, but that is a balance between a very wet 1955 and dry years of 1965 & 1972.

August – October 2023 Forecast

Mean Upper-Air Pattern



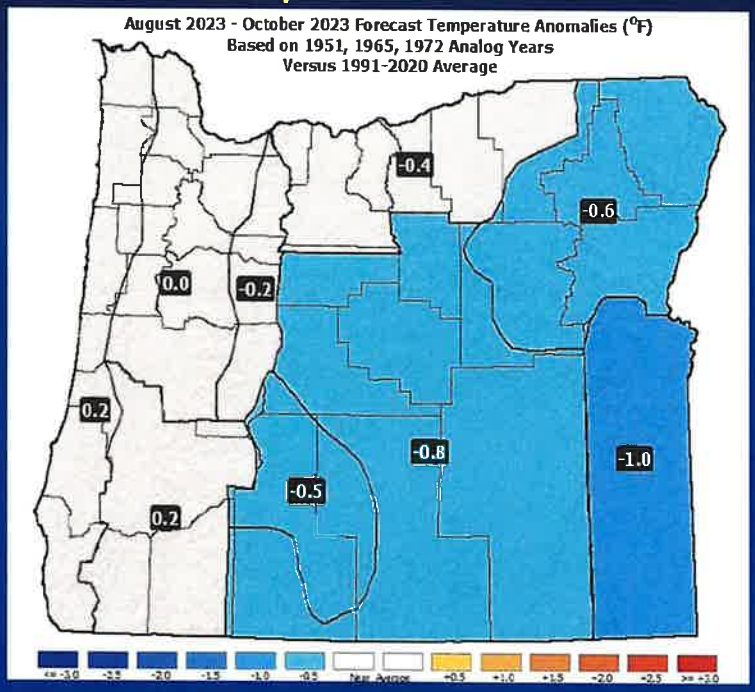
Upper-Air Anomalies



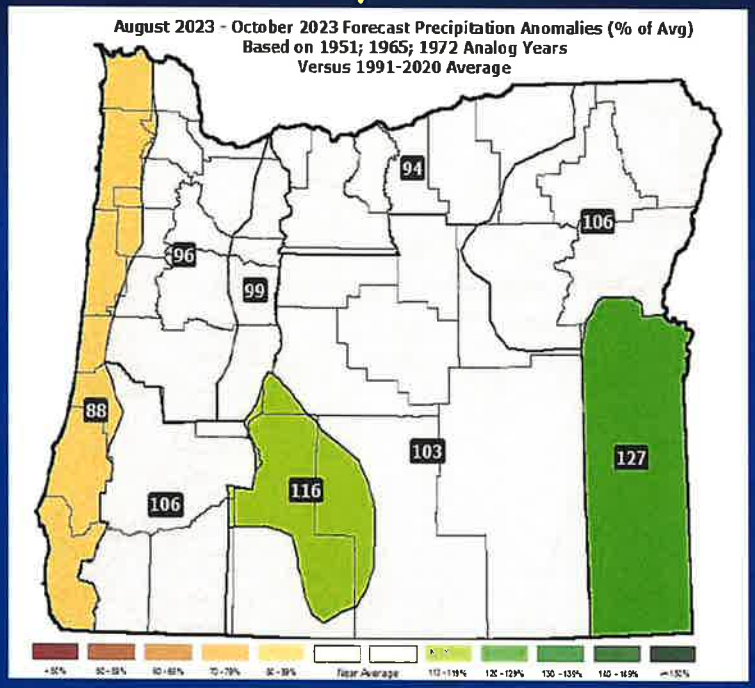
- Analogs are consistent in showing some degree of anomalous ridging in the northern Gulf of Alaska.
- The strength and position of a corresponding downstream trough over the Pacific NW varies considerably among the analog years.

August – October 2023 Forecast

Temperatures



Precipitation



- Large overall departures from average conditions are not indicated by the mathematical blend of the top 3 analogs (shown above).
- However, analogs showed enough variation to dramatically lower forecast confidence, especially on a monthly basis.

