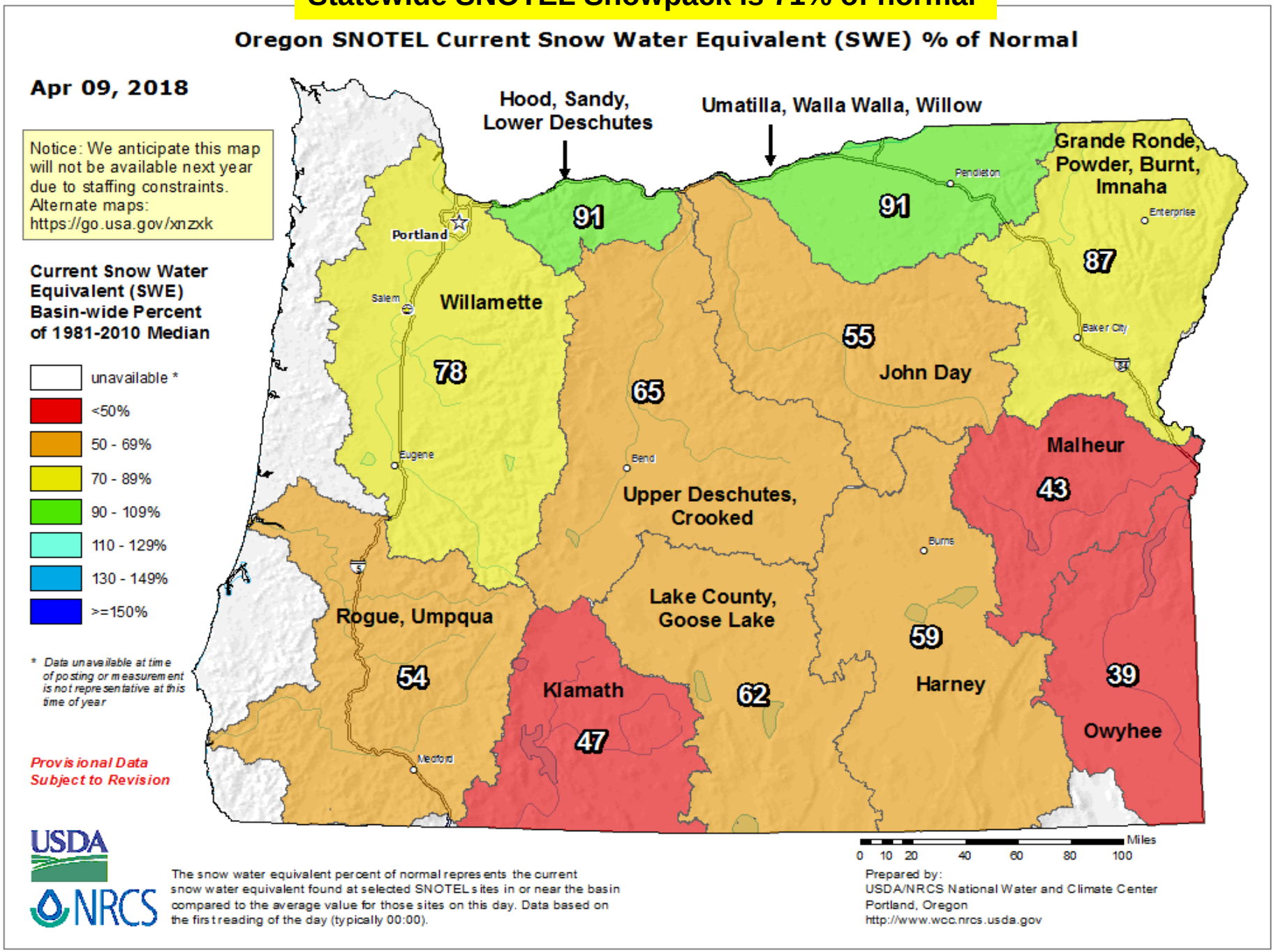
Oregon Water Supply Availability Committee
April 10, 2018

Dooley Mountain Snow Course April 1st SWE = 0.0”
Depth = 0” (Trace)
Elevation = 5440’

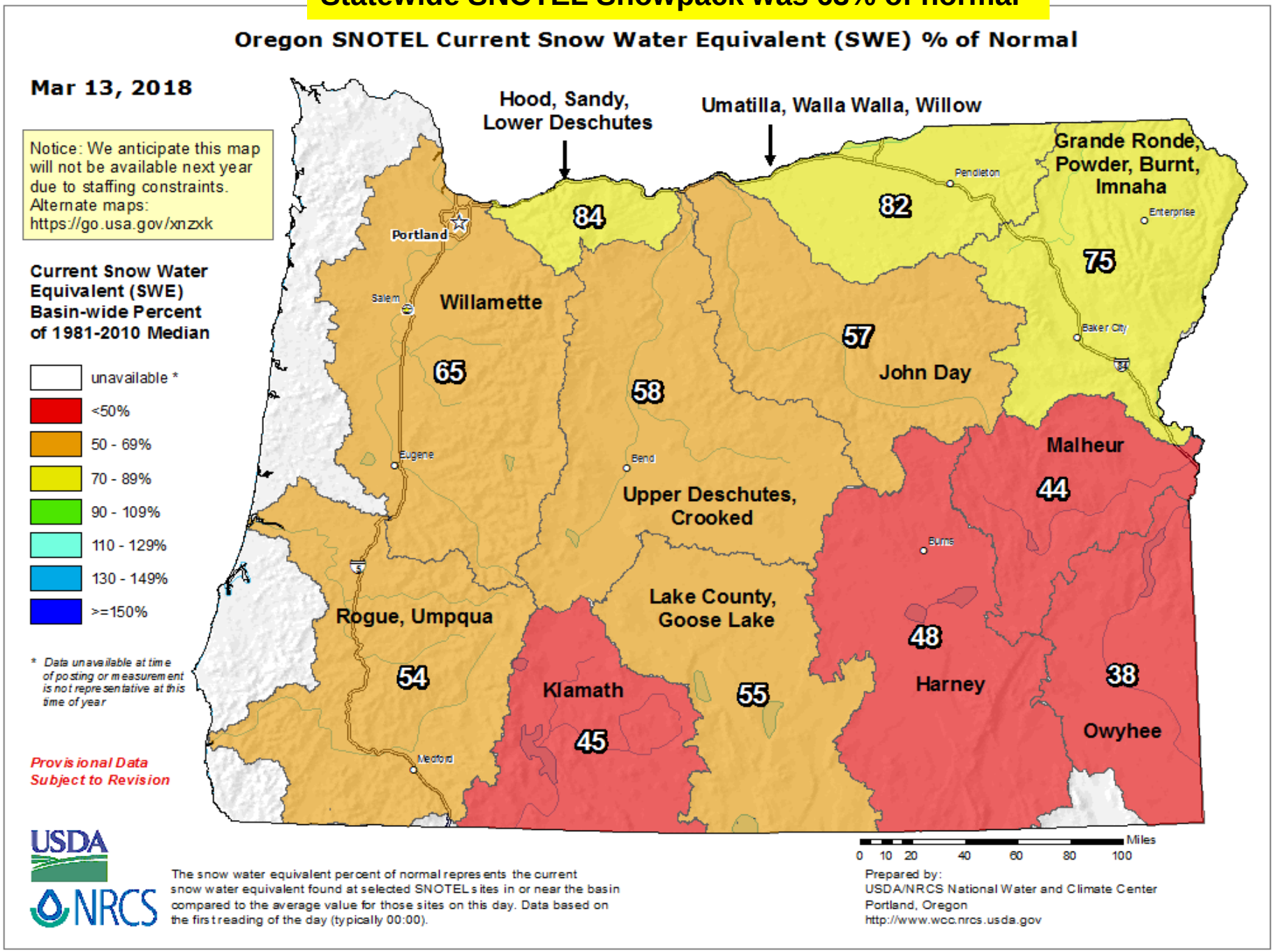
Barney Creek SNOLITE April 1st SWE = 3.5”
Depth = 14”
Elevation = 5830’

H. Scott Oviatt
Snow Survey Supervisory Hydrologist
USDA Natural Resources Conservations Service
Scott.Oviatt@or.usda.gov
503-414-3271
http://www.nrcs.usda.gov/wps/portal/nrcs/main/or/snow/

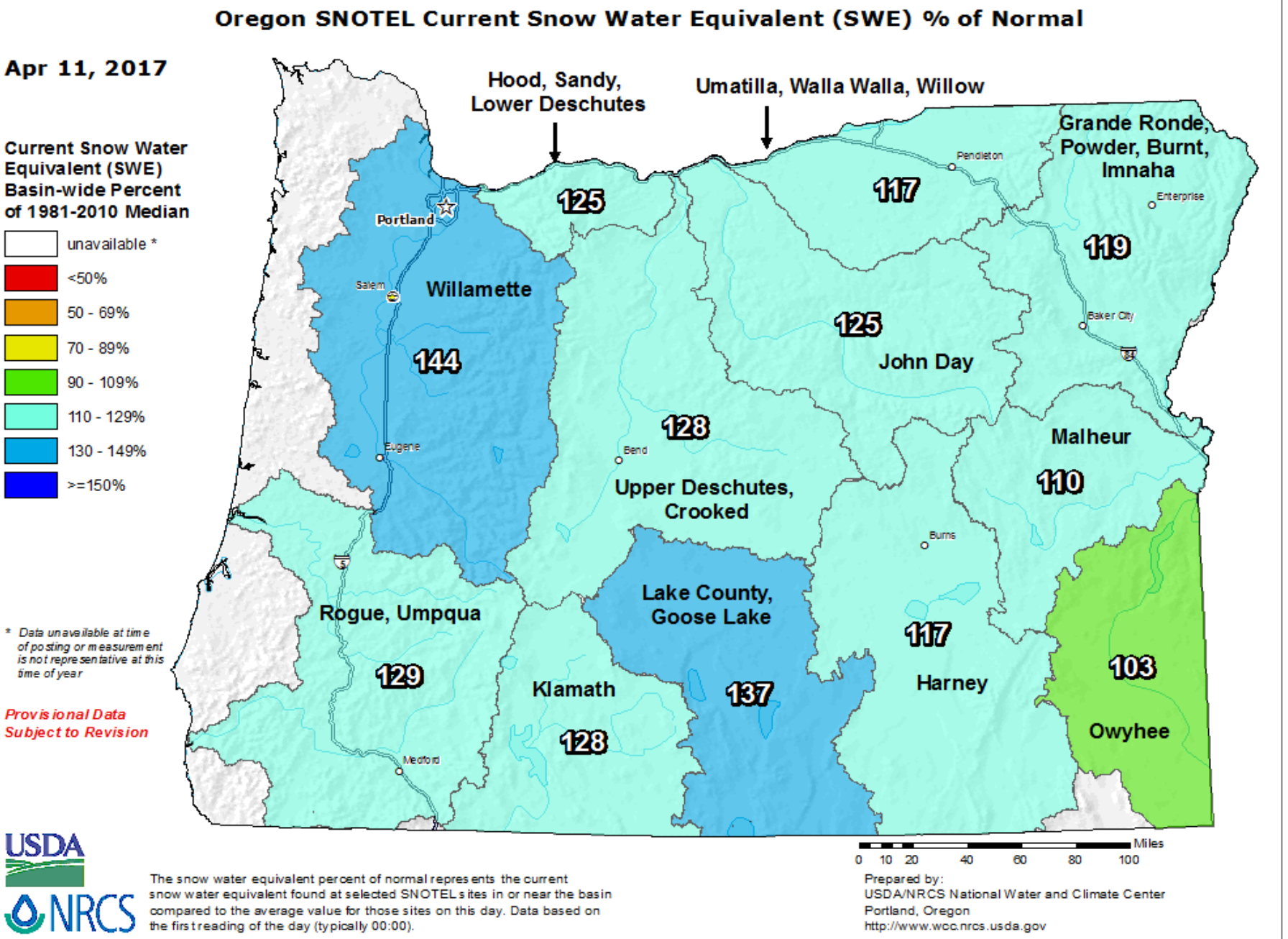
Statewide SNOTEL Snowpack is 71% of normal



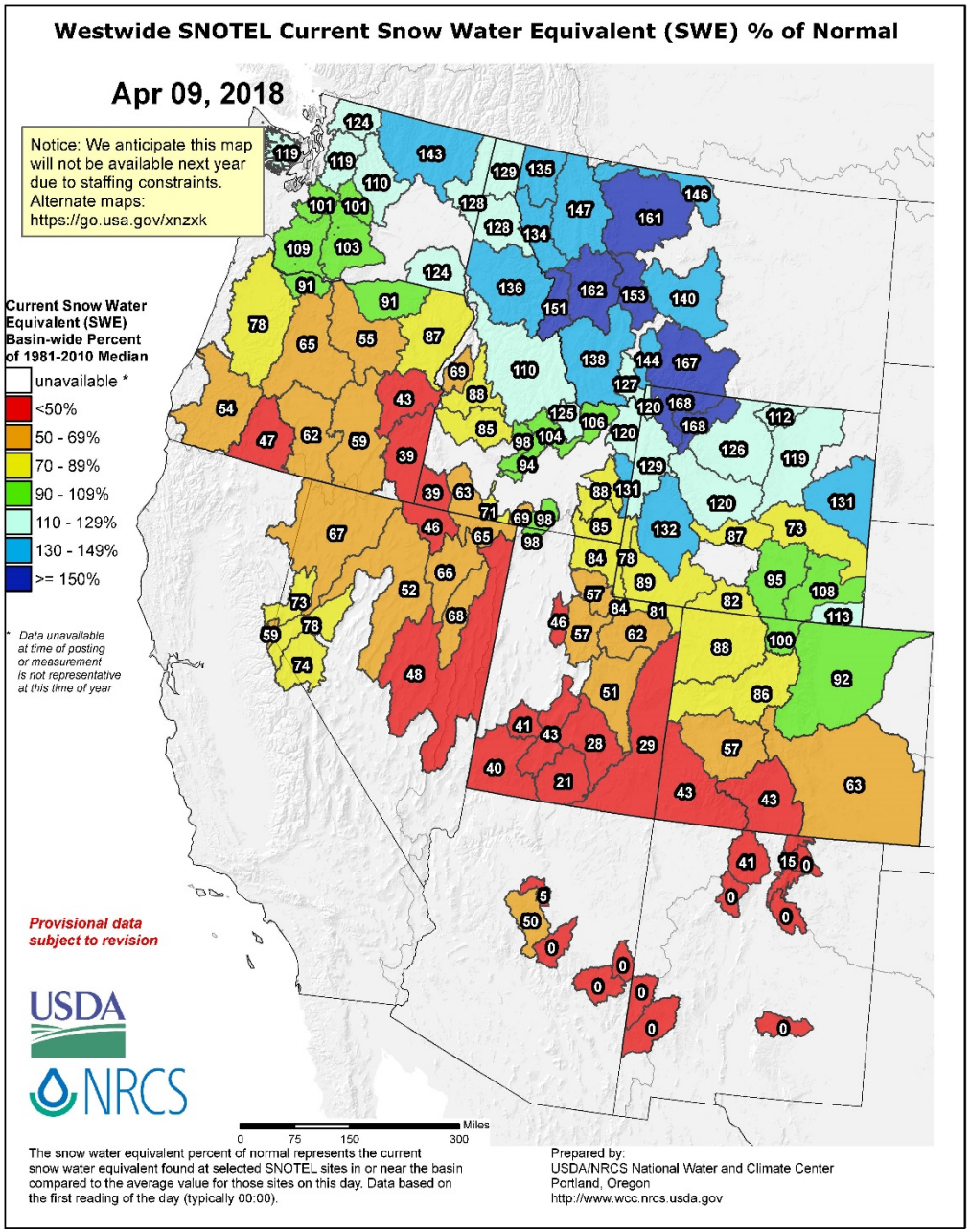
Statewide SNOTEL Snowpack was 63% of normal



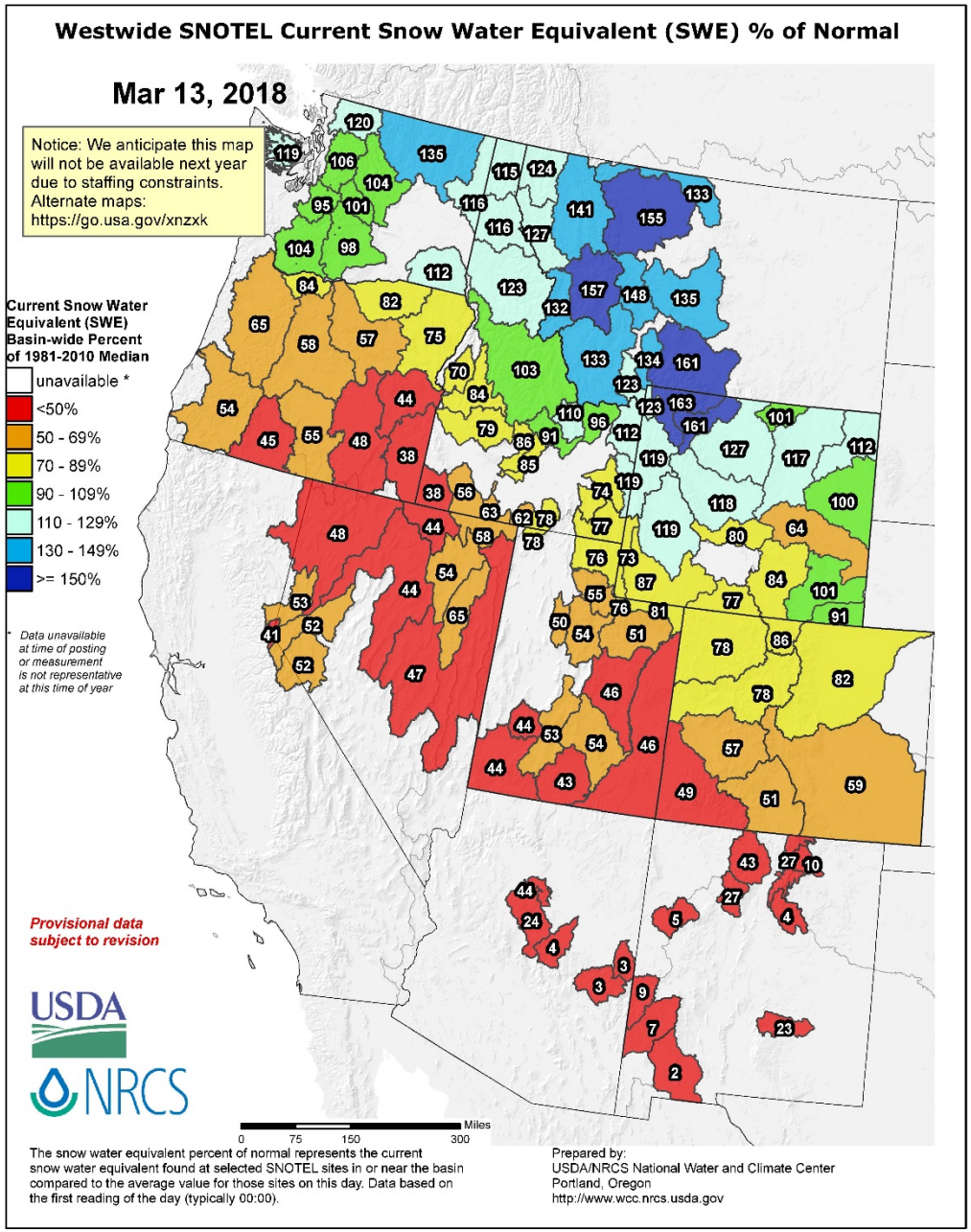
Statewide SNOTEL Snowpack was 129% of normal



