

Water Conditions Report

Drought Readiness Council



Ken Stahr
Oregon Water Resources
Department
April 12, 2018

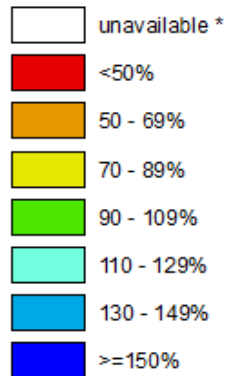
Statewide SNOTEL Snowpack was 63% of normal

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

Mar 13, 2018

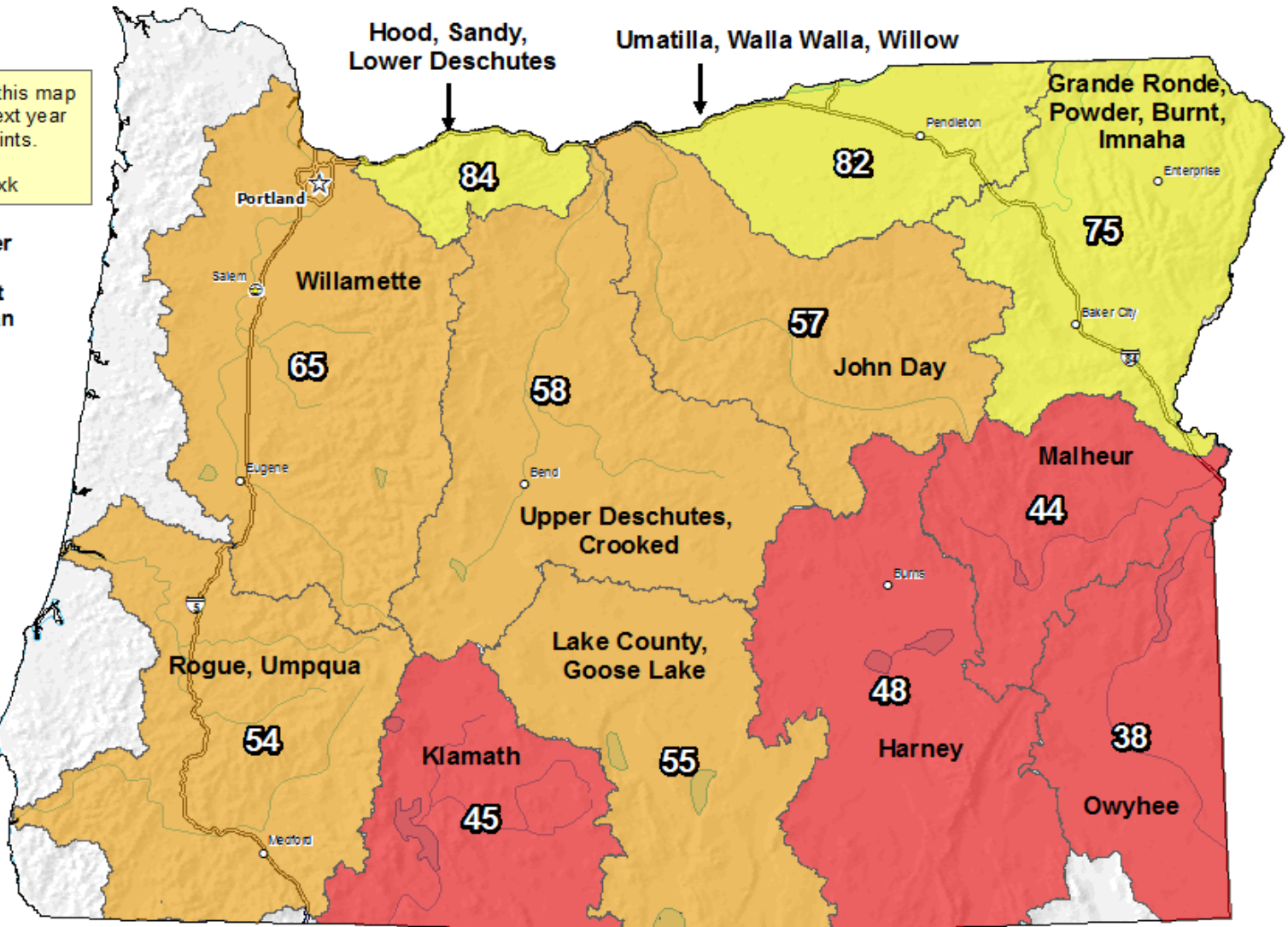
Notice: We anticipate this map will not be available next year due to staffing constraints. Alternate maps: <https://go.usa.gov/xnzxk>

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data
Subject to Revision



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



Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

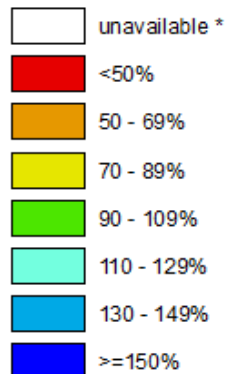
Statewide SNOTEL Snowpack is 71% of normal

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

Apr 09, 2018

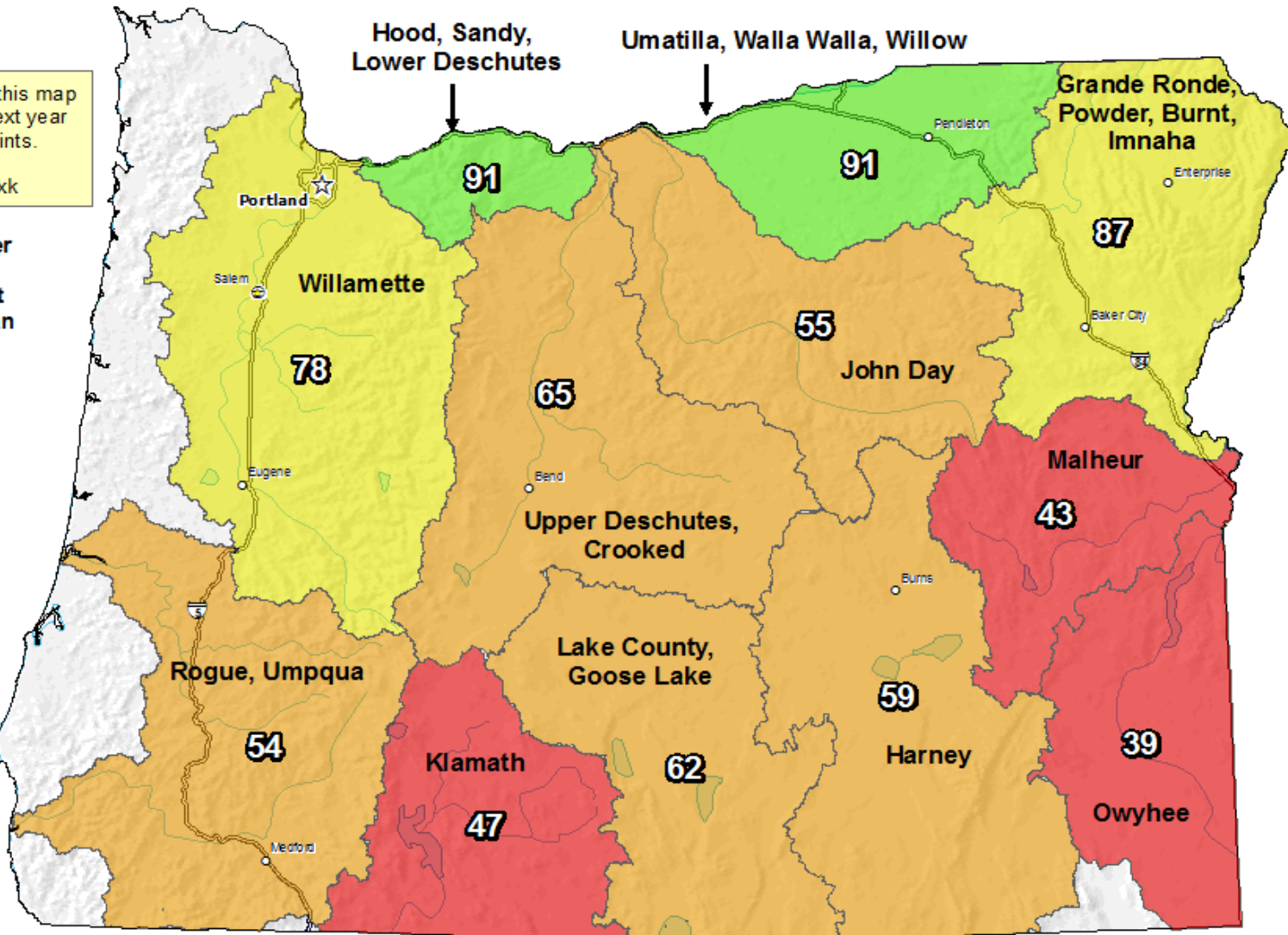
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Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



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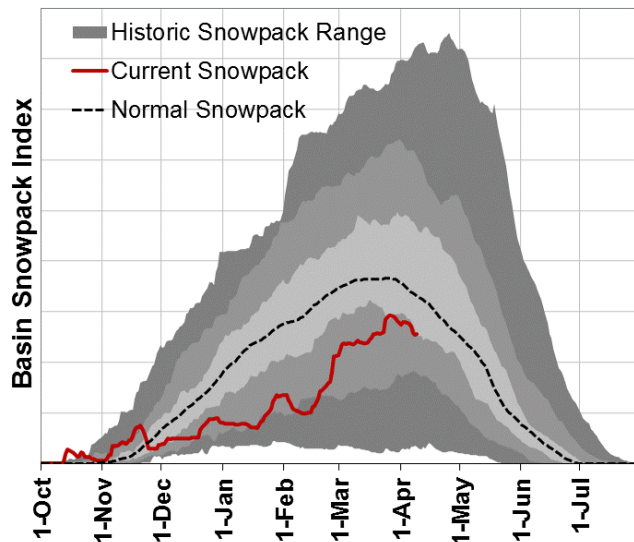
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

0 10 20 40 60 80 100 Miles

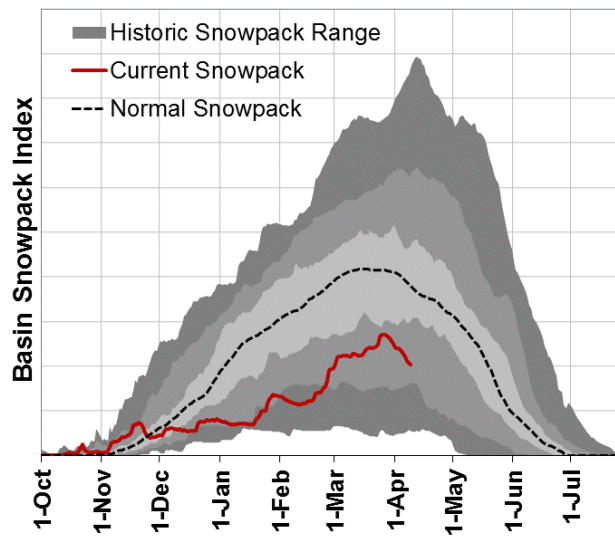
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

Water Year 2018 – April 10th

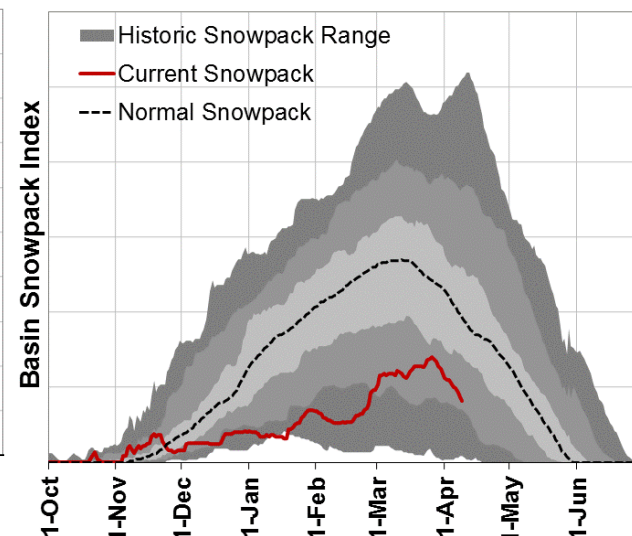
Willamette



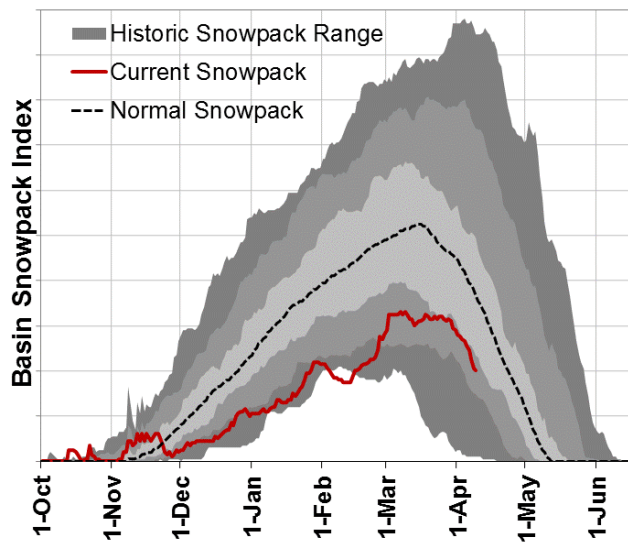
Rogue/Umpqua



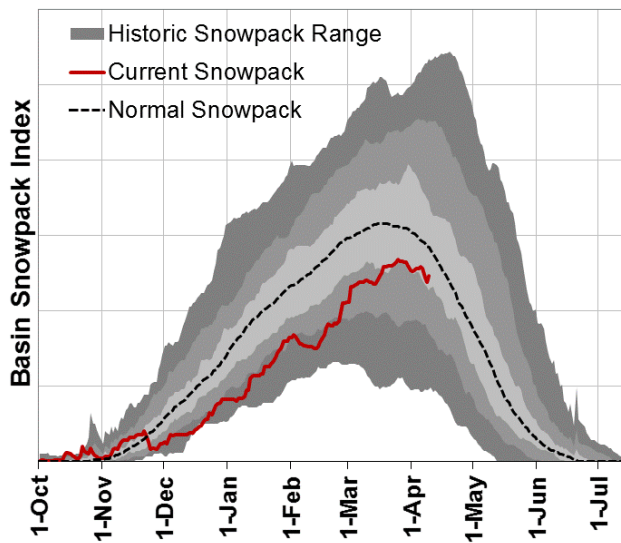
Klamath



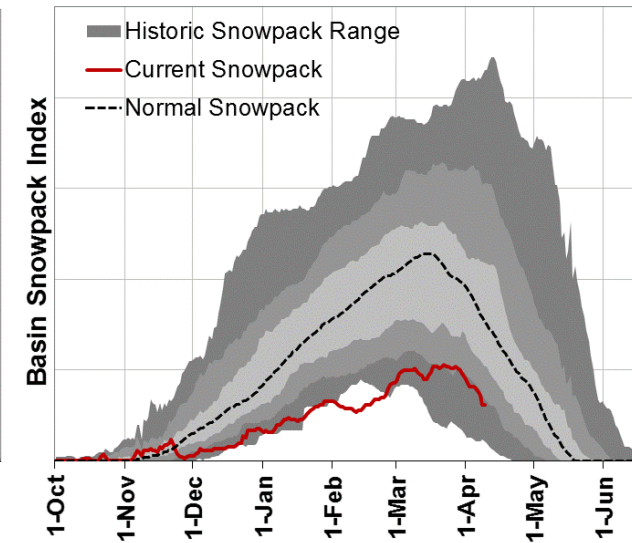
John Day



Grande Ronde/Powder/Burnt



Owyhee/Malheur



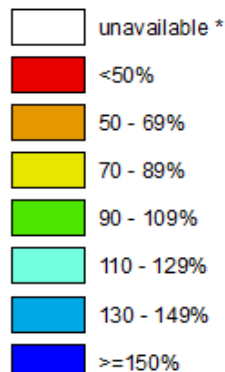
Statewide SNOTEL Precipitation was 89% of normal