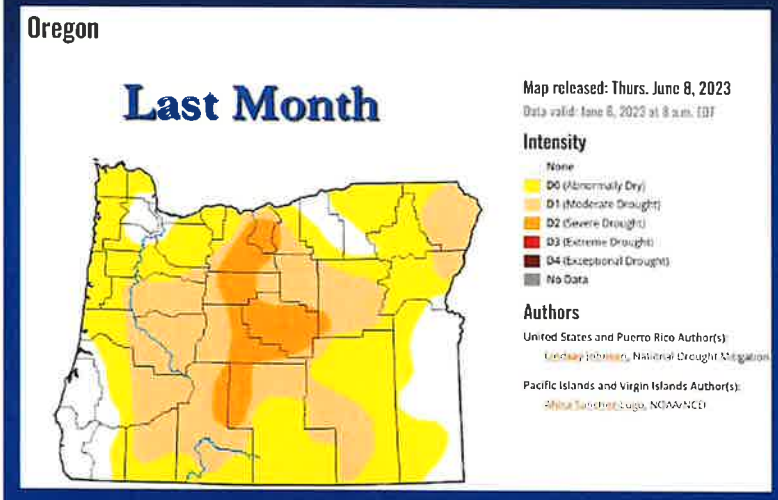
Forecast Highlights

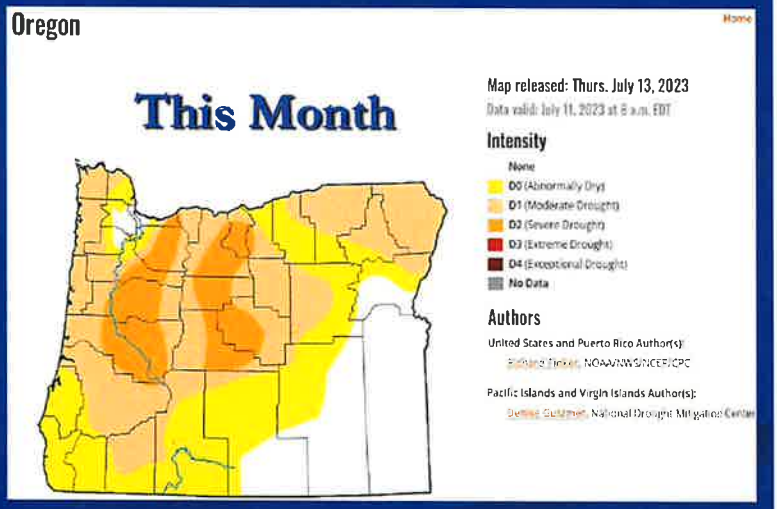
- Central and eastern tropical Pacific Ocean temperatures have recently warmed to Weak El Niño status. NOAA's CPC predicts the likelihood of moderate-to-strong El Niño conditions by this winter...
- Of the analog years used to create this forecast (1951; 1965; 1972), only 1972 remains unchanged from last month. All three years were transitioning in El Niño conditions.
- The analog years exhibited a wide variety of weather conditions during the 3-month period covered by this forecast, which dramatically lowers forecast confidence, especially on a monthly basis.
- However, each of the analog years tended to have their monthly differences "balance out" over their respective 3-month periods, so confidence in a "near-average" 3-month forecast is higher...

Disclaimer: This forecast is not associated with NOAA's CPC (see "Forecasting Methods…" at: https://oda.direct/Weather) nor the official CPC "Three-Month Outlooks," which are available here: https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

Most of Oregon Remains Abnormally Dry

(Minor monthly changes in both directions)





Courtesy: National Drought Mitigation Center (NDMC)

https://droughtmonitor.unl.edu/

Forecast Resources

- ODA Seasonal Climate Forecast Home:

https://www.oregon.gov/ODA/programs/NaturalResources/Pages/Weather.aspx

- CPC Official US Three-Month Forecasts (Graphics):

https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=01

- CPC US 30-Day & 90-Day Forecasts (Discussions):

https://www.cpc.ncep.noaa.gov/products/predictions/long_range/fxus07.html

- CPC Weekly & Monthly ENSO Discussions:

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory

- Australian Government Climate Model Summary:

http://www.bom.gov.au/climate/model-summary/#region=NINO34&tabs=Overview

- Australian Government ENSO Wrap-Up:

http://www.bom.gov.au/climate/enso

- IRI ENSO Quick Look:

https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/

Water Supply / Fire-Potential Outlook

- CPC U.S. Seasonal Drought Outlook:

https://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png

- NRCS Snow Water Equivalent Oregon Map:

https://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/or_swepctnormal_update.pdf