West-Wide Snowpack – April 10, 2018

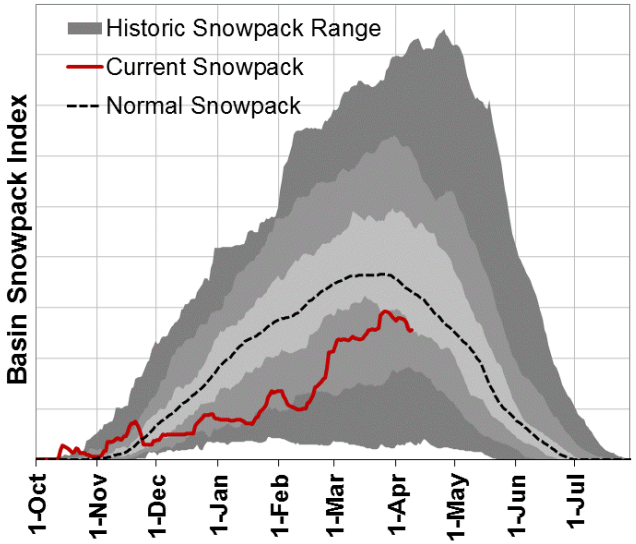


West-Wide Snowpack – March 13, 2018

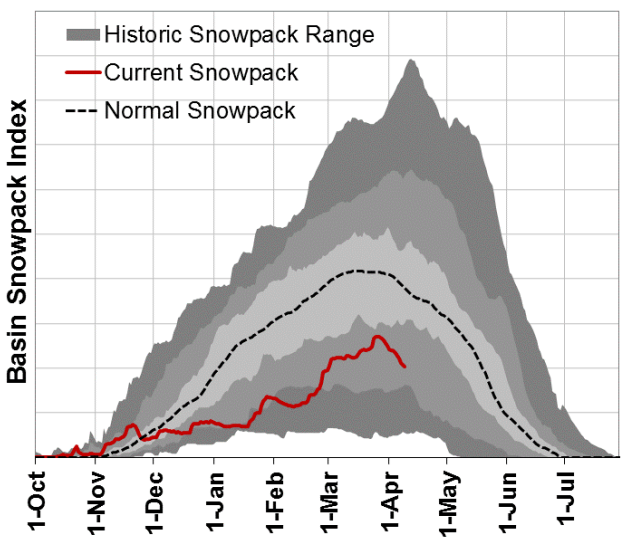


Water Year 2018 – April 10th

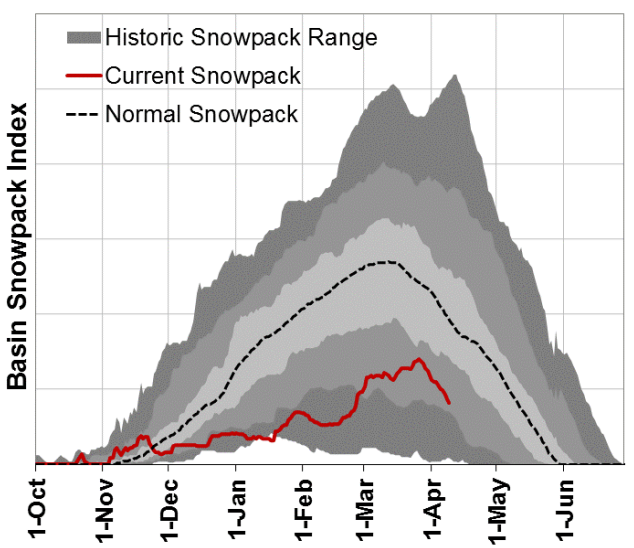
Willamette



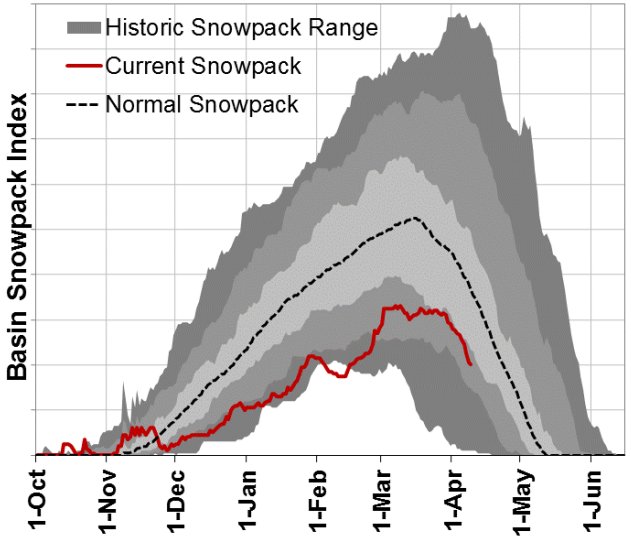
Rogue/Umpqua



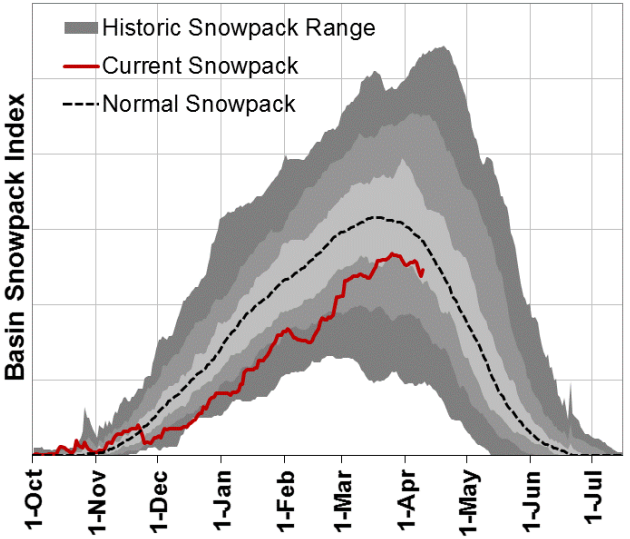
Klamath



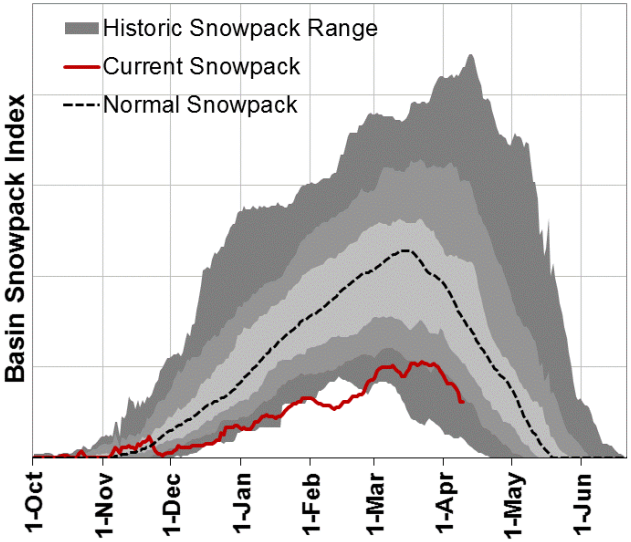
John Day



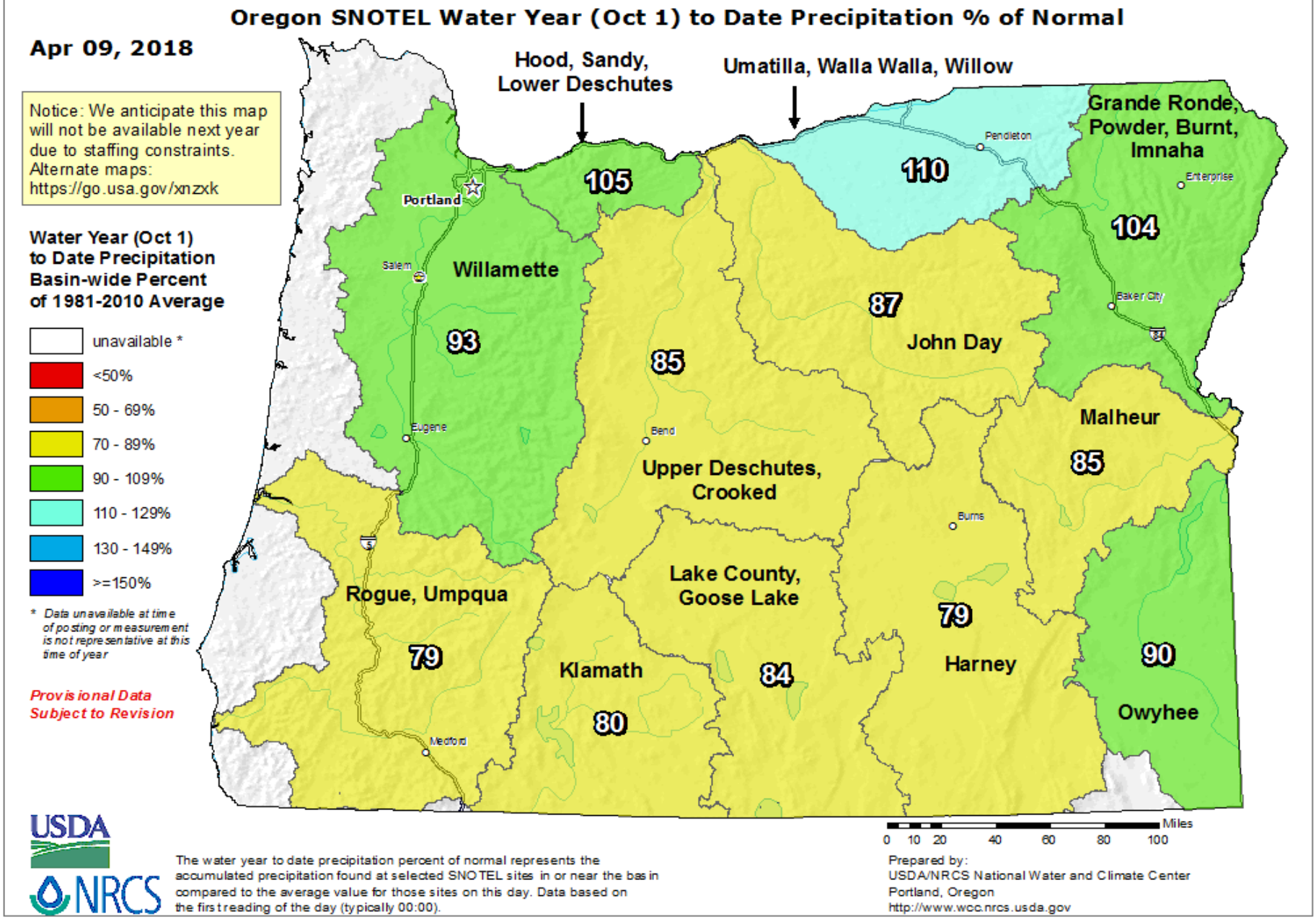
Grande Ronde/Powder/Burnt



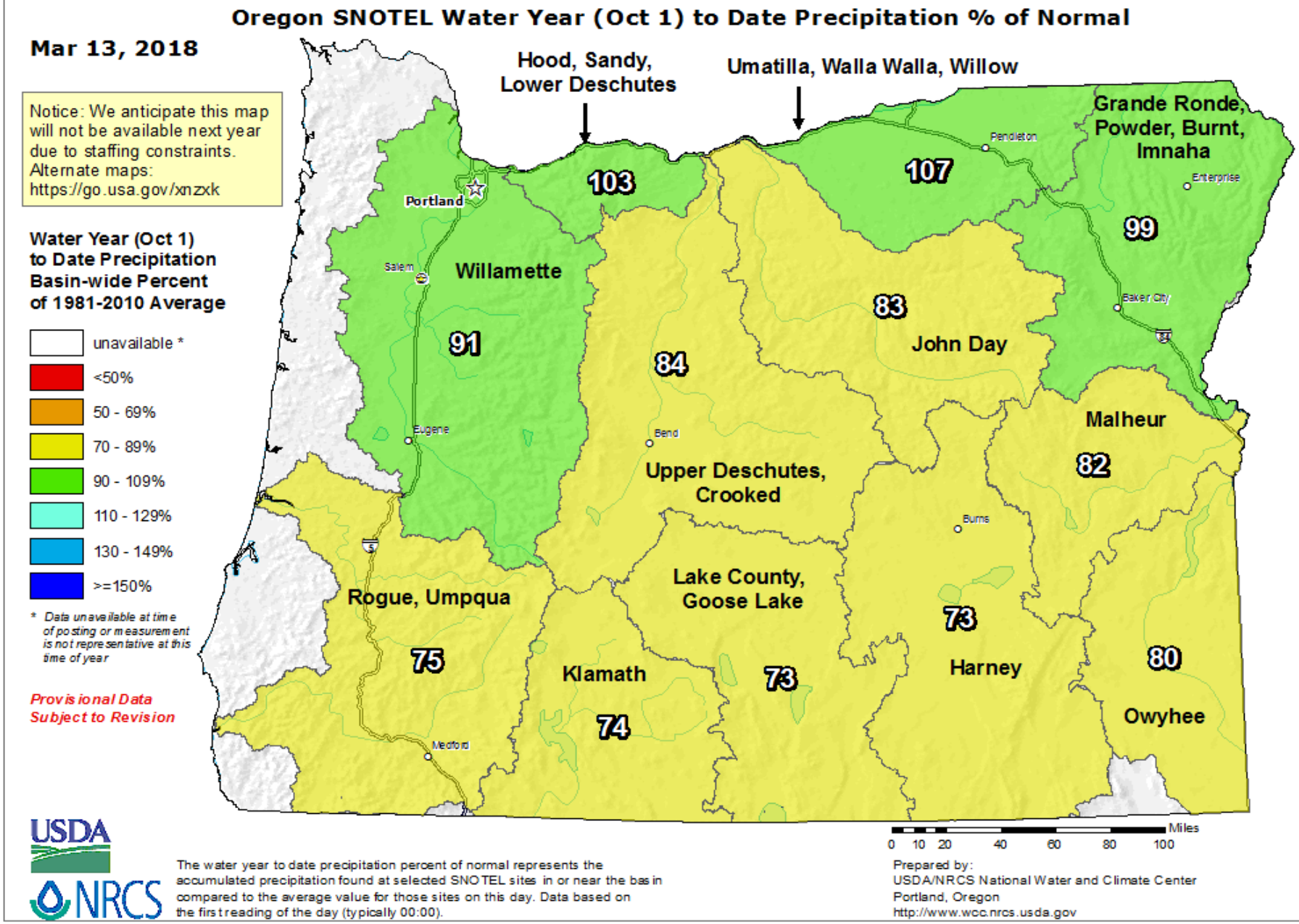
Owyhee/Malheur



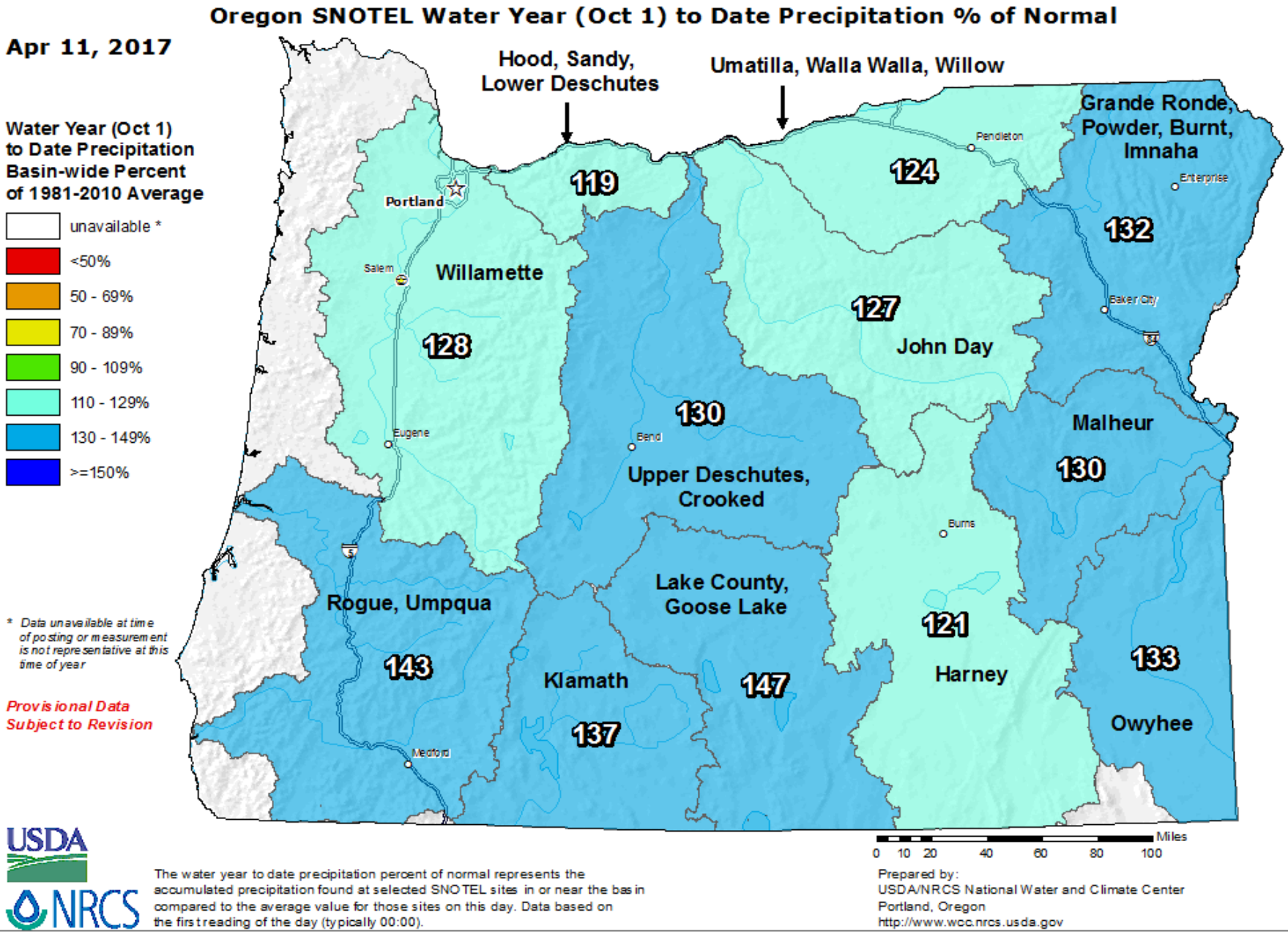
Statewide SNOTEL Precipitation is 92% of normal



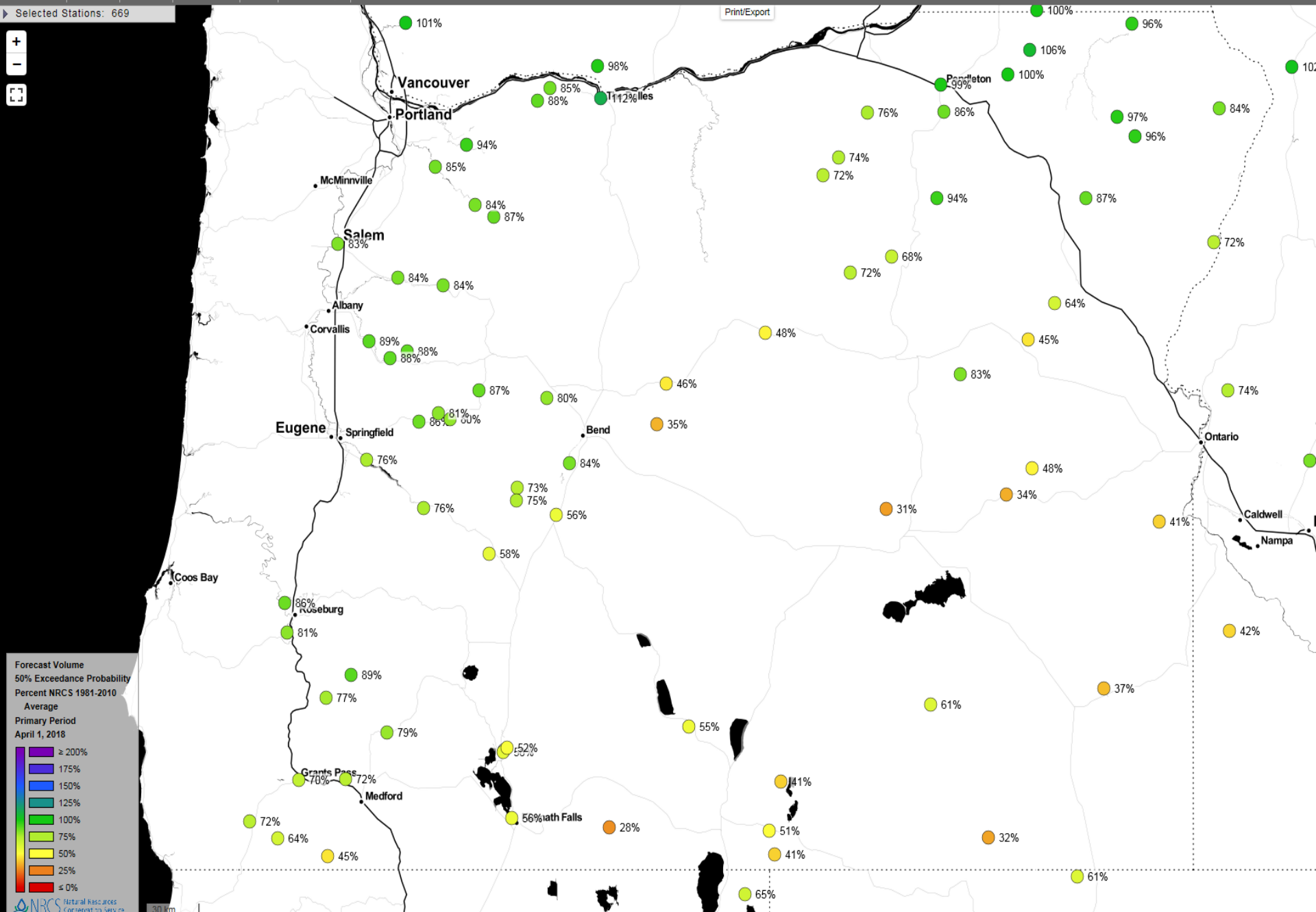
Statewide SNOTEL Precipitation was 89% of normal



Statewide SNOTEL Precipitation was 131% of normal



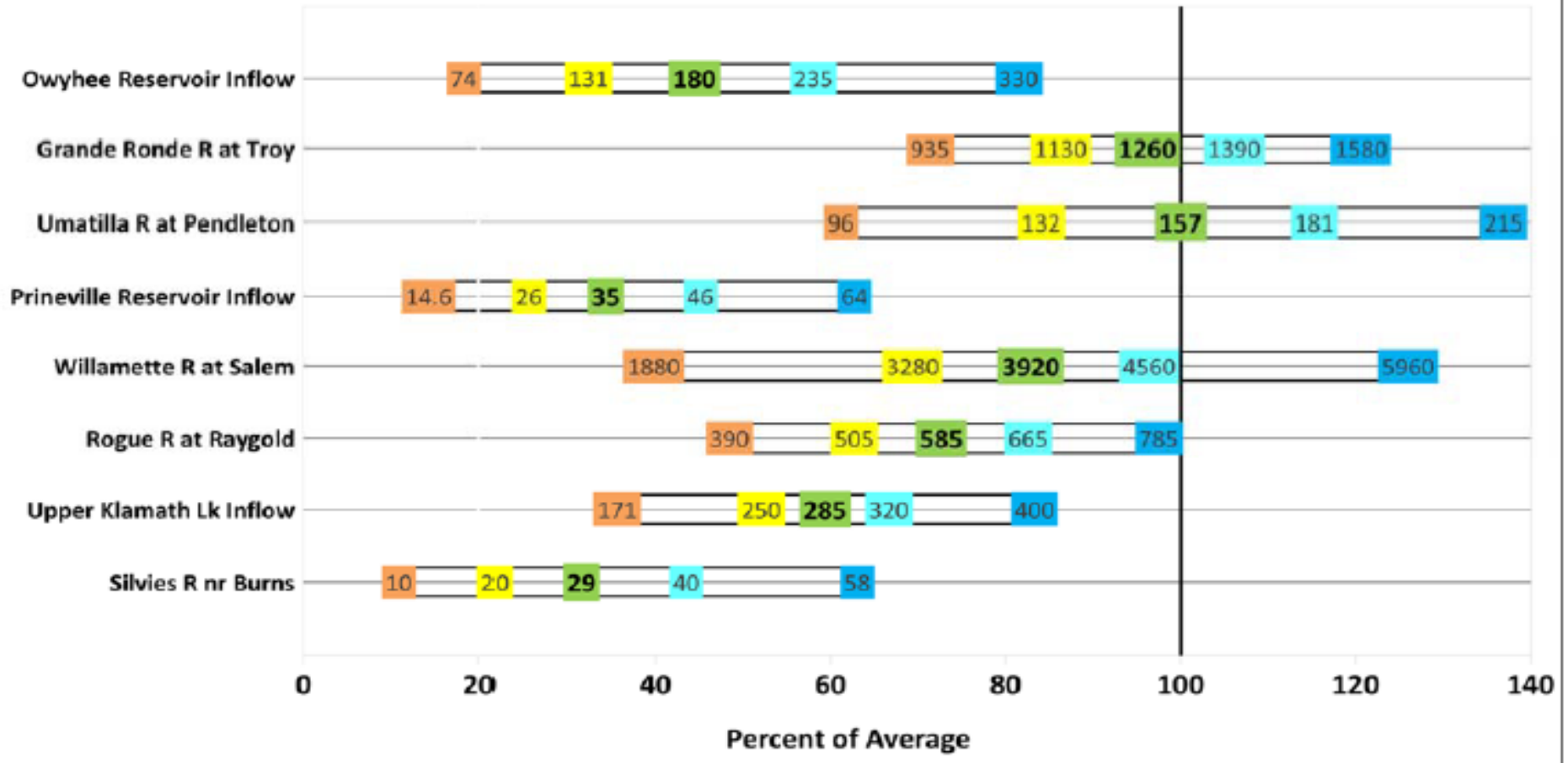
April 1, 2018 – Forecast Volume, 50% Exceedance Probability
Apr – Sep Forecast



Summary of Streamflow Forecasts across Oregon

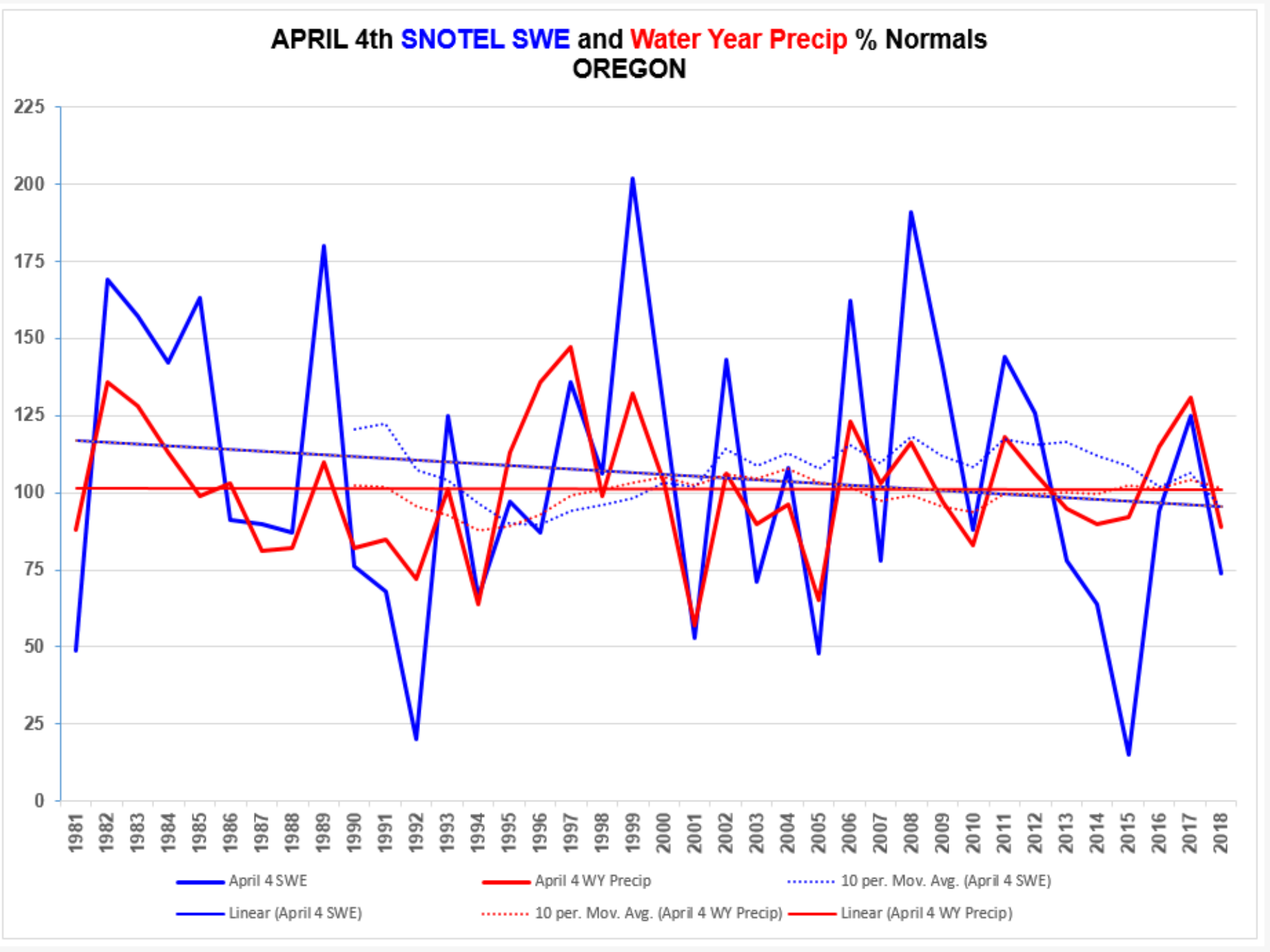
April through September Forecast Volumes at a Selection of Streamflow Points

(Volumes listed in KAF)



Legend: ←----------Drier----------**Future Conditions**----------Wetter----------→

90% Exceedance Forecast (KAF)	70% Exceedance Forecast (KAF)	50% Exceedance Forecast (KAF)	30% Exceedance Forecast (KAF)	10% Exceedance Forecast (KAF)
There is a 90% chance that flows will exceed this volume.	There is a 70% chance that flows will exceed this volume.	There is a 50% chance that flows will exceed this volume.	There is a 30% chance that flows will exceed this volume.	There is a 10% chance that flows will exceed this volume.


APRIL 4th SNOTEL SWE and Water Year Precip % Normals
OREGON
225
200
175
150
125
100
75
50
25
0
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
April 4 SWE
April 4 WY Precip
10 per. Mov. Avg. (April 4 SWE)
Linear (April 4 SWE)
10 per. Mov. Avg. (April 4 WY Precip)
Linear (April 4 WY Precip)

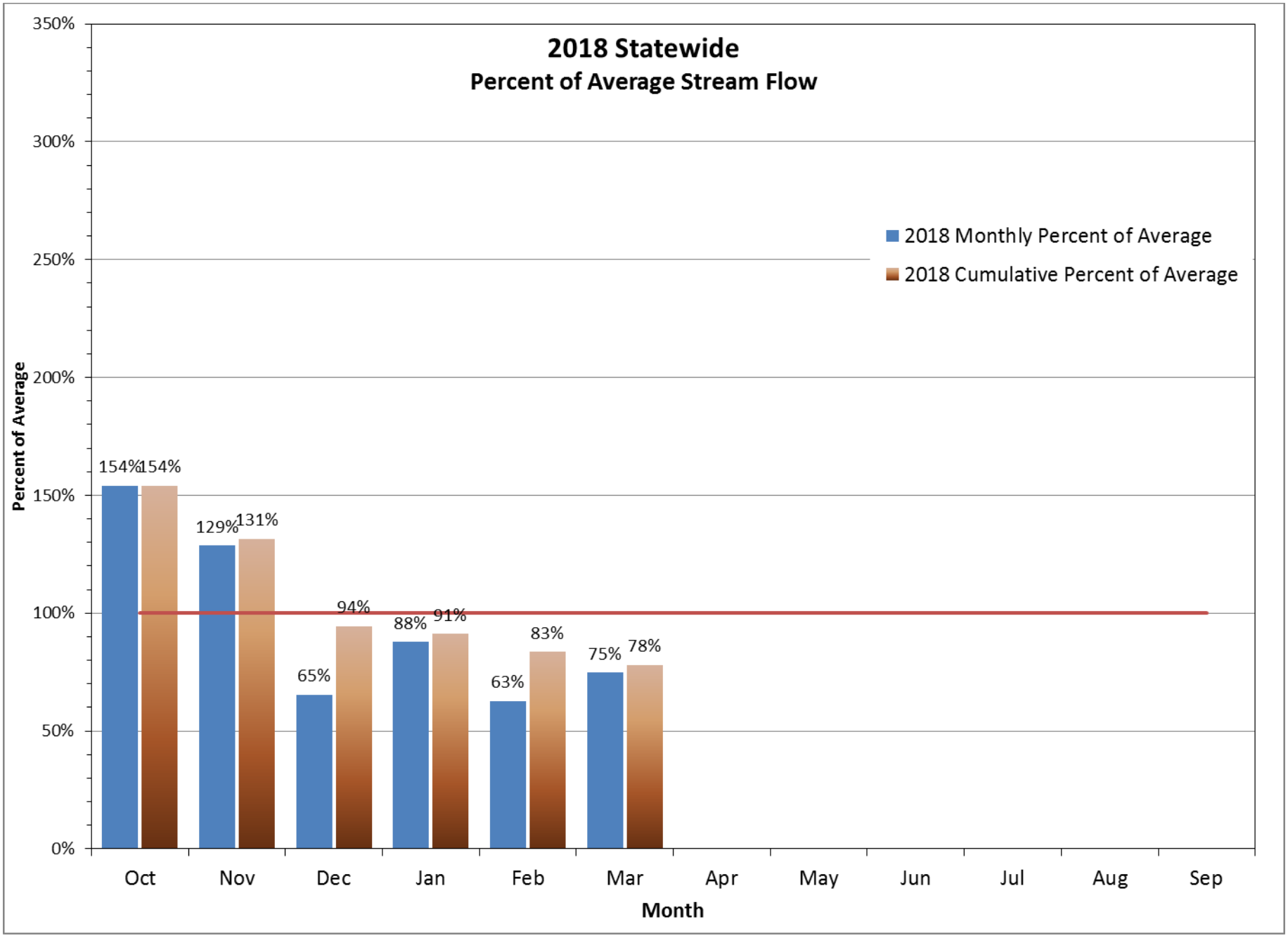
Thank you

Water Conditions Report

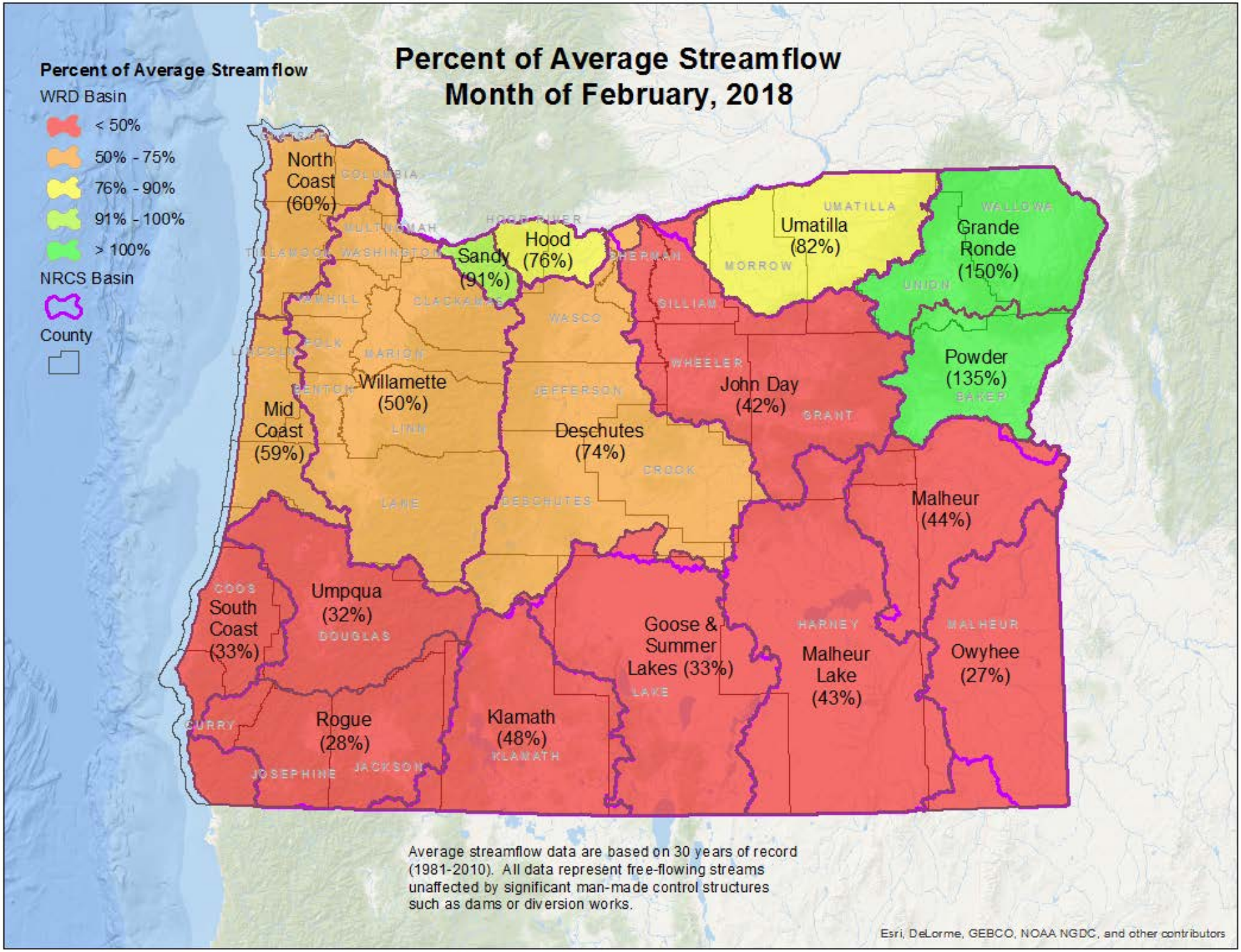
Water Supply Availability Committee

Ken Stahr
Oregon Water Resources Department

April 10, 2018

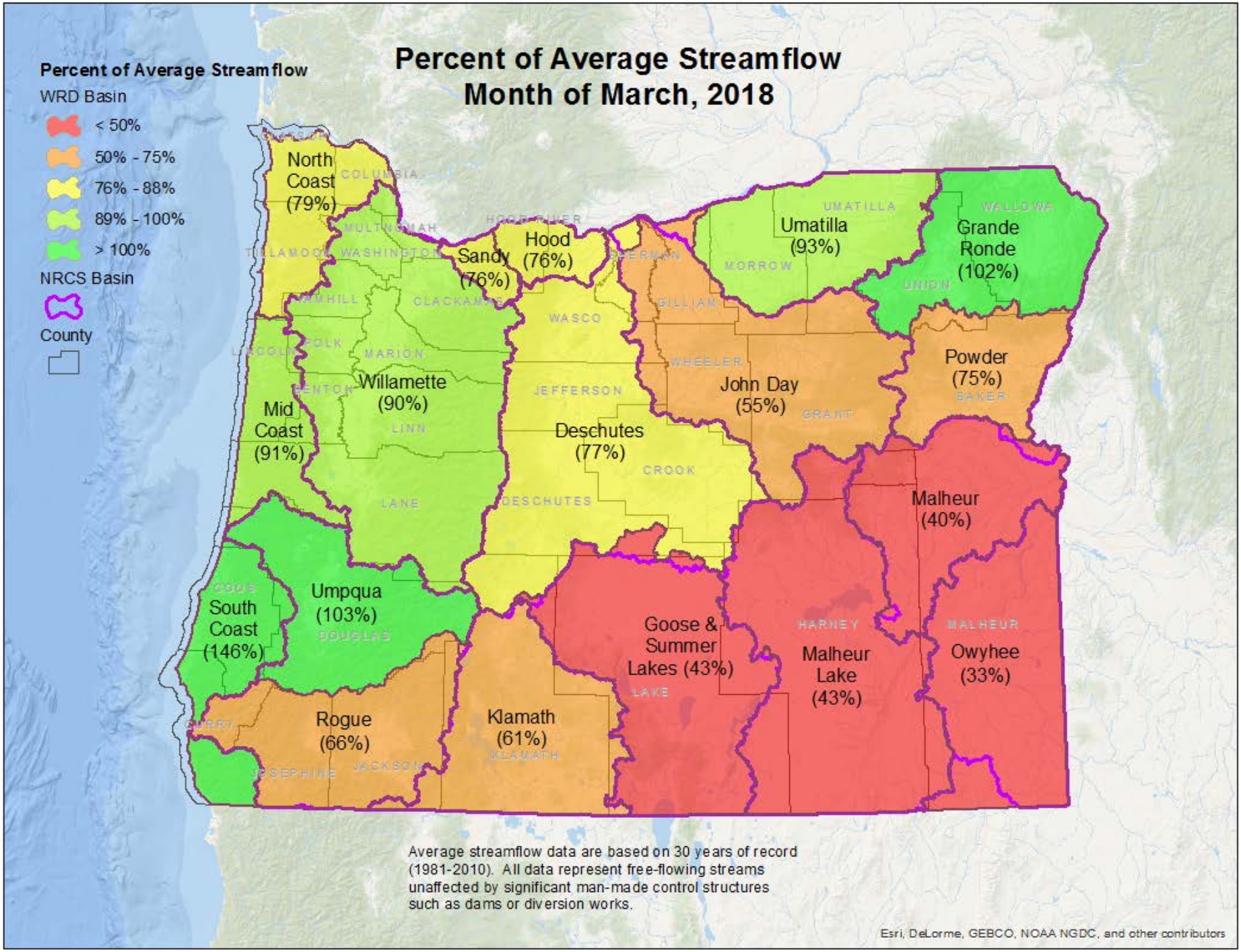

2018 Statewide
Percent of Average Stream Flow
2018 Monthly Percent of Average
2018 Cumulative Percent of Average
Percent of Average
350%
300%
250%
200%
150%
100%
50%
0%
154%
154%
129%
131%
65%
94%
88%
91%
63%
83%
75%
78%
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Month