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

Mar 13, 2018

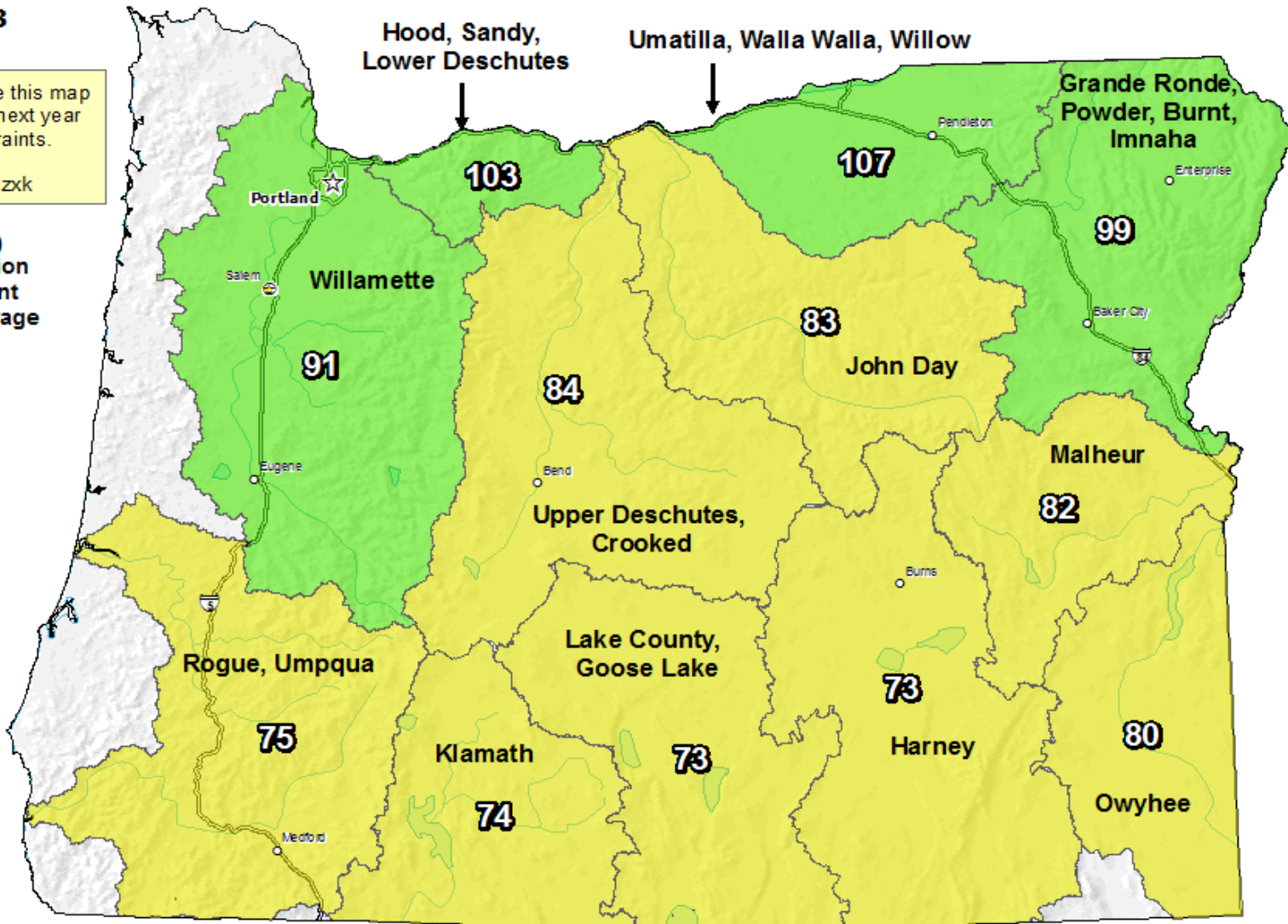
Notice: We anticipate this map will not be available next year due to staffing constraints. Alternate maps: <https://go.usa.gov/xnzxk>

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average

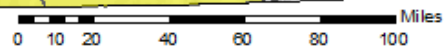


* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data
Subject to Revision



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



Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

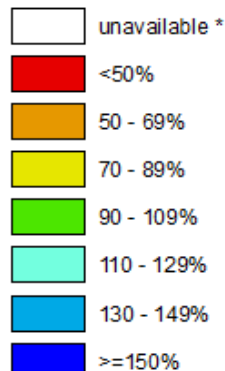
Statewide SNOTEL Precipitation is 92% of normal

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

Apr 09, 2018

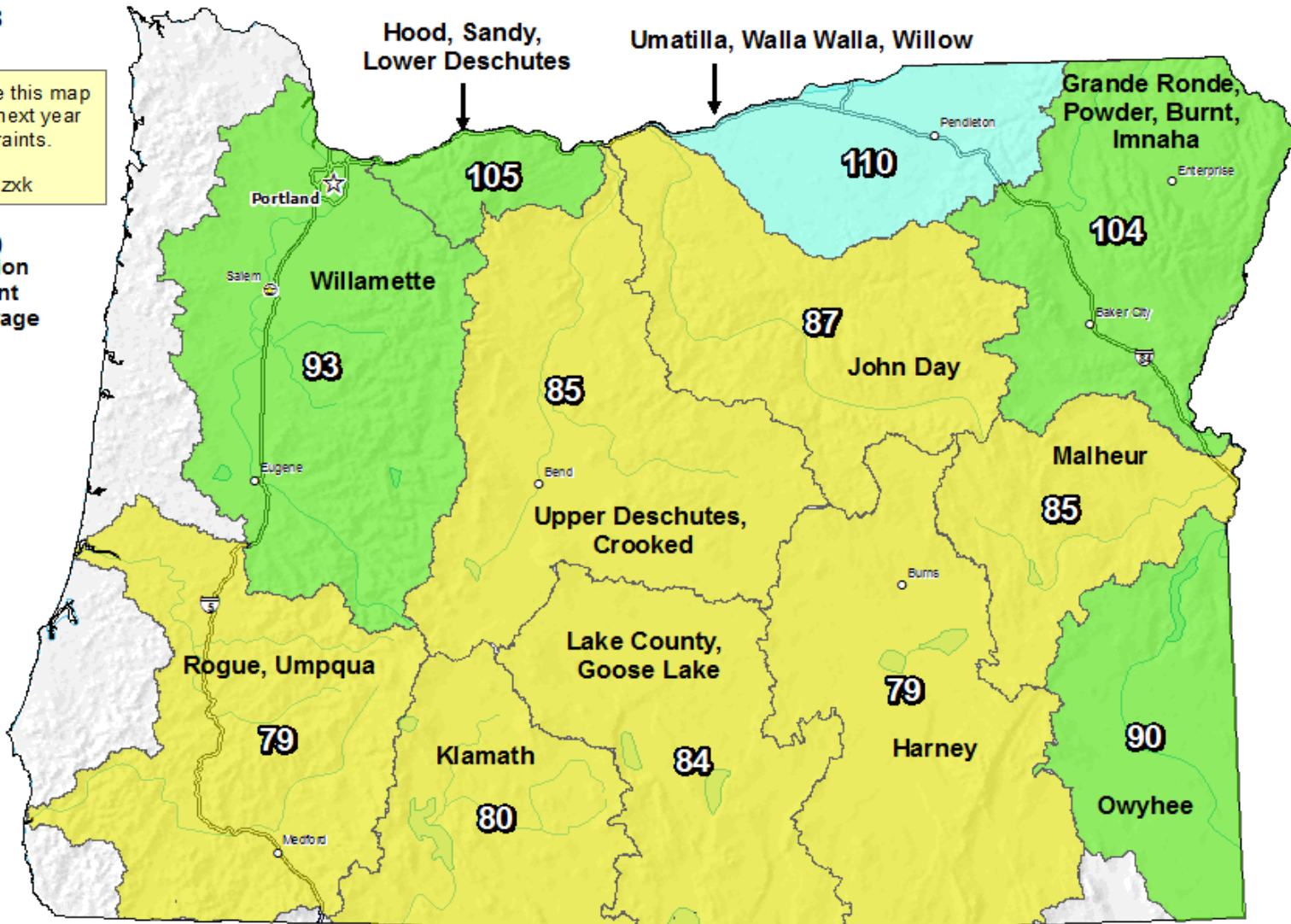
Notice: We anticipate this map will not be available next year due to staffing constraints. Alternate maps: <https://go.usa.gov/xnzxk>

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average

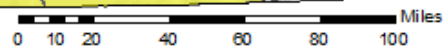


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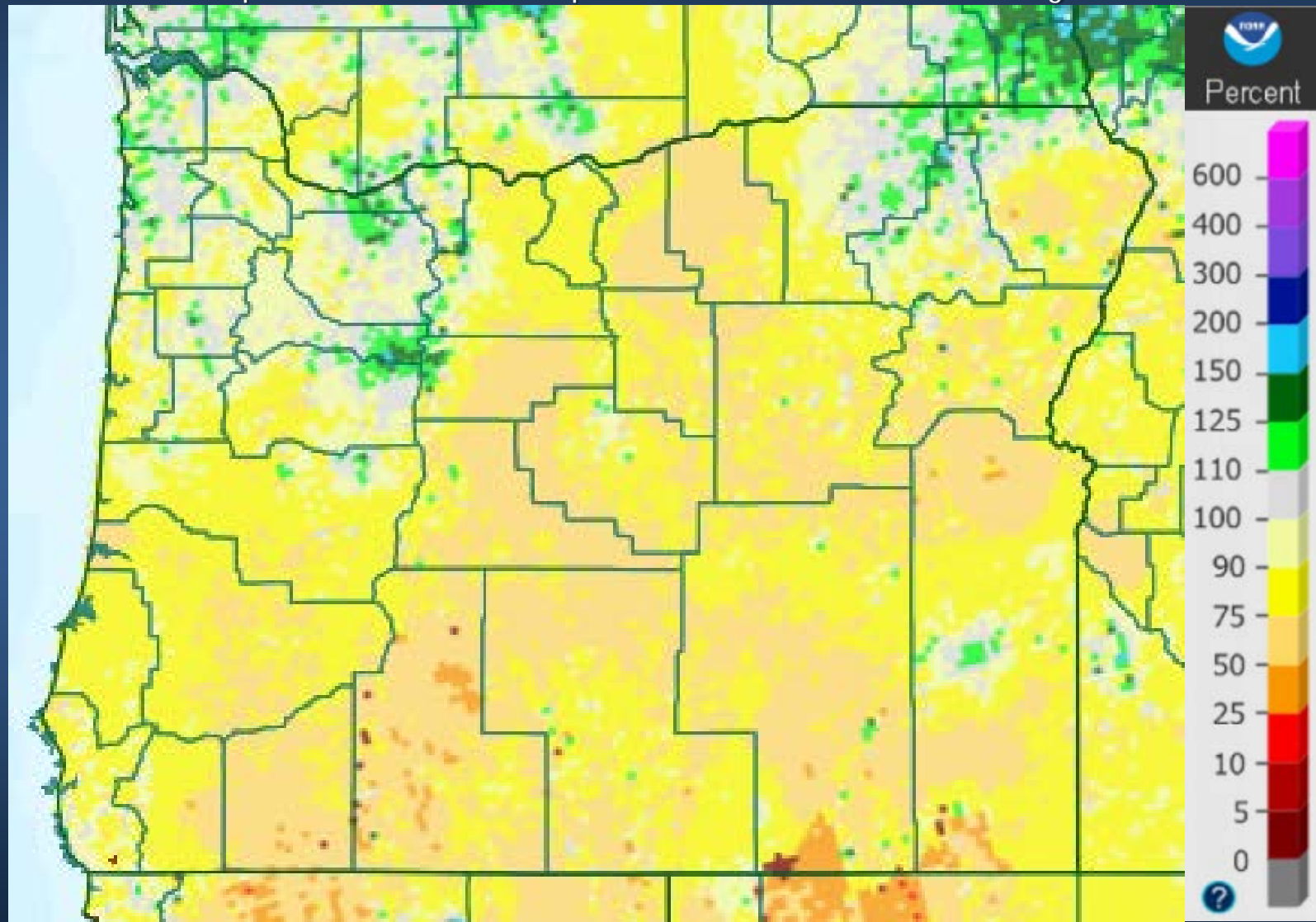


Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>



WY2018 Precipitation thus far

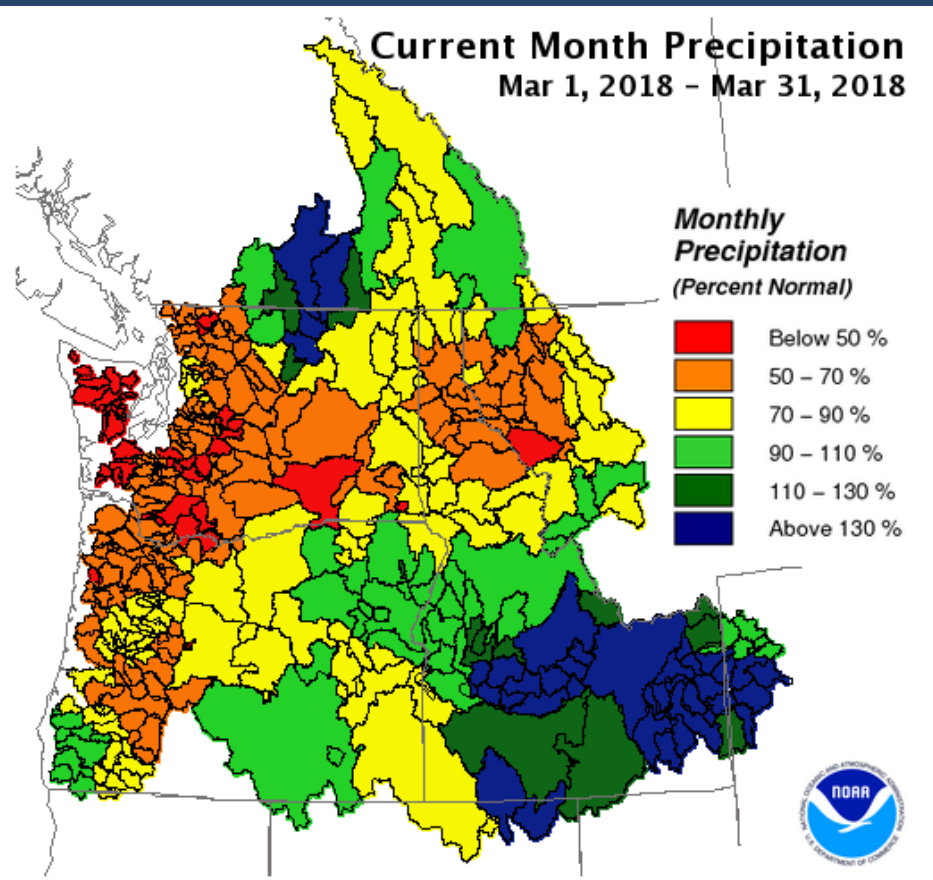
April 9th Water Year Precipitation to Date - Percent of Average



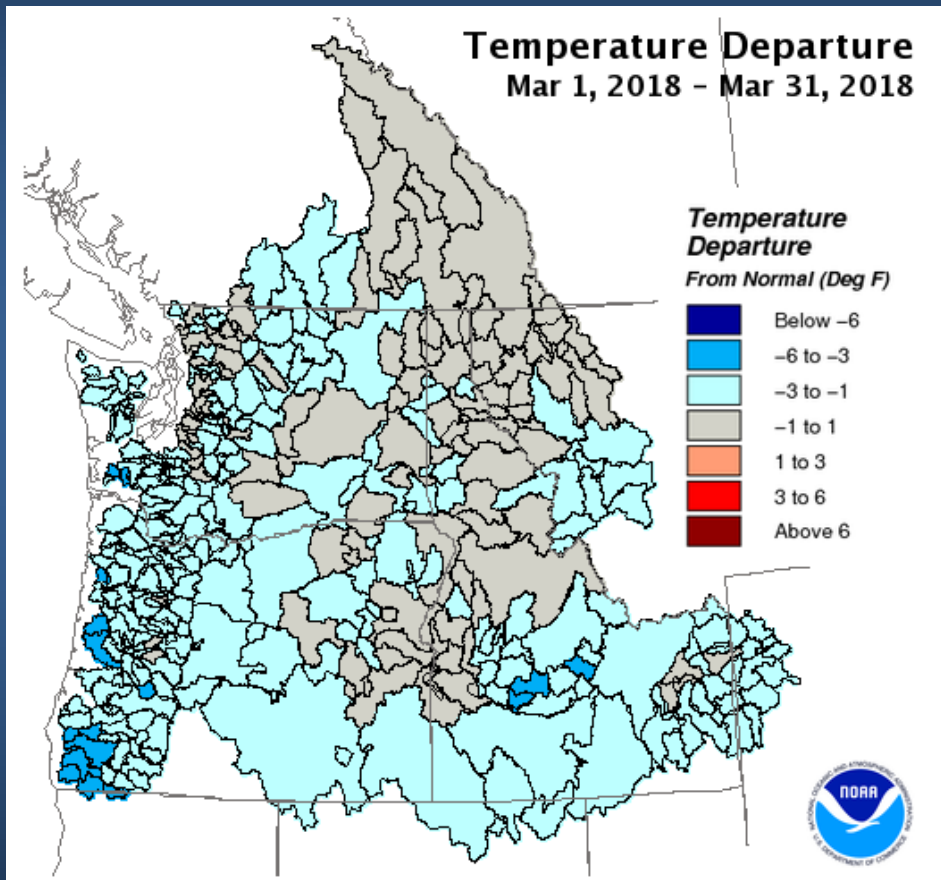
Source: water.weather.gov/precip/index.php?location_type=wfo&location_name=pqr