- NRCS/USDA Snow Water Equivalent Products:

https://www.nrcs.usda.gov/wps/portal/wcc/home/snowClimateMonitoring/snowpack/

- NDMC U.S. Drought Monitor:

https://droughtmonitor.unl.edu/

- NIDIS North American Drought Portal:

https://www.drought.gov/nadm/content/percent-average-precipitation

- WRCC WestWideDroughtTracker:

https://www.wrcc.dri.edu/wwdt/

- NWCC Northwest Interagency Coordination Center (video)

https://gacc.nifc.gov/nwcc/predict/outlook.aspx


Updated Monthly
Your Feedback is Welcome!
Sign-up for Email Notification of Updates at:
https://oda.fyi/SubscribeSCF
Contact: Pete Parsons, ODF Lead Meteorologist
at 503-945-7448 or peter.gj.parsons@odf.oregon.gov
Photo: Pete Parsons

EXHIBIT B

P.O. Box 149
Siletz, OR 97380
alan.gibsonfarms@gmail.com

Gibson Family Farms, Siletz

23 July 2023

Kaety Jacobson, Lincoln County Board of Commissioners
225 W. Olive St
Newport, OR 97365

RE: Current Local Drought Impacts & Forecast

Drought Contexts:

It's dry again in Lincoln County. After an abnormally wet and cool late winter and spring, an abrupt shift to unseasonably dry weather patterns has impacted the area to historical extremes.

Low stream flows starkly demonstrate a climatic and hydrogeologic characteristic of the Central Oregon Coast, in which Tyee Formation sandstone geology and steep topography drain catchment basins relatively quickly. Low elevation precludes meaningful snowmelt contributions, even after a winter 2022-2023 that was notably snowy. Without current precipitation to recharge surface and subsurface waters, streamflows and soil moistures deplete quickly. Limited natural and built water storage infrastructure in these basins provides little buffer against prolonged dry weather impacts.

Drought can be generally defined and understood in different ways[1]:

- **Meteorological Drought** – When dry weather patterns dominate an area.
- **Hydrological Drought** – When low water supply becomes evident in the water system.
- **Agricultural Drought** – When crops become affected by drought.
- **Ecological Drought** – When natural ecosystems are affected by drought.
- **Socioeconomic Drought** – When the supply and demand of various commodities is affected by drought.

The various types of drought can occur separately or concurrently.

Defining a **"Drought Emergency"** is even more subjective. Some authorities use quantitative methods to establish a threshold, often a percentage of average streamflow. Others cite a likelihood of "undue hardship for water users and uses." In the past, Lincoln County has declared drought emergencies by citing:

"…that extraordinary measures must be taken to alleviate the suffering of people, natural

[1] National Oceanic and Atmospheric Administration (NOAA): National Drought Information System. https://www.drought.gov/what-is-drought/drought-basics

resources and to protect or mitigate economic loss, begin water conservation curtailment plans and actions, and to be responsive to the threat of wildfires."[2]

Further, that pursuant to ORS 401.032(2), "the appropriate response is beyond the capability of Lincoln County."[3]

Administratively, a **State Drought Emergency Status** provides water managers additional temporary tools to address water shortages, prioritize existing water resources, and implement conservation measures. State agencies are instructed to provide allowable assistance to local governments and entities. A **Federal Drought Emergency**, declared by the Secretary of Agriculture, implements Federal disaster relief programs in a county, mostly available to agricultural producers.

Current Local Impacts & Forecasts:

- Prolonged dry weather has depleted shallow soil moisture. **Low agricultural soil moisture** in the root zone for timber, pastures, hay, and other growing crops is the limiting factor of local production. **Hay season** is well underway, with yields **~60% of average** and forage quality and nutrition well below average for the date. **Local hay supply is insufficient to meet local demand for the year**. Facing low feed supplies and quality, some graziers are choosing to either sell animals or import hay from other regions. Gibson Farms is selling cattle ahead of schedule and helping a neighbor do the same this week.

- ODF has established **Industrial Fire Precaution Level (IFPL) 1 (Fire Season)** or **IFPL 2 (Limited Shutdown)** for areas of Lincoln County. Public fire danger in the Western Oregon District is "Moderate."[4]

- The **Siletz River** on Sunday is discharging 83 Cubic Feet per Second (CFS) at the USGS gaging station upstream of Siletz, **46% of average** for the date. Siletz flows have regularly established historical daily minimums this summer, based on records from 1906-2022. The record minimums being surpassed have often stood since either 2015 or 1934.[5] Junior water rights for irrigation and other uses are expected to be regulated off this week. **Low flows are associated with high water temperatures and low dissolved oxygen, conditions potentially above the thermal maxima for some aquatic species.** The Siletz River provides wildlife habitat, but is also source water for several Lincoln County industries, municipalities, and water districts.