Percent of Average Streamflow
Month of February, 2018

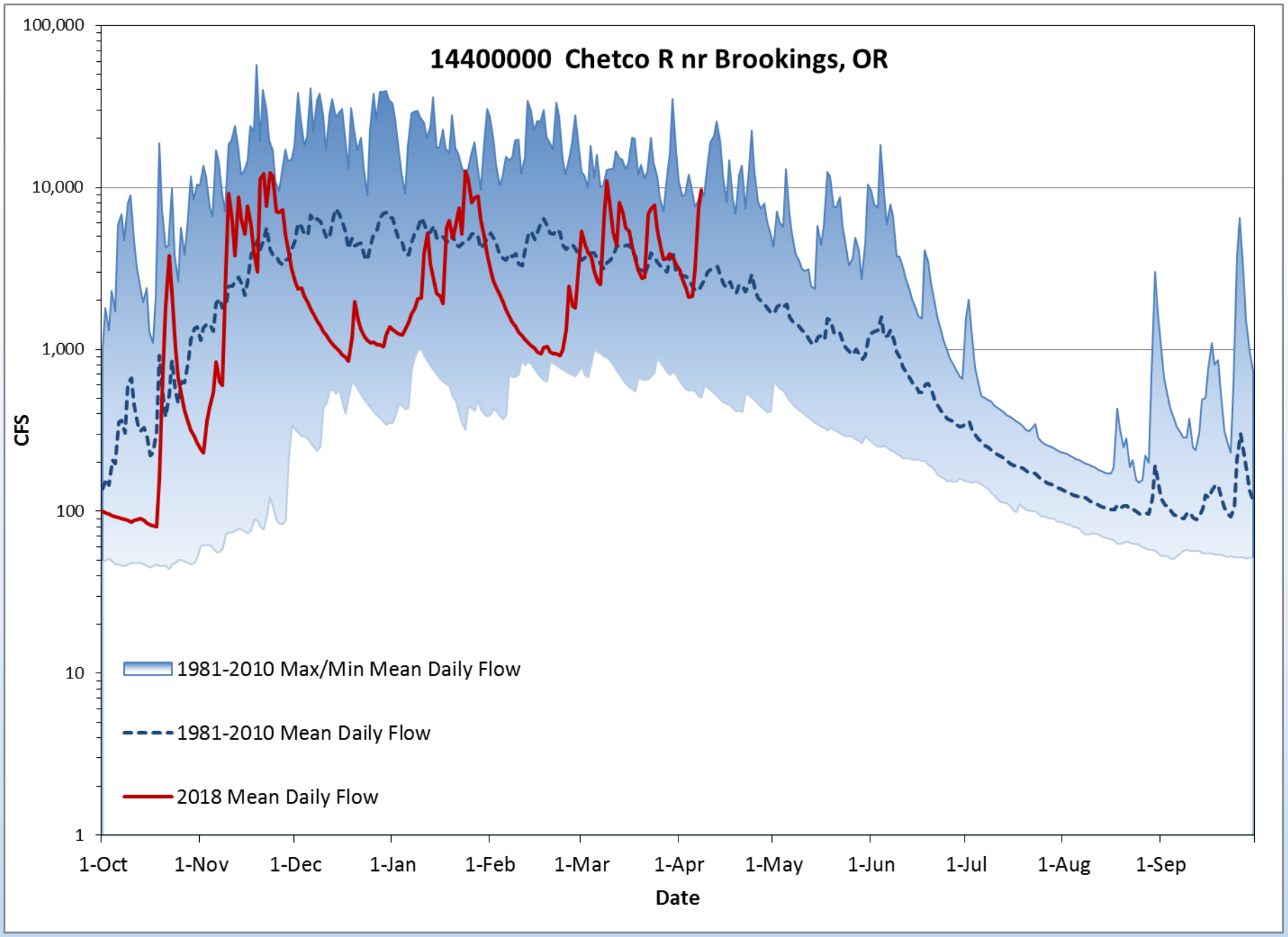


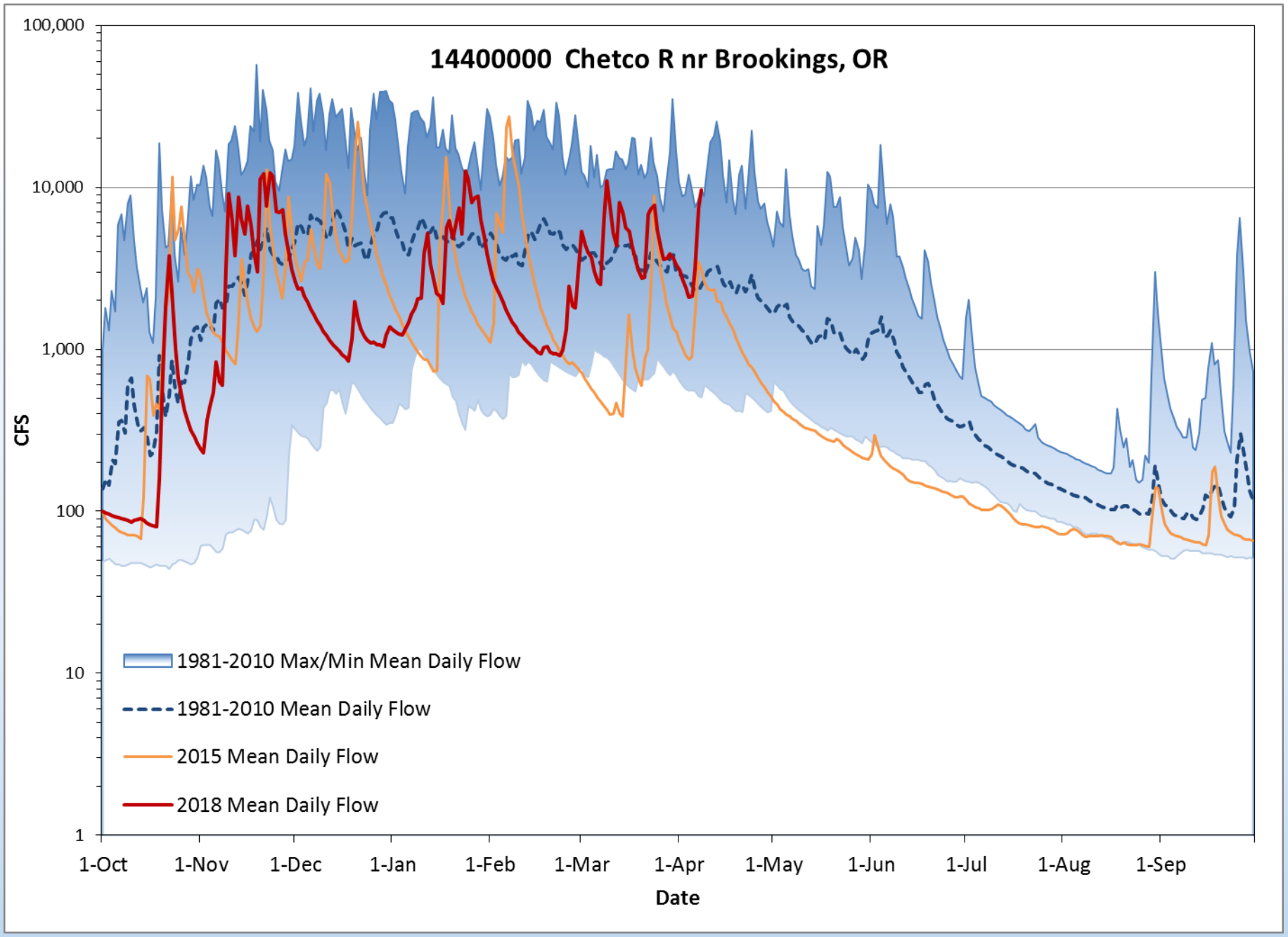
Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

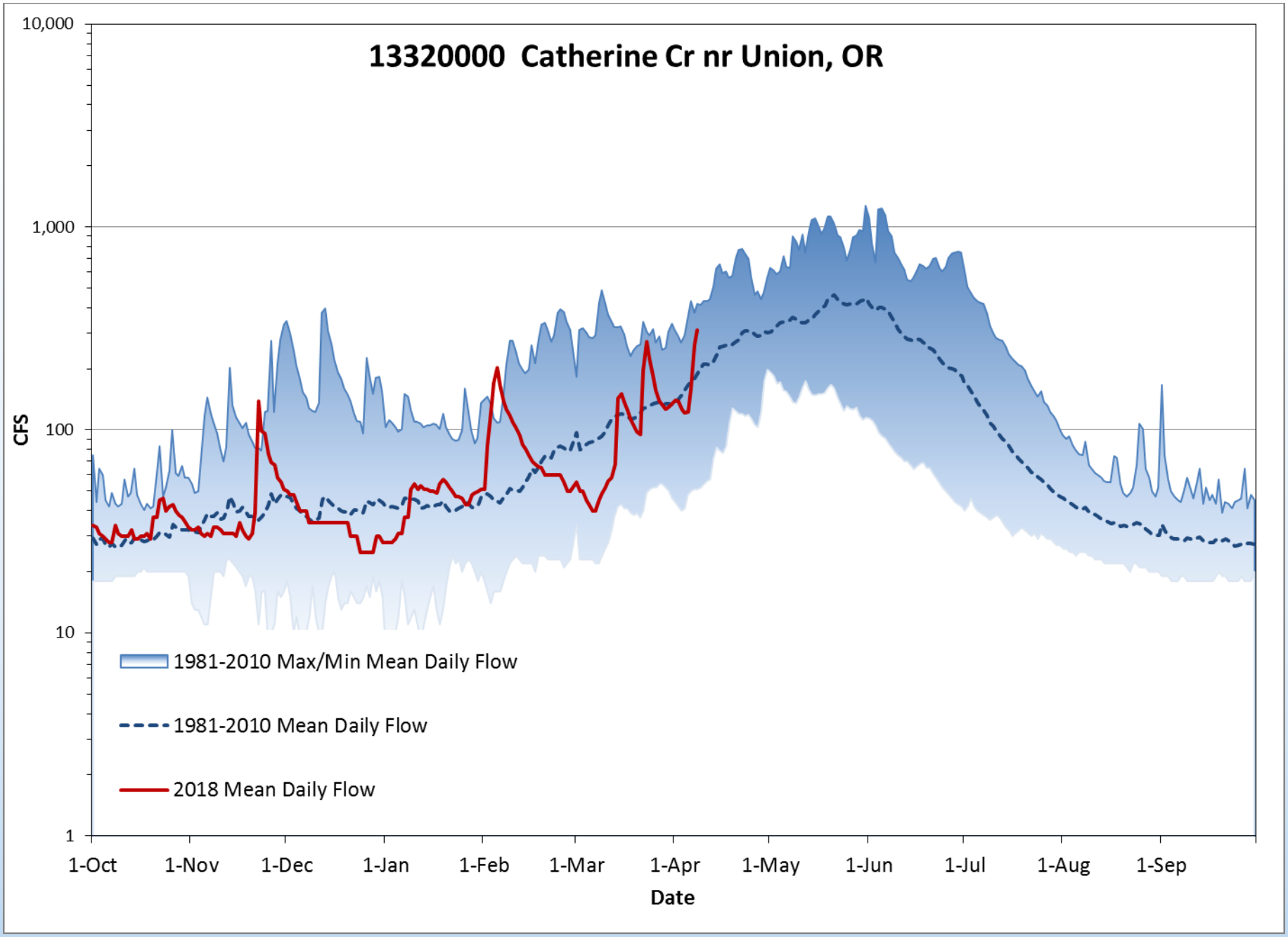
Percent of Average Streamflow
Month of March, 2018

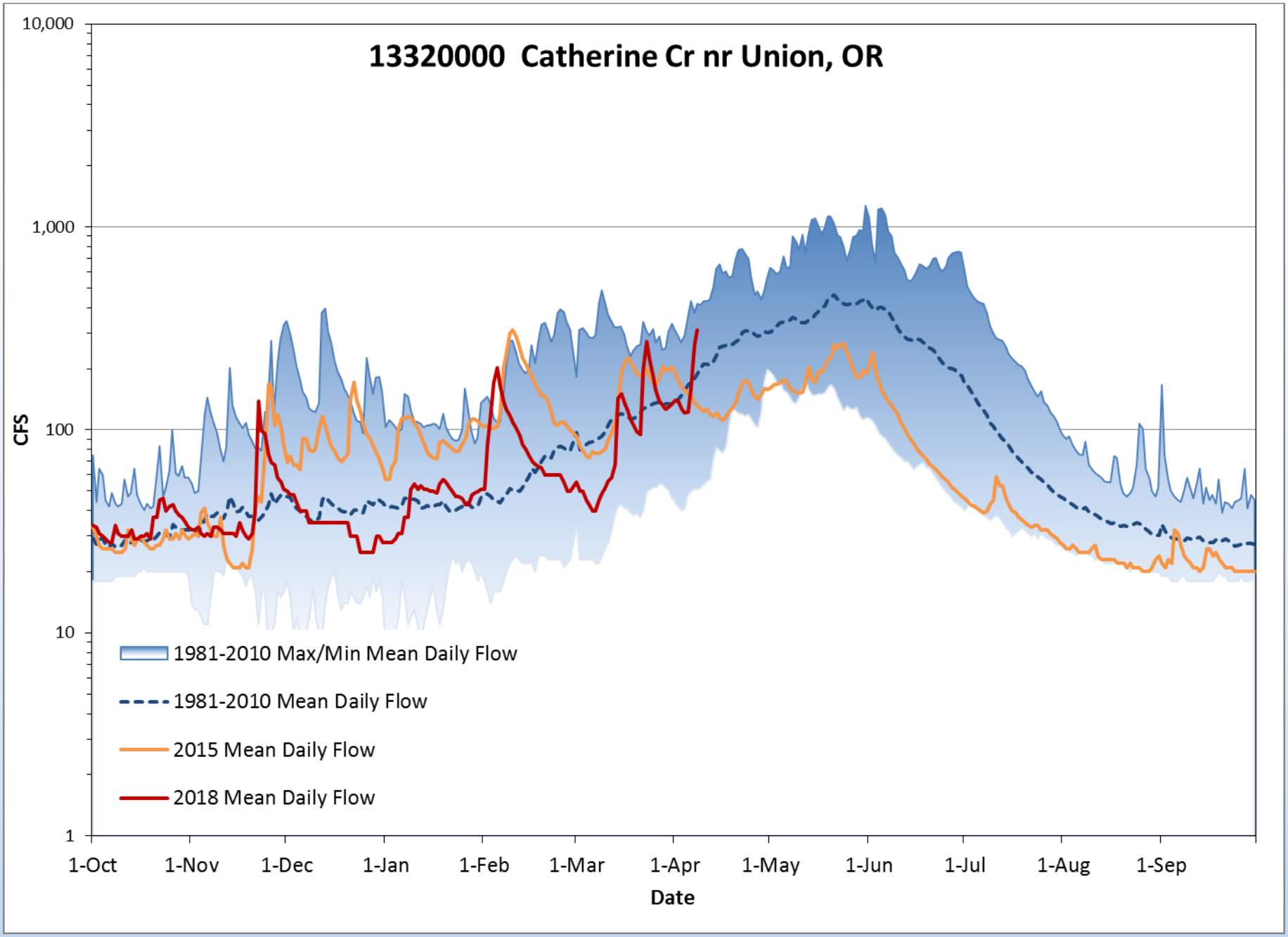


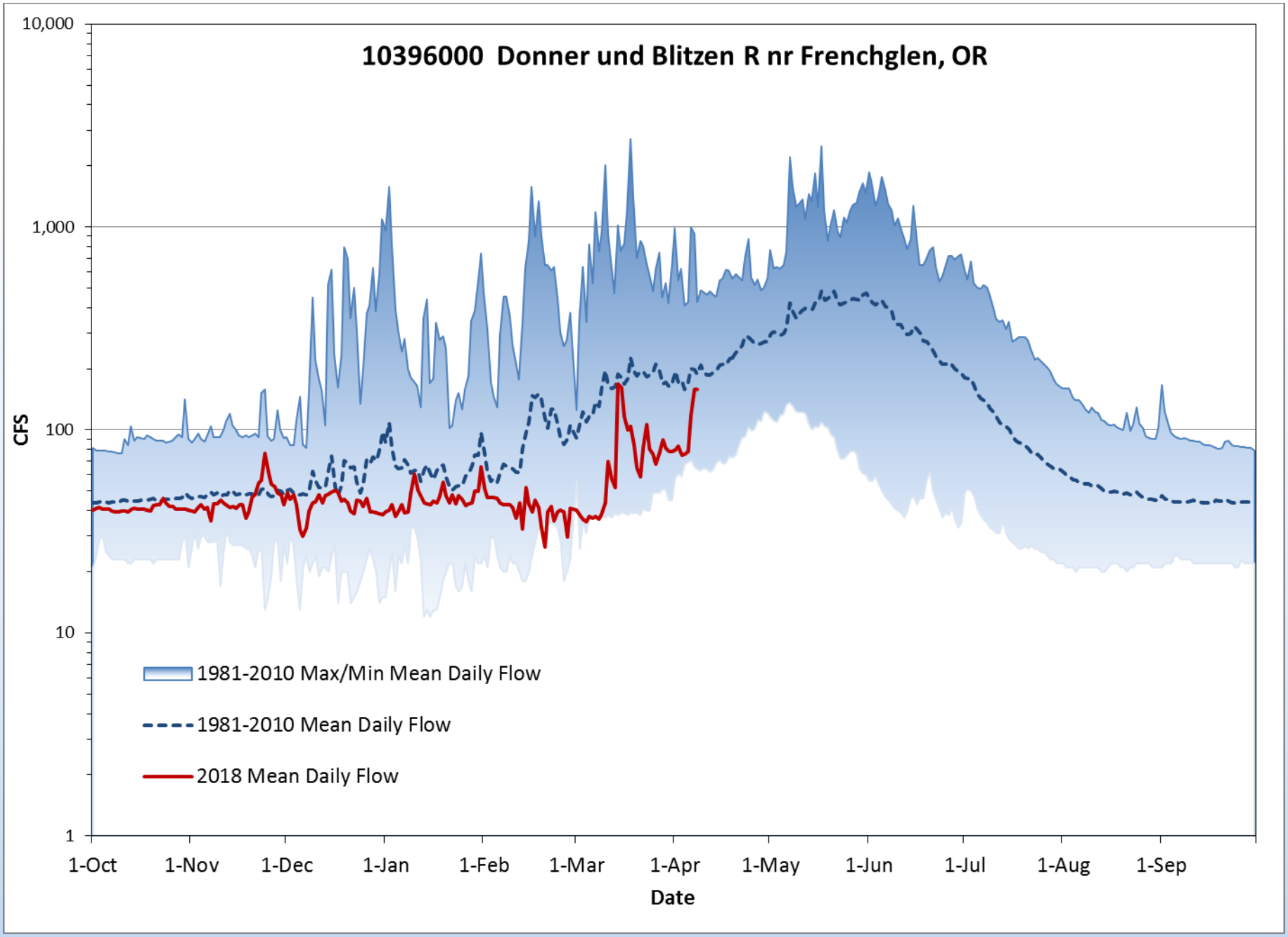
Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

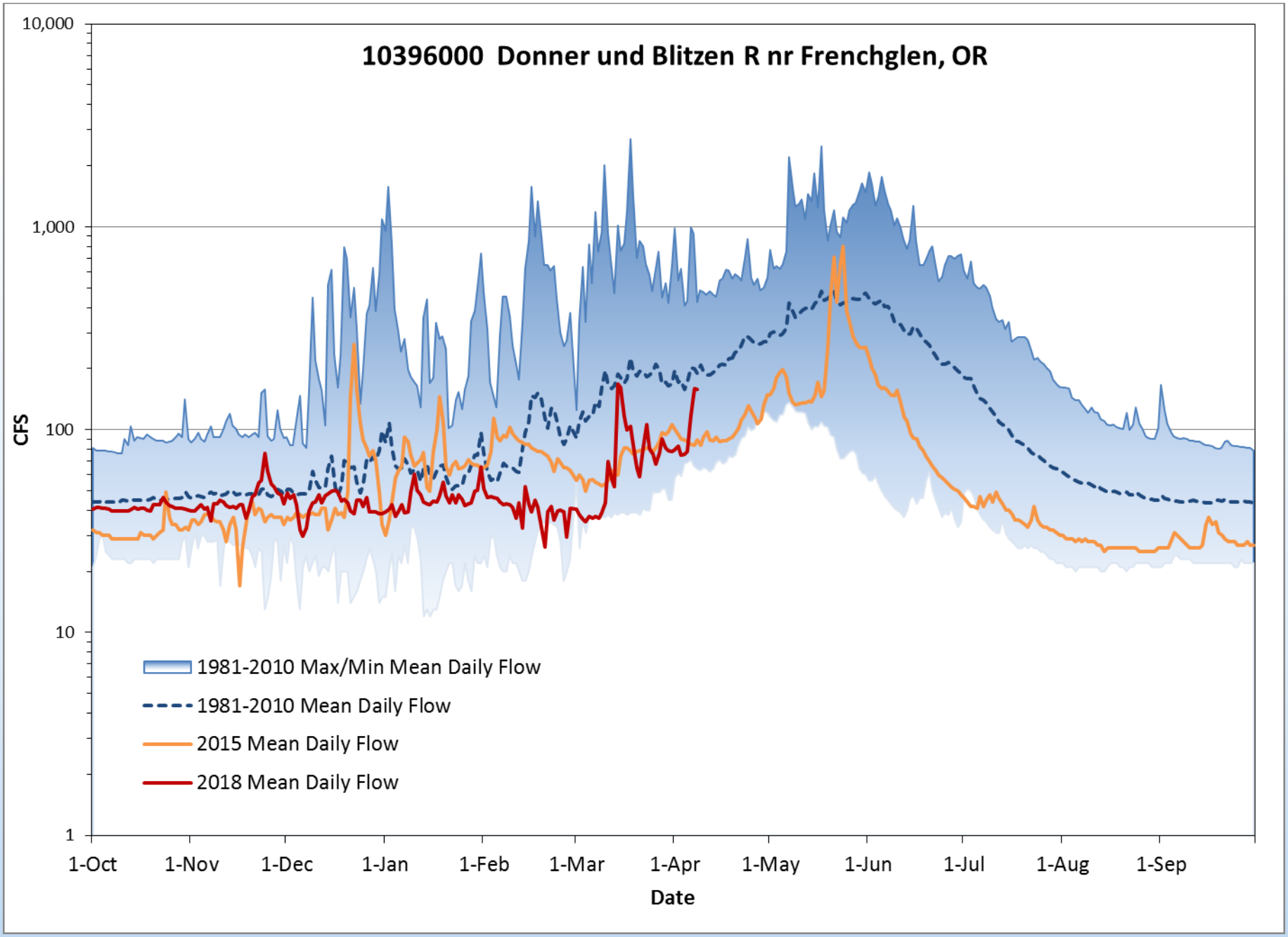

14400000 Chetco R nr Brookings, OR
100,000
10,000
1,000
100
10
1
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2018 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date

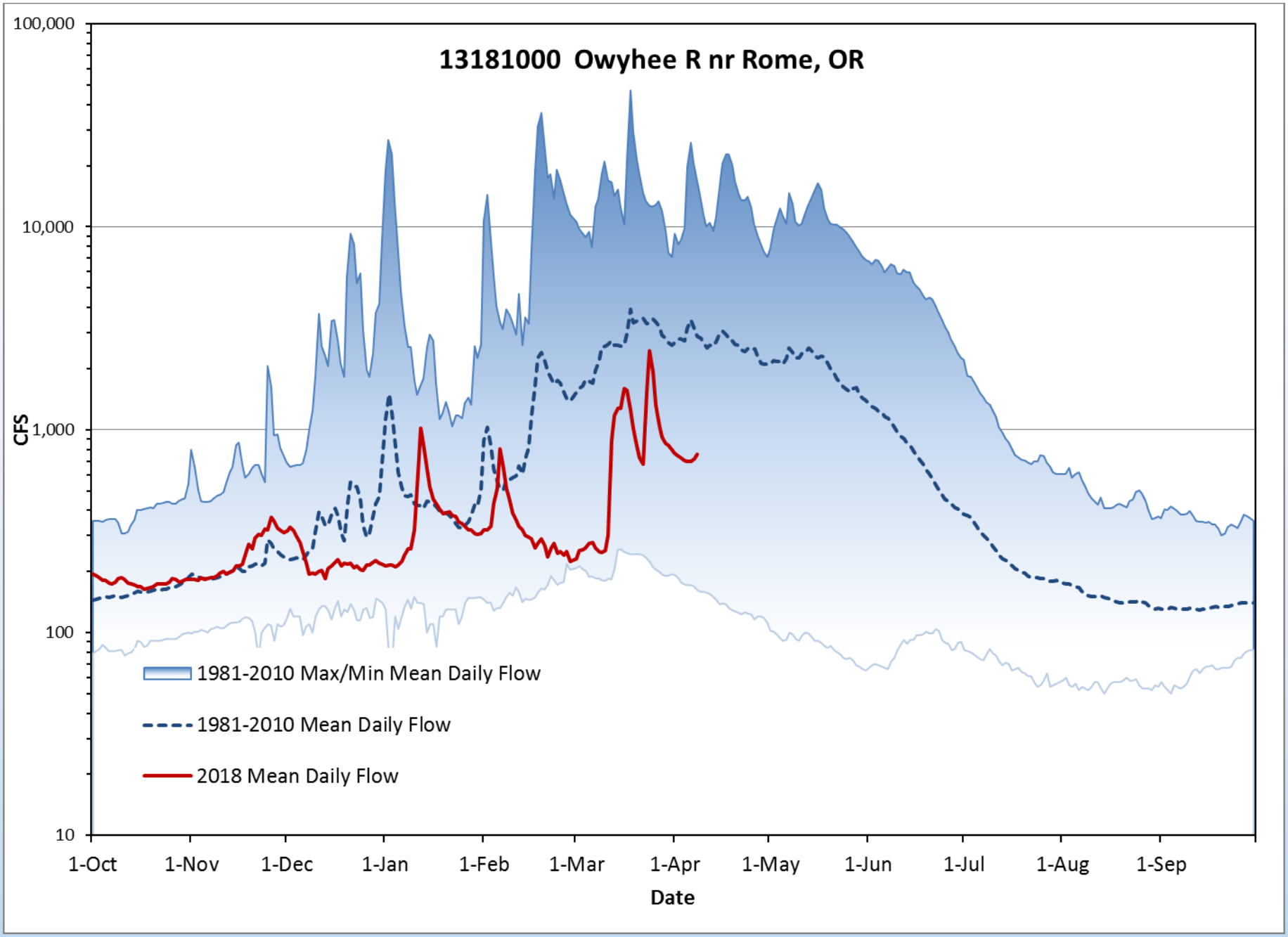

14400000 Chetco R nr Brookings, OR
100,000
10,000
1,000
100
10
1
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2015 Mean Daily Flow
2018 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date

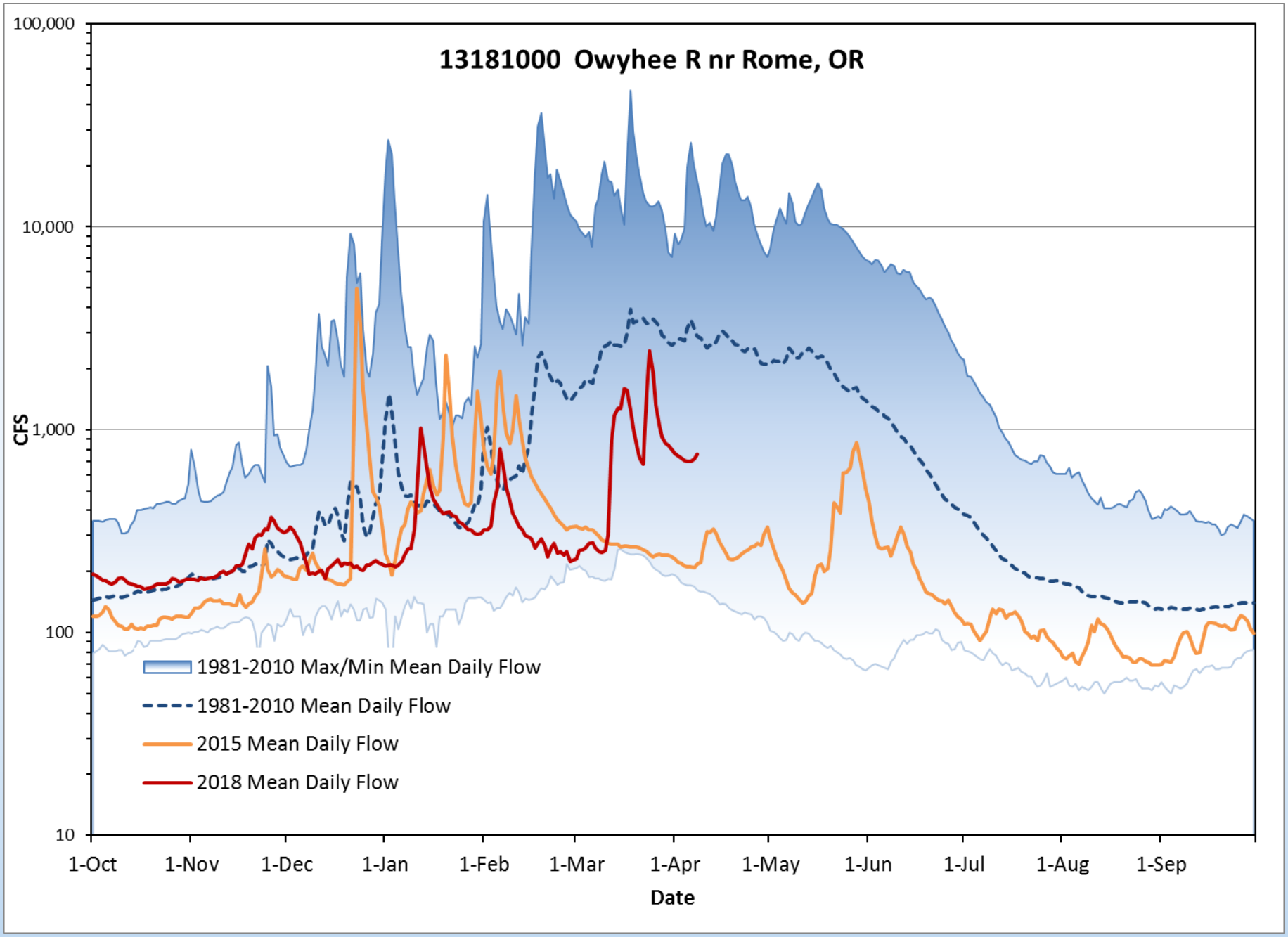

13320000 Catherine Cr nr Union, OR
10,000
1,000
100
10
1
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2018 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date

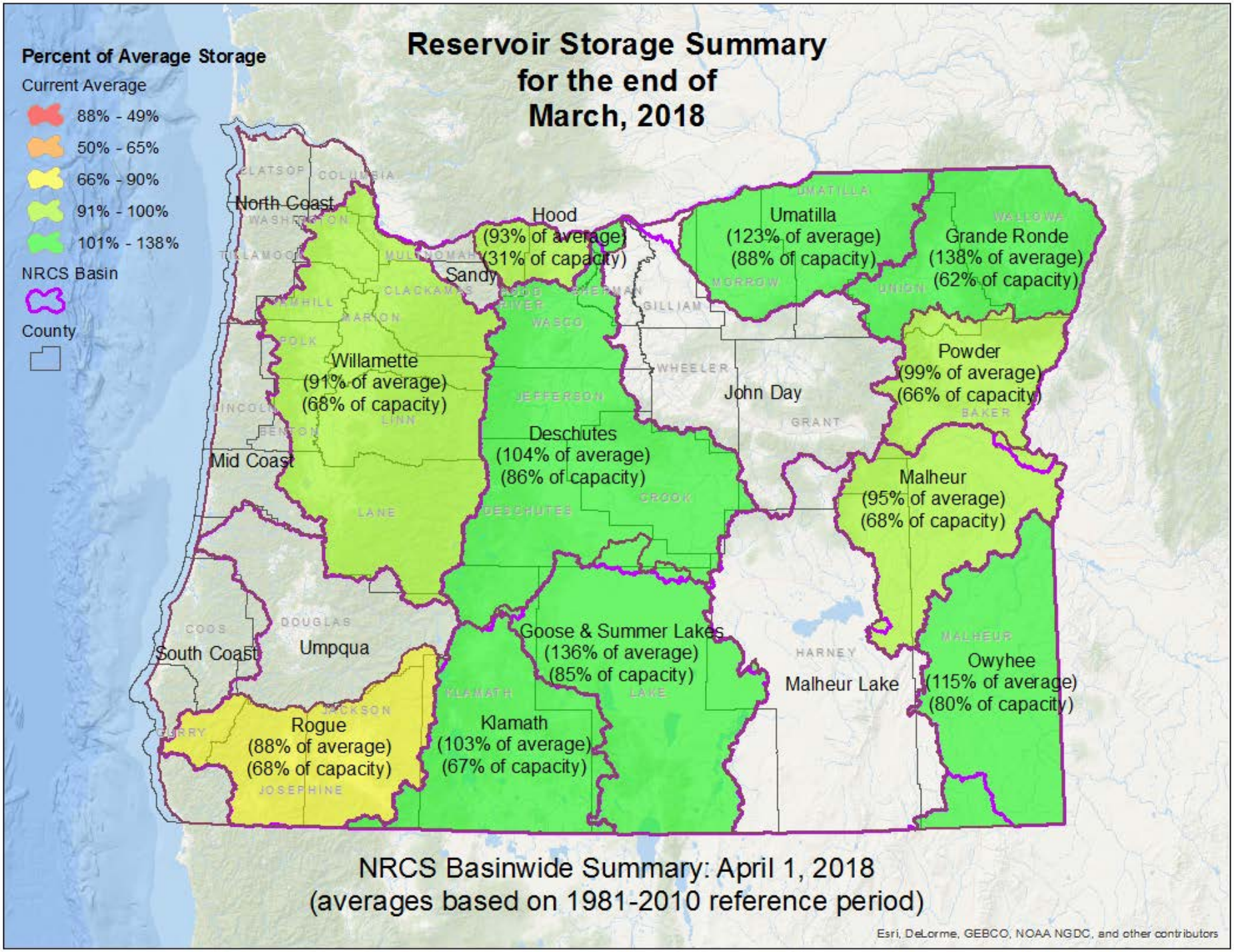

13320000 Catherine Cr nr Union, OR
10,000
1,000
100
10
1
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2015 Mean Daily Flow
2018 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date