March 2018 Precipitation & Temperatures *Columbia Basin Conditions*



Creation Time: Sunday, Apr 1, 2018 Northwest River Forecast Center



Creation Time: Sunday, Apr 1, 2018 Northwest River Forecast Center

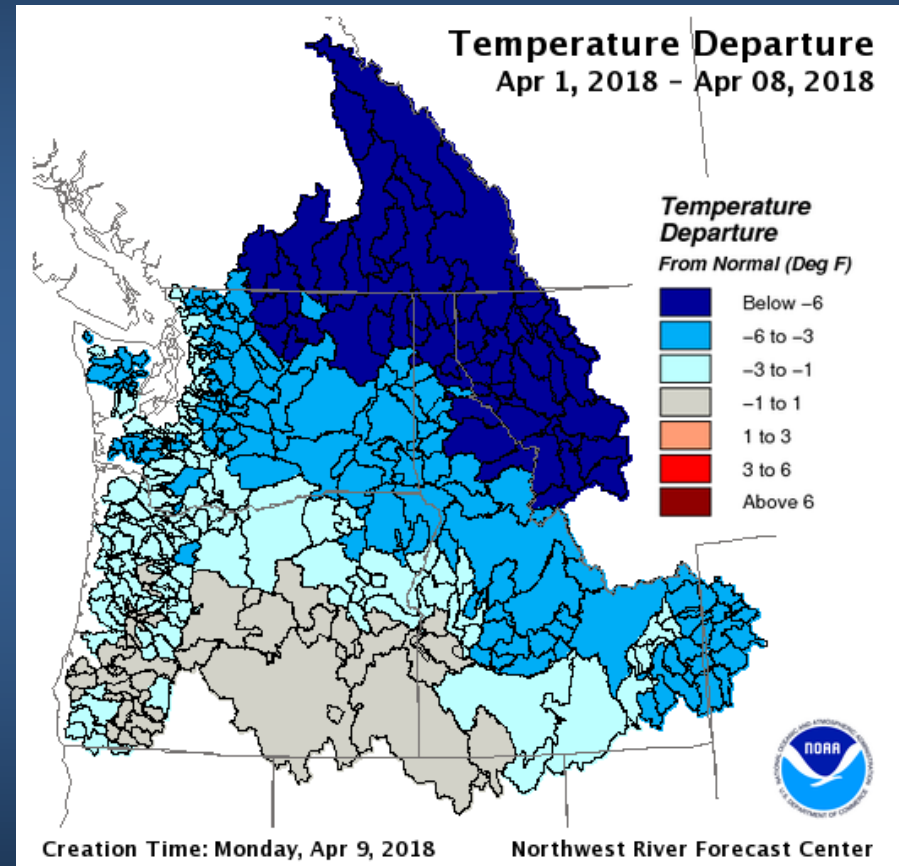
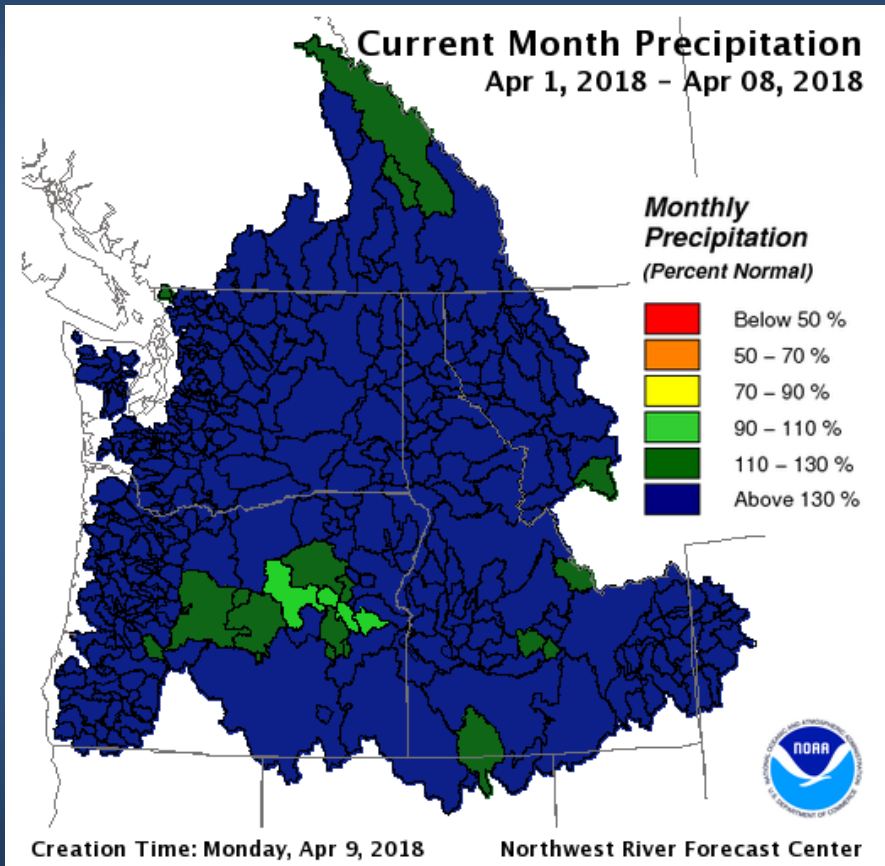
Source: www.nwrfc.noaa.gov/water_summary/wy_summary/wy_summary.php?tab=2



April 1 - 8, 2018

Precipitation & Temperatures

Columbia Basin Conditions



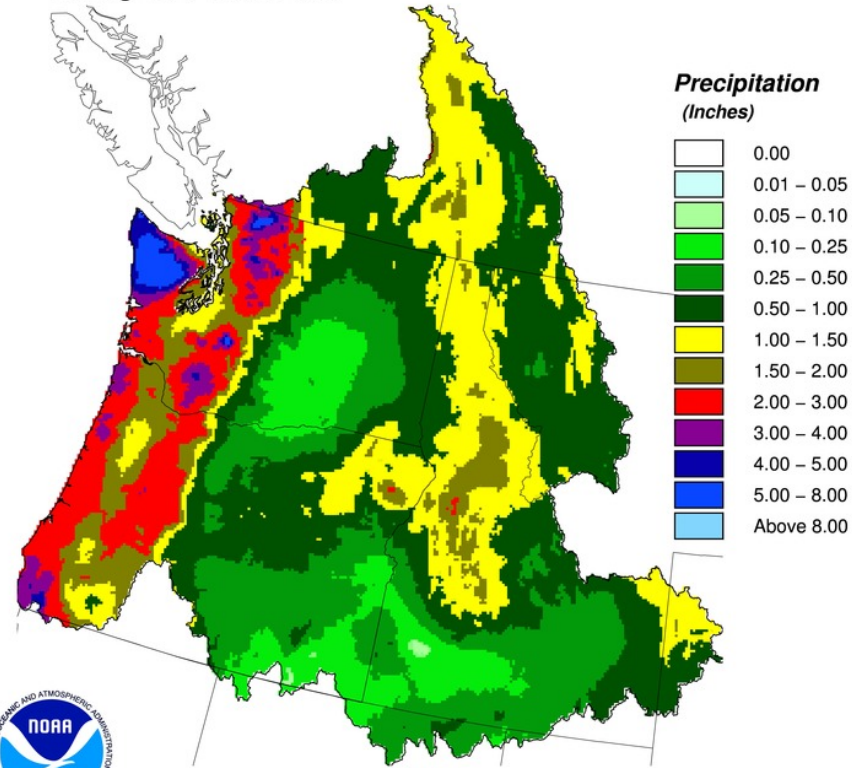
Source: www.nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=2



Mid-April Outlook

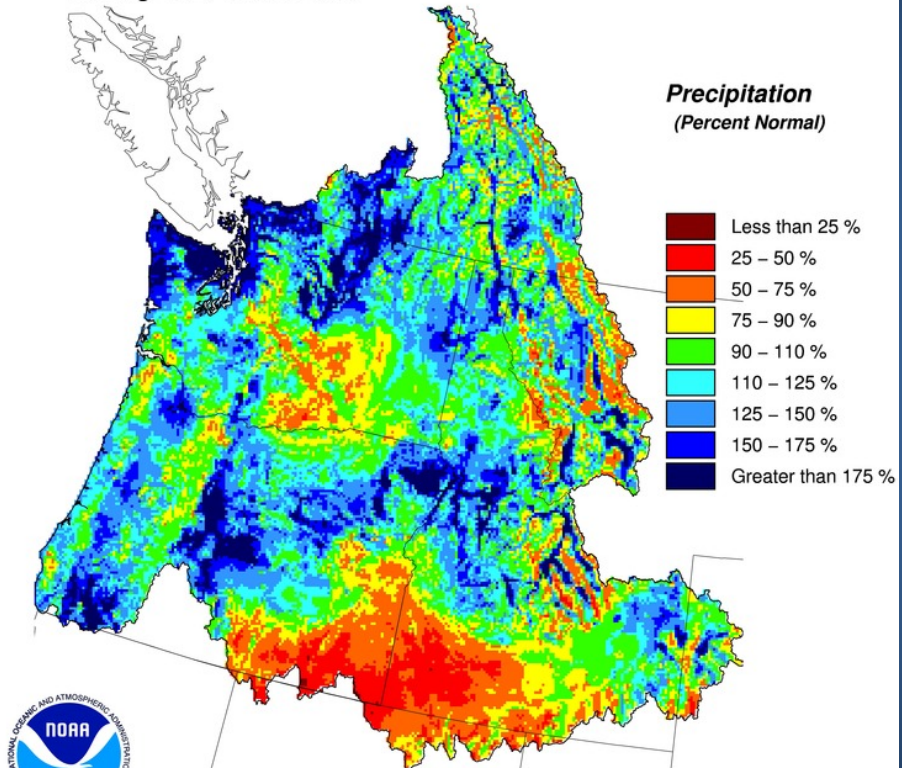
April 9-19, 2018 Forecast Precipitation

10 Day QPF
Ending 12Z, 04/19/2018



Creation Time: Mon Apr 9 14:34:37 UTC 2018

10 Day QPF (Percent of Climatology)
Ending 12Z, 04/19/2018



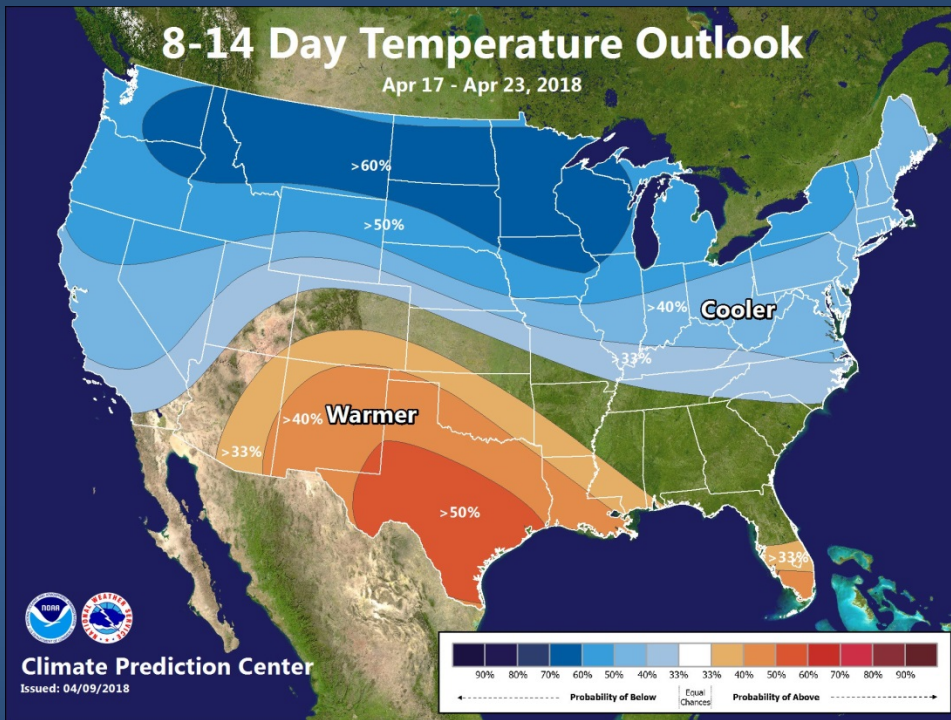
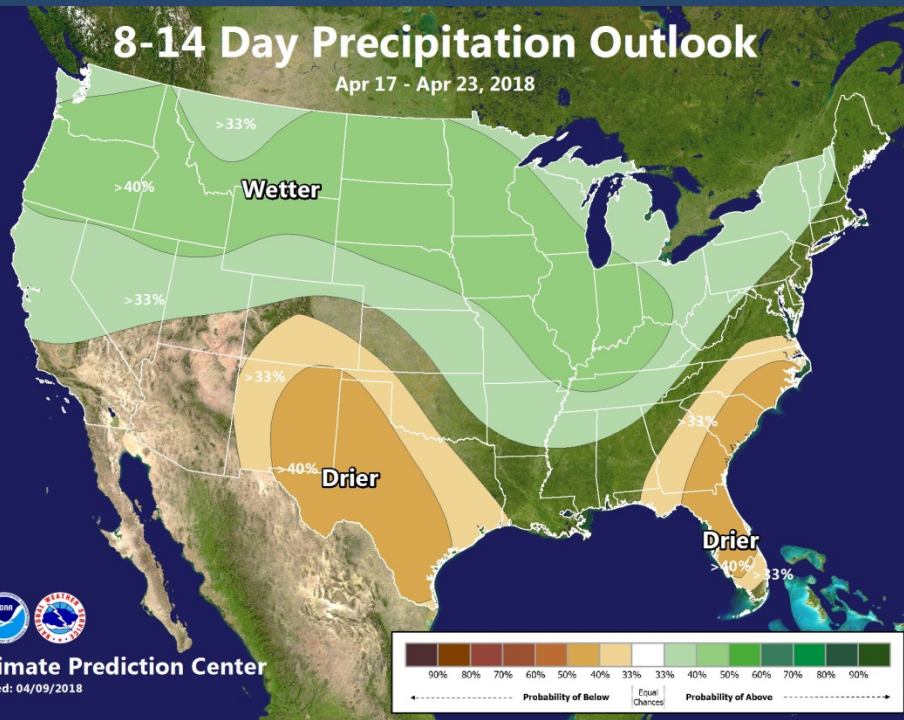
Creation Time: Mon Apr 9 14:34:48 UTC 2018