- Somewhat better, the **Alsea River** is discharging **113 CFS, 70% of average** for the date.[6]

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[2] Lincoln County. "Declaration of Local Disaster and Request to Declare a State Drought Emergency for Lincoln County Oregon, Order No. 6-21-204." 28 June, 2021.
[3] Ibid.
[4] https://www.oregon.gov/odf/fire/Pages/restrictions.aspx
[5] https://www.nwrfc.noaa.gov/rfc/
[6] Ibid.

- The **Yachats River** was flowing at **17.3 CFS** on Saturday, 66.2% of average for July.[7] Water managers at the City of Yachats are considering conservation curtailments.[8]

- The 7-day forecast predicts warm, dry weather for the area.[9]

- Pacific sea surface temperatures are currently in the warm **(Weak El Niño)** category. ODA/ODF forecasters expect temps to continue warming to ENSO-Moderate to Strong El Niño conditions through the summer and fall. For the period August – October, they anticipate **below-average rainfall and near-average temperatures for our coastal region**[10] The next 60 days are usually our region's driest, with significant fall rains not expected until late September.

- Local residents in the Siletz Valley are reporting unseasonably low levels in shallow wells and springboxes used for domestic supply, market garden production, and livestock water. Levels in June and July are similar to those usually seen in September. One landowner recently reported well levels at 20% of normal for the date. Gibson Farms has removed grazing livestock from one 56-acre property due to an insufficient well. **Lack of water for livestock is jeopardizing efficient forage utilization and sound management of soil and water resources across these properties.**

- **Blueberry harvest at Gibson Farms is expected to begin August 4.** Based on streamflow data, **irrigation is expected to be suspended regulatorily on July 24th.** Without access to irrigation, and without significant precipitation in the forecast, impacts to fruit size, quality, and harvestability are expected within 7-10 days. Impacts on plant survival are expected in 18-21 days. Gibson Farms voluntarily suspended irrigation on pastures and hayfield properties this summer to reserve the maximum allocation eligible for emergency drought transfers to the blueberry field. Emergency soil moisture conservation measures, such as mowing and mulching the field floor, will begin this week.

Regional Contexts:

The **US Drought Monitor**, a weekly track of national drought conditions, classifies the entirety of Lincoln County in **D1, "Moderate Drought."** D2 "Severe Drought" exists in areas of nearby Lane, Benton, Linn and Marion Counties.[11]

USDA Secretarial Drought Disaster Designations, as of July 5, list primary drought disasters only in Eastern Oregon counties, with contiguous affected counties in nearby Lane, Linn, & Marion.[12] That area is expected to be expanded in August.

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[7] https://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/display_hydro_graph.aspx?station_nbr=14306872
[8] https://yachatsnews.com/yachats-water-restrictions/
[9] https://forecast.weather.gov/MapClick.php?lat=44.72180000000003&lon=-123.91802999999999
[10] https://www.oregon.gov/ODA/programs/NaturalResources/Documents/Weather/dlongrange.pdf
[11] https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?OR
[12] https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/Disaster-Assist/Secretarials/2023-Secretarial-Disasters/ALL_Drought_CY2023.pdf

State of Oregon **Governor's Drought Declarations** have been established as close as Jefferson and Deschutes Counties.[13]

Summary:

This summer demonstrates that drought can be very local in nature, with hydrologic conditions highly variable across Lincoln County and the State of Oregon. The suspension of pasture/hayfield irrigation, grazing and blueberry irrigation at Gibson Farms constitutes a family emergency. Some of these impacts can be mitigated through market solutions (selling cattle, burning time and diesel to mulch rows). Others can only be ameliorated through the resumption of timely natural precipitation or administrative Drought Emergency Tools available in the context of a Governor's Drought Emergency.