10396000 Donner und Blitzen R nr Frenchglen, OR
10,000
1,000
100
10
1
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2018 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date


10396000 Donner und Blitzen R nr Frenchglen, OR
10,000
1,000
100
10
1
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2015 Mean Daily Flow
2018 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date

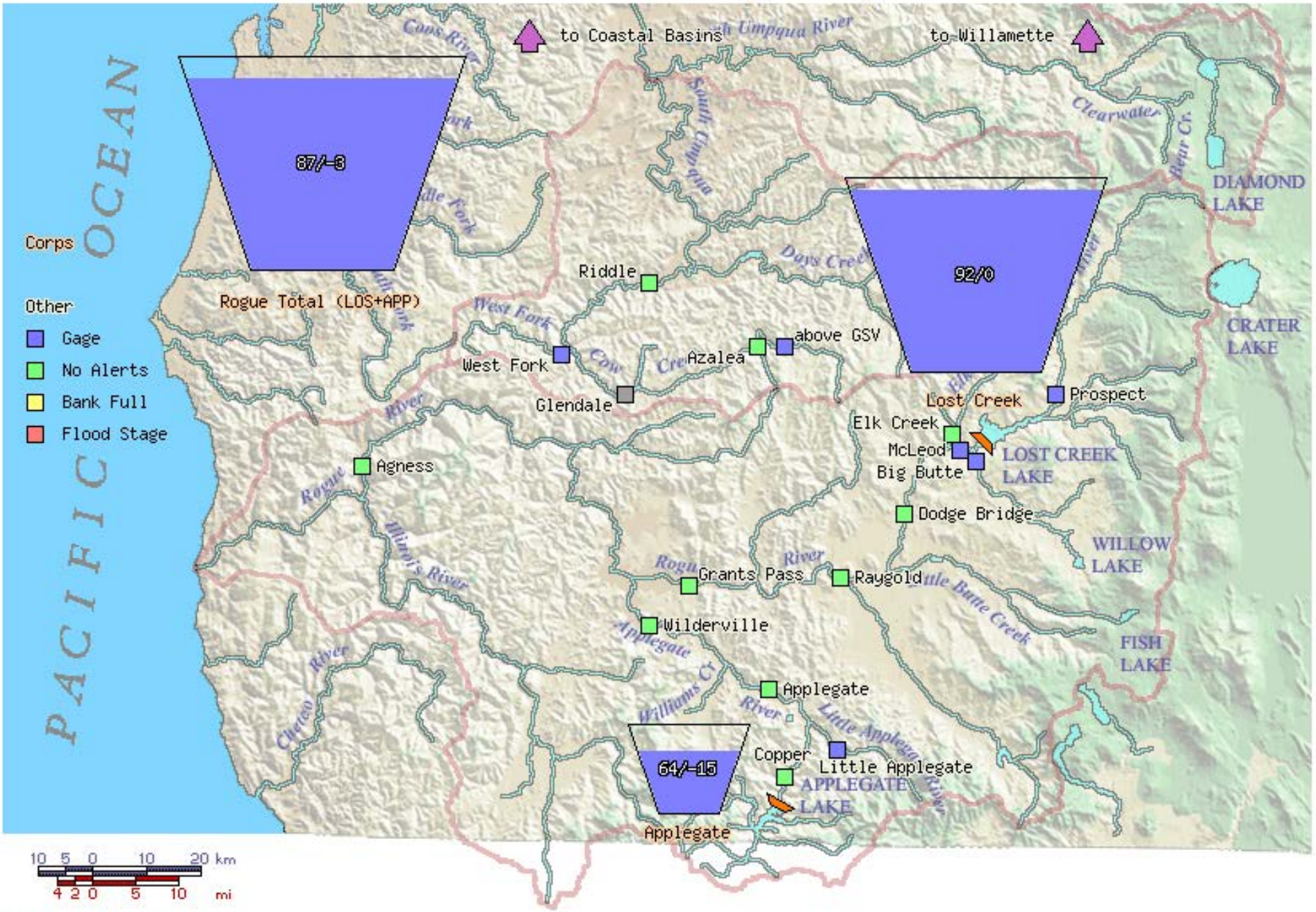

13181000 Owyhee R nr Rome, OR
100,000
10,000
1,000
100
10
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2018 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date


13181000 Owyhee R nr Rome, OR
100,000
10,000
1,000
100
10
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2015 Mean Daily Flow
2018 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date


Reservoir Storage Summary
for the end of
March, 2018
Percent of Average Storage
Current Average
88% - 49%
50% - 65%
66% - 90%
91% - 100%
101% - 138%
NRCS Basin
County
North Coast
Hood
(93% of average)
(31% of capacity)
Sandy
Umatilla
(123% of average)
(88% of capacity)
Grande Ronde
(138% of average)
(62% of capacity)
Willamette
(91% of average)
(68% of capacity)
Mid Coast
Deschutes
(104% of average)
(86% of capacity)
John Day
Powder
(99% of average)
(66% of capacity)
Malheur
(95% of average)
(68% of capacity)
Goose & Summer Lakes
(136% of average)
(85% of capacity)
South Coast
Umpqua
Rogue
(88% of average)
(68% of capacity)
Klamath
(103% of average)
(67% of capacity)
Malheur Lake
Owyhee
(115% of average)
(80% of capacity)
NRCS Basinwide Summary: April 1, 2018
(averages based on 1981-2010 reference period)
Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors

Created: Mon Apr 9 10:40:20 2018

Rogue Basin Teacup Diagram



Created: Mon Apr 9 10:40:14 2018

OREGON
WATER RESOURCES
DEPARTMENT

Thank you.

Oregon Water Supply Availability

April 2018

USGS Update on Surface Water Conditions

Marc Stewart USGS ORWSC

Provisional Data Statement
Data are provisional and subject to revision until they have been thoroughly reviewed and received final approval.

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

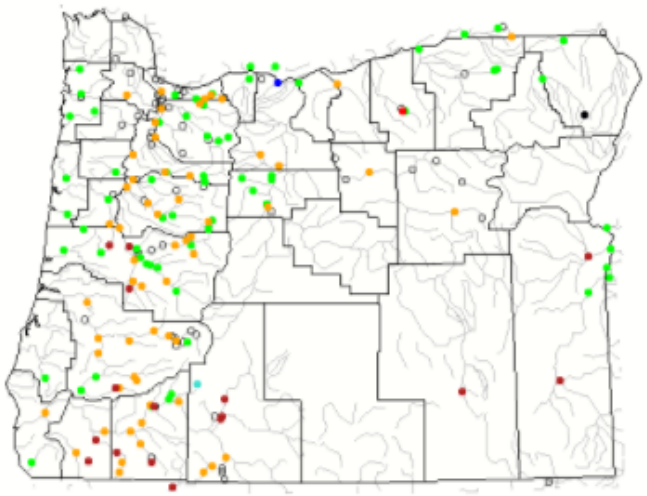
Oregon Map of 28-day average streamflow compared to historical streamflow for the day of the year

Map of 28-day average streamflow compared to historical streamflow for the day of the year (Oregon)

Oregon ▼ or Water-Resources Regions ▼

From March 12

Monday, March 12, 2018



USGS

Search USGS streamgage

Choose a data retrieval option and select a location on the map

List of all stations | Single station | Nearest stations

Explanation - Percentile classes

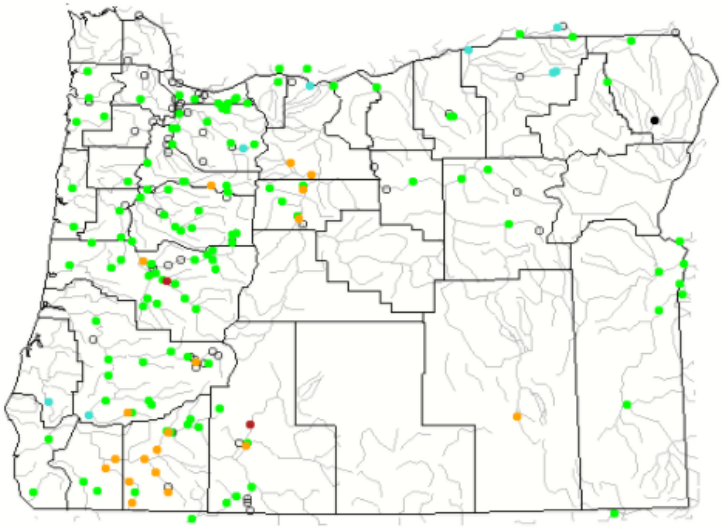
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

Map of 28-day average streamflow compared to historical streamflow for the day of the year (Oregon)

Oregon ▼ or Water-Resources Regions ▼

From April 09

Monday, April 09, 2018



USGS

Search USGS streamgage

Choose a data retrieval option and select a location on the map

List of all stations | Single station | Nearest stations

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

Oregon Map of 7-day average streamflow compared to historical streamflow for the day of the year

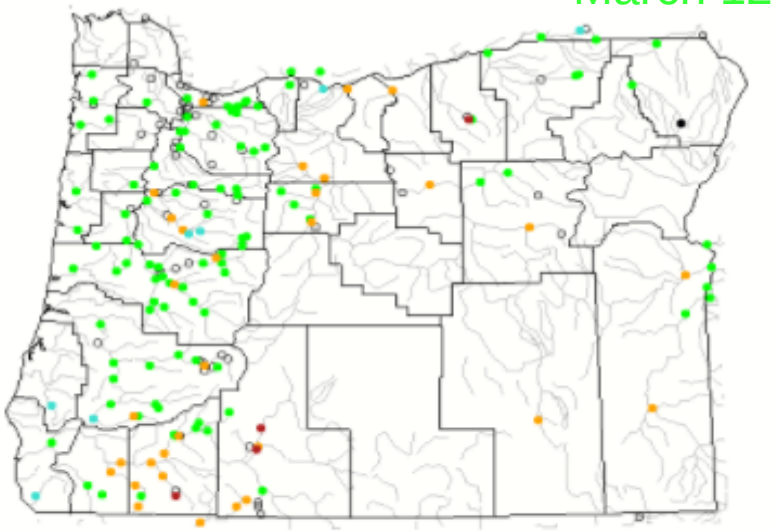
Map | HUC Map | Map (HCDN) | Summary Plot | Percent Plot | Summary Table | Web Map

Map of 7-day average streamflow compared to historical streamflow for the day of the year (Oregon)

Oregon ▼ or Water-Resources Regions ▼ All Days

Monday, March 12, 2018

From March 12



USGS

Search USGS streamgage

Choose a data retrieval option and select a location on the map

○ List of all stations ◉ Single station ○ Nearest stations

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

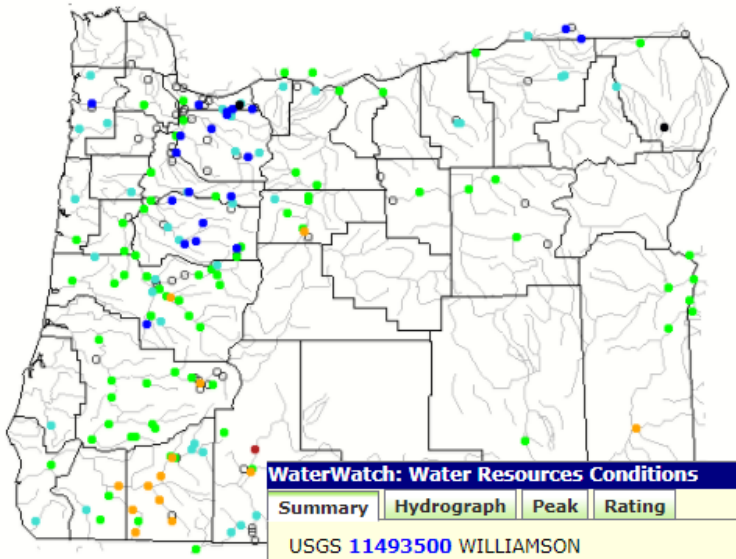
Map | HUC Map | Map (HCDN) | Summary Plot | Percent Plot | Summary Table | Web Map

Map of 7-day average streamflow compared to historical streamflow for the day of the year (Oregon)

Oregon ▼ or Water-Resources Regions ▼ All Days

Monday, April 09, 2018

From April 09



USGS

Search

Choose a data retri

○ List of all stat

Expl

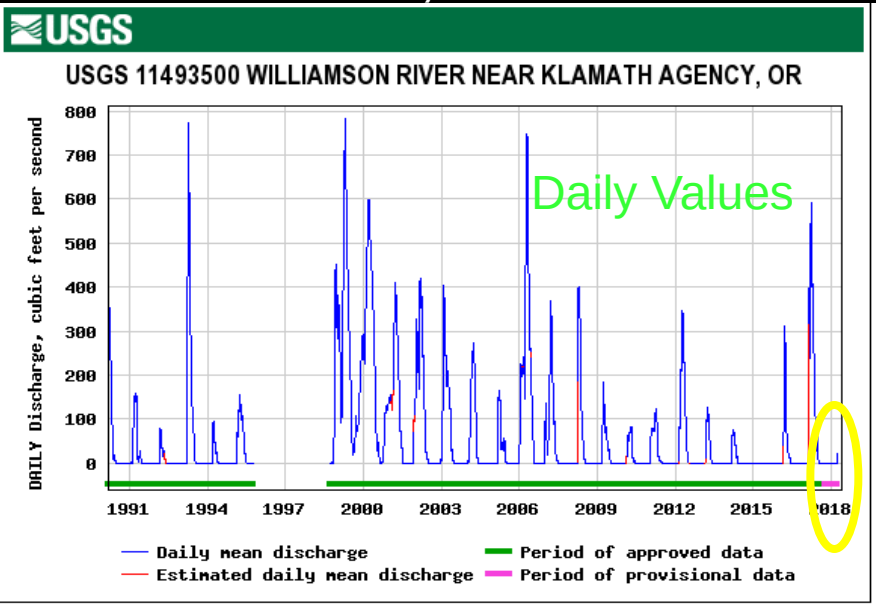
WaterWatch: Water Resources Conditions X

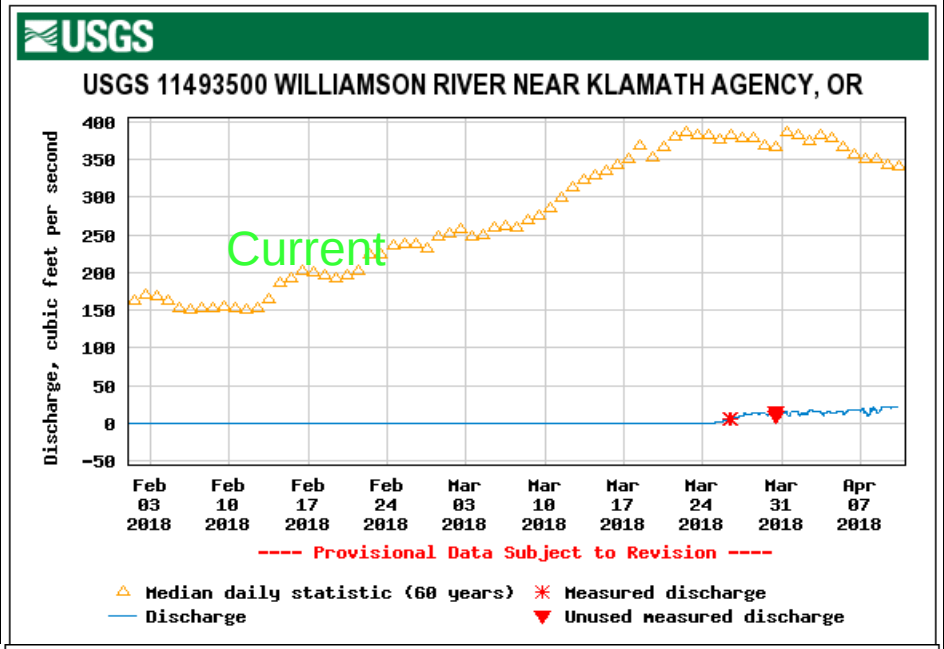
Summary | Hydrograph | Peak | Rating

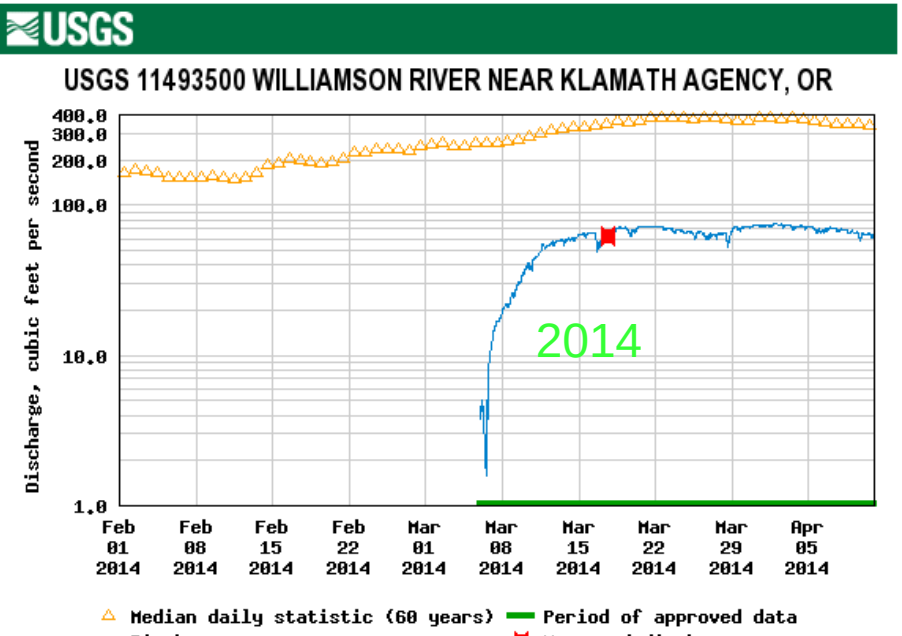
USGS **11493500** WILLIAMSON RIVER NEAR KLAMATH AGENCY, OR

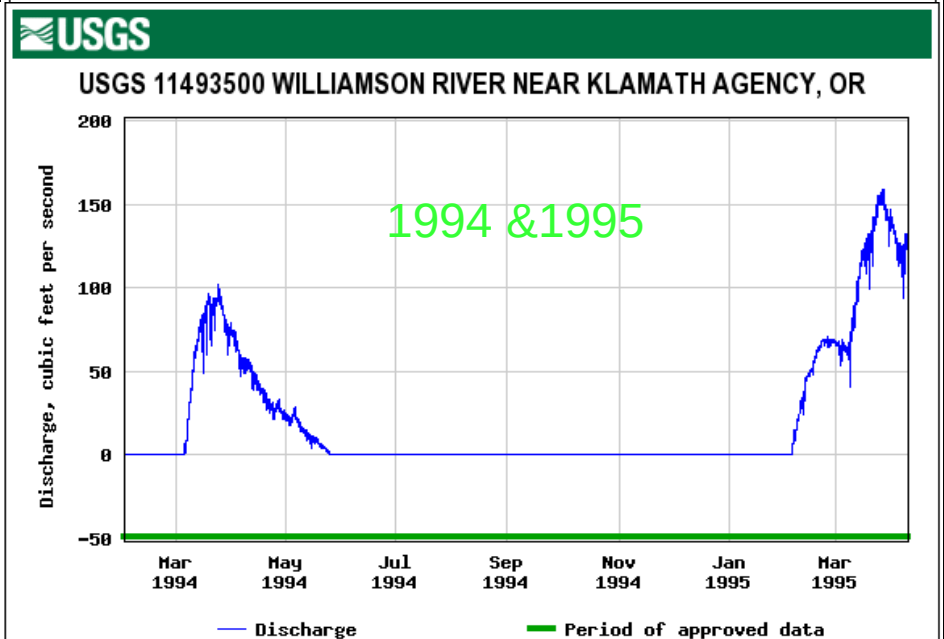
Drainage area:	1290 mi^2
Discharge:	16.69 cfs
Date:	2018-04-09
No. of days:	7
Percentile:	2.60 %
Length of Record:	59 years
Class symbol:	●
% normal (median):	4.65 %
% normal (mean):	3.96 %

KLAMATH BASIN 11493500 WILLIAMSON RIVER NEAR KLAMATH AGENCY, OR

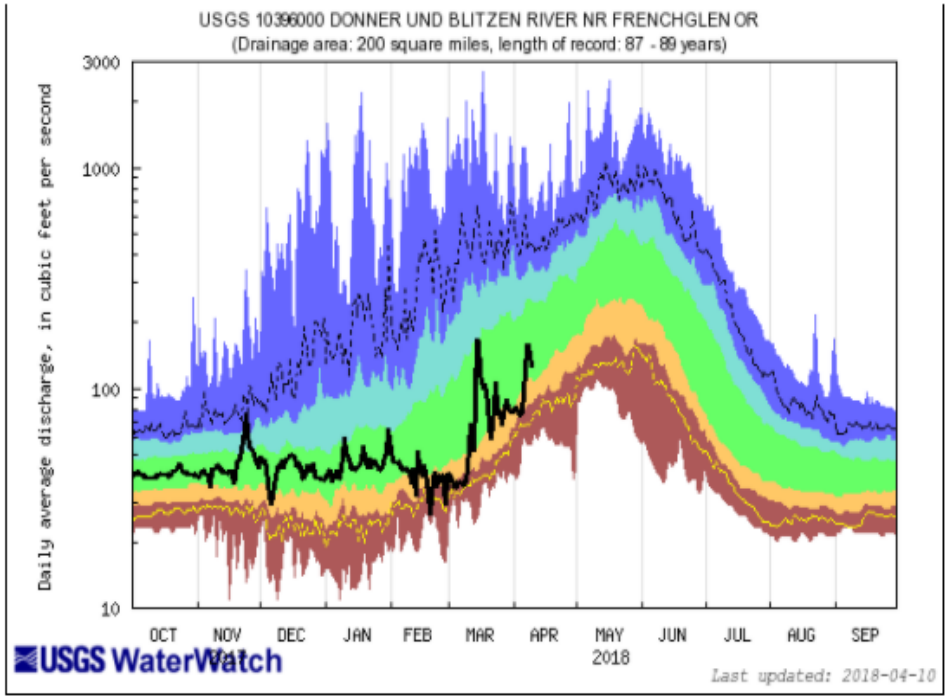


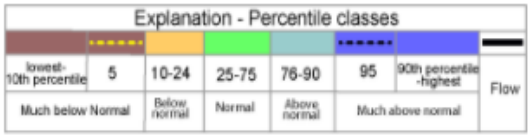






DONNER BLITZEN HARNEY COUNTY



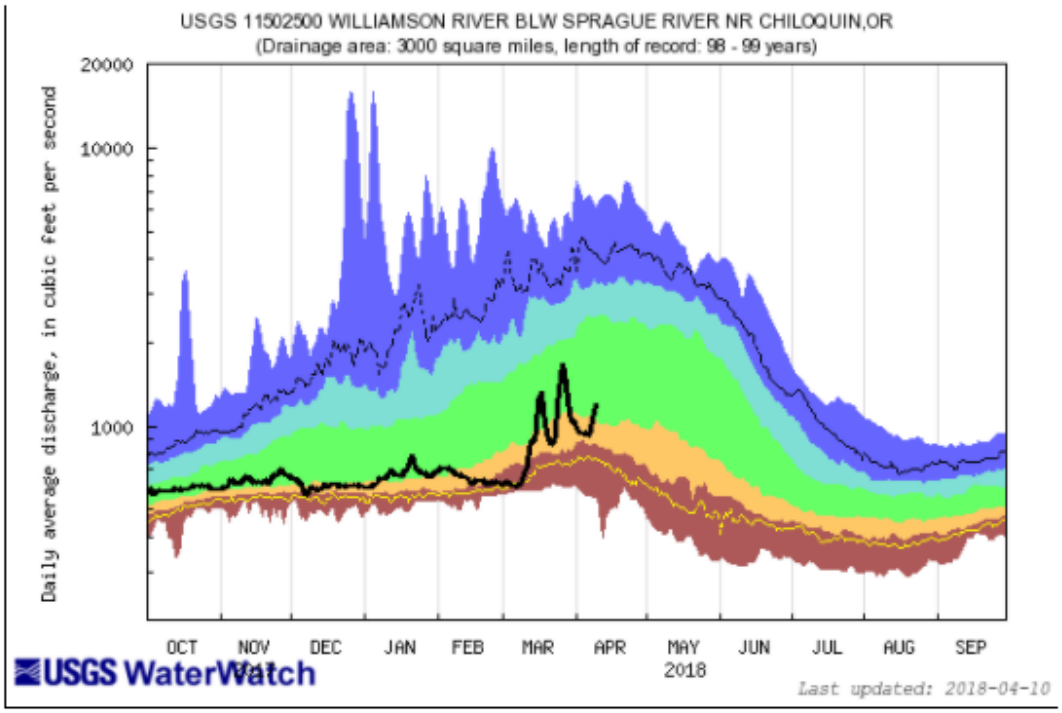


Monthly Avg. 72 cfs
43% of Avg. for March (1981-2010)

*45% Avg. Feb.

USGS

KLAMATH BASIN

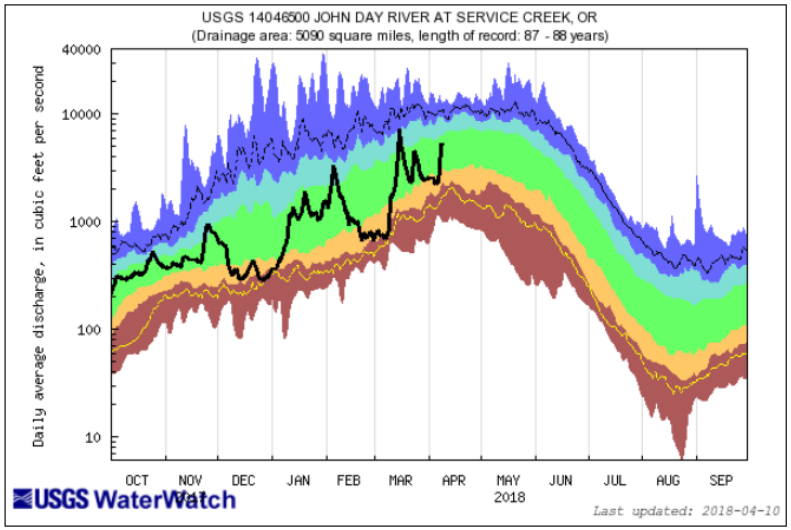


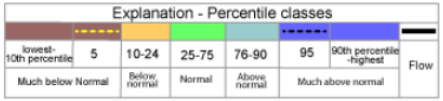
Monthly Avg. 946 cfs
55% of Avg. for March (1981-2010)

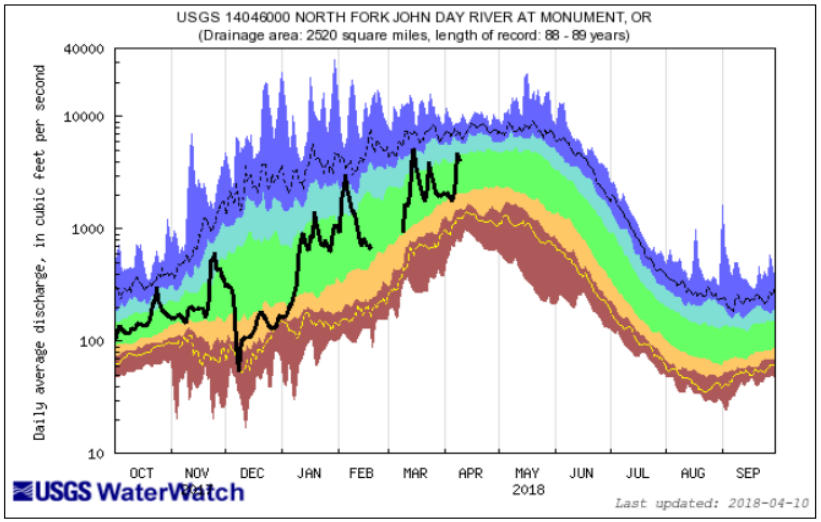
* Feb 51% Avg.

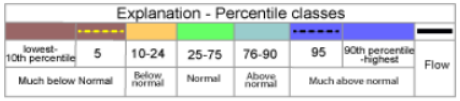
USGS

UPPER JOHN DAY





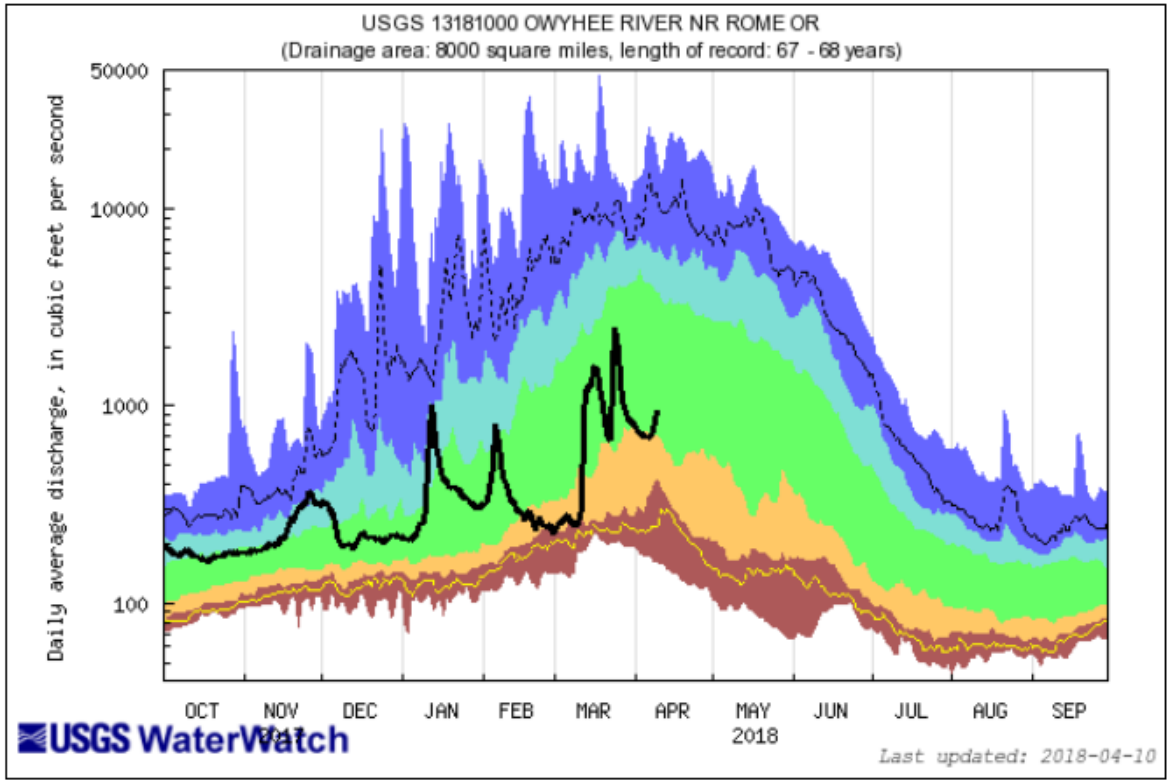


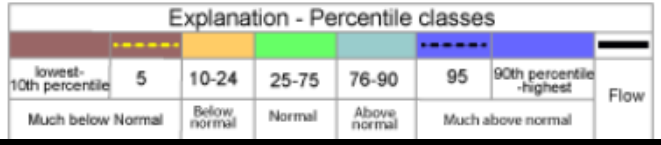


Monthly Avg. 2520 cfs
57% of Average for March
(1981-2010)

* Feb 2018 was 56% Avg.