Below-average temperatures expected through this period



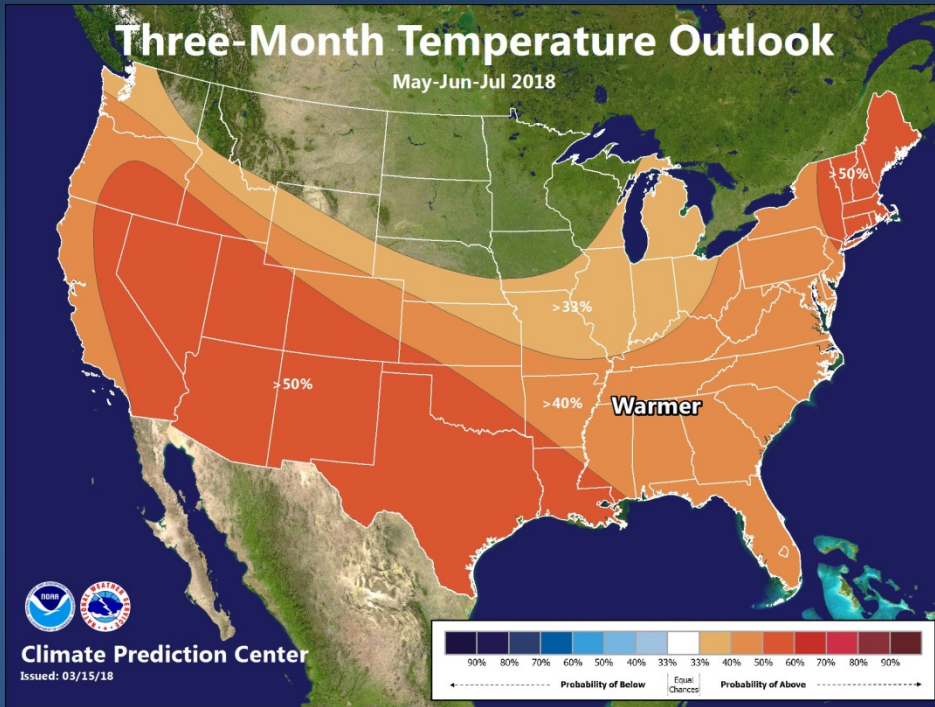
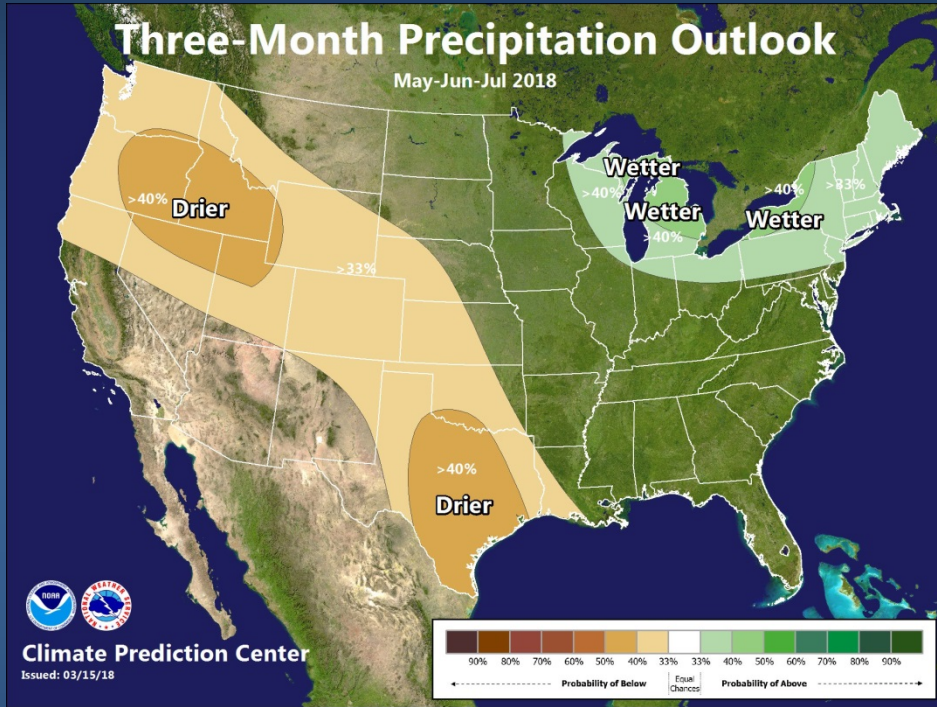
Late-April Outlook

April 17 - 23, 2018 Precipitation & Temperature Outlook





Outlook for May-June-July 2018

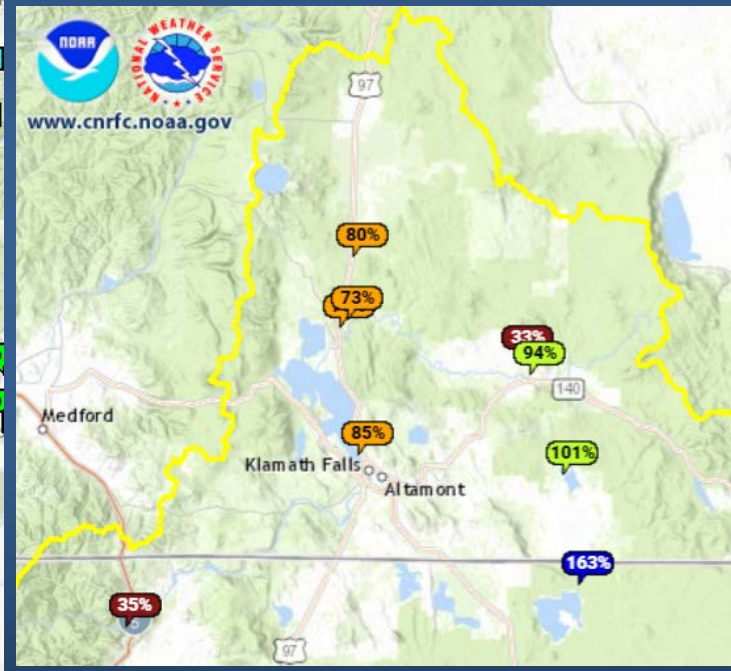
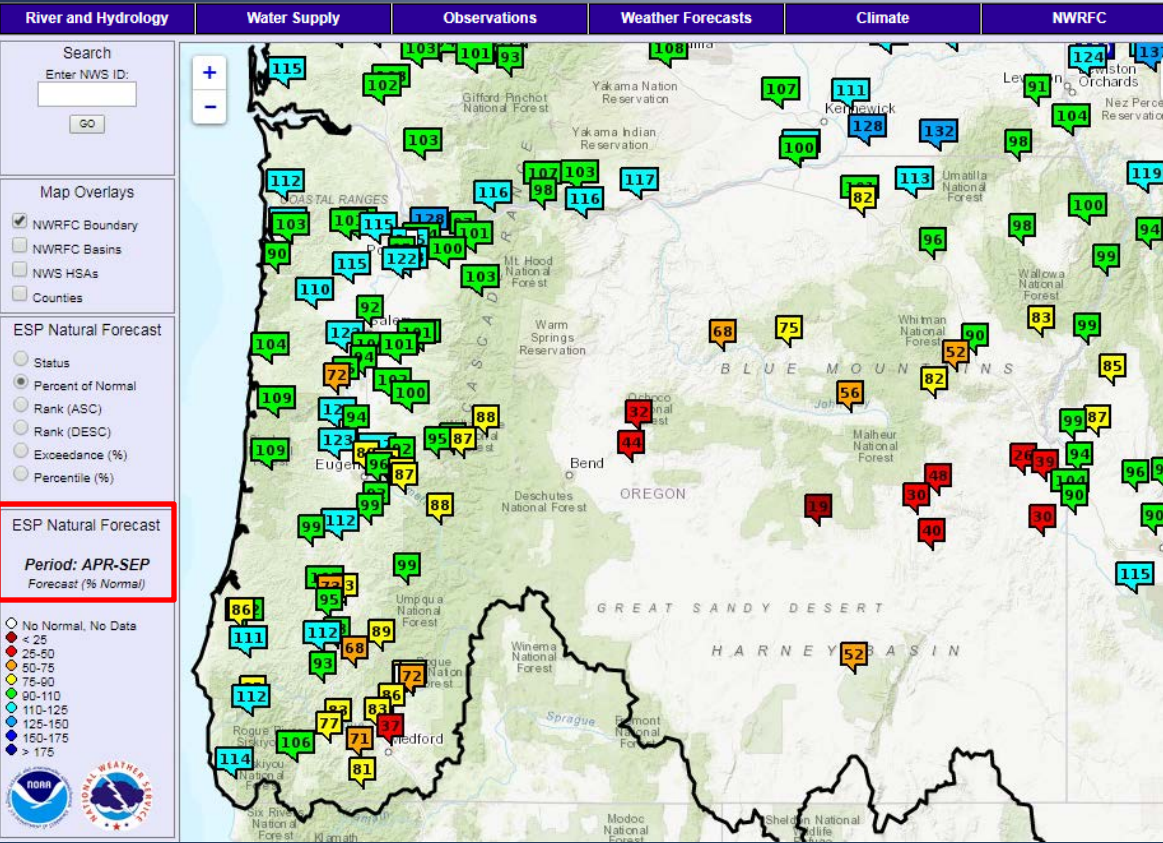




Water Supply Forecasts



Northwest River Forecast Center ESP Natural Forecast

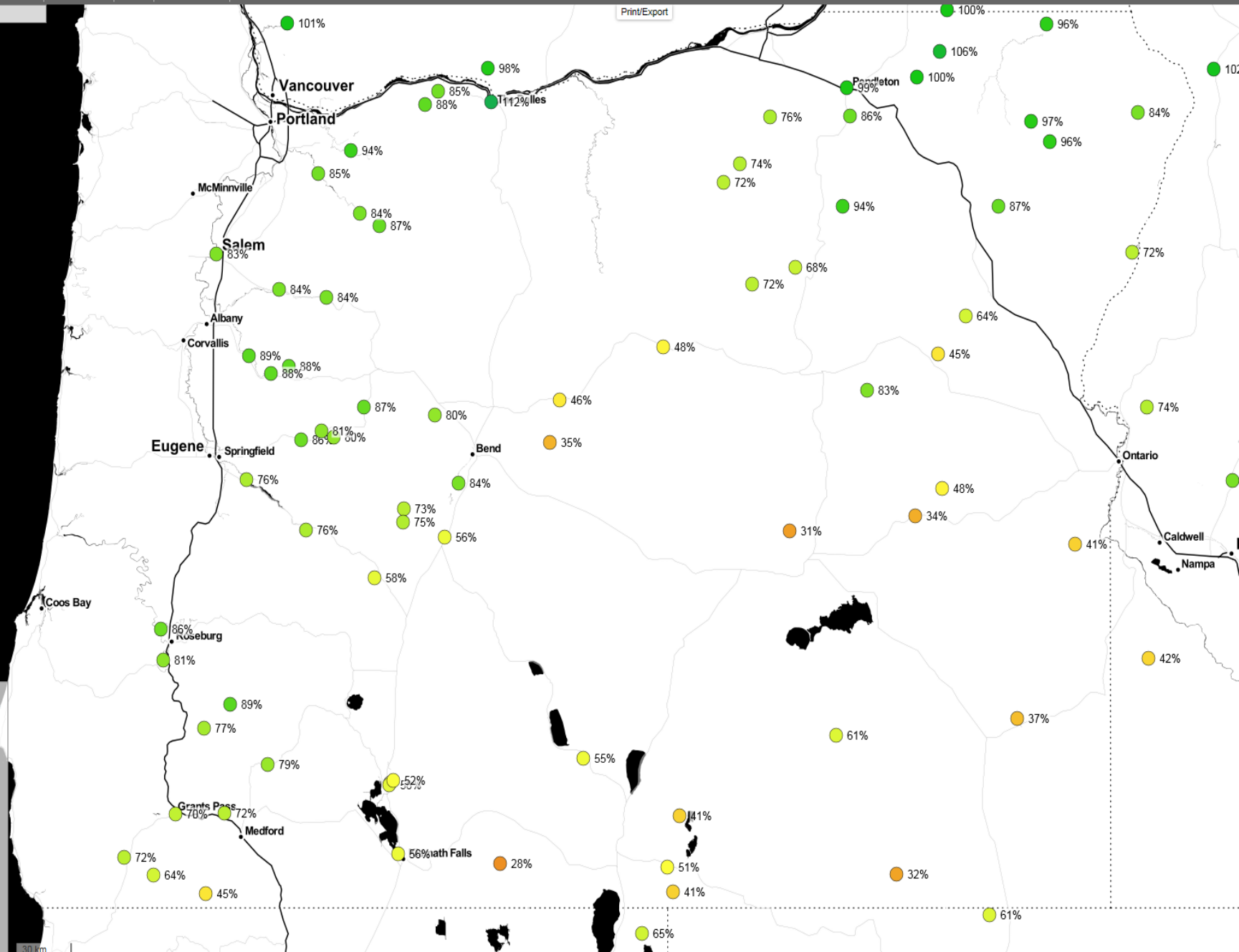


Source: www.nwrfc.noaa.gov & www.cnrfc.noaa.gov

April 1, 2018 – Forecast Volume, 50% Exceedance Probability Apr – Sep Forecast

Selected Stations: 669

Print/Export

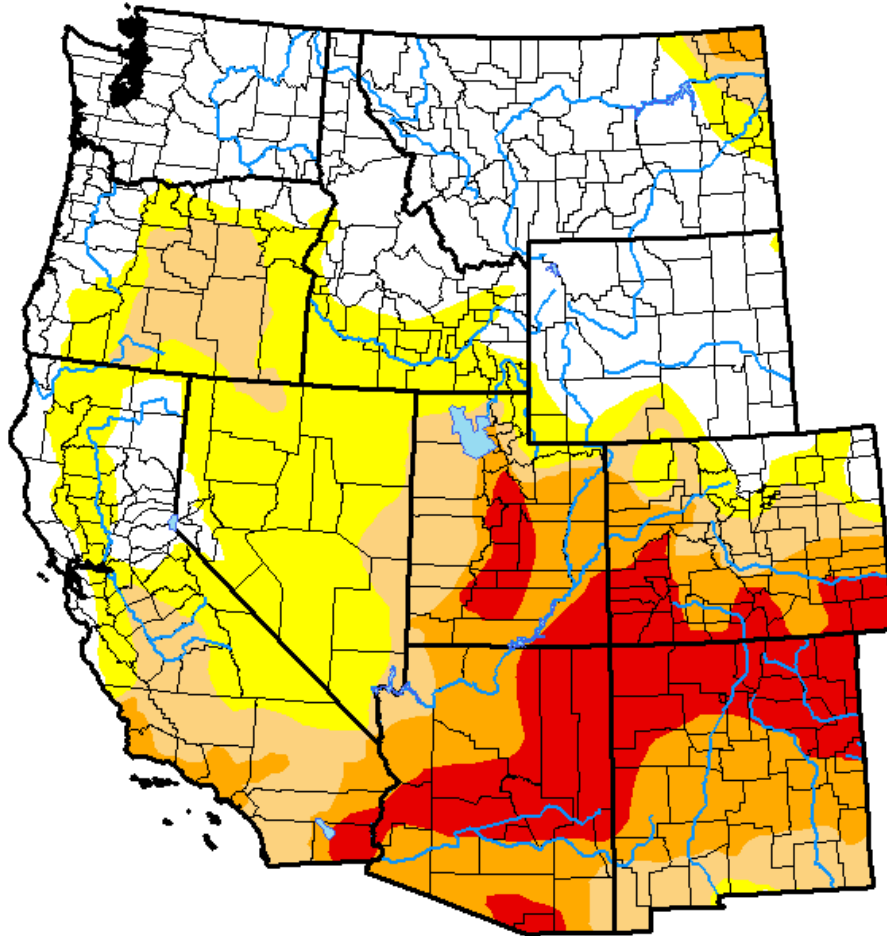









Drought Monitor

U.S. Drought Monitor West

April 3, 2018
(Released Thursday, Apr. 5, 2018)
Valid 8 a.m. EDT



Intensity:

-  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. See accompanying text summary for forecast statements.