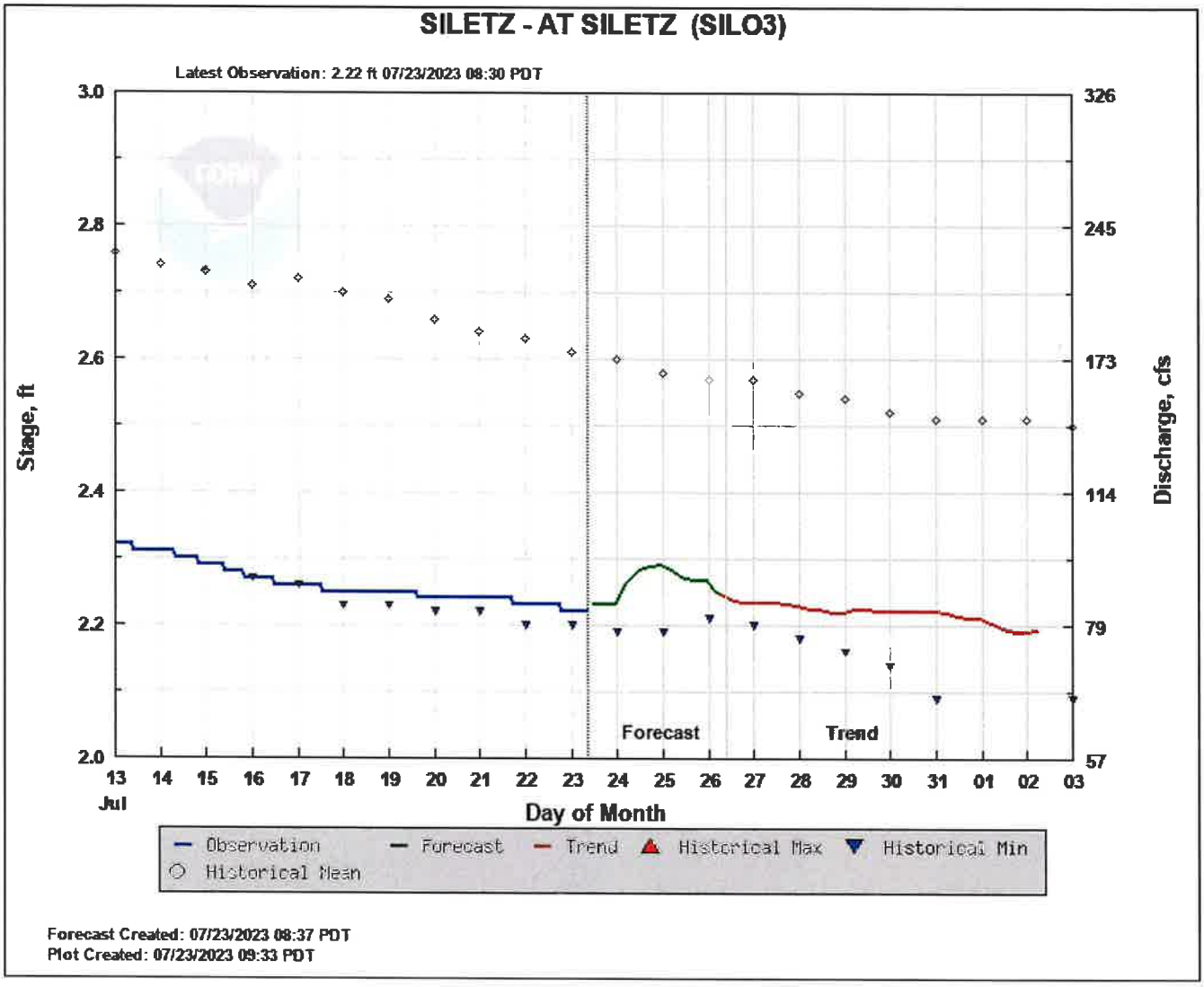
Whether the current and forecast conditions constitute a County Emergency is necessarily subjective. I am interested to know what drought impacts and considerations are affecting other natural resource industries, conservation interests, and water purveyors, to assemble a holistic perspective on our County's drought status. Given the County's proactive record of support for, and participation in, water resources planning, monitoring, and protection, as well as years of vigilance toward drought preparedness, I have no reservations about "leading" requests for a Governor's Drought Declaration in our part of Oregon. Furthermore, the lack of meaningful precipitation in the forecast, and the dry 3-month climate projection for Coastal Oregon, both suggest that drought conditions are going to get much worse before they get better. An early declaration and request for State assistance is unlikely to go unneeded by the end of summer.