OWYEE



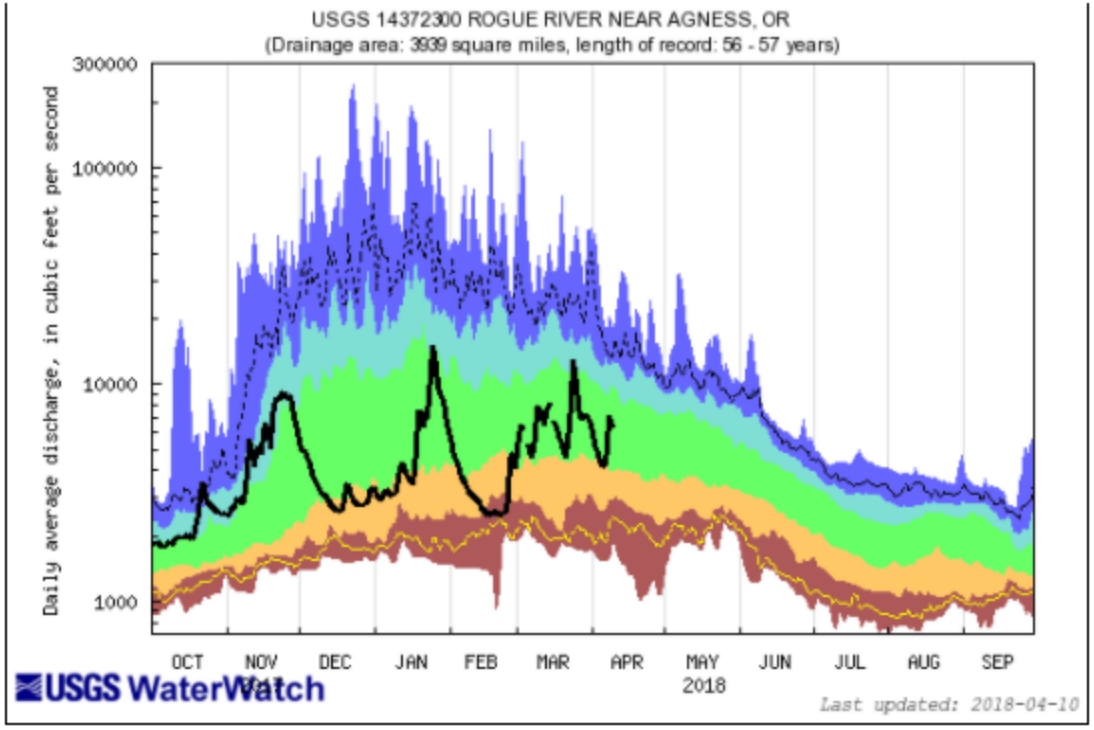


Monthly Avg. 865 cfs
32% of Average for March (1981-2010)

* Feb 2018 was 29% Avg.

USGS

ROGUE/UMPQUA BASIN

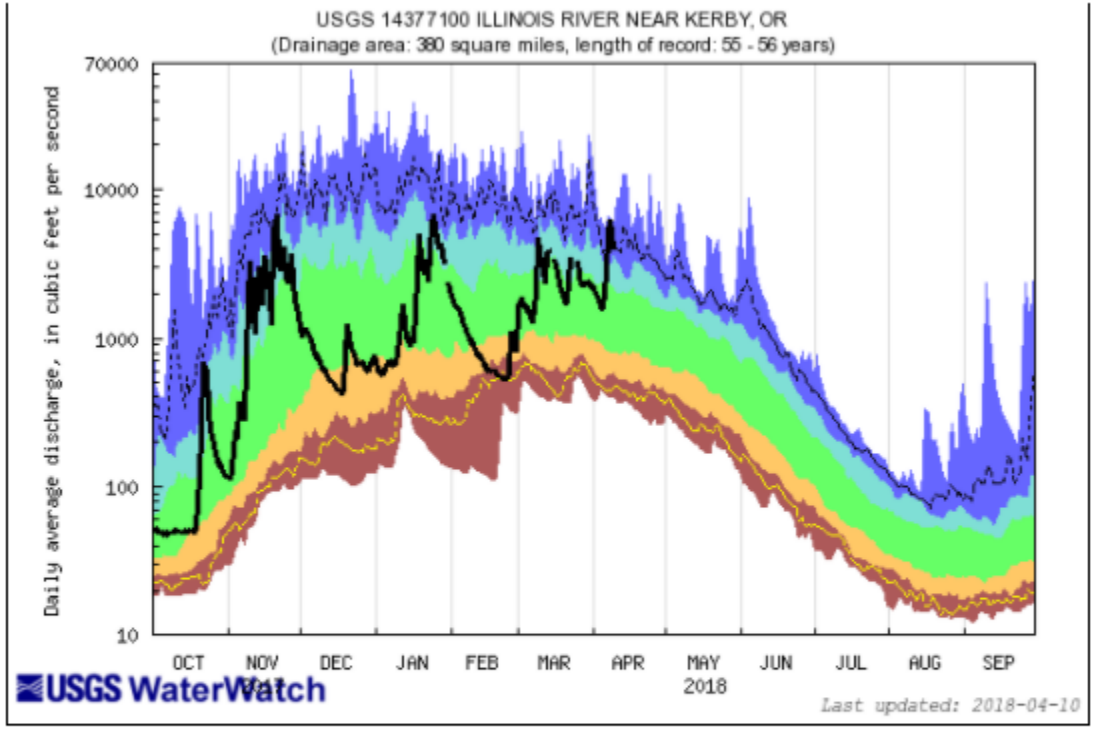


Monthly Avg. 6790 cfs
86% of Average for March (1981-2010)

* Feb 2018 was 36% Avg.

USGS

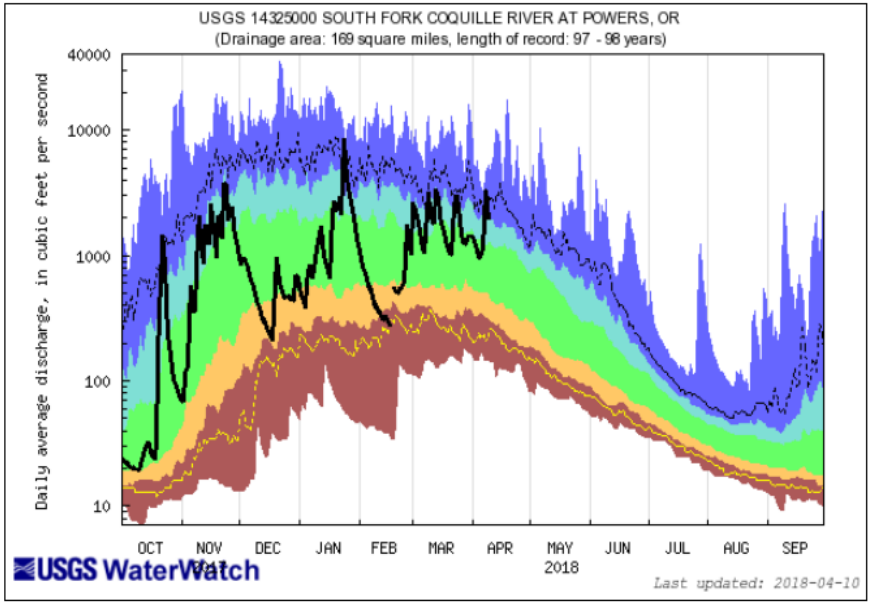
ROGUE/UMPQUA BASIN



Monthly Avg. 2570 cfs
112% of Avg. for March (1981-2010)

* Feb was 41% of Avg.

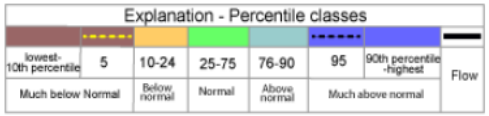
USGS

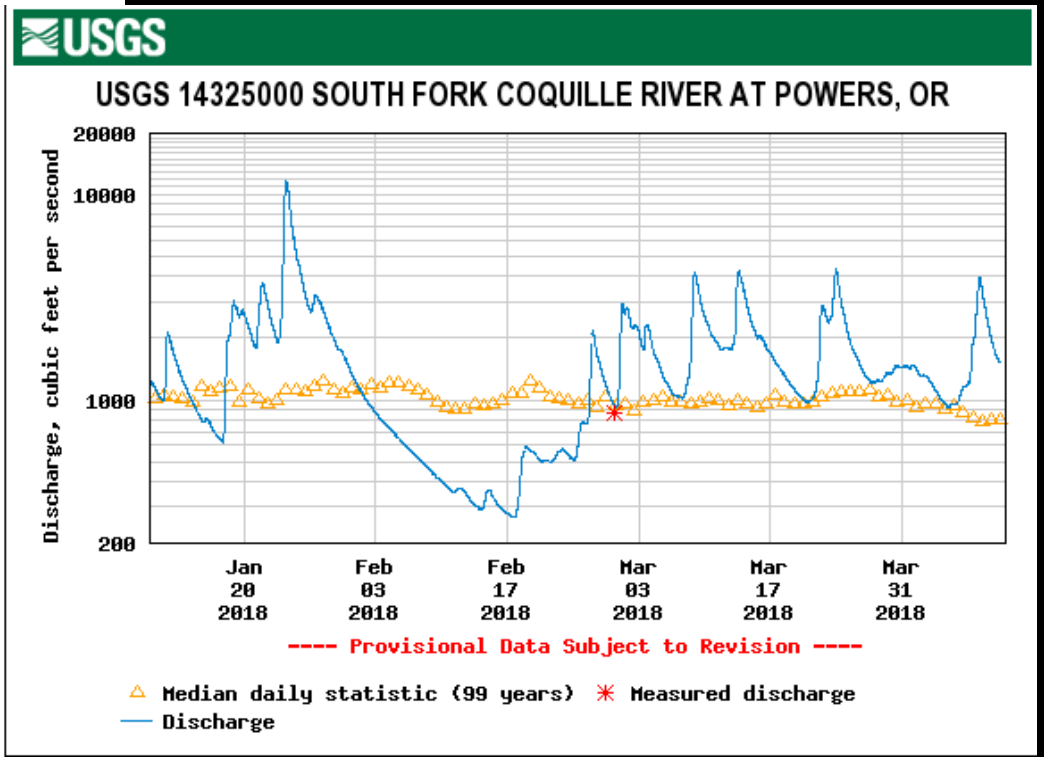


SOUTH COAST

Monthly Avg. 1890 cfs
147% of Avg. for March
(1981-2010)

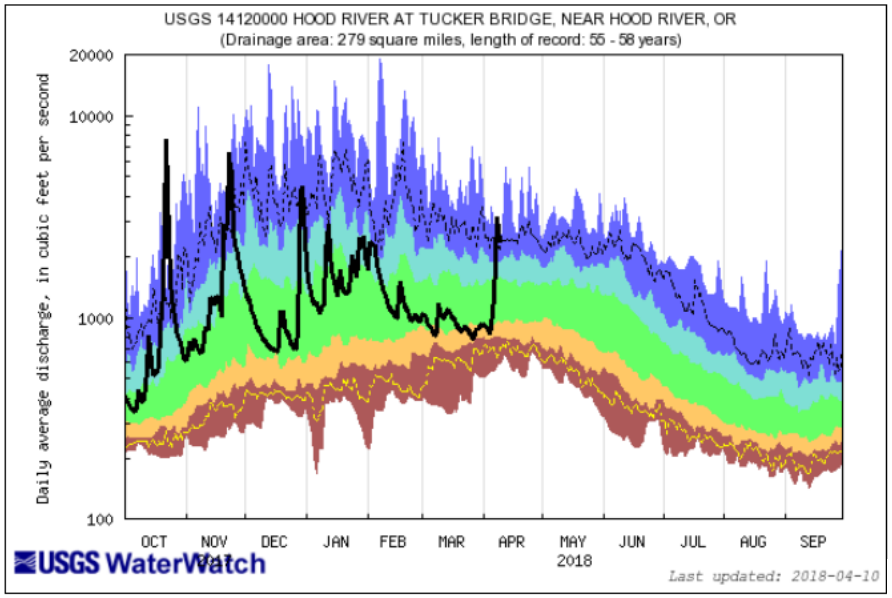
* Feb 40% of Avg.





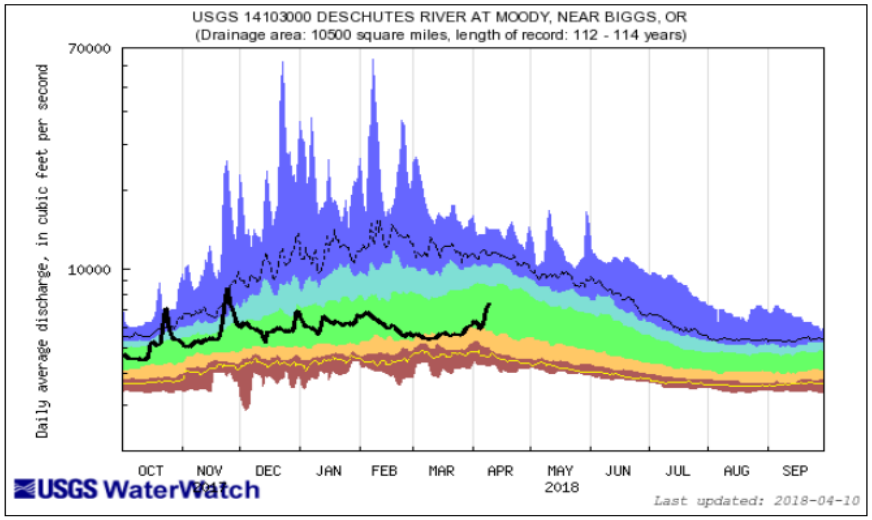
USGS

LOWER DESCHUTES / MT HOOD



Monthly Avg. 2570 cfs
112% of Avg. for March (1981-2010)

* Feb. 93% Avg.



USGS

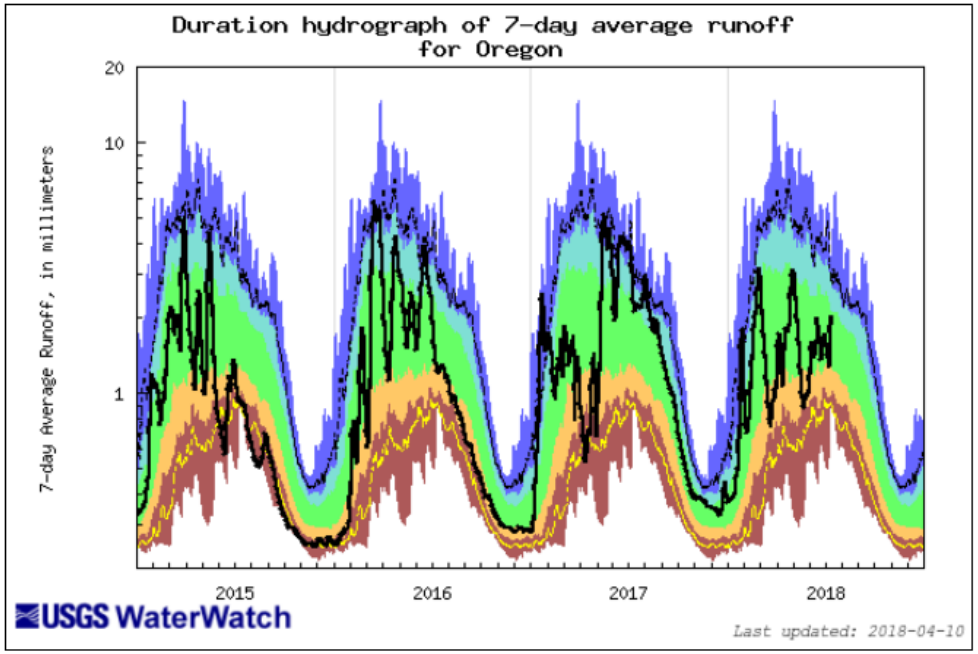
Other SWSI Basins

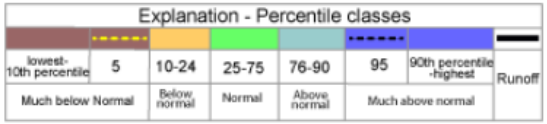
	SWSI Basin	cfs	% Avg. March
Hood River nr Hood River	Lower Deschutes Mt.Hood	935	74
Willamette River at Salem	Willamette	22,090	82
Wilson River near Tillamook	North Coast	1,353	83
Umpqua River near Elkton	Rogue/Umpqua	11,243	102
(*)Deep Creek above Adel	Lake County	119	47
(*)Chewaucan River near Paisley	Lake County	111	52

USGS

https://or.water.usgs.gov/data_dir/war_dir/

https://waterwatch.usgs.gov/index.php?id=ww_annual_summary





Power Point “USGS Update on Surface Water Conditions”

By: Marc Stewart USGS ORWSC

Water Availability Report By: Tiffany Rae Jacklin USGS ORWSC

USGS

RECLAMATION

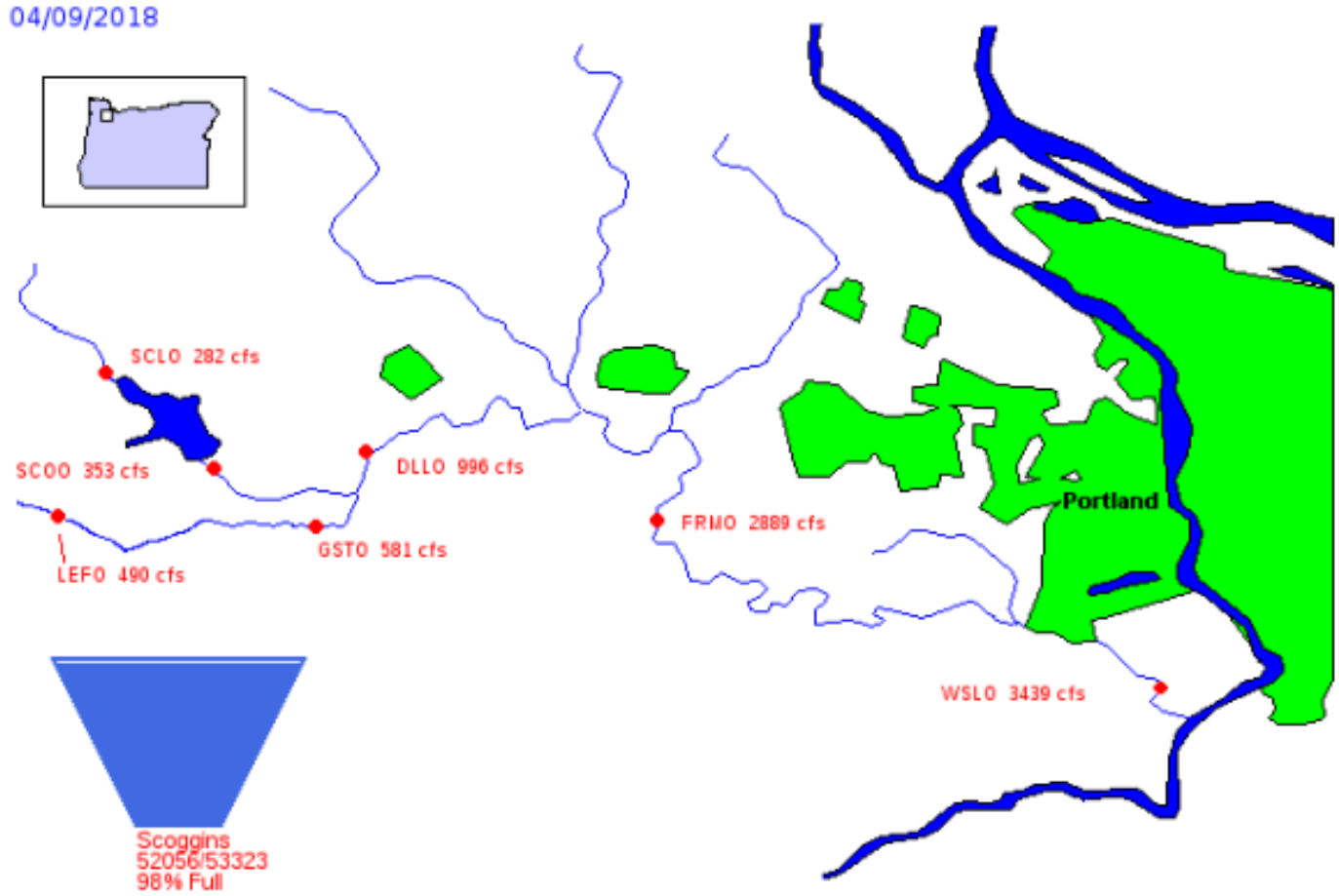
Managing Water in the West

Oregon Water Supply Availability Committee Meeting
April 10, 2018

Peter Cooper
PN Region RRO

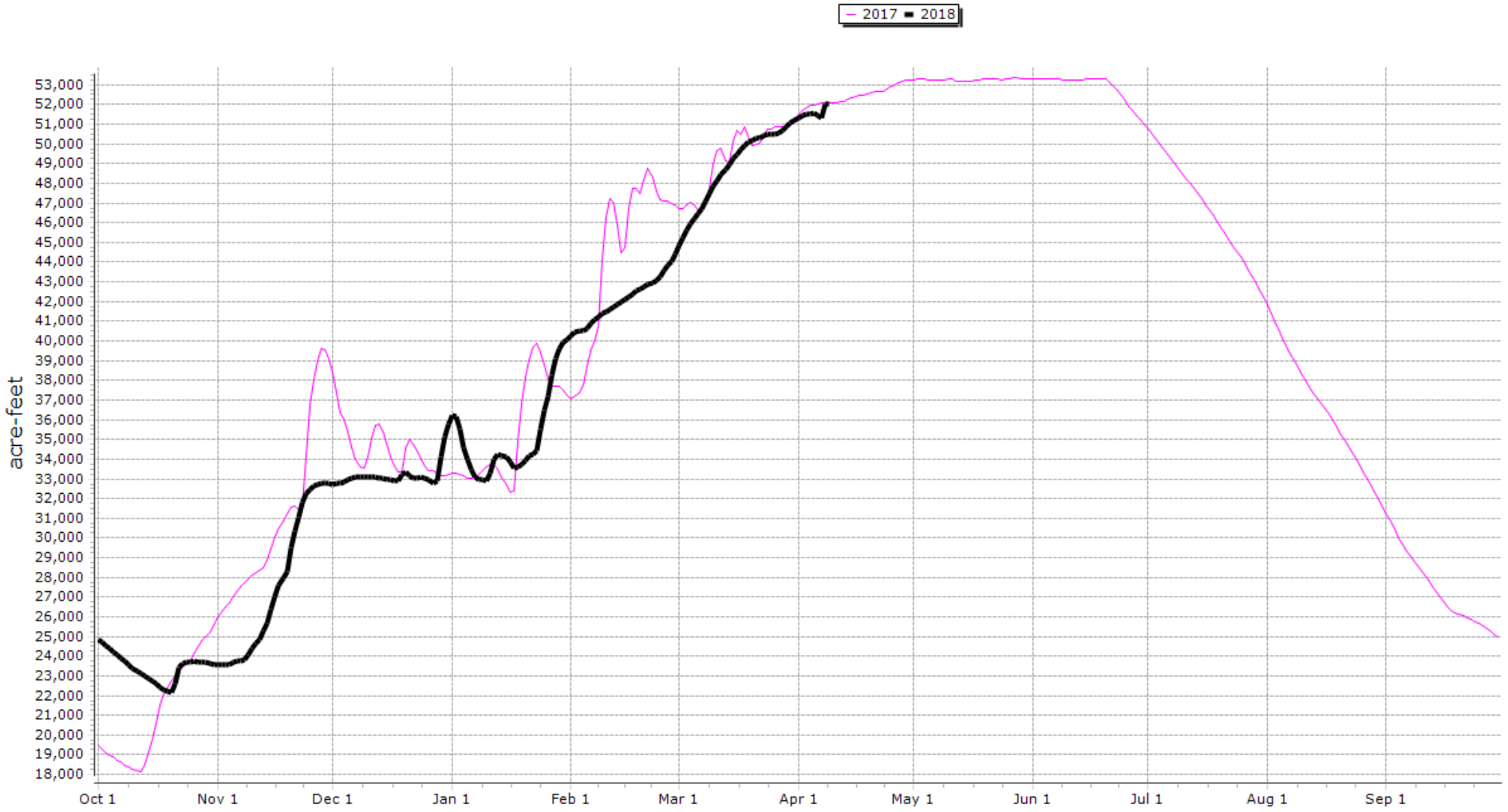
U.S. Department of the Interior
Bureau of Reclamation

Bureau of Reclamation, Pacific Northwest Region
Tualatin River Basin Storage and Flow Diagram