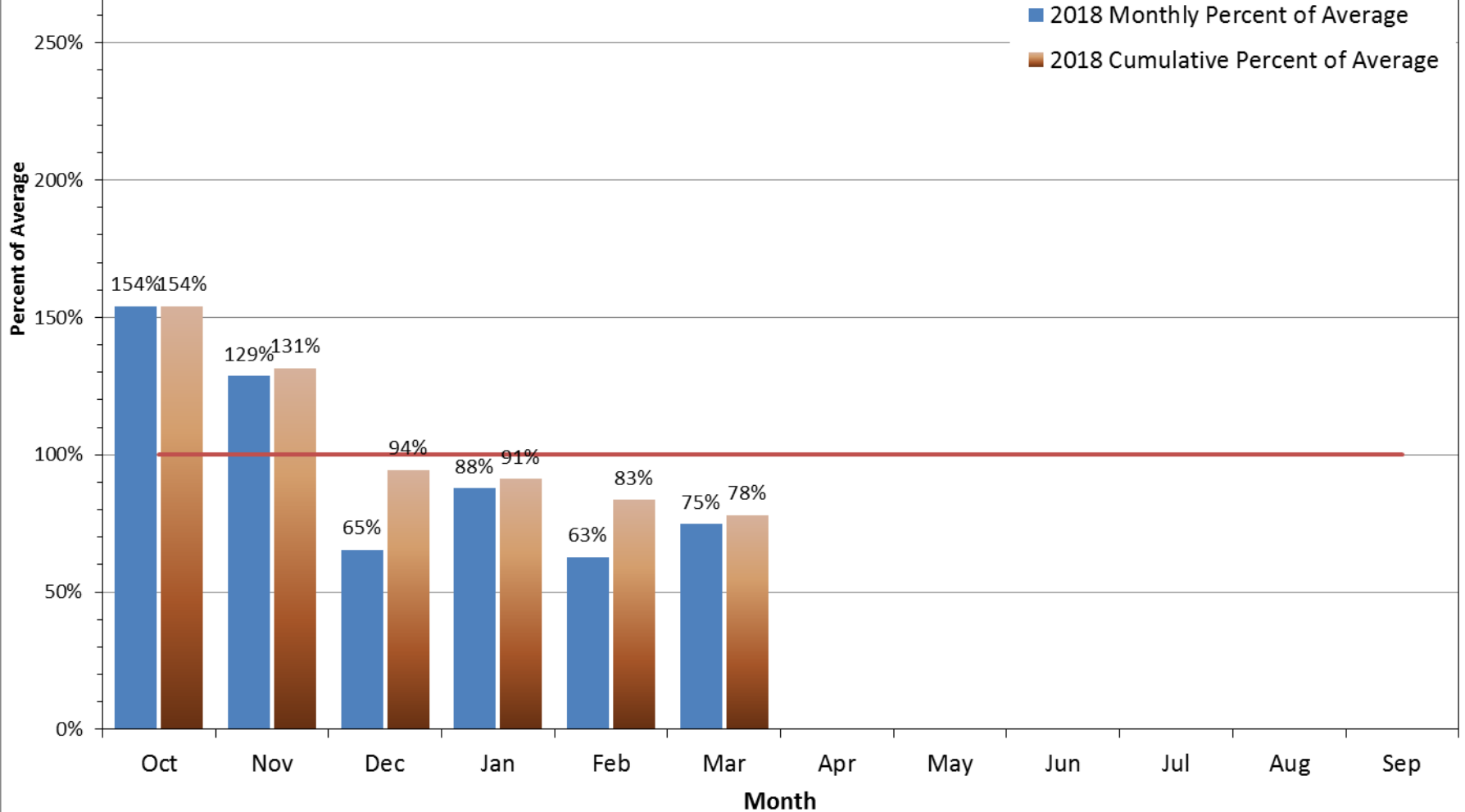
Author:

David Miskus
NOAA/NWS/NCEP/CPC



<http://droughtmonitor.unl.edu/>

2018 Statewide Percent of Average Stream Flow



Percent of Average Streamflow Month of February, 2018

Percent of Average Streamflow

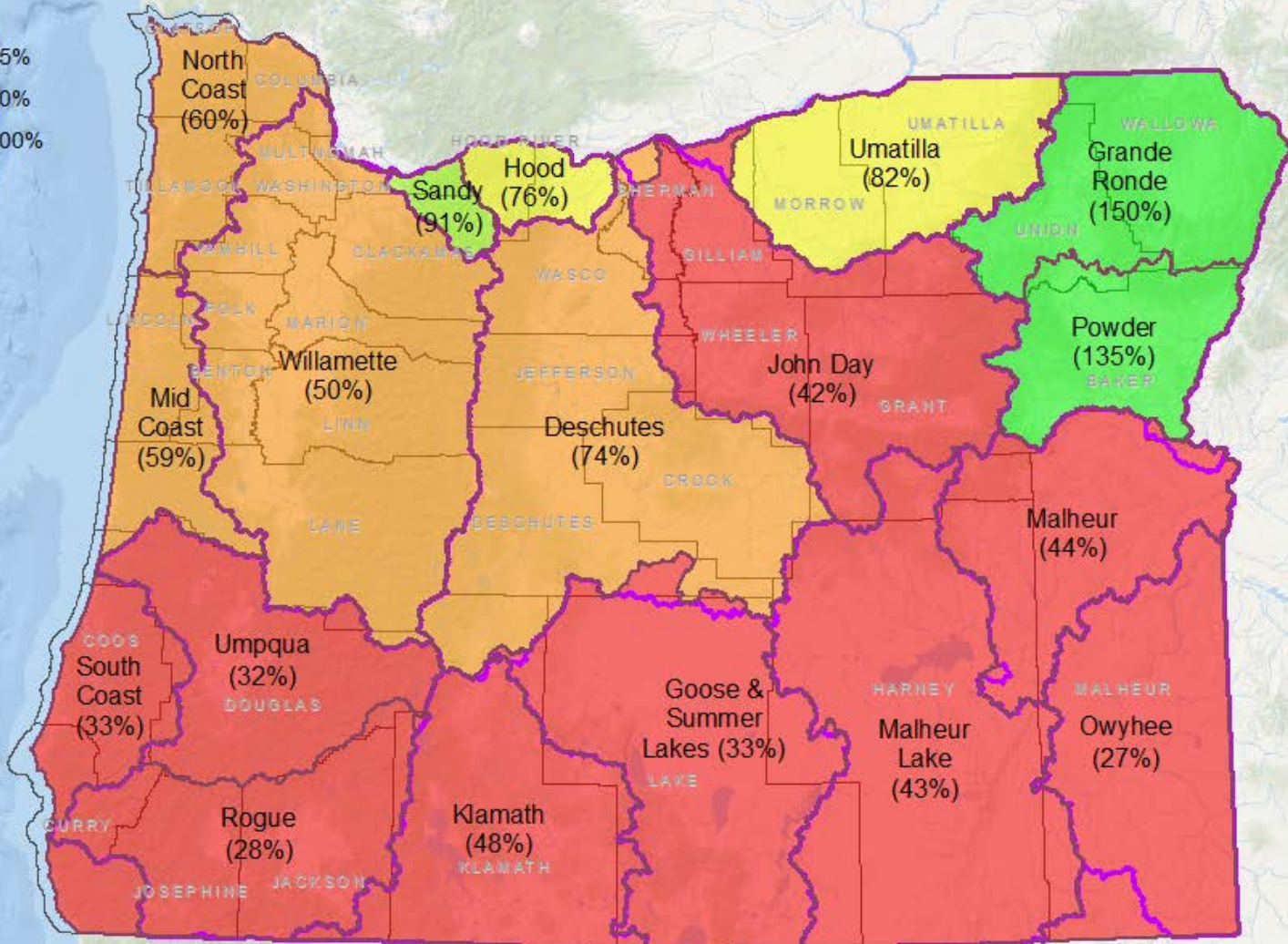
WRD Basin

- < 50%
- 50% - 75%
- 76% - 90%
- 91% - 100%
- > 100%

NRCS Basin



County



Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

Percent of Average Streamflow Month of March, 2018

Percent of Average Streamflow

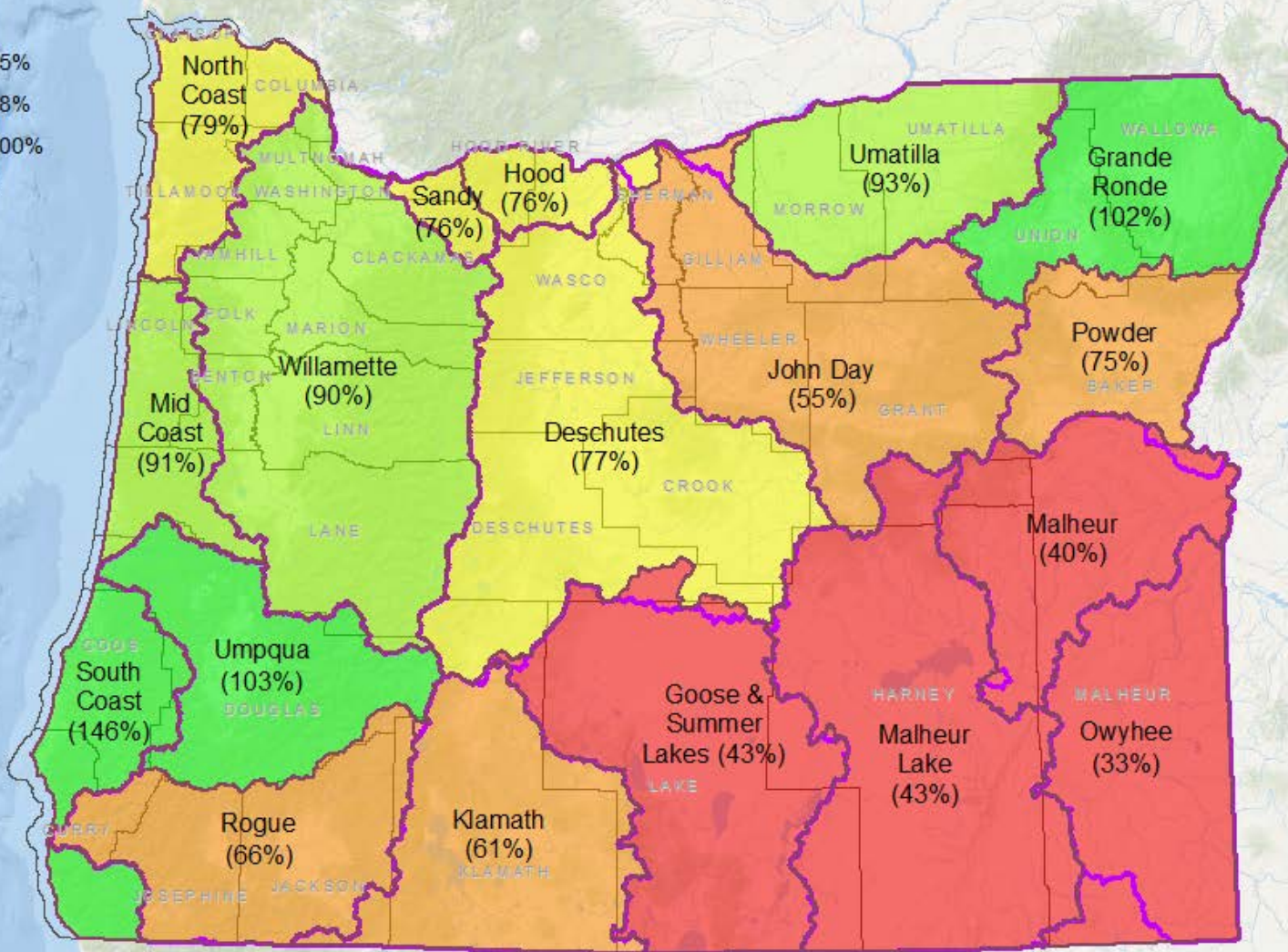
WRD Basin

- < 50%
- 50% - 75%
- 76% - 88%
- 89% - 100%
- > 100%

NRCS Basin



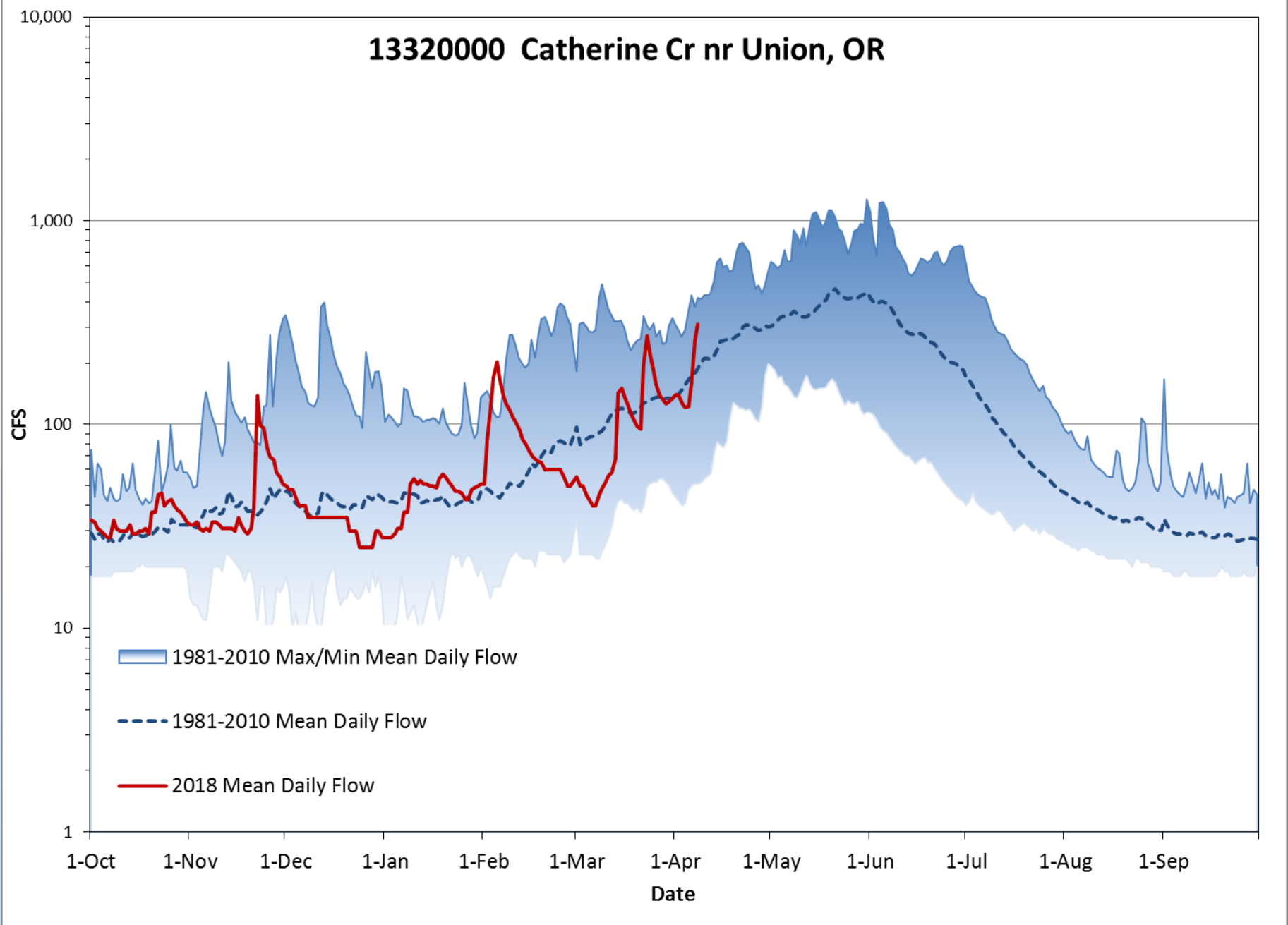
County



Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

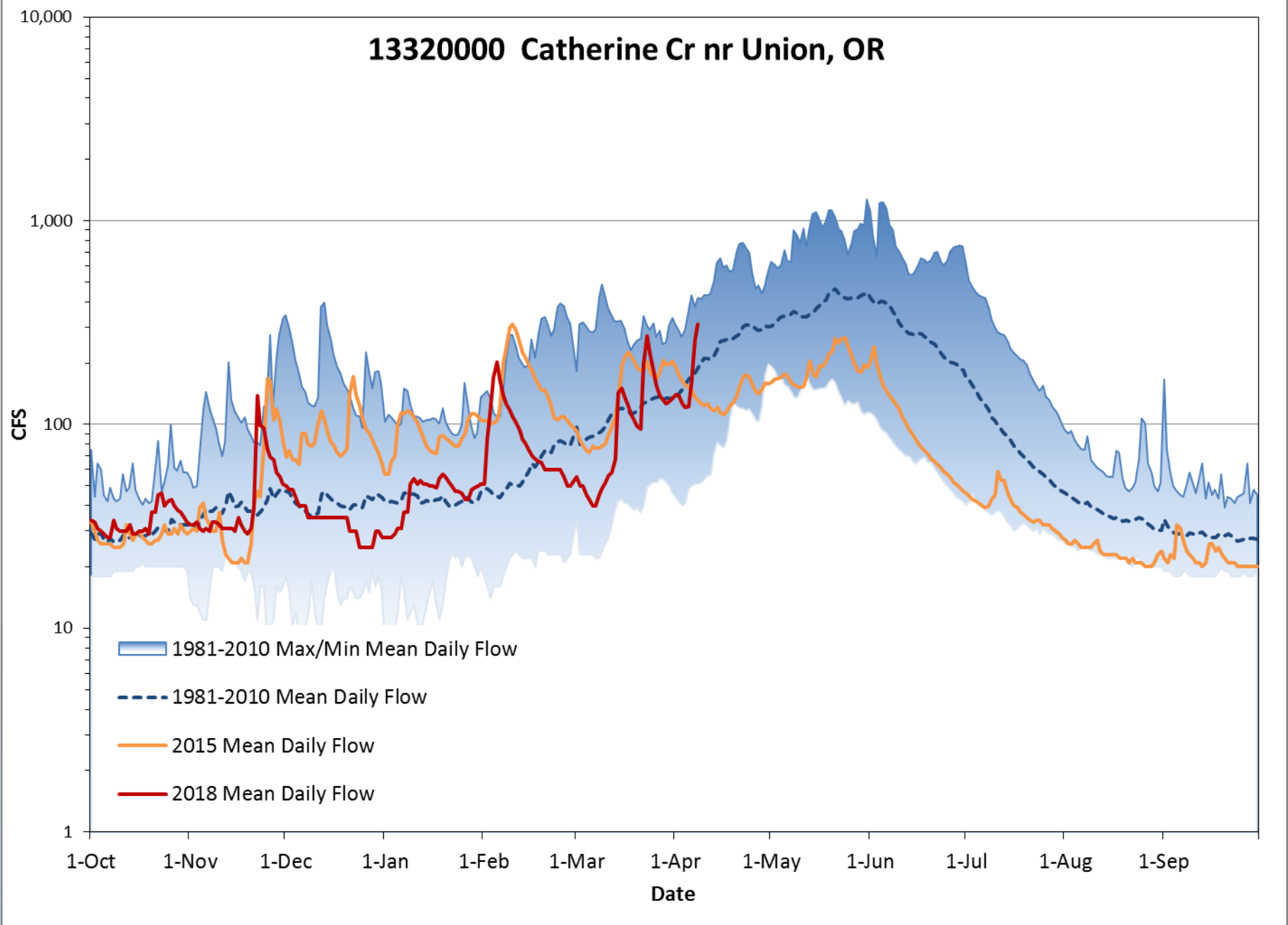


1332000 Catherine Cr nr Union, OR



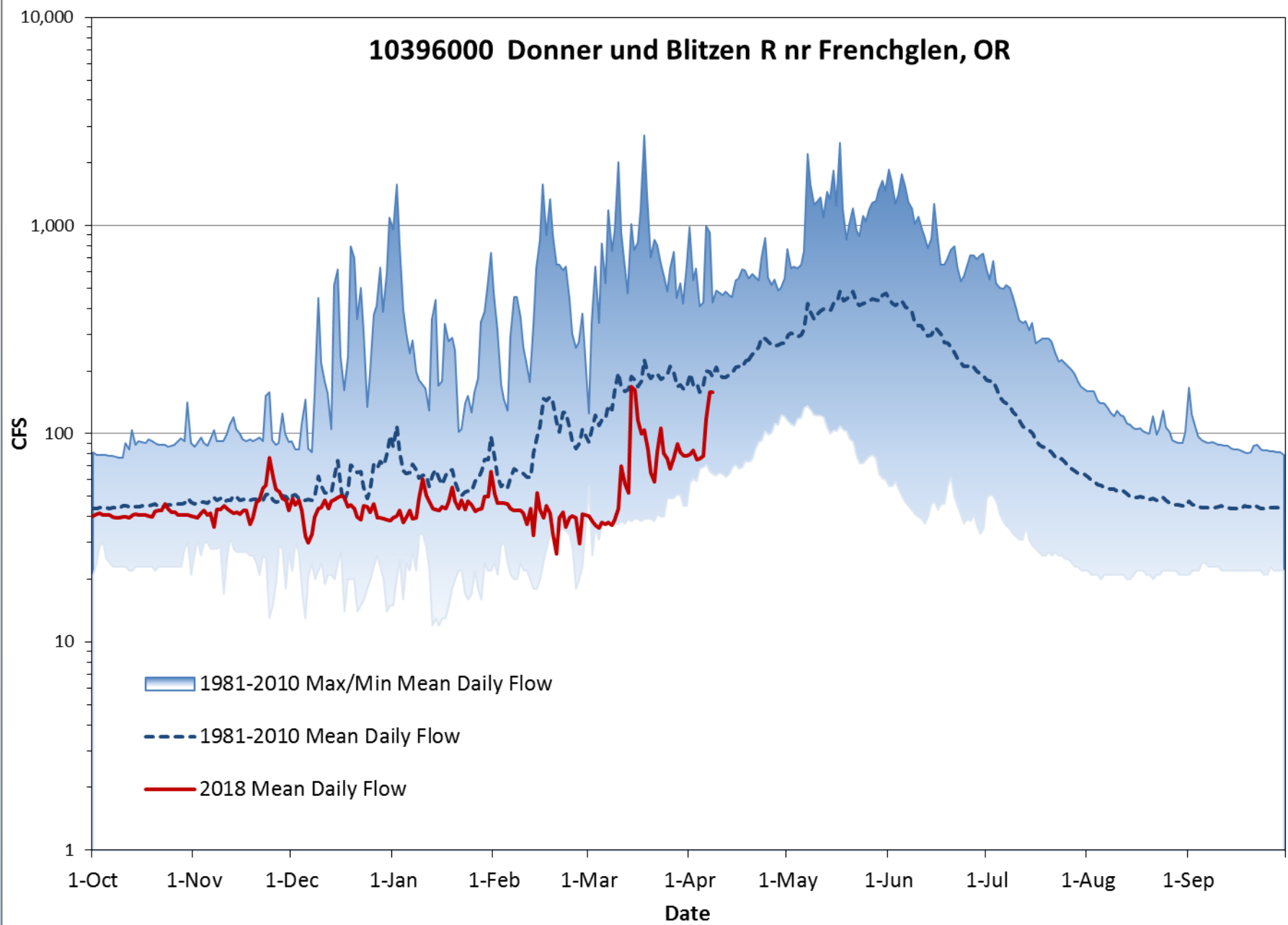


1332000 Catherine Cr nr Union, OR



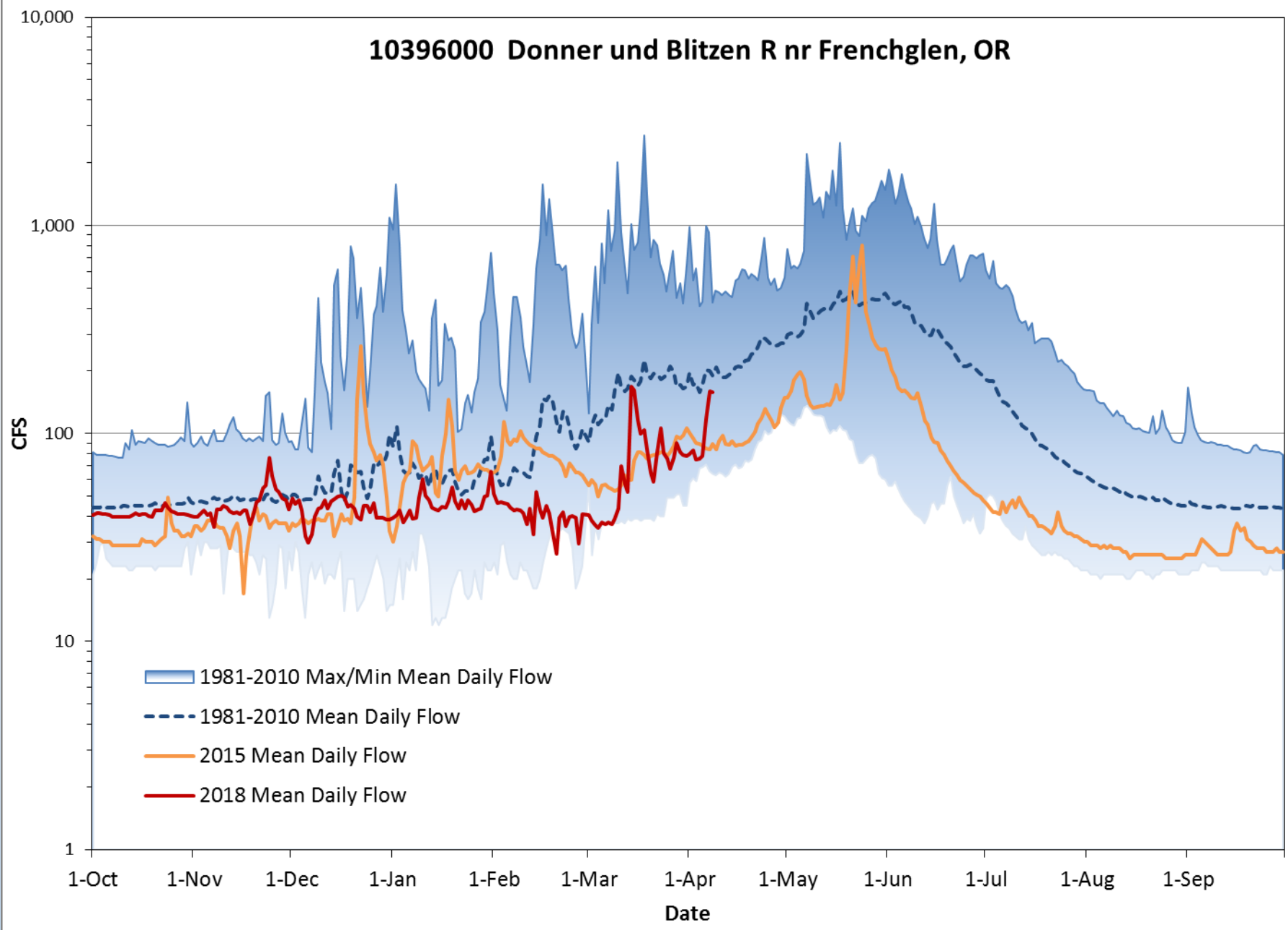


10396000 Donner und Blitzen R nr Frenchglen, OR



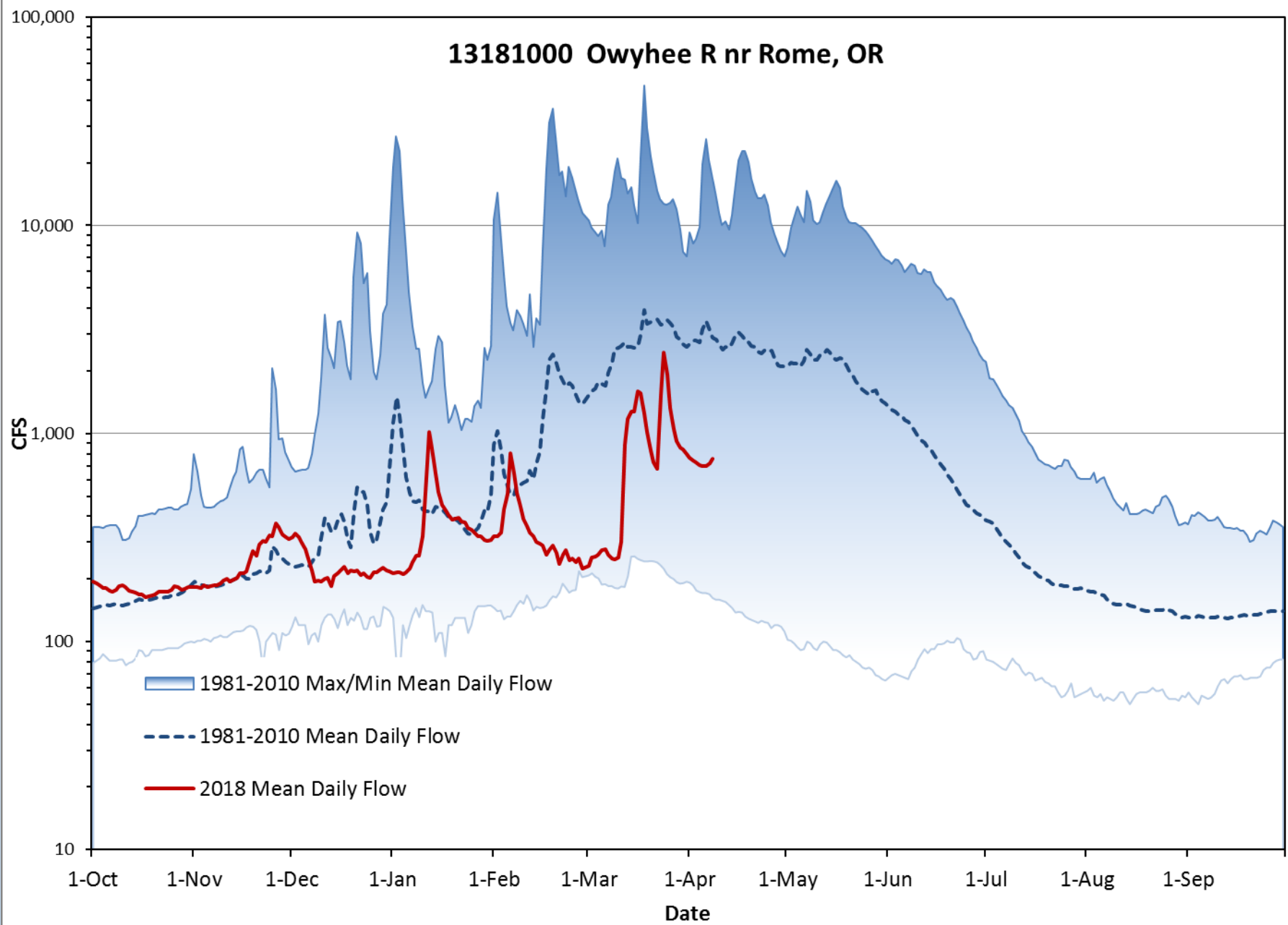


10396000 Donner und Blitzen R nr Frenchglen, OR



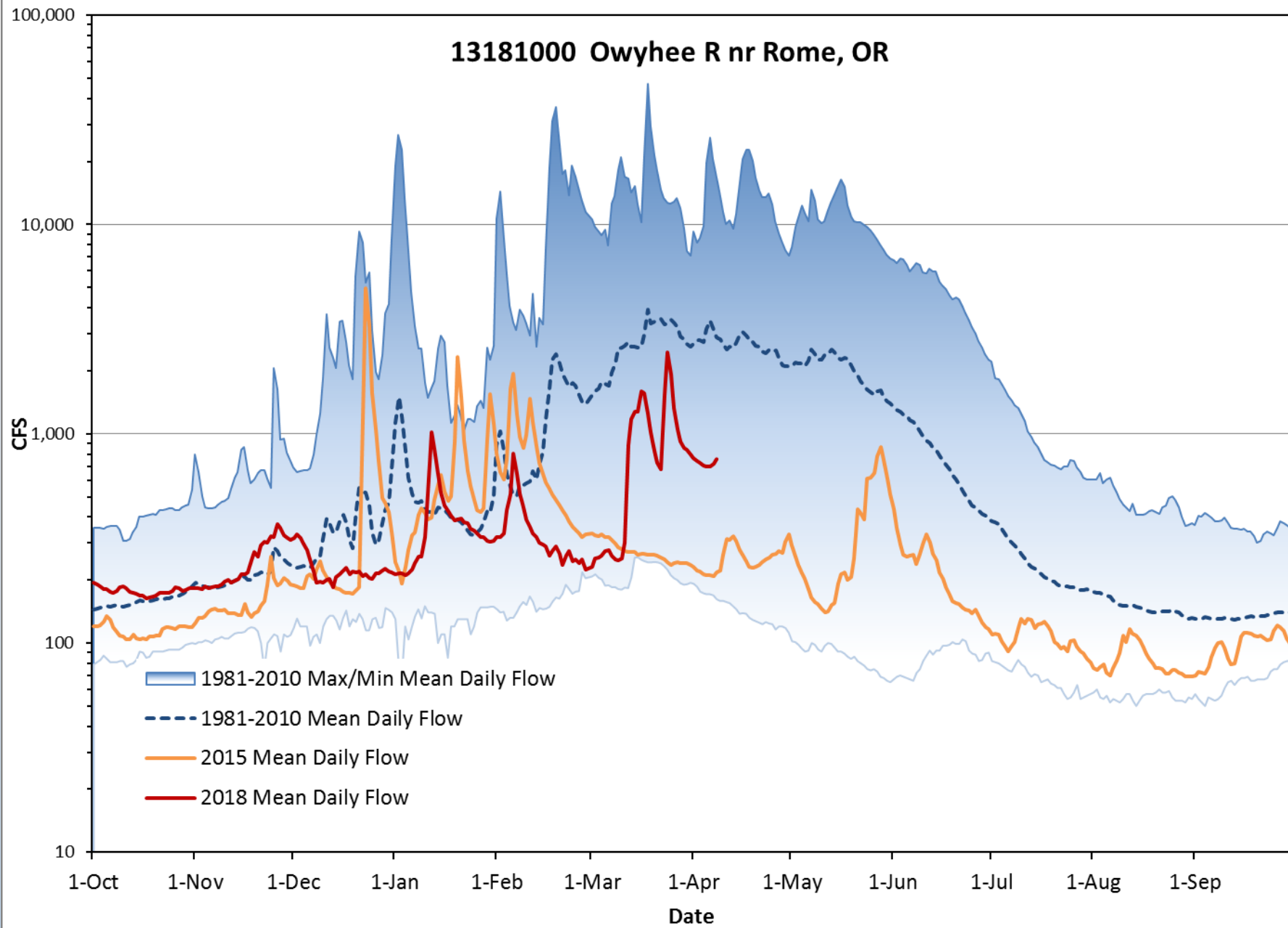


13181000 Owyhee R nr Rome, OR





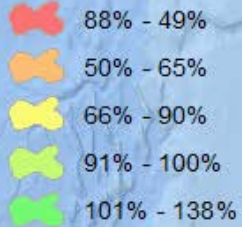
13181000 Owyhee R nr Rome, OR



Reservoir Storage Summary for the end of March, 2018

Percent of Average Storage

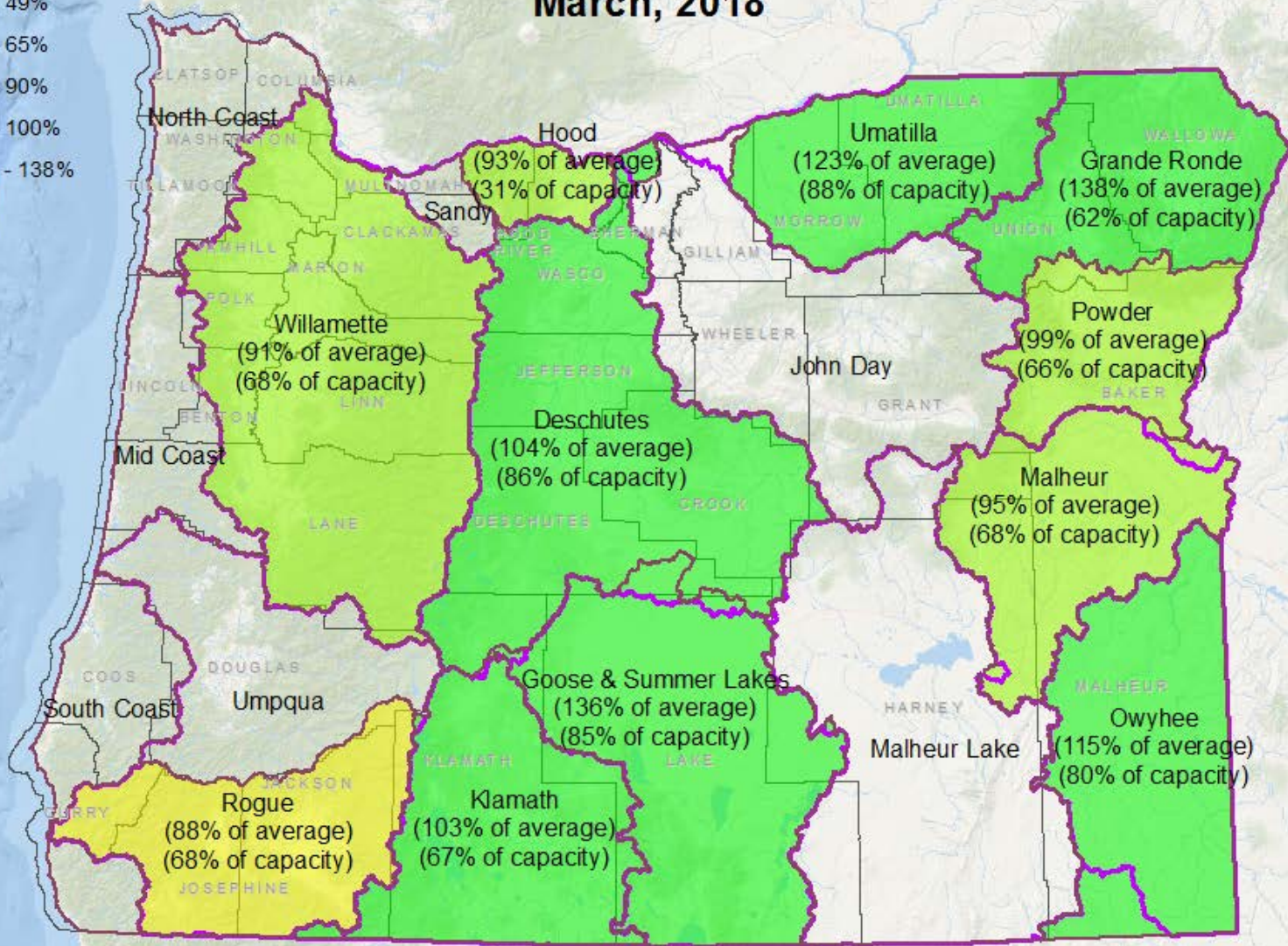
Current Average



NRCS Basin



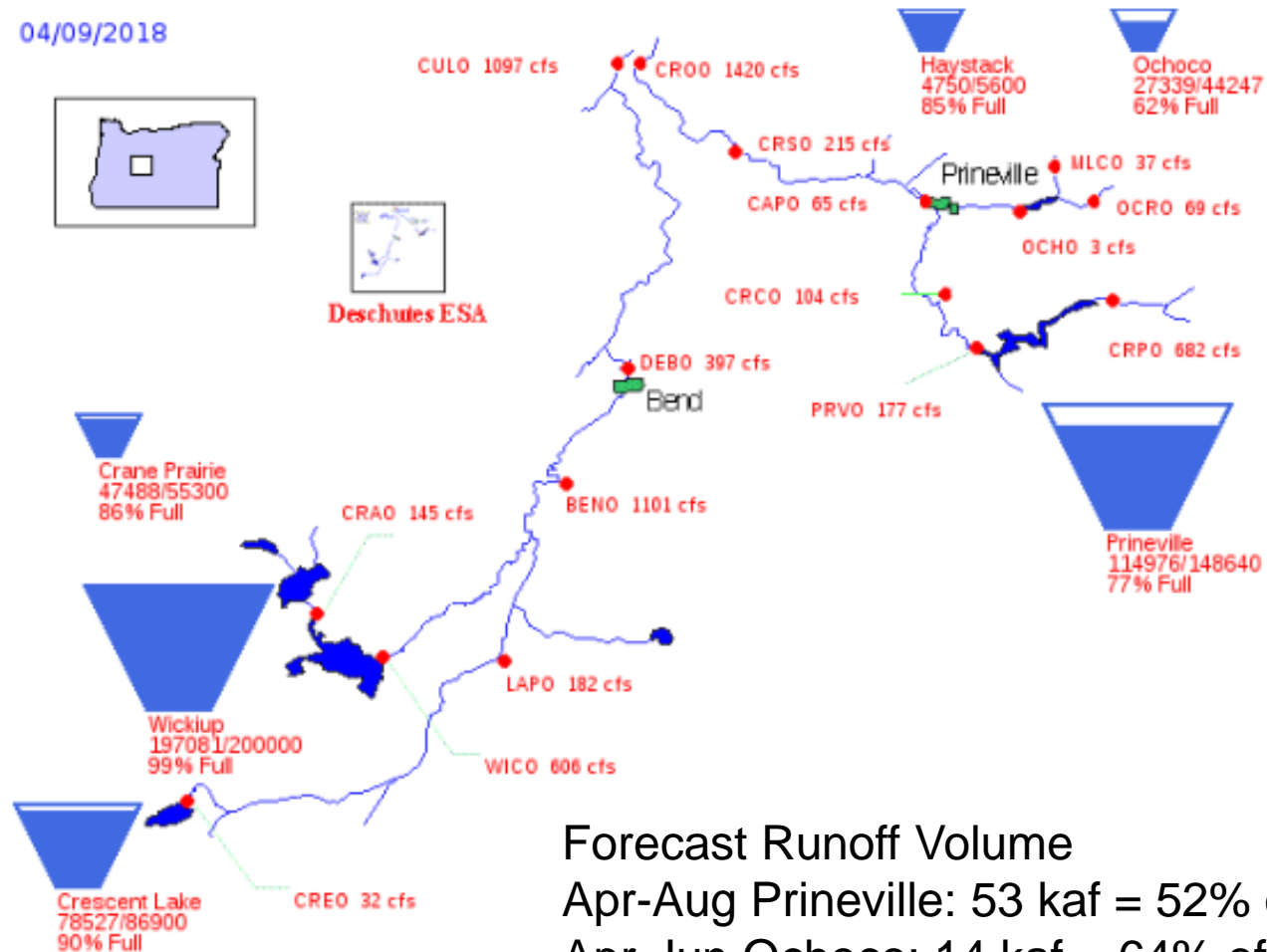
County



NRCS Basinwide Summary: April 1, 2018
(averages based on 1981-2010 reference period)

US Bureau of Reclamation, Pacific Northwest Region Major Storage Reservoirs in the Deschutes River Basin

04/09/2018

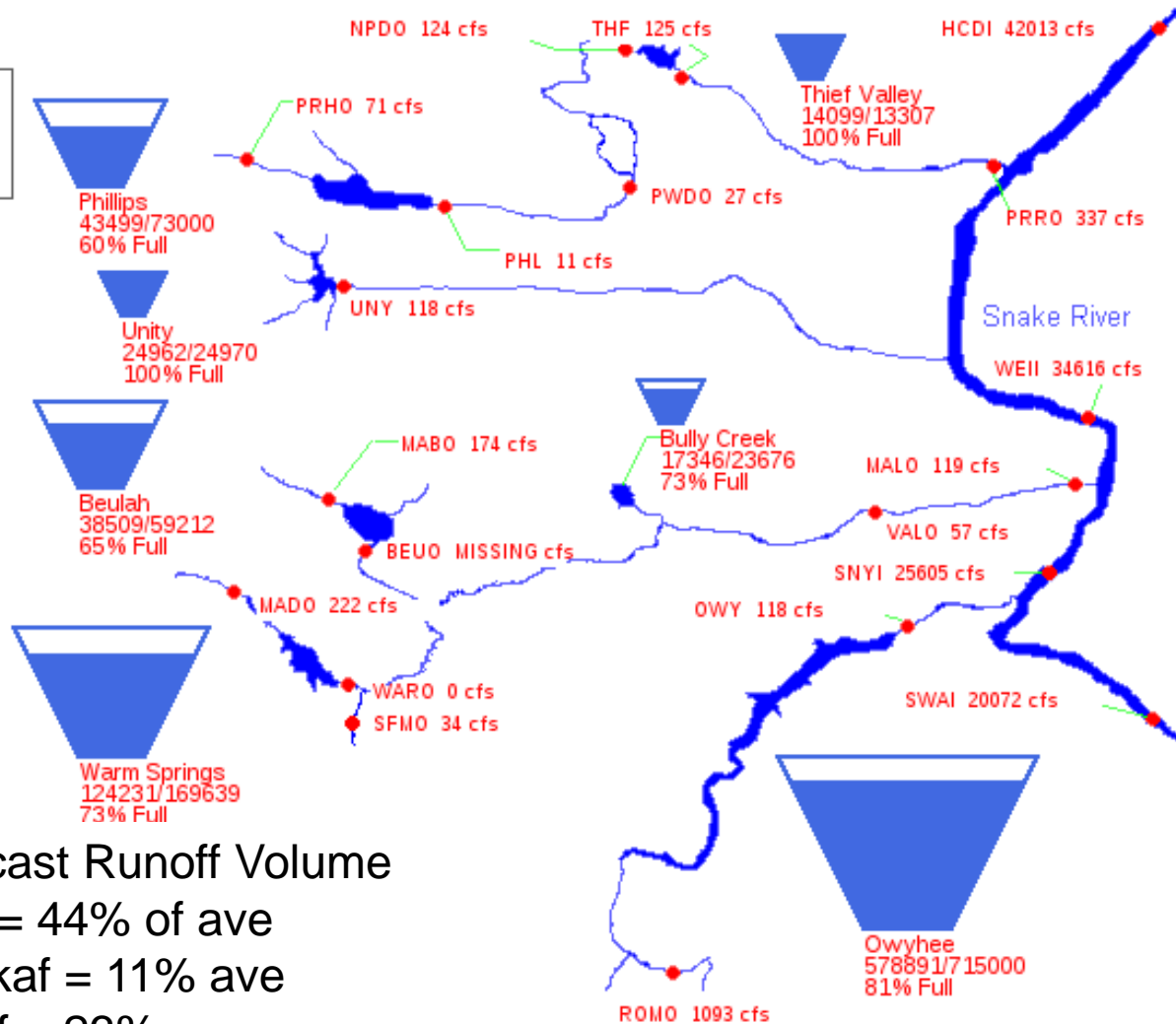
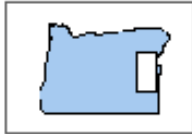


Forecast Runoff Volume
Apr-Aug Prineville: 53 kaf = 52% of ave
Apr-Jun Ochoco: 14 kaf = 64% of ave

RECLAMATION

US Bureau of Reclamation, Pacific Northwest Region Major Storage Reservoirs in Southeastern Oregon

04/10/2018



Apr-June Forecast Runoff Volume

Beulah: 23 kaf = 44% of ave

Bully Creek: 1 kaf = 11% ave

Owyhee: 82 kaf = 23%

Warm Springs: 31 kaf = 46%

RECLAMATION

OREGON



WATER RESOURCES
DEPARTMENT

Thank you.



Oregon Water Resources Department
Co-Chair, Oregon Drought Readiness Council