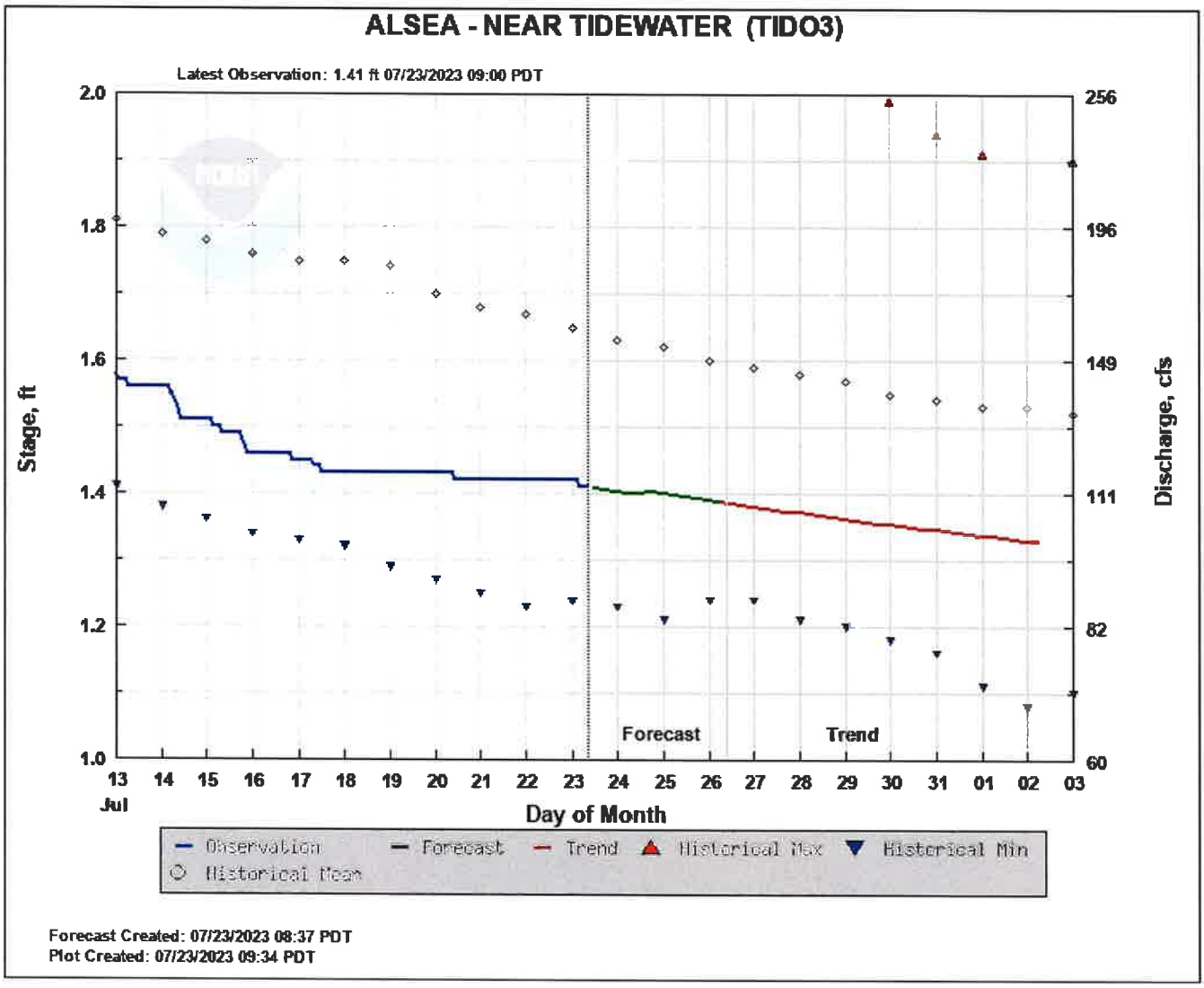
Thank you for your consideration,

--Alan Fujishin
Gibson Farms, Siletz
Alan.gibsonfarms@gmail.com

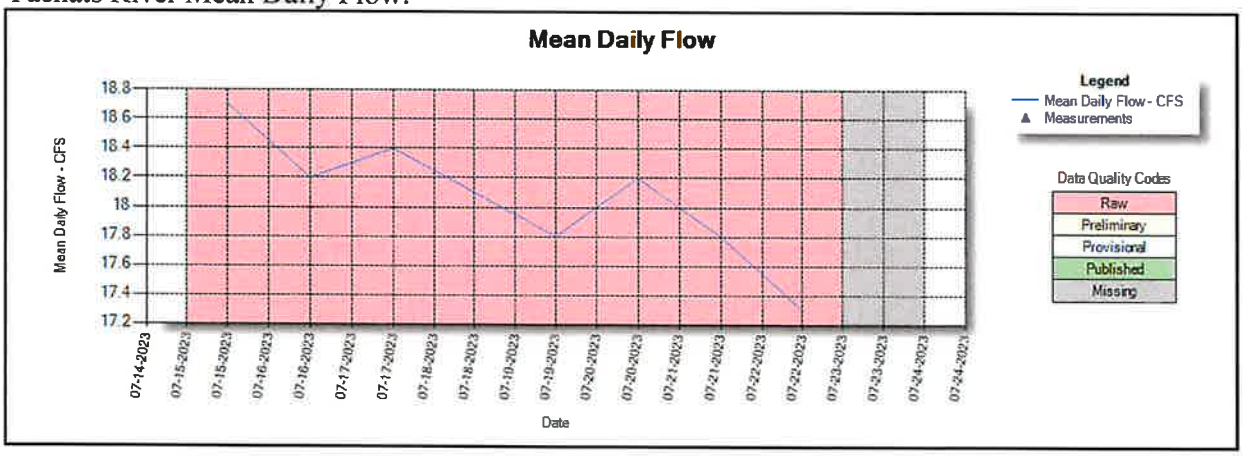
Excerpts from Footnotes Below:

[13] https://apps.wrd.state.or.us/apps/WR/drought_dashboard/Default.aspx


SILETZ - AT SILETZ (SILO3)
Latest Observation: 2.22 ft 07/23/2023 08:30 PDT
Stage, ft
Discharge, cfs
3.0
2.8
2.6
2.4
2.2
2.0
326
245
173
114
79
57
Forecast
Trend
13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 01 02 03
Jul
Day of Month
Observation
Forecast
Trend