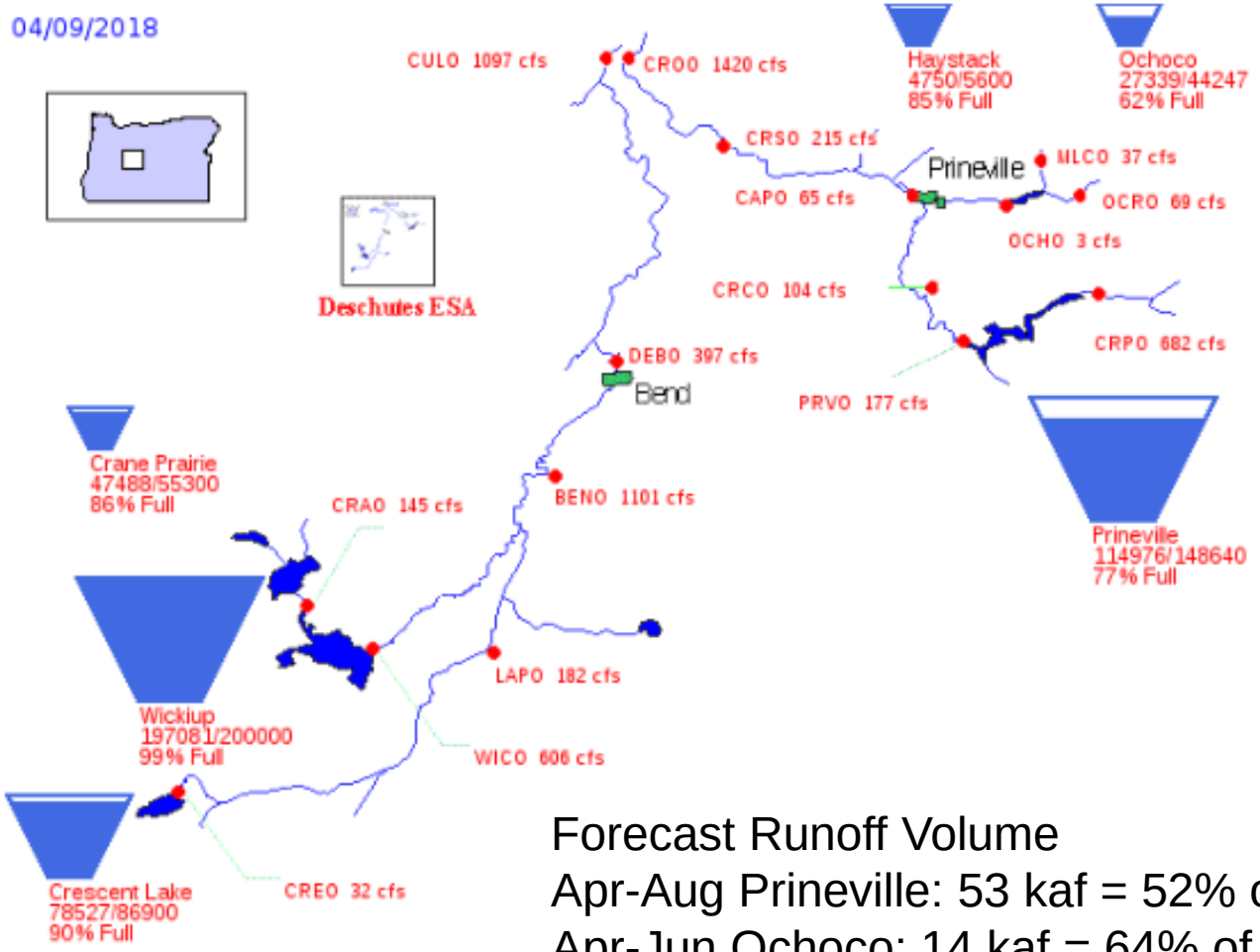
RECLAMATION

Scoggins Dam & Henry Hagg Lake nr Forest Grove, OR Elevation:200.0000



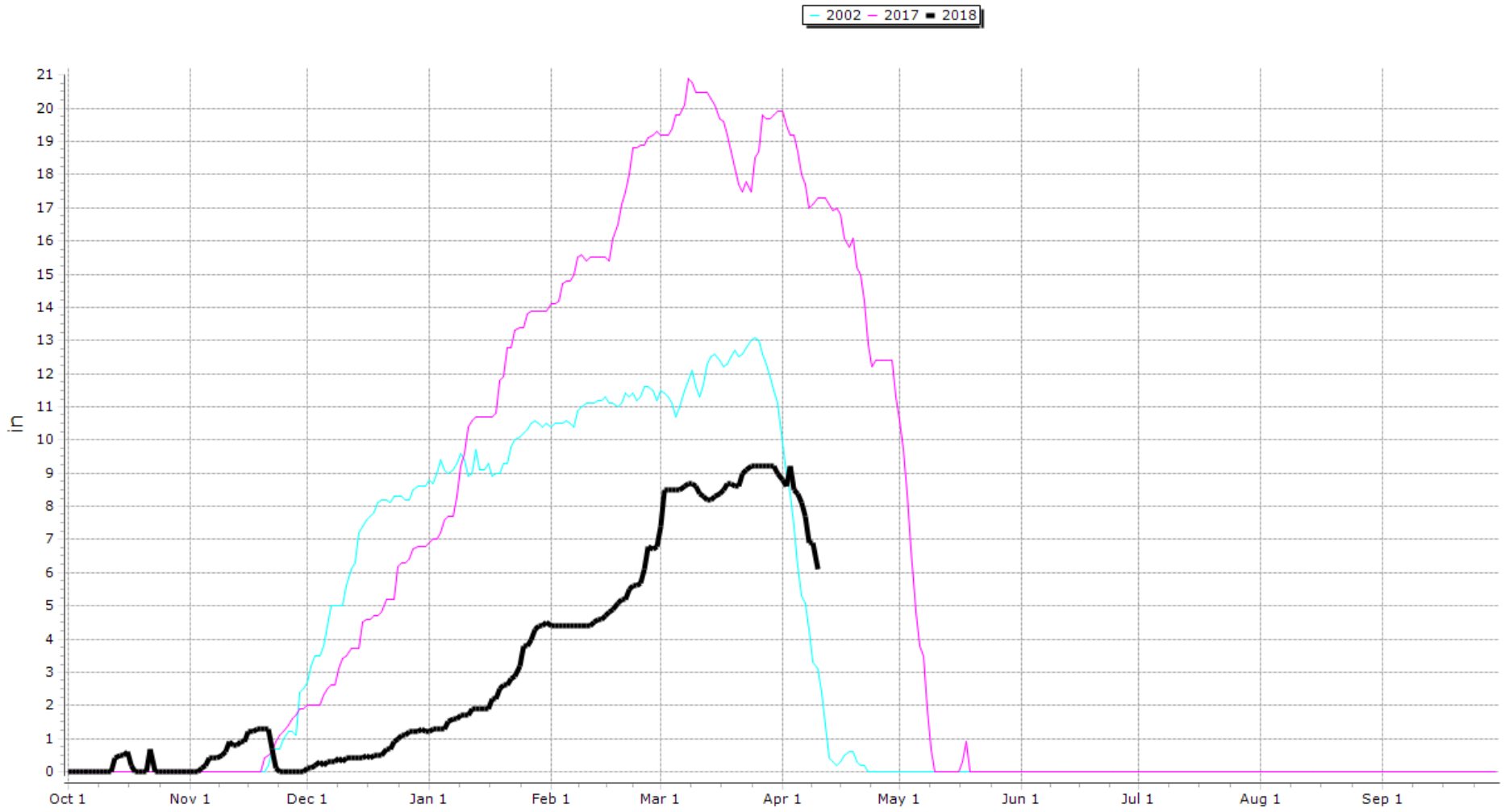
RECLAMATION

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

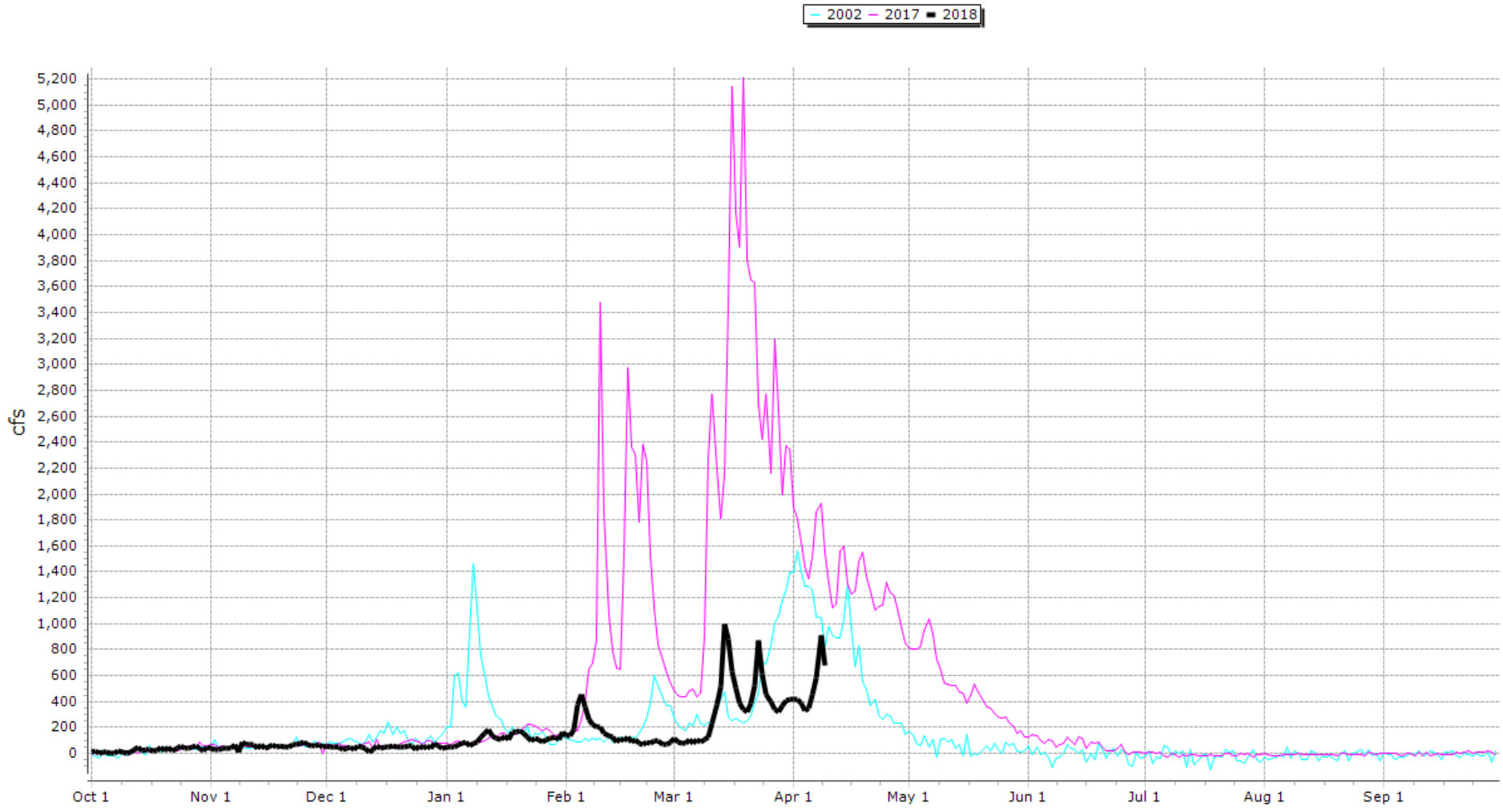


Forecast Runoff Volume
Apr-Aug Prineville: 53 kaf = 52% of ave
Apr-Jun Ochoco: 14 kaf = 64% of ave

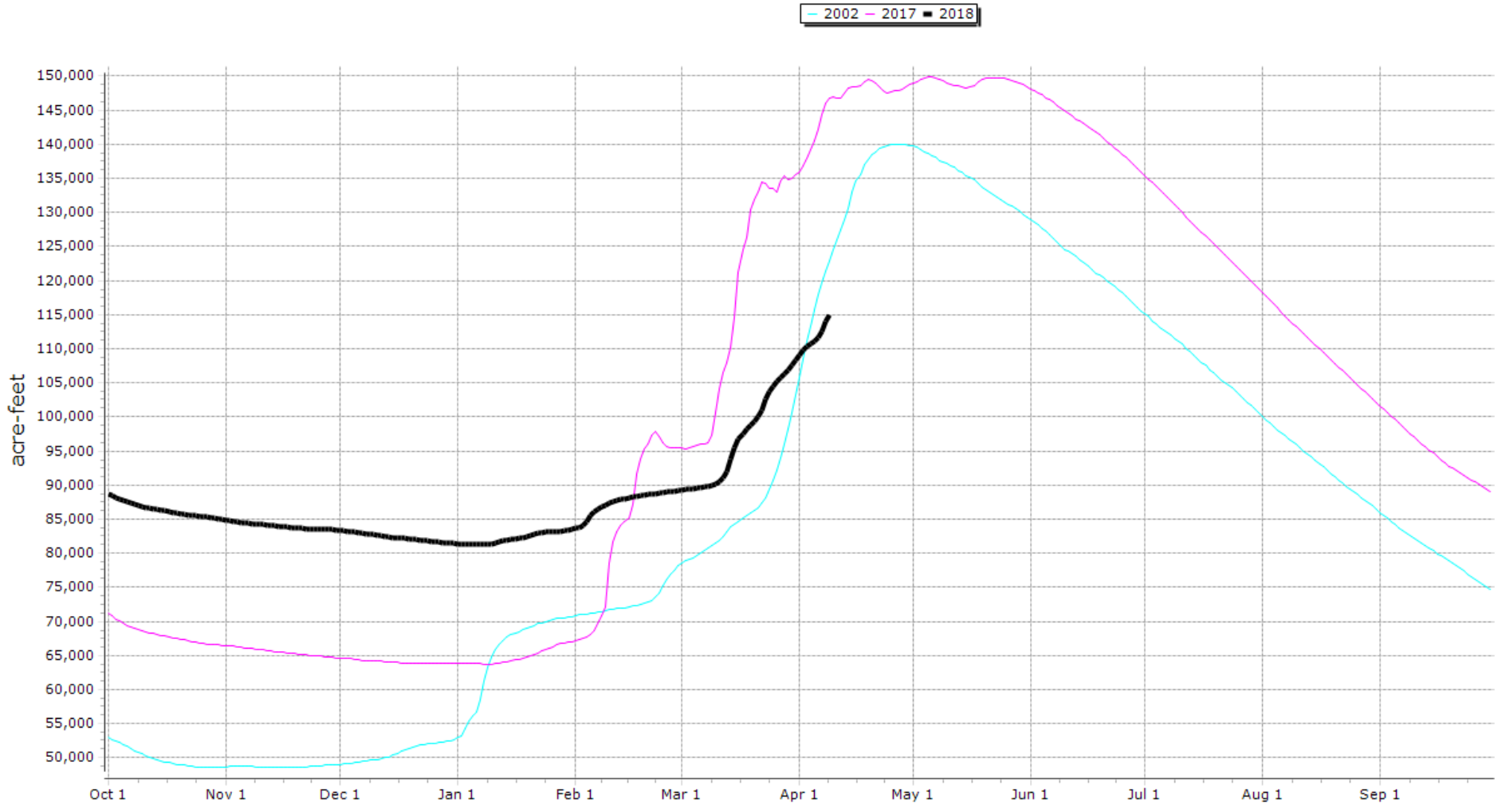
RECLAMATION


DERR. Elevation:5670.000
2002
2017
2018
in
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1

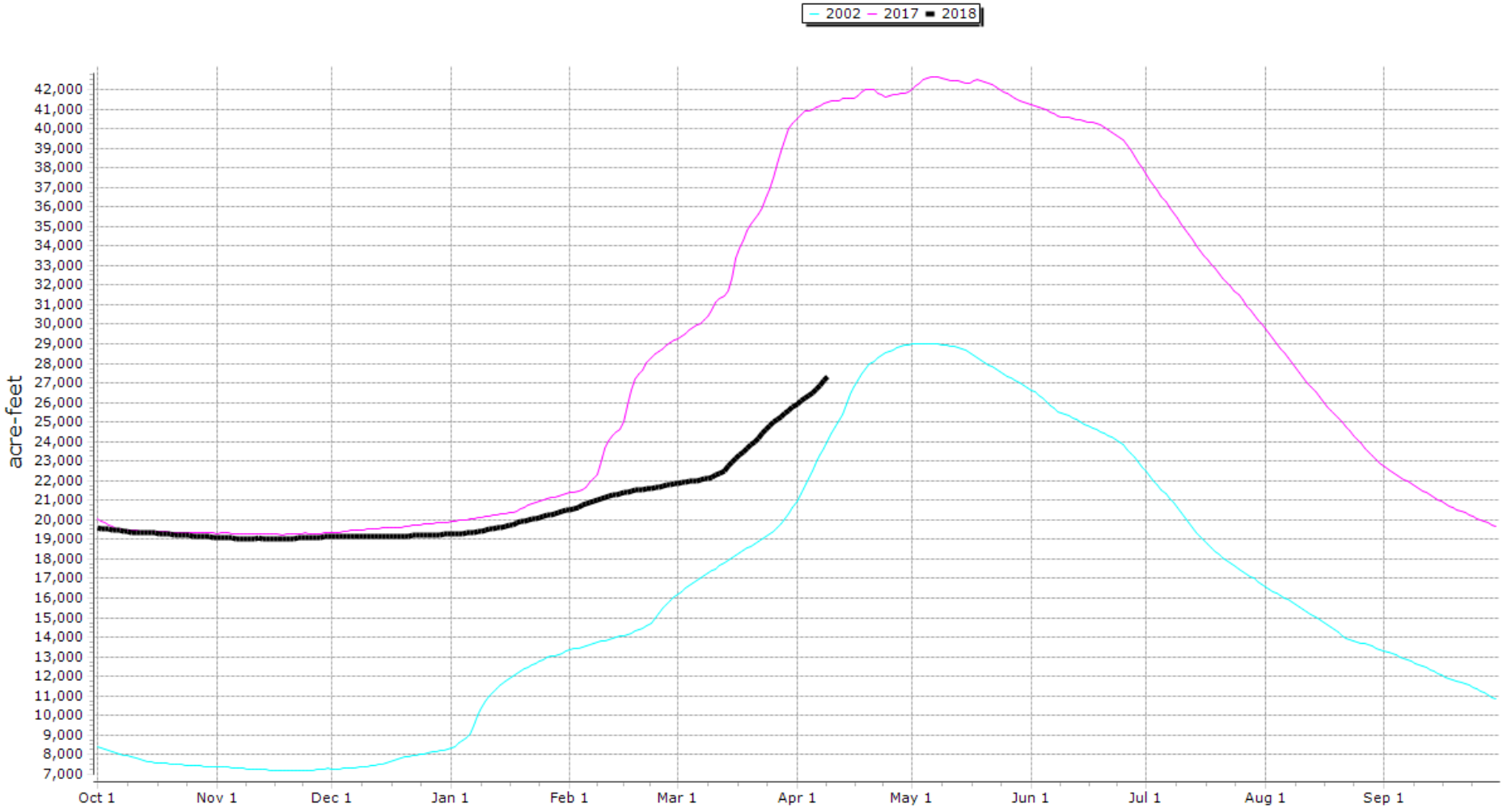
Crooked River near Prineville, OR Elevation:3071.000



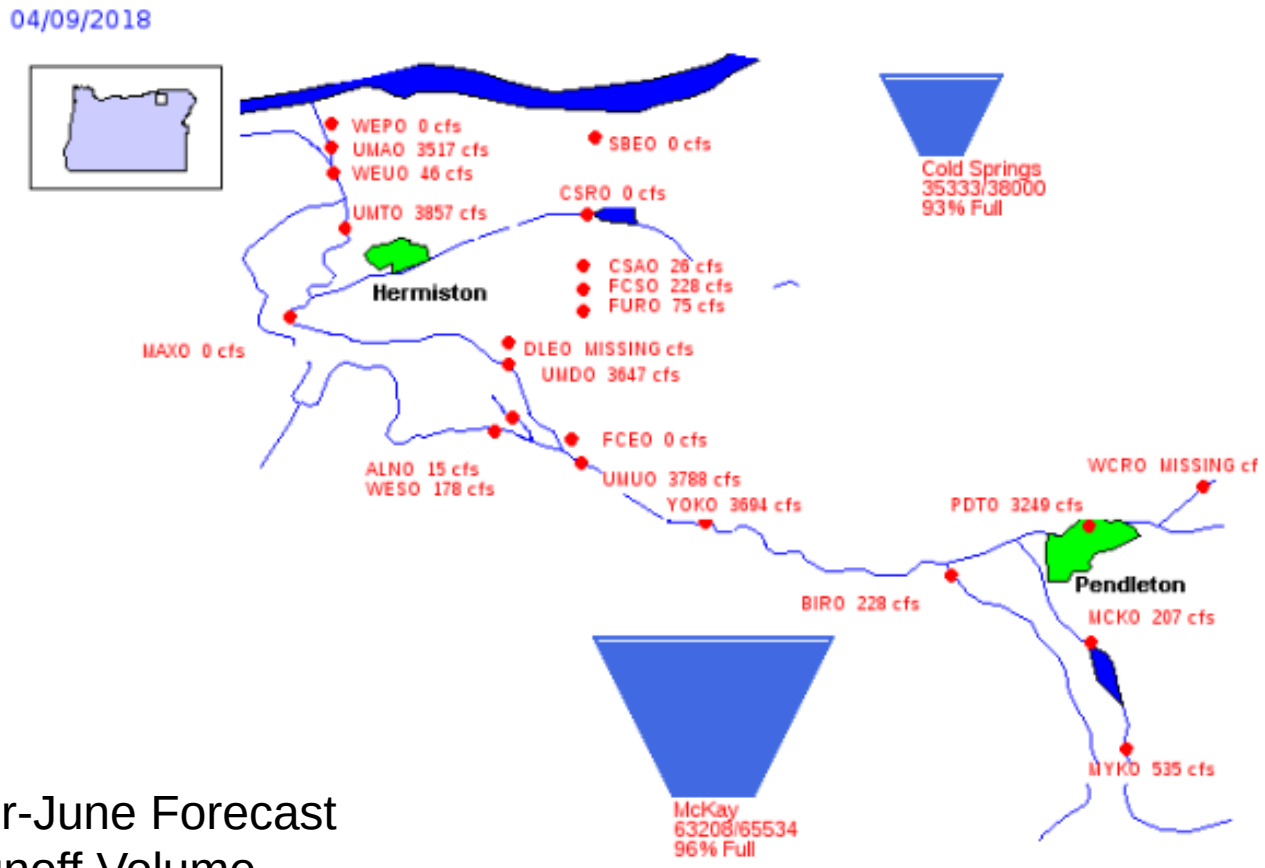
Prineville Reservoir nr Prineville, OR Elevation:3264.000



Ochoco Reservoir near Prineville, OR Elevation:3143.000



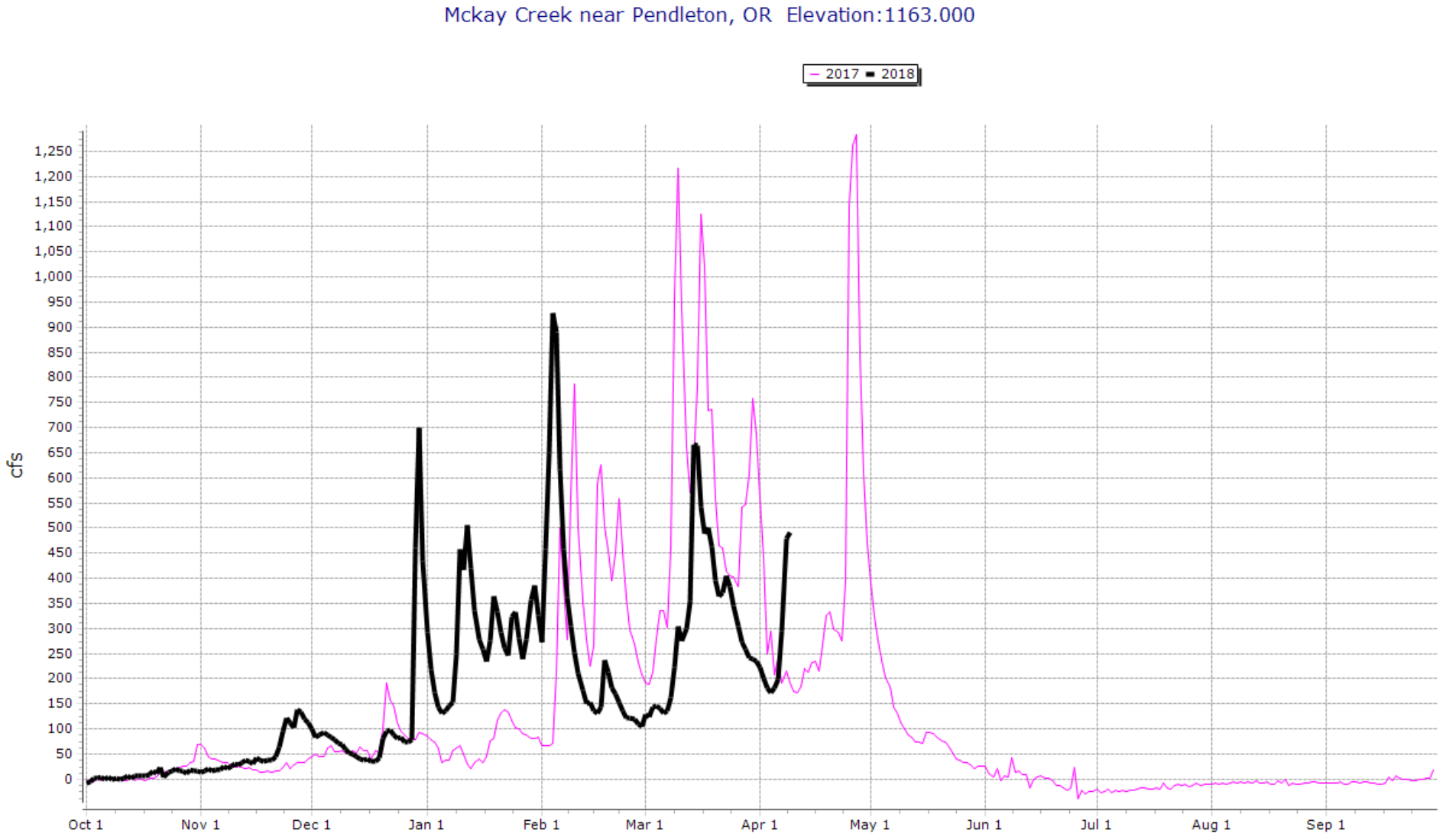
Bureau of Reclamation, Pacific Northwest Region
Umatilla River Basin Storage and Flow Diagram



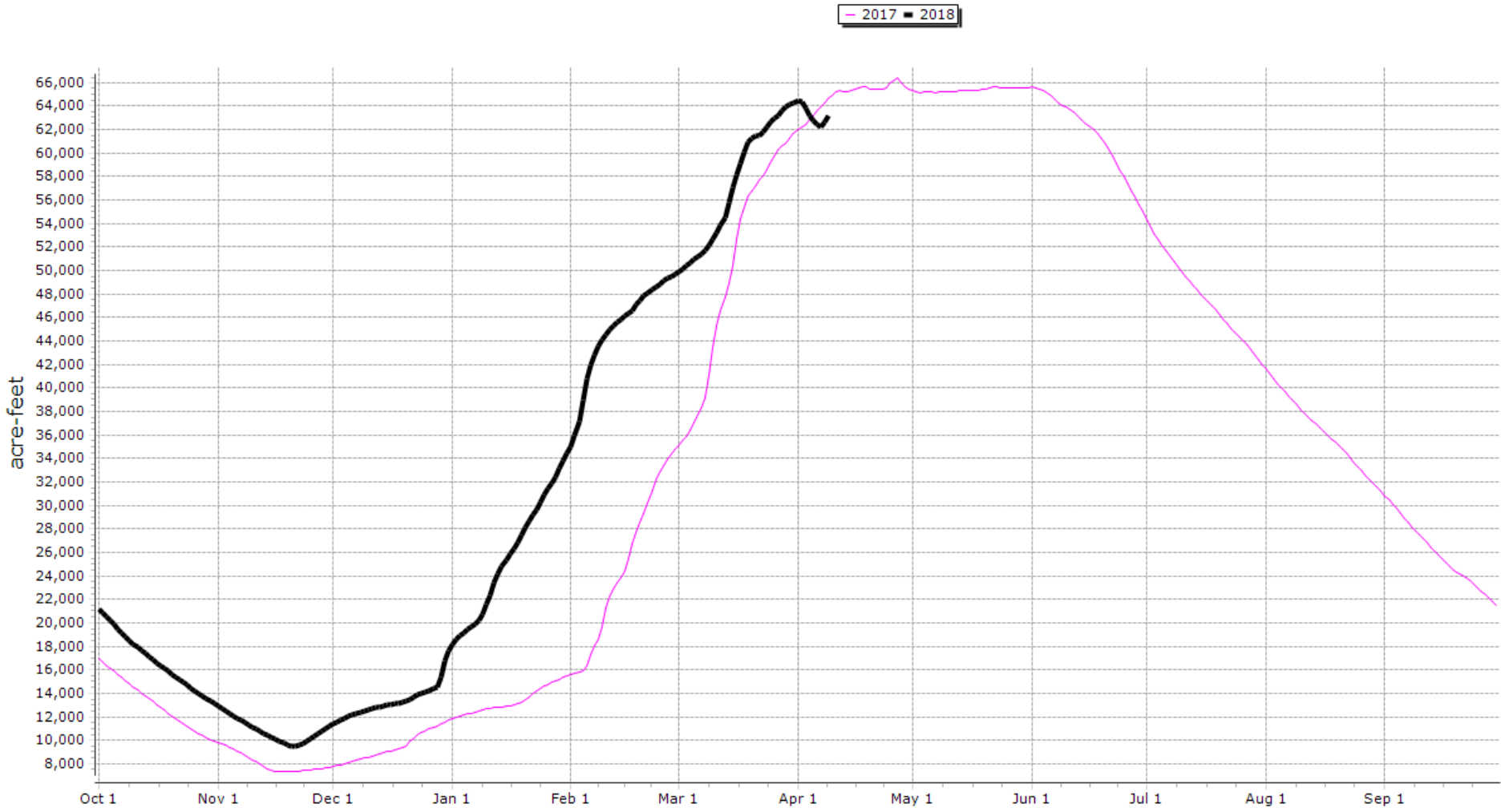
Apr-June Forecast
Runoff Volume
McKay: 26 kaf = 100% of ave

PROVISIONAL DATA - SUBJECT TO CHANGE!

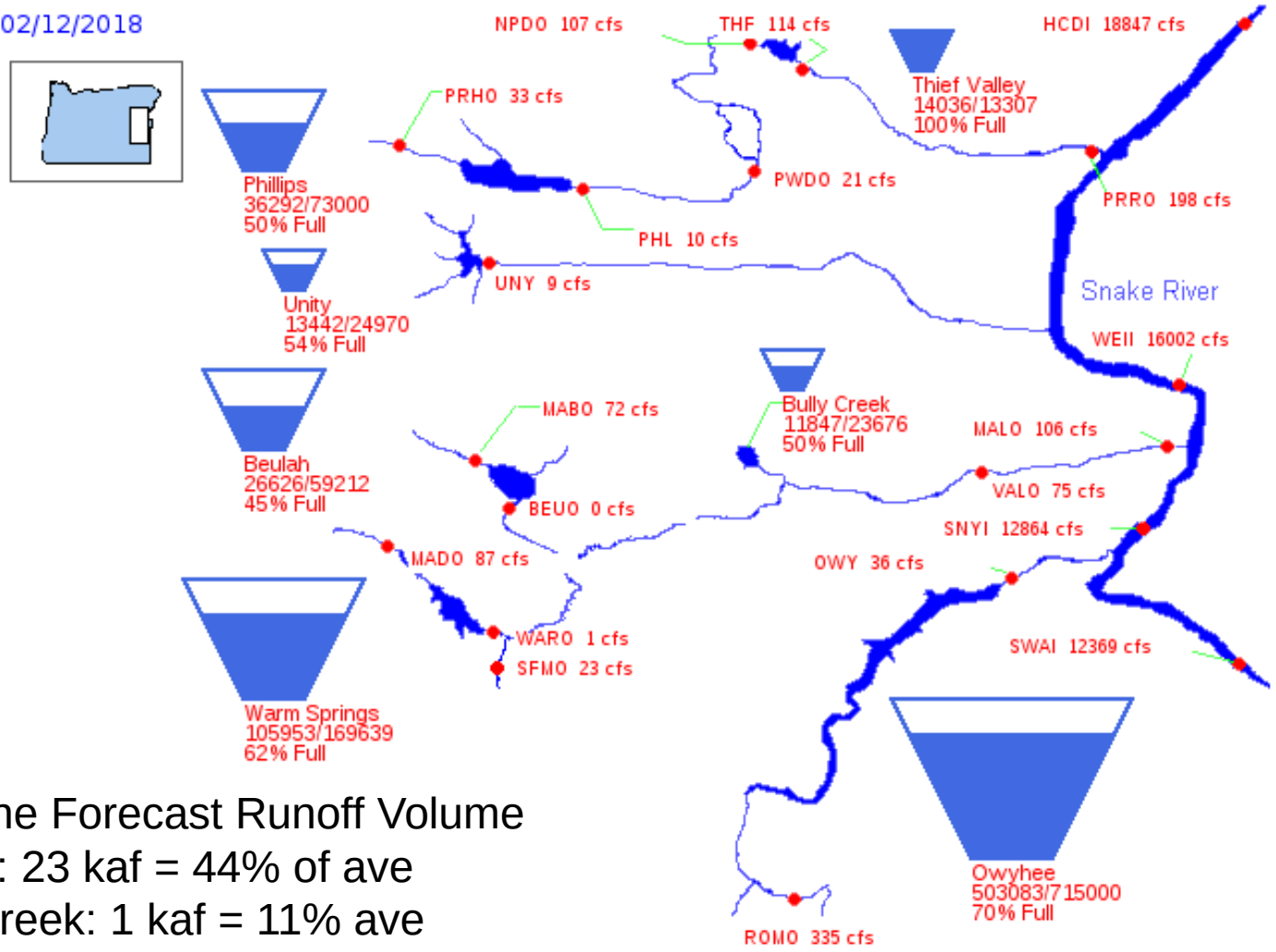
RECLAMATION


Mckay Creek near Pendleton, OR Elevation:1163.000
2017
2018
cfs
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1

McKay Reservoir near Pendleton, OR Elevation:1333.000



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

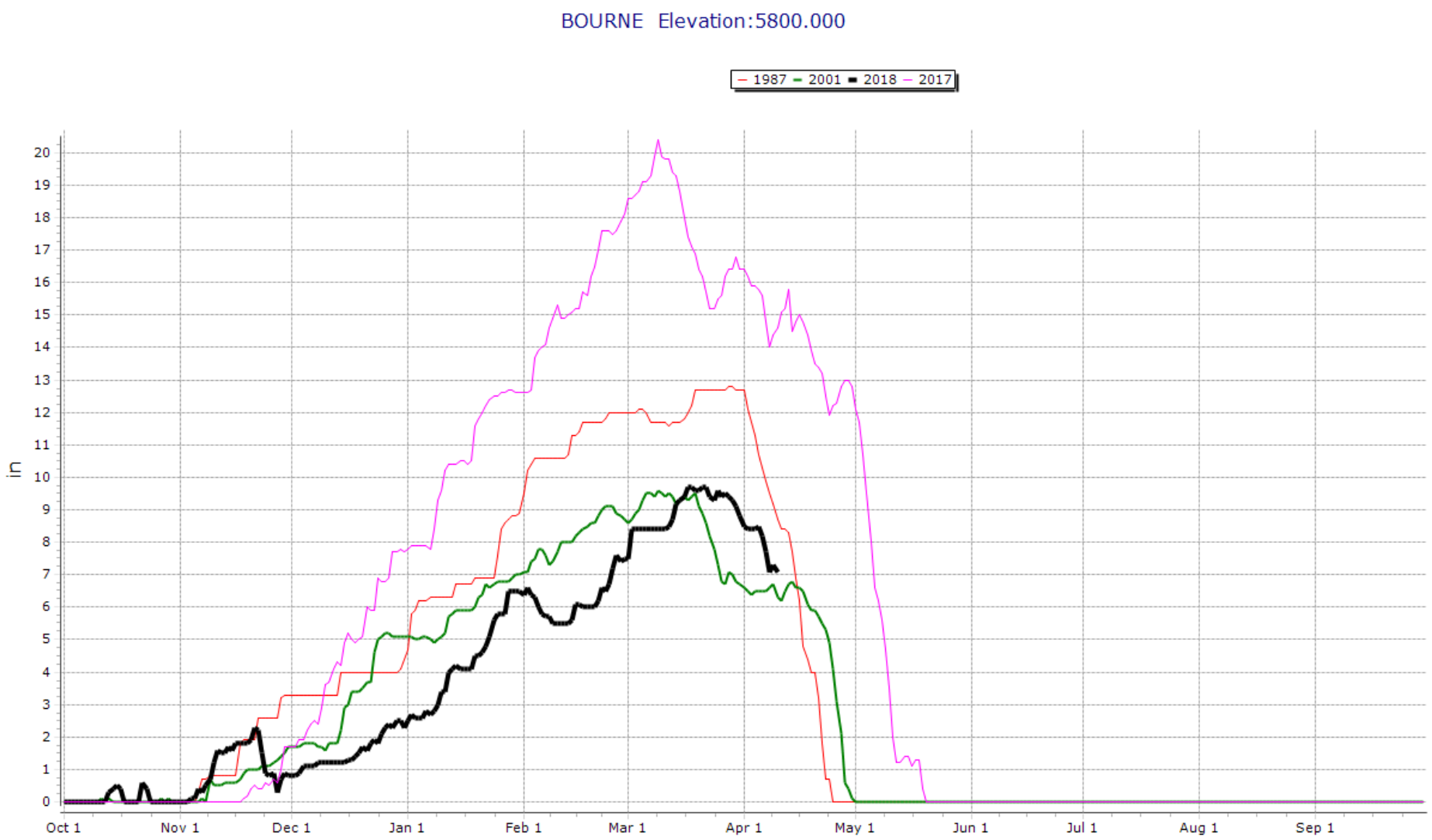


Apr-June Forecast Runoff Volume
Beulah: 23 kaf = 44% of ave
Bully Creek: 1 kaf = 11% ave
Owyhee: 82 kaf = 23%
Warm Springs: 31 kaf = 46%