725 Summer Street NE, Suite A
Salem, OR 97301

Oregon Office of Emergency Management
Co-Chair, Oregon Drought Readiness Council
P.O. Box 14370
Salem, OR 97309



Draft for review

To: Heidi Moawad, Jason Miner, Lauri Aunan, Office of the Governor
Patrick Allen, Director, Oregon Health Authority
Janine Benner, Director, Oregon Department of Energy
Tom Byler, Director, Oregon Water Resources Department
Peter Daugherty, Director, Oregon Department of Forestry
Meta Loftsgaarden, Director, Oregon Watershed Enhancement Board
Curt Melcher, Director, Oregon Department of Fish and Wildlife
Phil Mote, Director, Oregon Climate Change Research Institute
Andrew Phelps, Director, Oregon Office of Emergency Management
Alexis Taylor, Director, Oregon Department of Agriculture
Richard Whitman, Director, Oregon Department of Environmental Quality

From: Oregon's Drought Readiness Council, via
Brenda Bateman, Drought Readiness Council Co-Chair
Sonya Andron, Drought Readiness Council Co-Chair
Ken Stahr, Water Supply Availability Committee Chair
Kathie Dello, Oregon Climate Change Research Institute
Tom Elliot, Oregon Department of Energy
Jim Johnson, Oregon Department of Agriculture
Smita Mehta, Oregon Department of Environmental Quality
Alyssa Mucken, Oregon Water Resources Department
Anna Pakenham-Stevenson, Oregon Department of Fish & Wildlife
Wade Peerman, Oregon Department of Environmental Quality
Kari Salis, Oregon Health Authority, Drinking Water Program
Nick Yonker, Oregon Department of Forestry

Date: April 12, 2018

Re: The Importance of Continuing SNOTEL Analysis

The Oregon Drought Readiness Council (Council) is a standing body comprised of federal and state natural resource, public health, and emergency response agencies. The Water Supply Availability Committee (WSAC) is another standing body comprised of federal and state science agencies that specialize in water resources and weather monitoring. The Council and the WSAC meet regularly to discuss current water conditions and likely upcoming conditions for the growing season. During a drought, the Council, with input from the WSAC, reviews local requests for assistance and makes recommendations to the Governor.