Historical Max
Historical Min
Historical Mean
Forecast Created: 07/23/2023 08:37 PDT
Plot Created: 07/23/2023 09:33 PDT



Yachats River Mean Daily Flow:



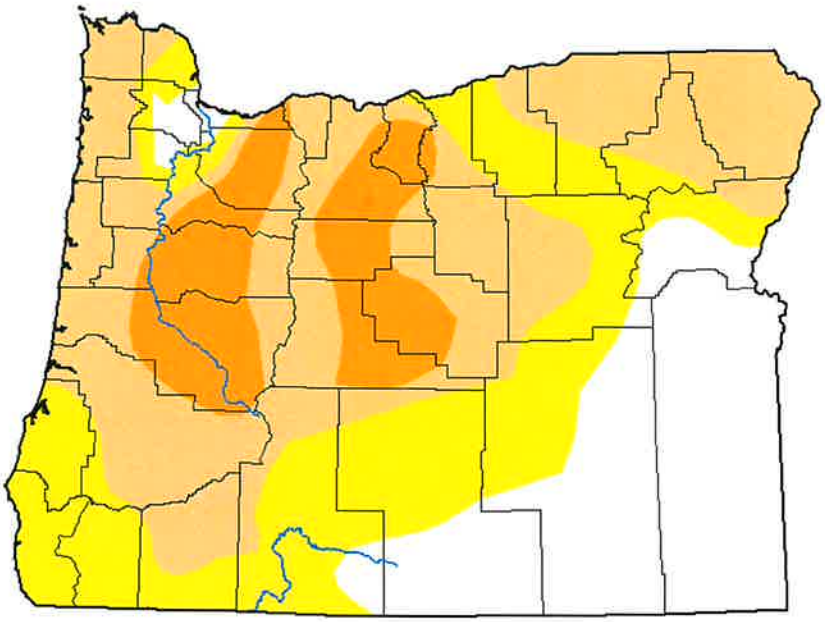
U.S. Drought Monitor

Oregon

July 18, 2023

(Released Thursday, Jul. 20, 2023)

Valid 8 a.m. EDT



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

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droughtmonitor.unl.edu

August 2023 - October 2023 Forecast Precipitation Anomalies (% of Avg)
Based on 1951; 1965; 1972 Analog Years
Versus 1991-2020 Average