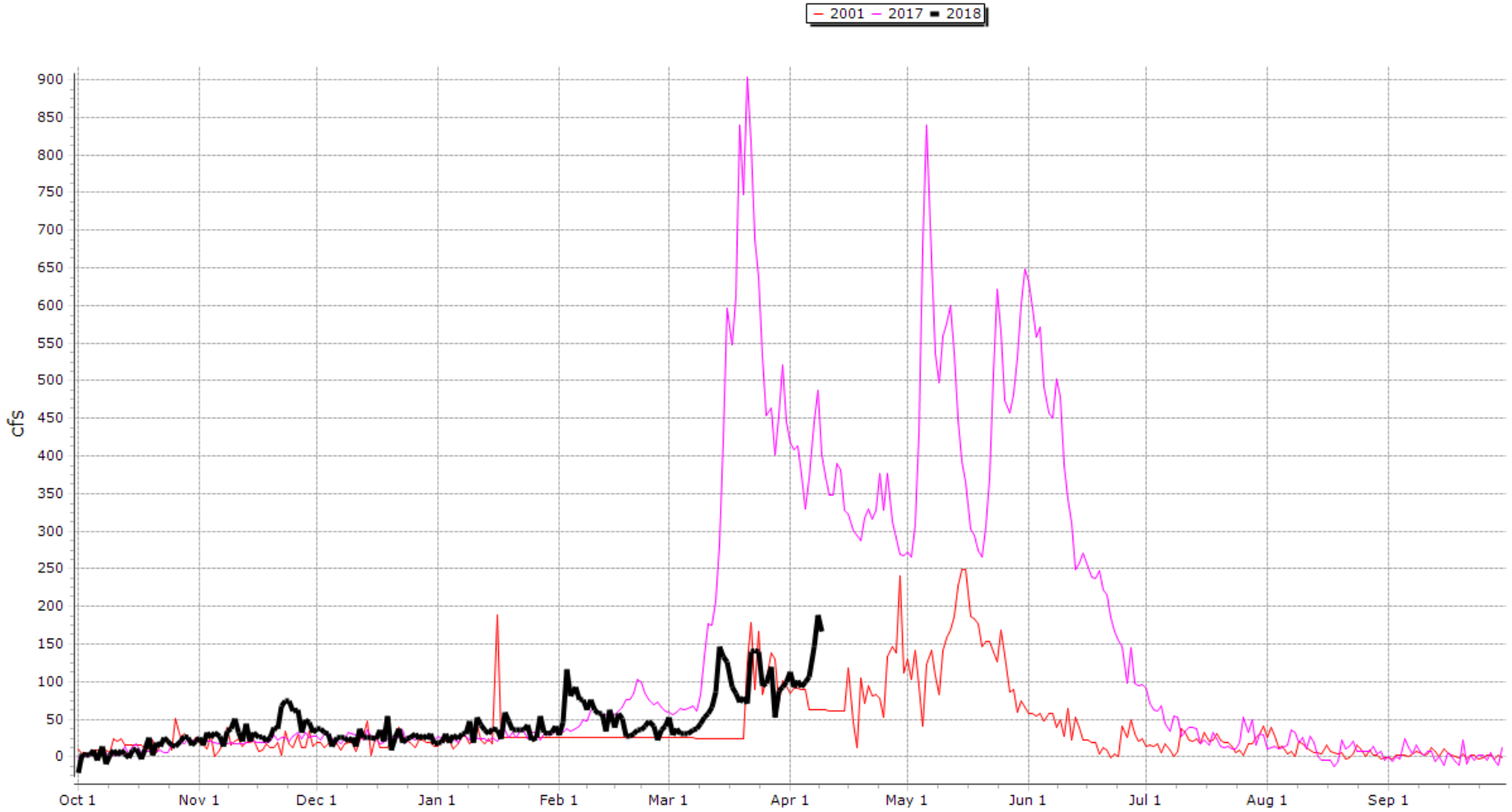
RECLAMATION

Baker

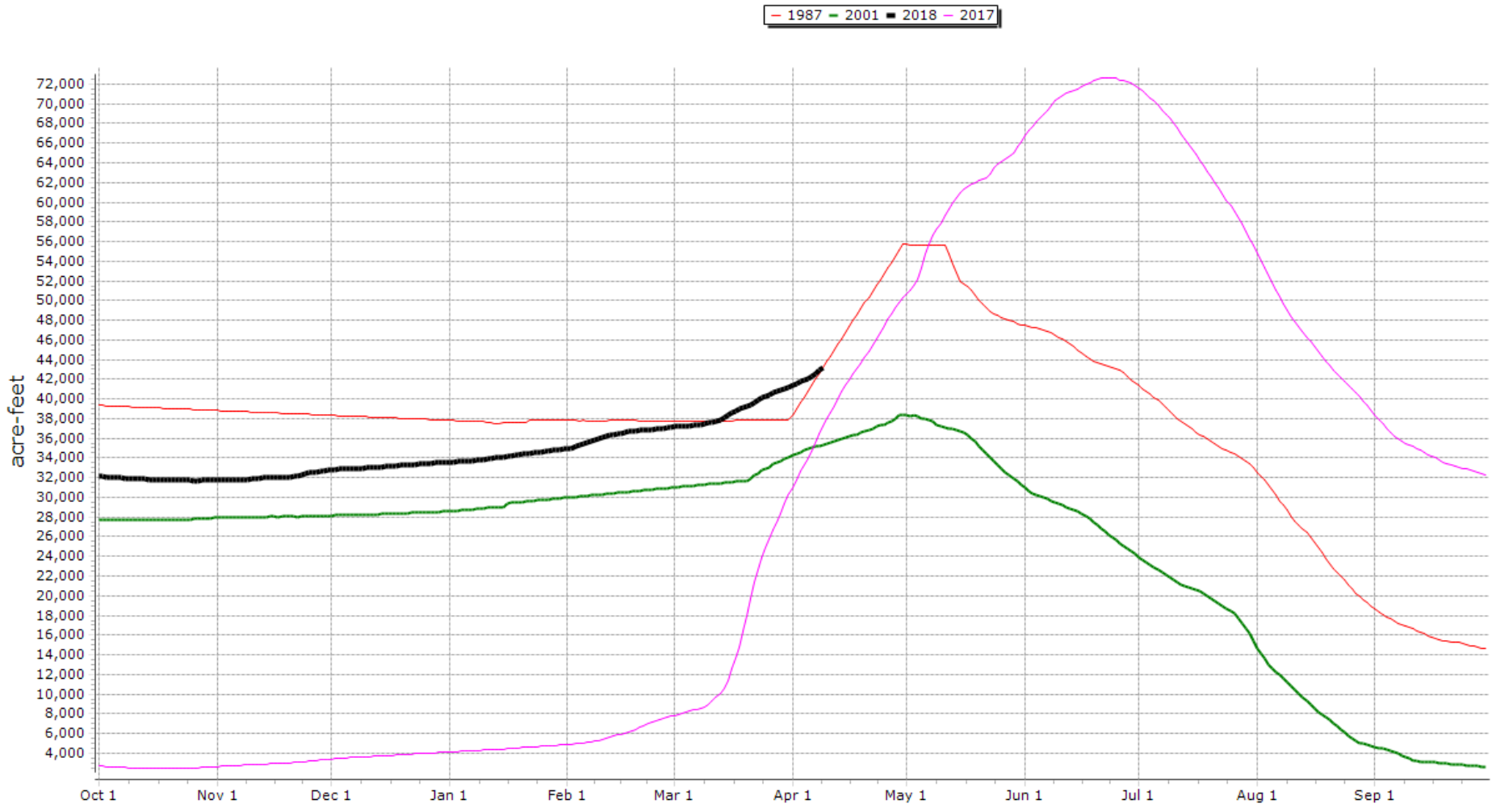
RECLAMATION


BOURNE Elevation:5800.000
1987
2001
2018
2017
in
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1