Recently, the Council became aware that the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), National Water and Climate Center (NWCC) is planning to discontinue one of the most important data services it provides to the Western States—the SNOTEL map ("Basin-Level Snow Water Equivalent Map").

The potential loss of this valuable tool was important enough to the Council that it is reaching out to you today in the hopes that you can help alert Oregon's Congressional Delegation and federal officials to this situation. Federal funding to continue to maintain and provide this service is crucial to all of the above agencies and our partners.

Background: The SNOTEL map is part of USDA's "Snow Survey and Water Supply Forecasting Program," which has been continuously collecting high-elevation snow information since 1935. There are more 2,000 sites in the Western United States that contribute data to this program; the results allow public, private, and tribal water managers to estimate annual water supplies, predict spring snowmelt runoff, and forecast summer streamflows. This has a direct impact on the management of agricultural, municipal, utility, navigational, flood-control, and recreational operations throughout the Western United States.

Concerns: To the right is an example of the current SNOTEL map, along with the caveat that has begun to appear in the yellow, upper left-hand box in each map. NRCS/NWCC staff members note that while data collection is scheduled to continue, the production of the map is not. Each state or end-user will have to make its own maps, resulting in a loss of consistent methods and messaging.

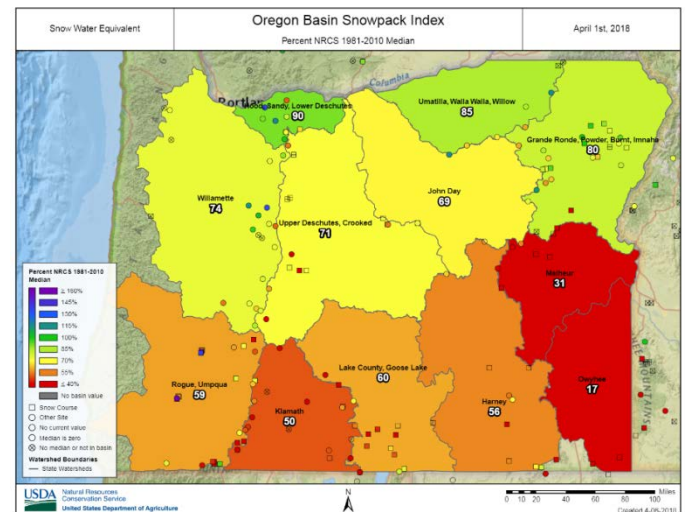
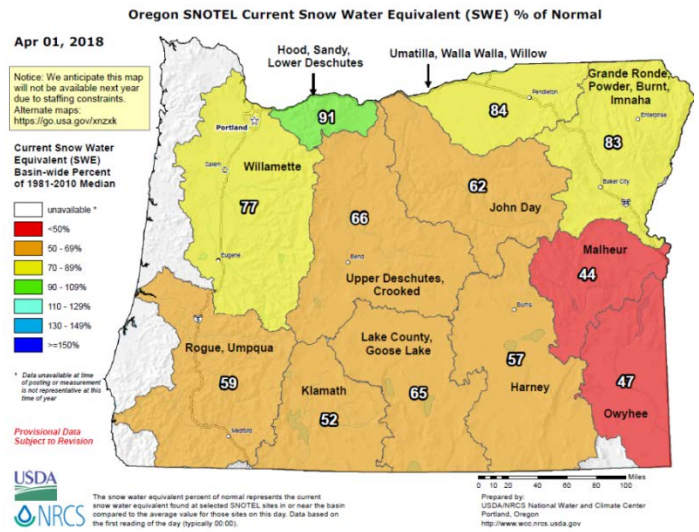
The NRCS/NWCC has explained that it can no longer produce the maps as a service to the public because of outdated software, security firewalls, upcoming staff retirements, and their number of current vacancies.

NRCS/NWCC has suggested that states create their own maps using an on-line application. The resulting map for the same date, shown to the right, is noticeably different in terms of the calculated values and averages of snow-water equivalent and the color key. The results are no longer comparable to previous maps.

Additionally, stakeholders do not wish to build or publish the maps manually. Historically it has been an automated product that allows agencies, the media, and the general public to readily and easily retrieve the map daily or whenever necessary.

The loss of continuity will significantly hamper the ability of the Western States to understand water conditions and water supplies from year to year. We respectfully ask for your assistance in bringing this tool back on-line under NRCS/NWCC supervision and publication, using software that is consistent with previous methodology.

Should you require any additional information, please do not hesitate to contact us at: brenda.o.bateman@oregon.gov (503-986-0879) or Sonya.Andron@state.or.us (503-378-4025).



- Intro
- Gages
- Drought Monitor
- SNOTEL sites

Factors used to characterize drought conditions in Oregon. Background info, etc.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam nibh. Nunc varius facilisis eros. Sed erat. In in velit quis arcu ornare laoreet. Curabitur adipiscing luctus massa.

Integer ut purus ac augue commodo commodo. Nunc nec mi eu justo tempor consectetur. Etiam vitae nisl. In dignissim lacus ut ante. Cras elit lectus, bibendum a, adipiscing vitae, commodo et, dui.

Ut tincidunt tortor. Donec nonummy, enim in lacinia pulvinar, velit tellus scelerisque augue, ac posuere libero urna eget neque. Cras ipsum. Vestibulum pretium, lectus nec venenatis volutpat, purus lectus ultrices risus, a condimentum risus mi et quam. Pellentesque auctor fringilla neque. Duis eu massa ut lorem iaculis vestibulum. Maecenas facilisis elit sed justo. Quisque volutpat malesuada velit.

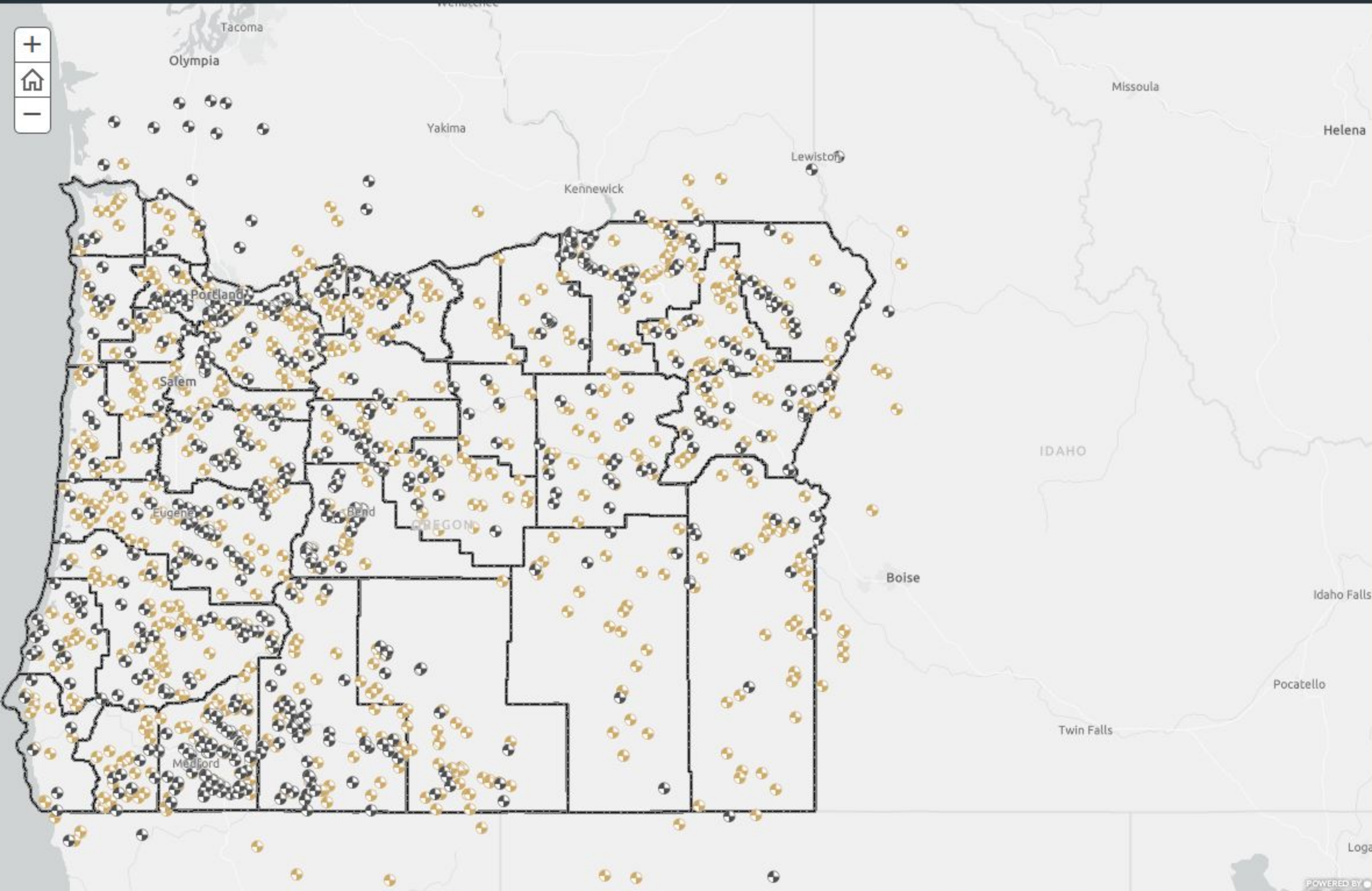


Stream Gage Stations
The Oregon Water Resources Department operates more than 200 stream and reservoir gages throughout the state. More than 160 of these gages are operated as near real-time. These gages transmit stream data once an hour. The data is received and downloaded to the Department's database where it is processed and updated on the web page every hour. In addition, information from another 225 gages operated by the USGS and other agencies is also shared on the Department's website.

[OWRD source info](#)

- Gaging stations**
- Active Gaging Stations
 - Inactive Gaging Stations

- Counties**
- Counties

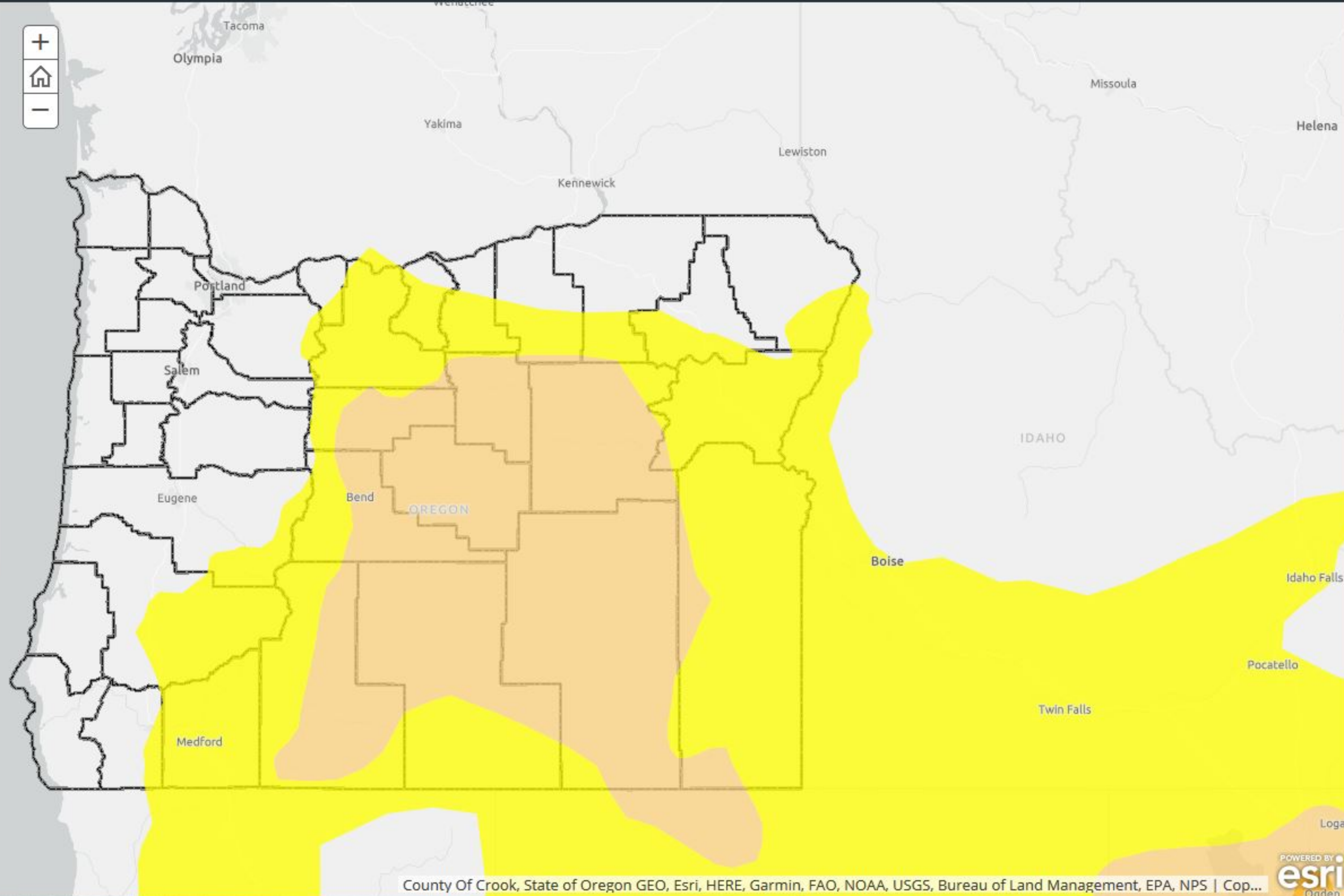


USDA Drought Monitor
This feature service provides access to real-time drought conditions for the entire US. These data are produced weekly by the U.S. Drought Monitor and updated every Thursday. Drought intensity is classified according to the deviation of precipitation, stream flow, and soil moisture content from historically established norms, in addition to subjective observations and reported impacts from than 350 partners across the country.

Categories:

Description	Possible Impacts
Abnormally Dry	Going into drought: short-term dryness slows growth of crops/pastures. Coming out of drought: some lingering water deficits; crops/pastures not fully recovered.
Moderate Drought	Some damage to crops/pastures; streams, reservoirs, or wells are low with some water shortages developing or imminent; voluntary water-use restrictions requested.
Severe Drought	Crop/pasture losses are likely; water shortages are common and water restrictions are imposed.
Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions.
Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies.

[Data source \(ArcGIS Online\)](#)



Oregon Drought Conditions

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A story map



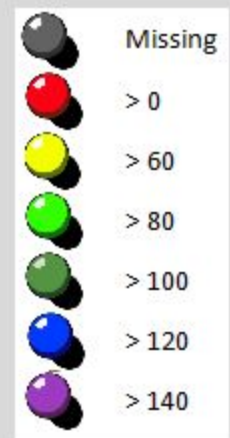
- Intro
- Gages
- Drought Monitor
- SNOTEL sites**

SNOTEL is an automated system of snowpack and related climate sensors operated by the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture in the Western United States.

There are over 730 SNOTEL (or snow telemetry) sites in 11 states, including Alaska. The sites are generally located in remote high-mountain watersheds where access is often difficult or restricted. Access for maintenance by the NRCS includes various modes from hiking and skiing to helicopters.

All SNOTEL sites measure snow water content, accumulated precipitation, and air temperature. Some sites also measure snow depth, soil moisture and temperature, wind speed, solar radiation, humidity, and atmospheric pressure. These data are used to forecast yearly water supplies, predict floods, and for general climate research. [\(Wikipedia\)](#)

Snow Water Equivalent as Percent of Normal:



[Data source \(ArcGIS Online\)](#)