Mason Dam and Phillips Lake near Sumpter, OR Elevation:3898.000

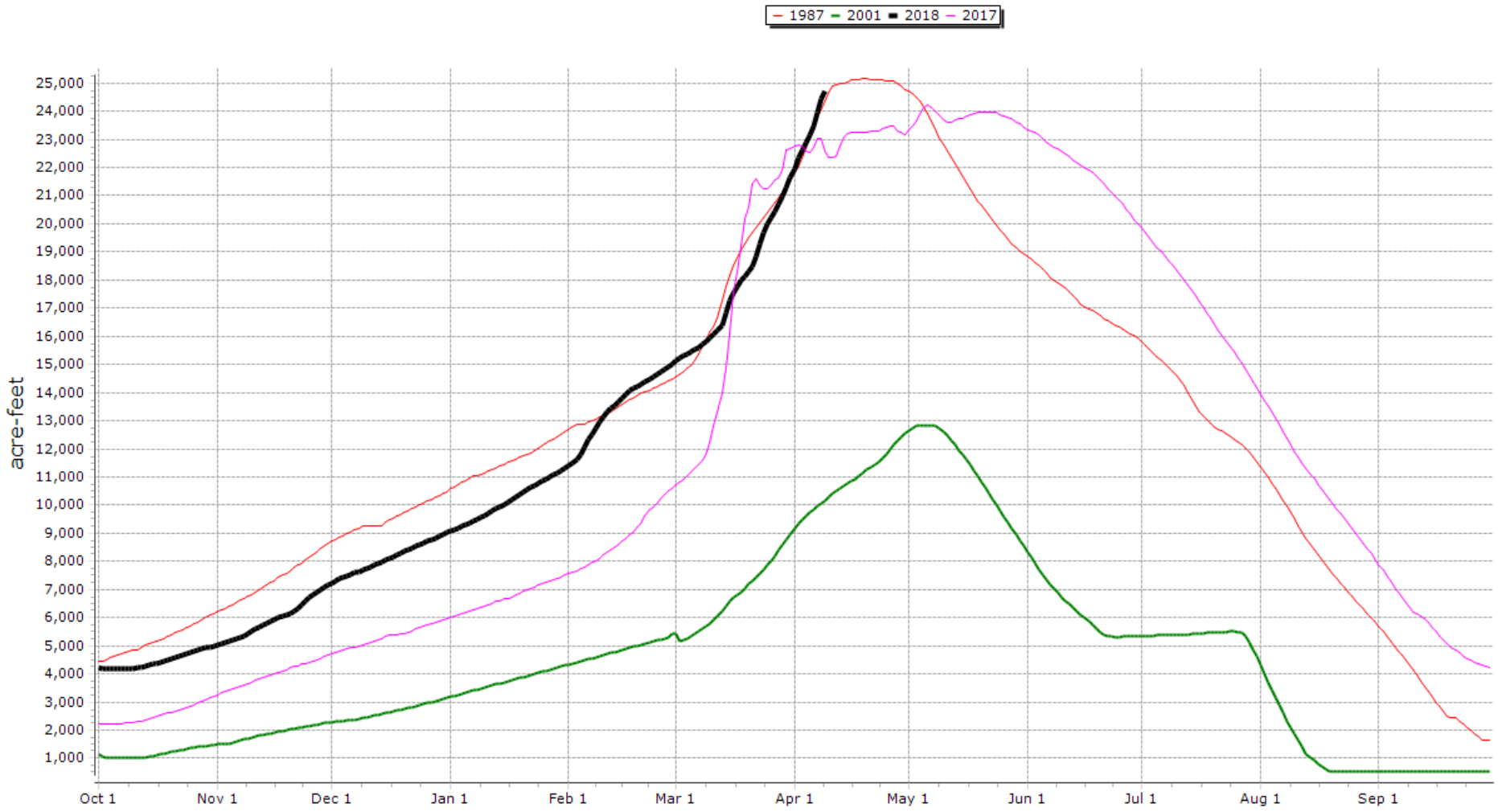


Mason Dam and Phillips Lake near Sumpter, OR Elevation:3898.000



RECLAMATION

Unity Reservoir and Burnt River near Unity, Oregon Elevation:3820.000

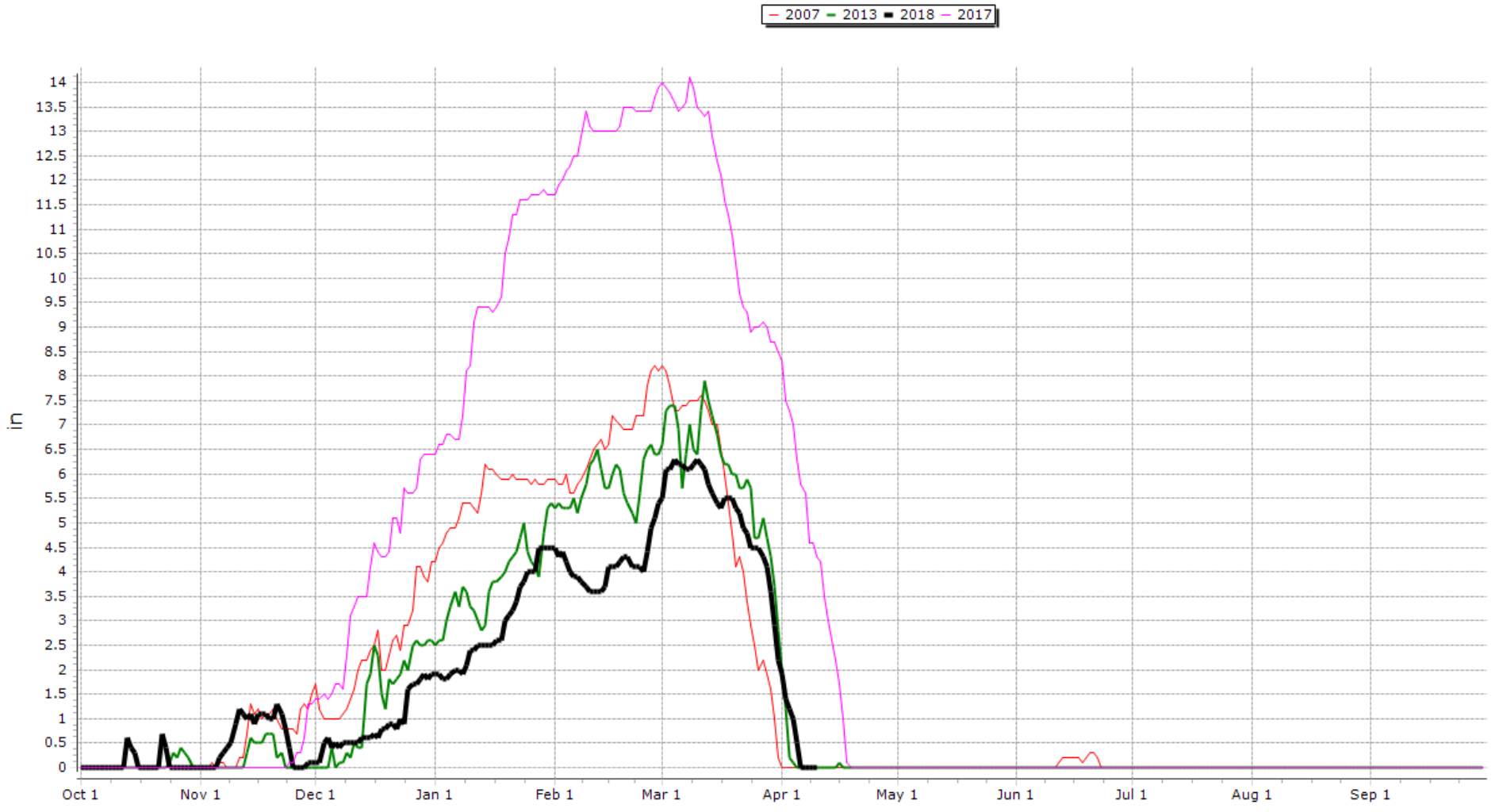


RECLAMATION

Malheur

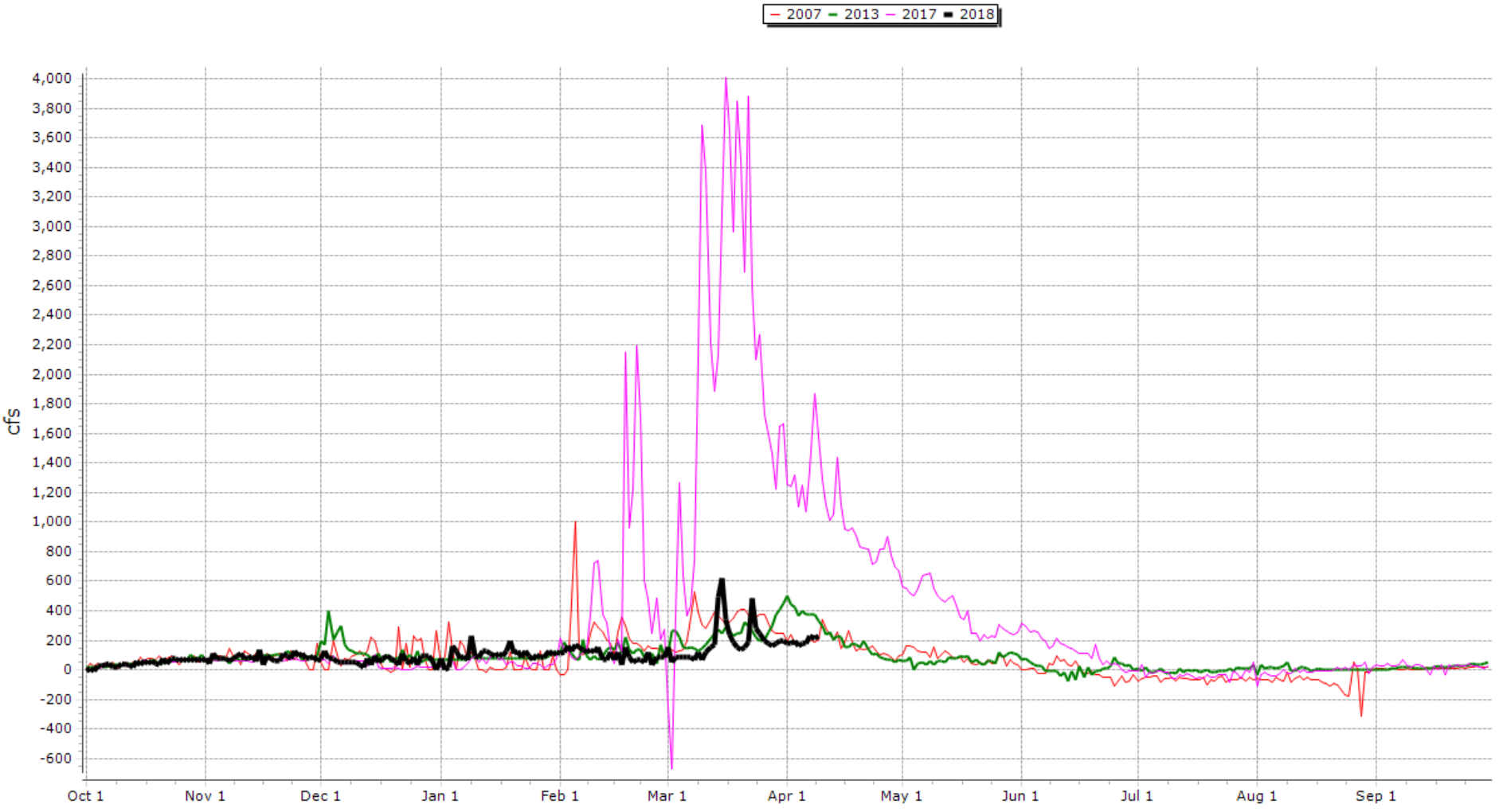
RECLAMATION

LAKE CREEK R.S. Elevation:5200.000

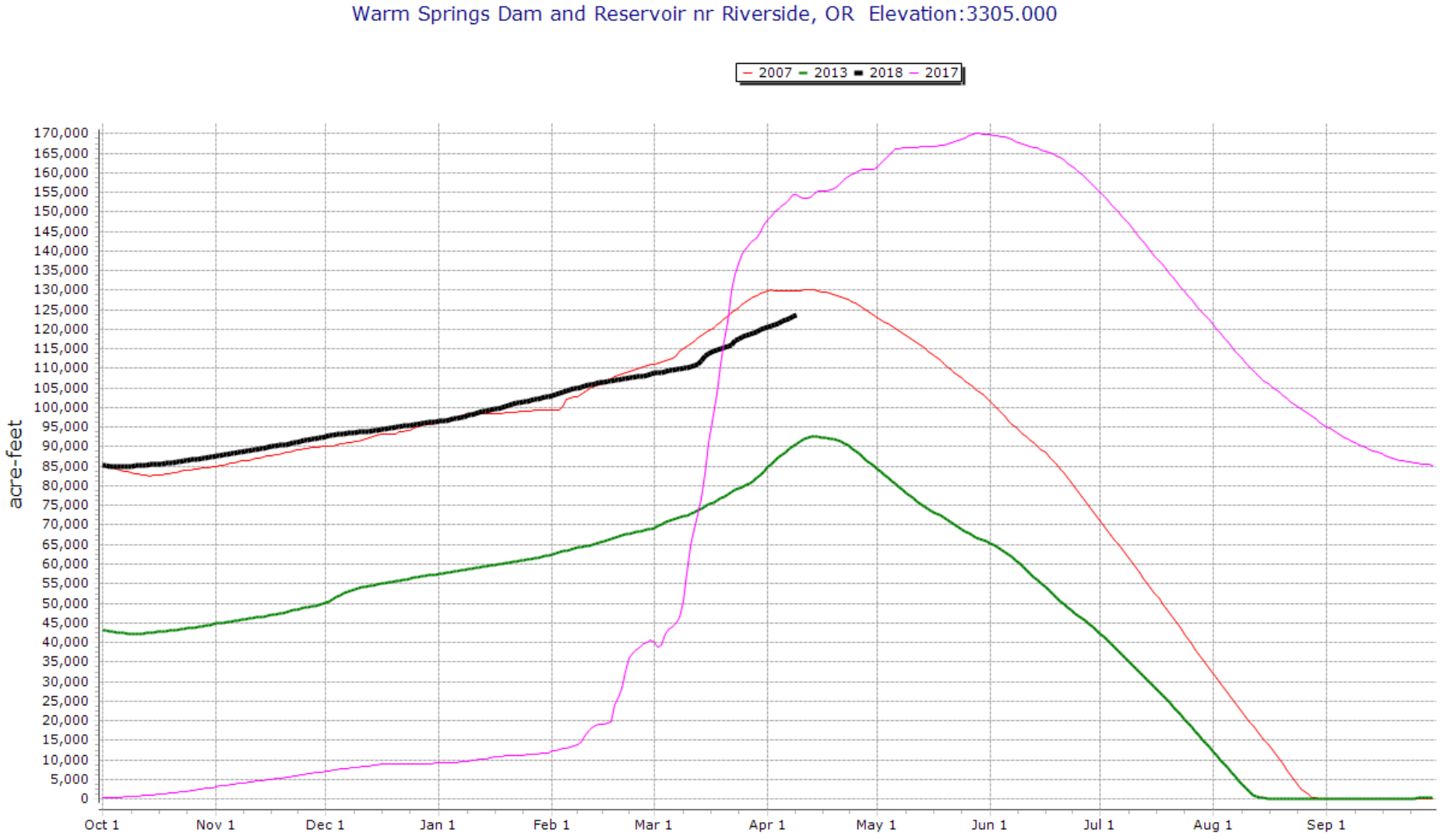


RECLAMATION

Malheur River bel Warm Springs Res nr Riverside, OR Elevation:3305.000

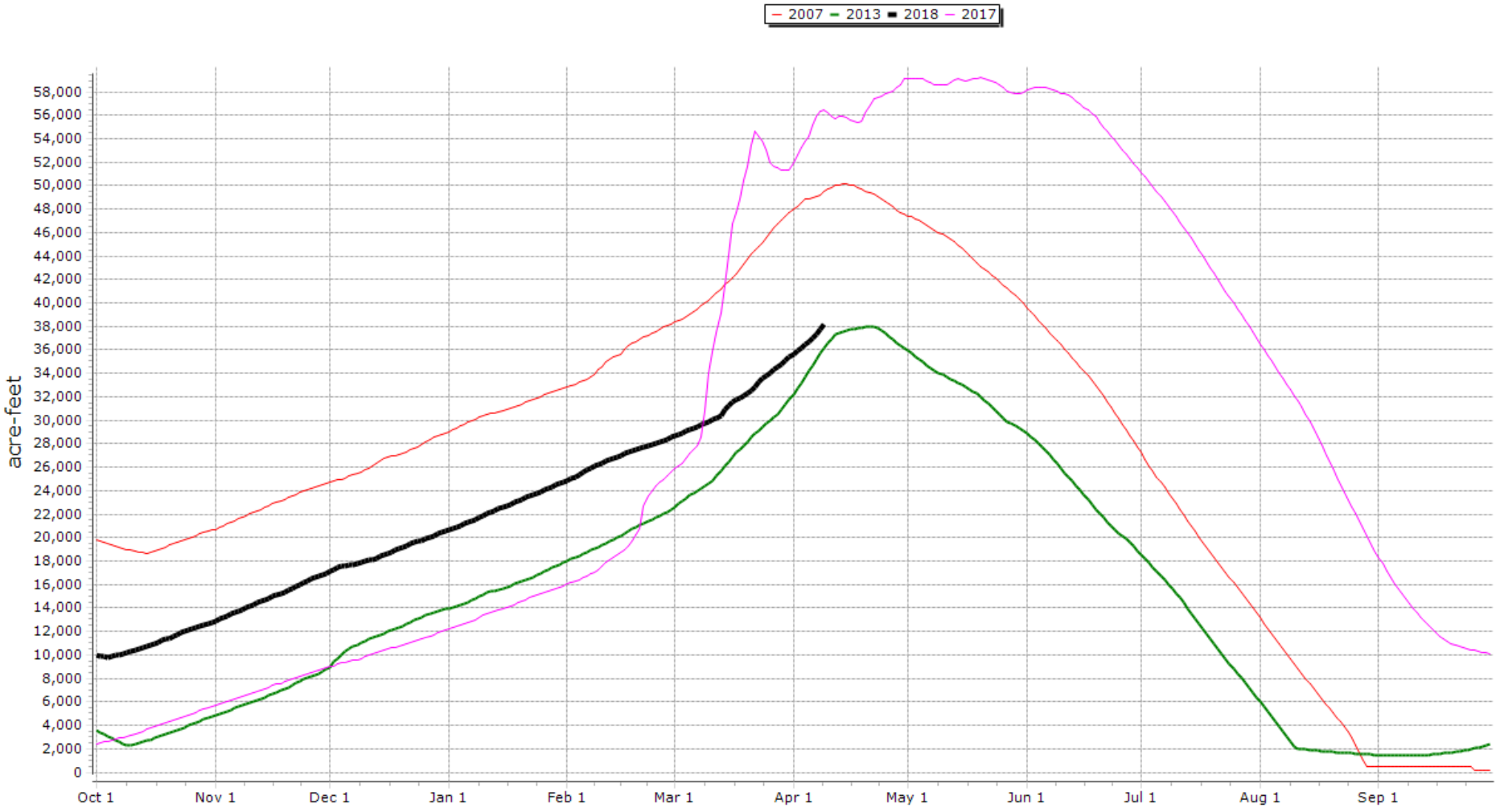


RECLAMATION



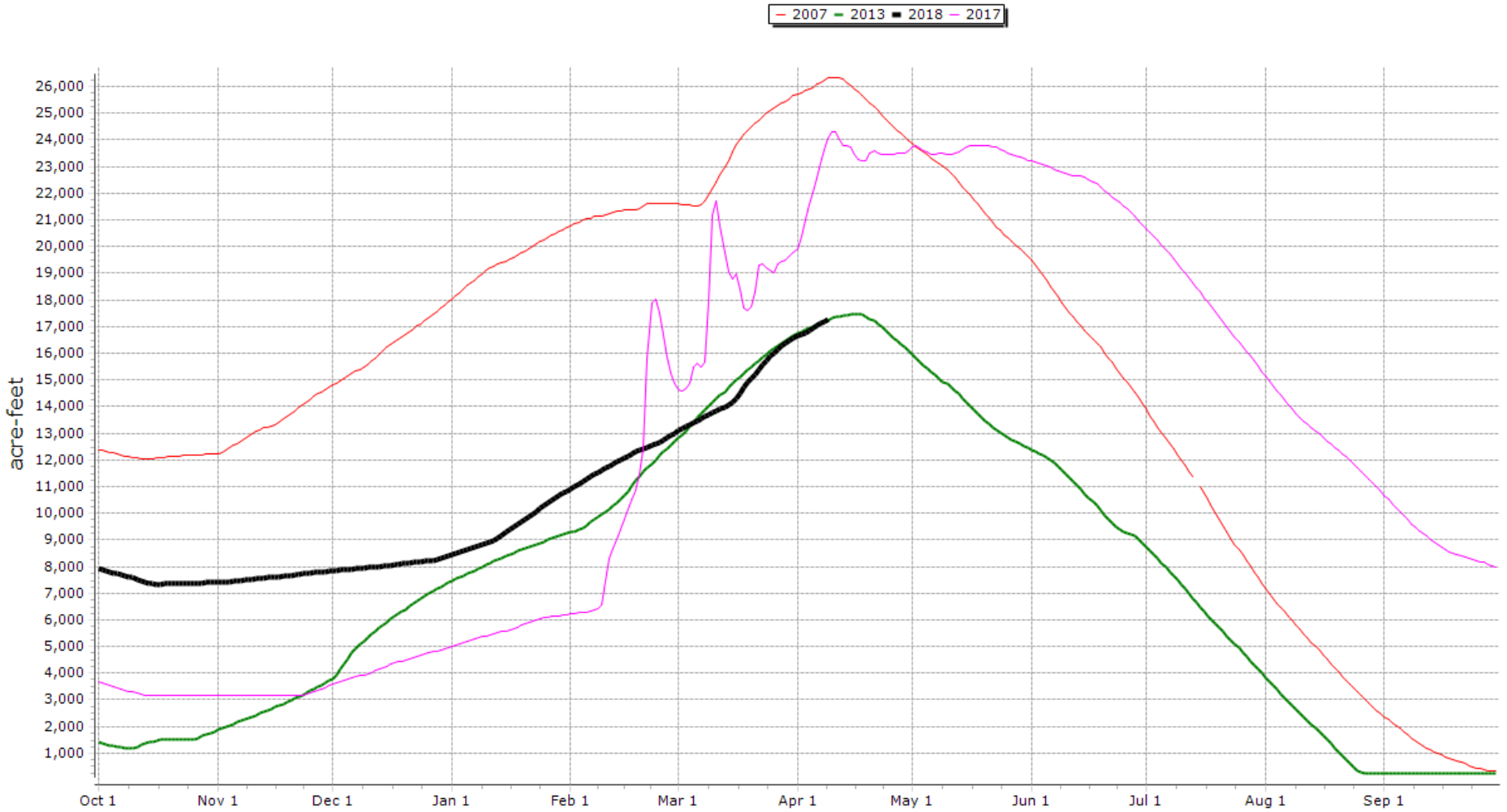
RECLAMATION

Agency Valley (Beulah) Dam and Reservoir Elevation:3305.000



RECLAMATION

Bully Creek Dam and Reservoir near Vale, OR Elevation:2516.000

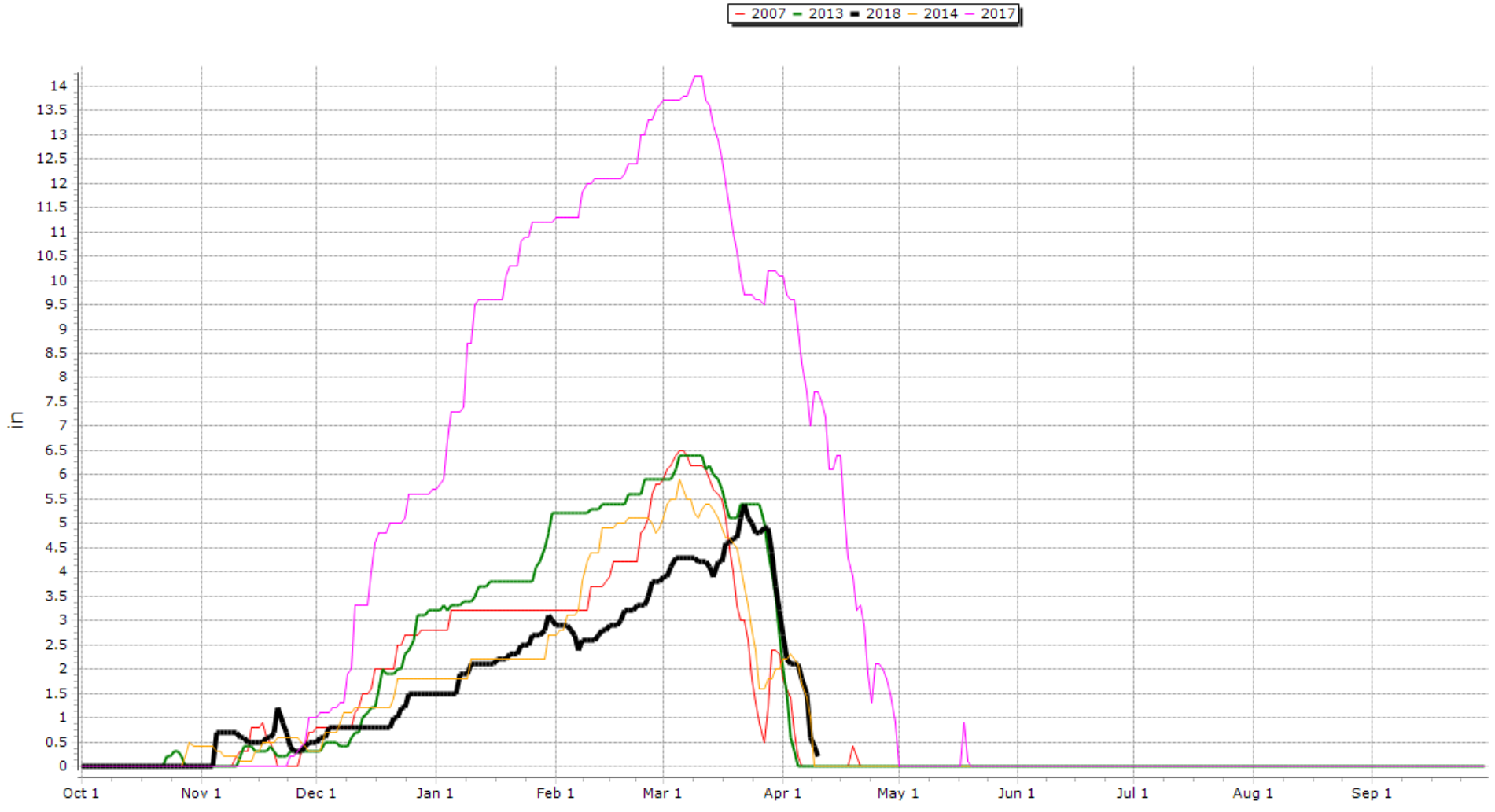


RECLAMATION

Owyhee

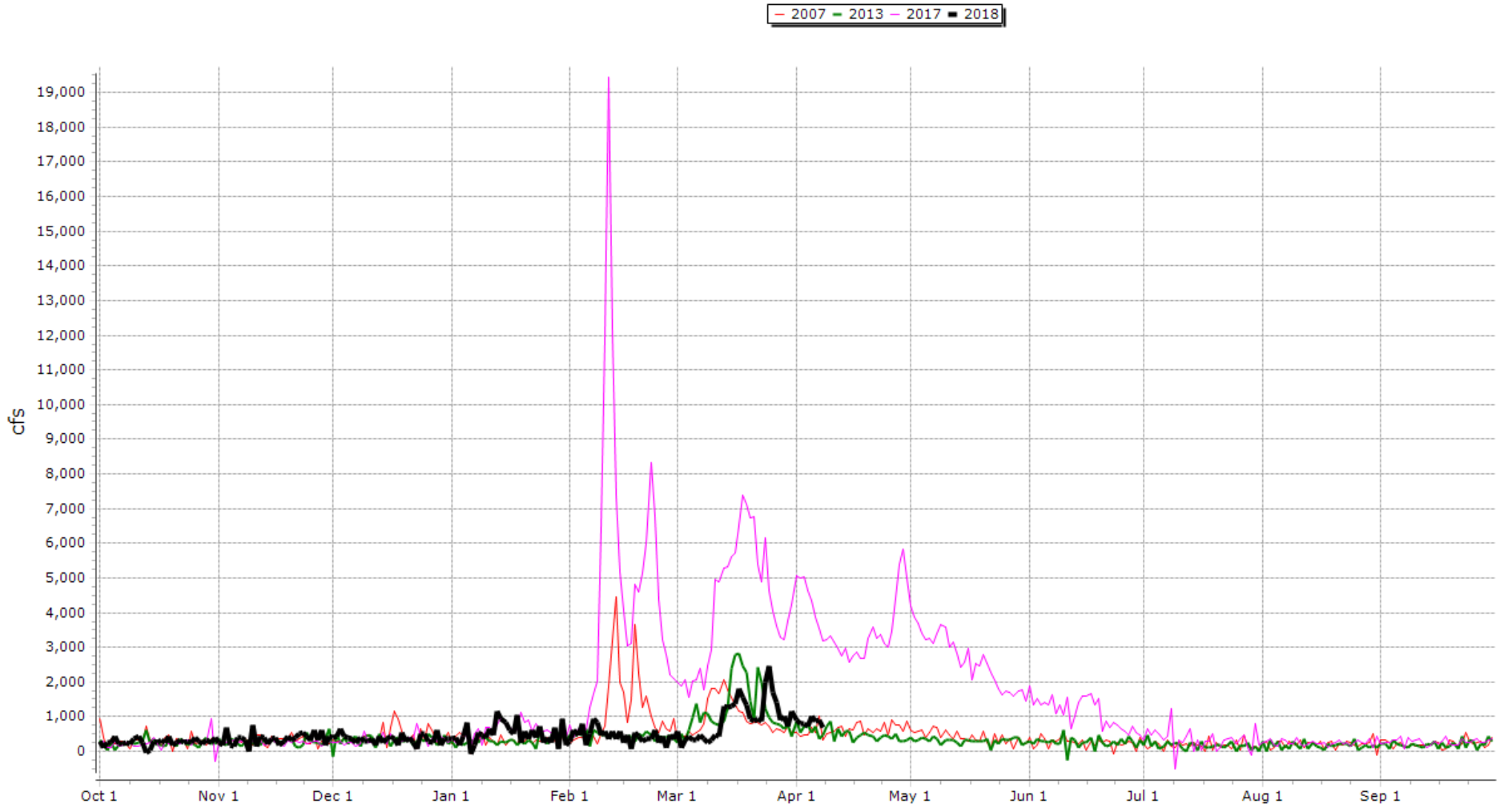
RECLAMATION

BIG BEND Elevation:6700.000

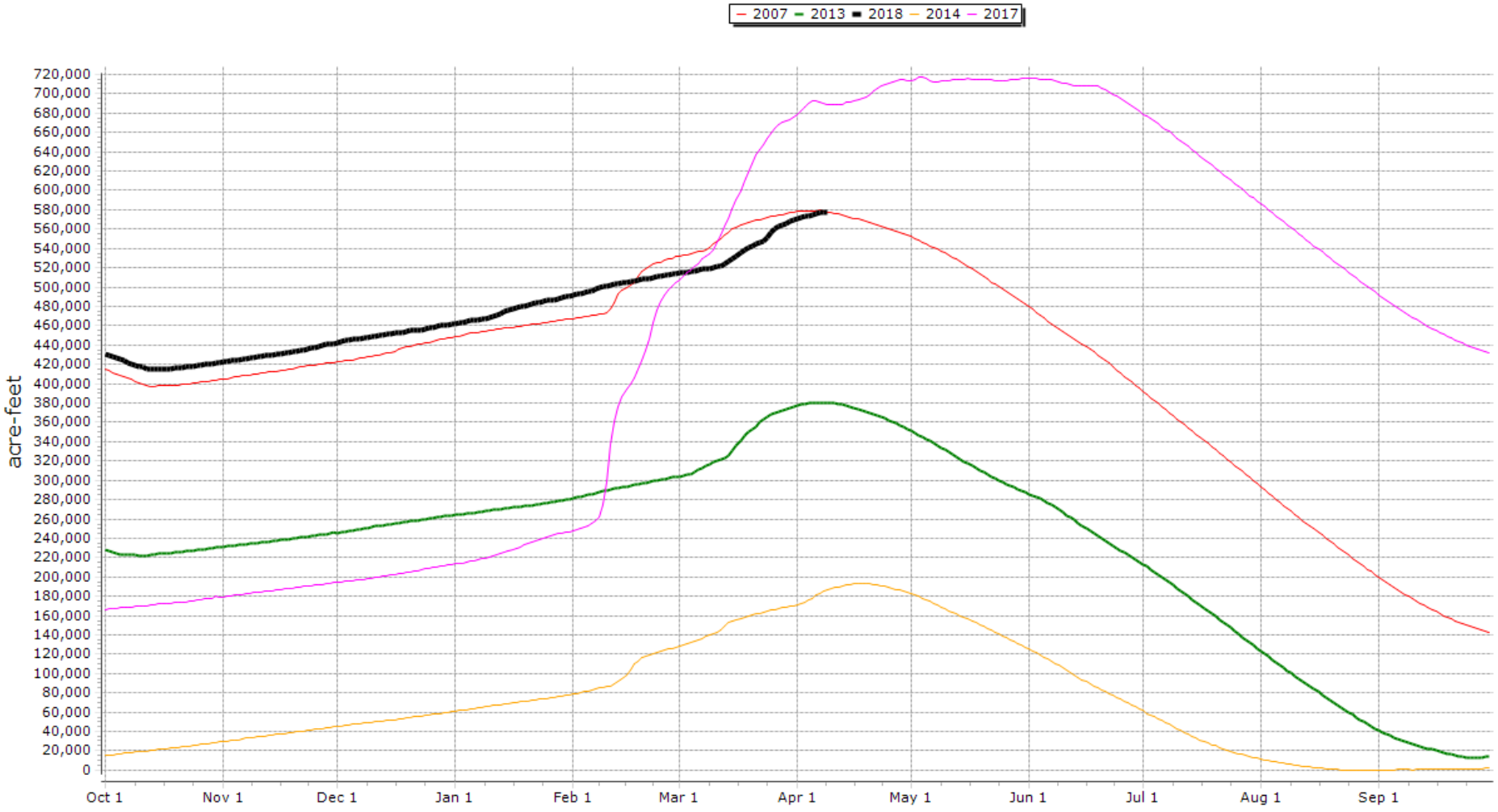


RECLAMATION

Lake Owyhee and Owyhee River near Nyssa, OR Elevation:2344.000

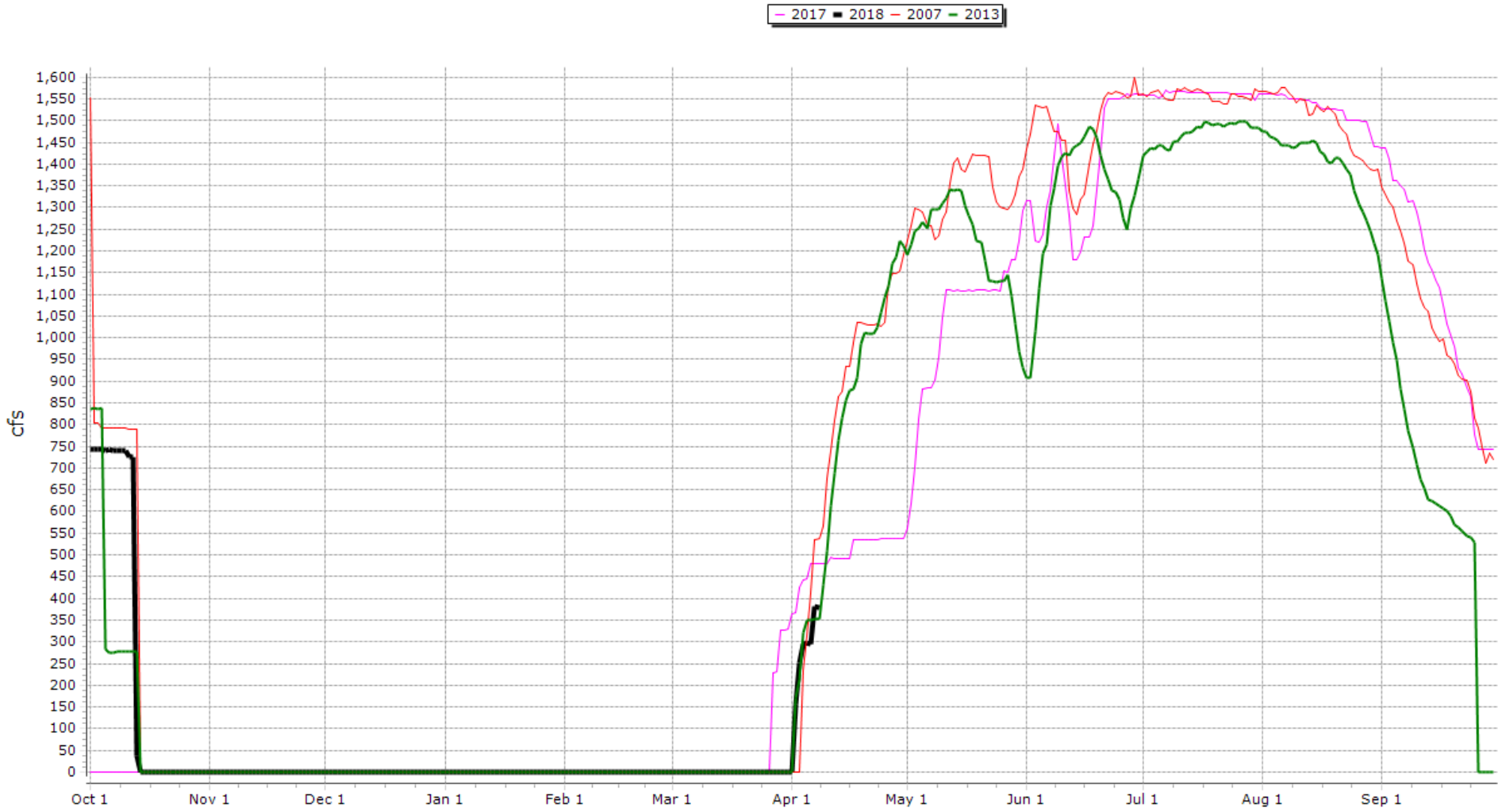


Lake Owyhee and Owyhee River near Nyssa, OR Elevation:2344.000



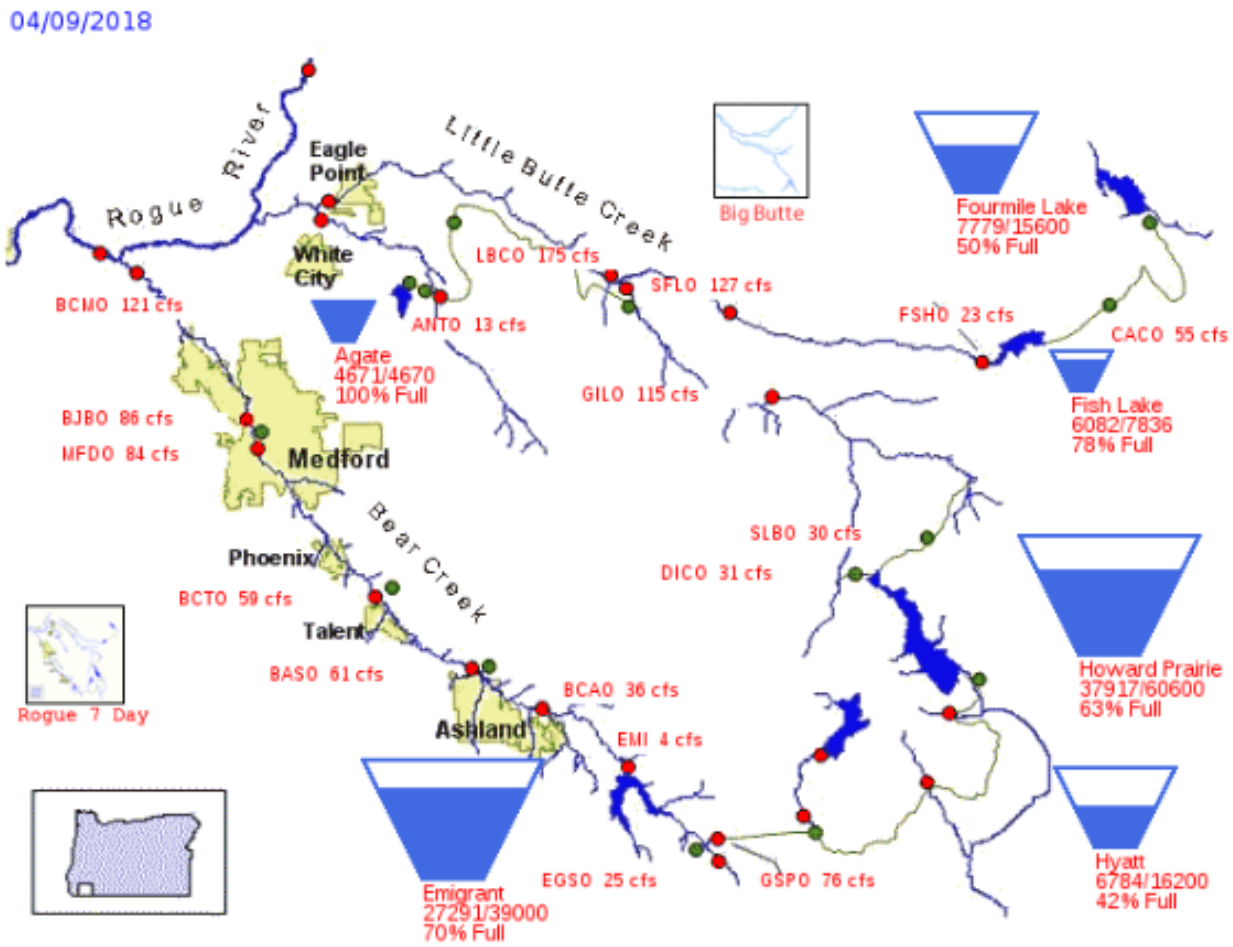
RECLAMATION

OWYHEE CANAL AT OWYHEE DAM Elevation:2344.000



RECLAMATION

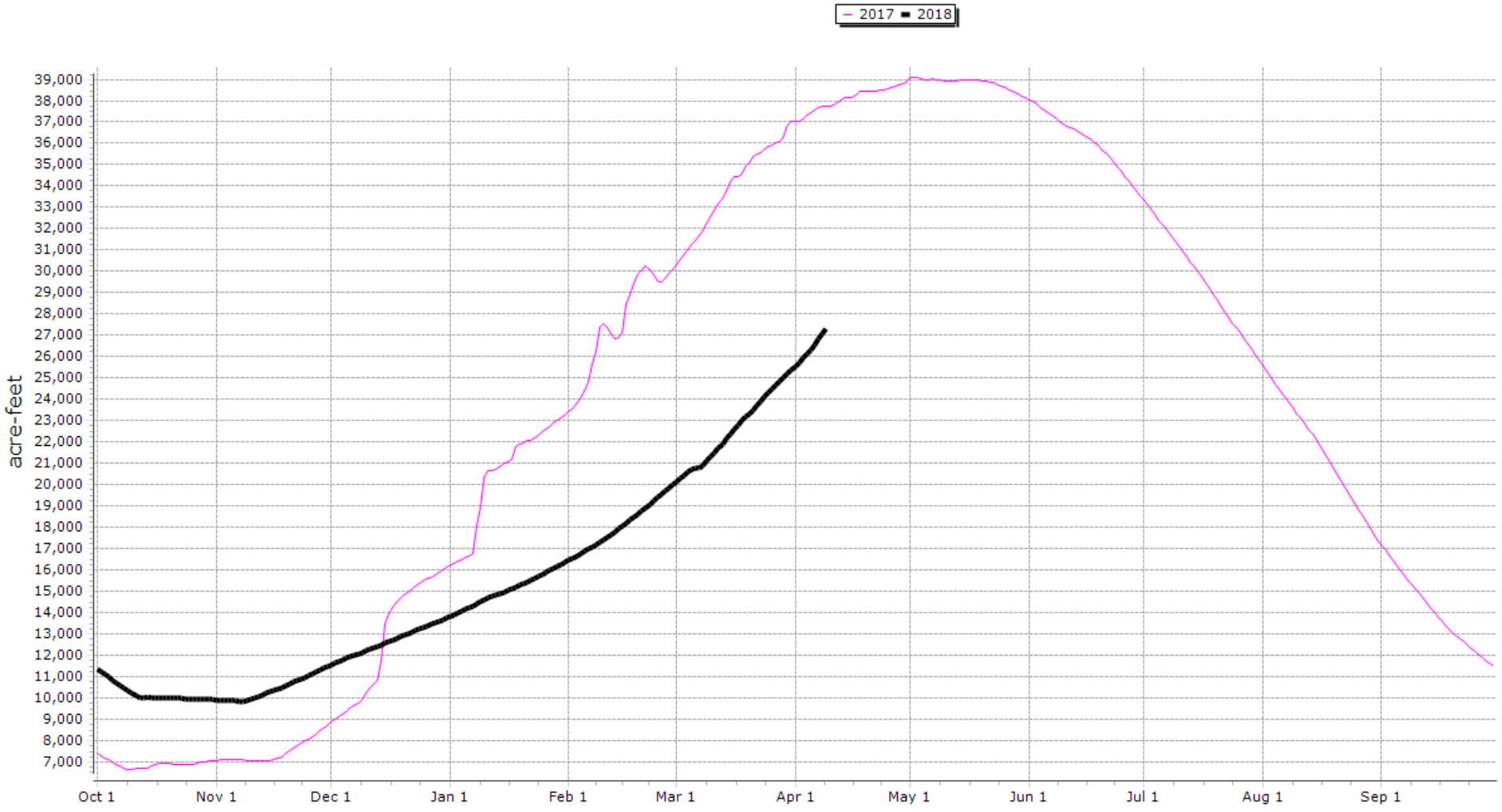
US Bureau of Reclamation, Pacific Northwest Region
Bear Creek and Little Butte Creek Basins



PROVISIONAL DATA - SUBJECT TO CHANGE!

RECLAMATION

Emigrant Dam and Lake near Ashland, OR Elevation:2100.000



Questions?

Oregon Water Supply Availability

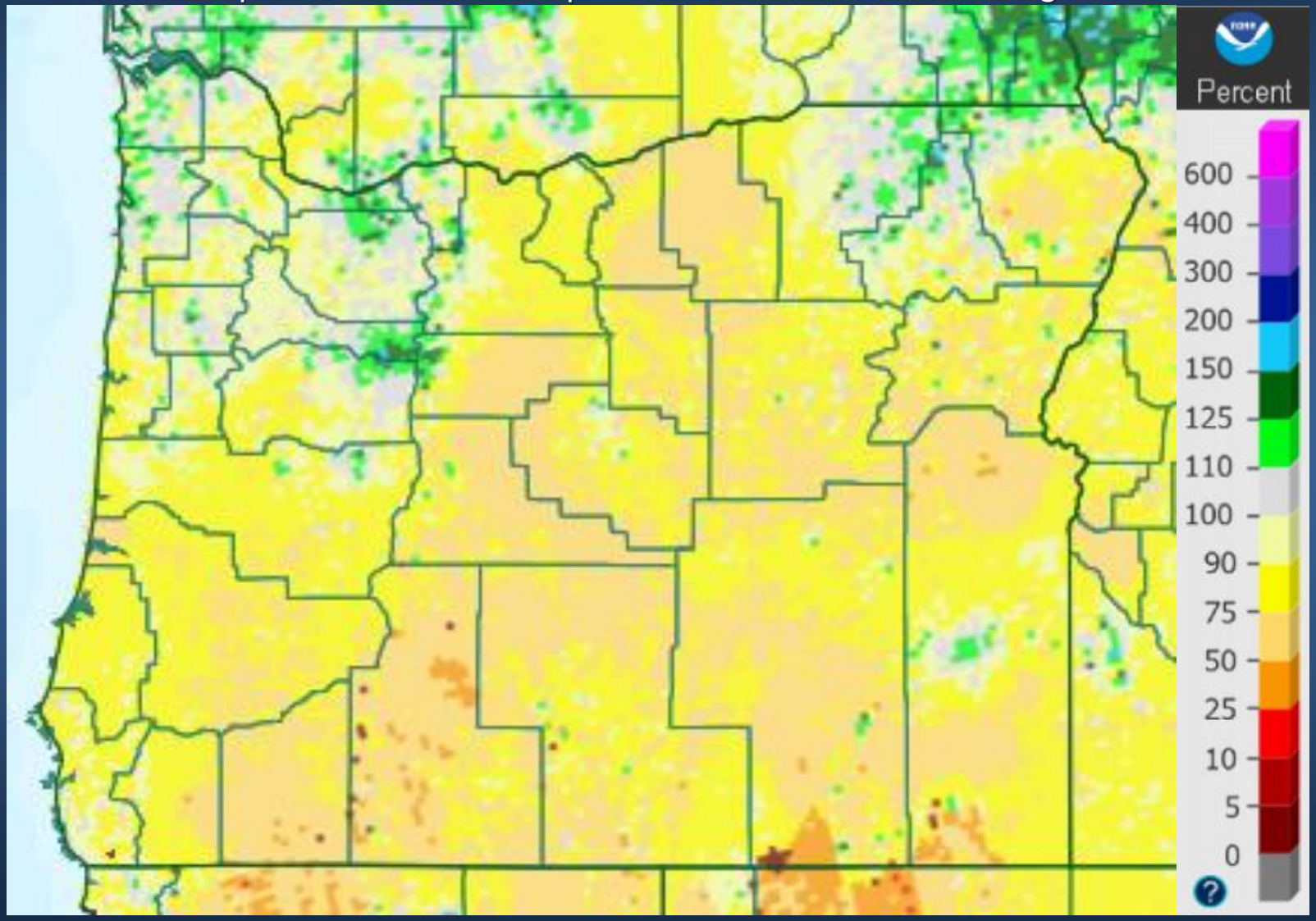
April 10, 2018 NWS Update

Andy Bryant, NWS Portland

Mohawk River near Springfield

WY2018 Precipitation thus far

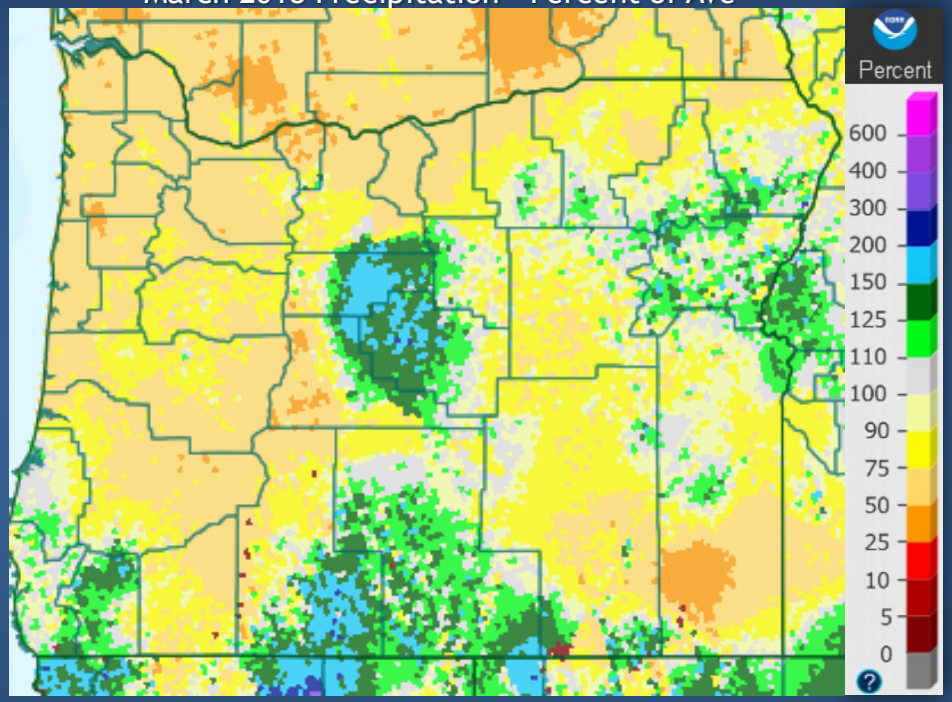
April 9th Water Year Precipitation to Date – Percent of Average



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

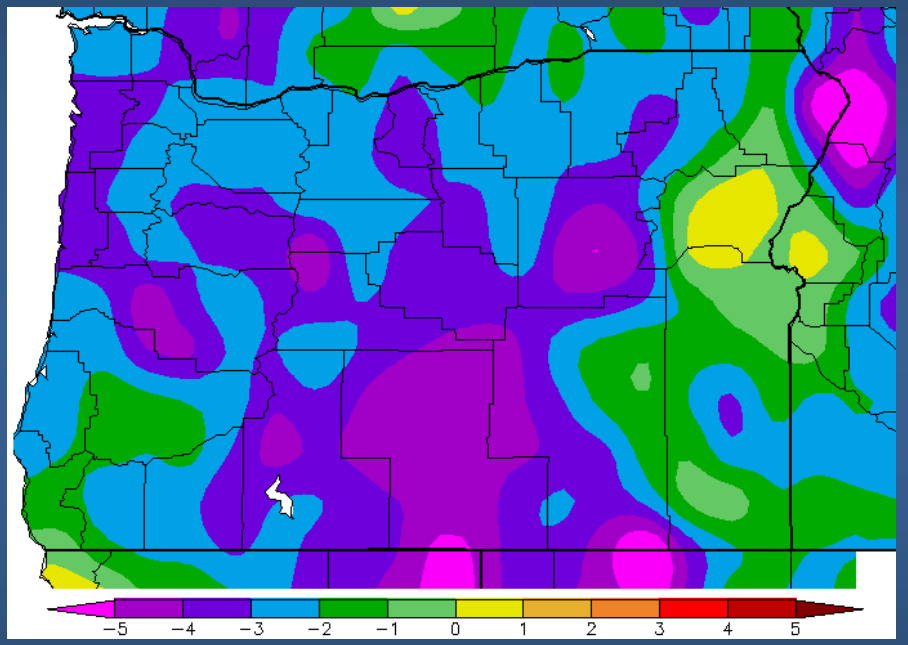
Recent Conditions
Precipitation & Temperatures

March 2018 Precipitation - Percent of Ave



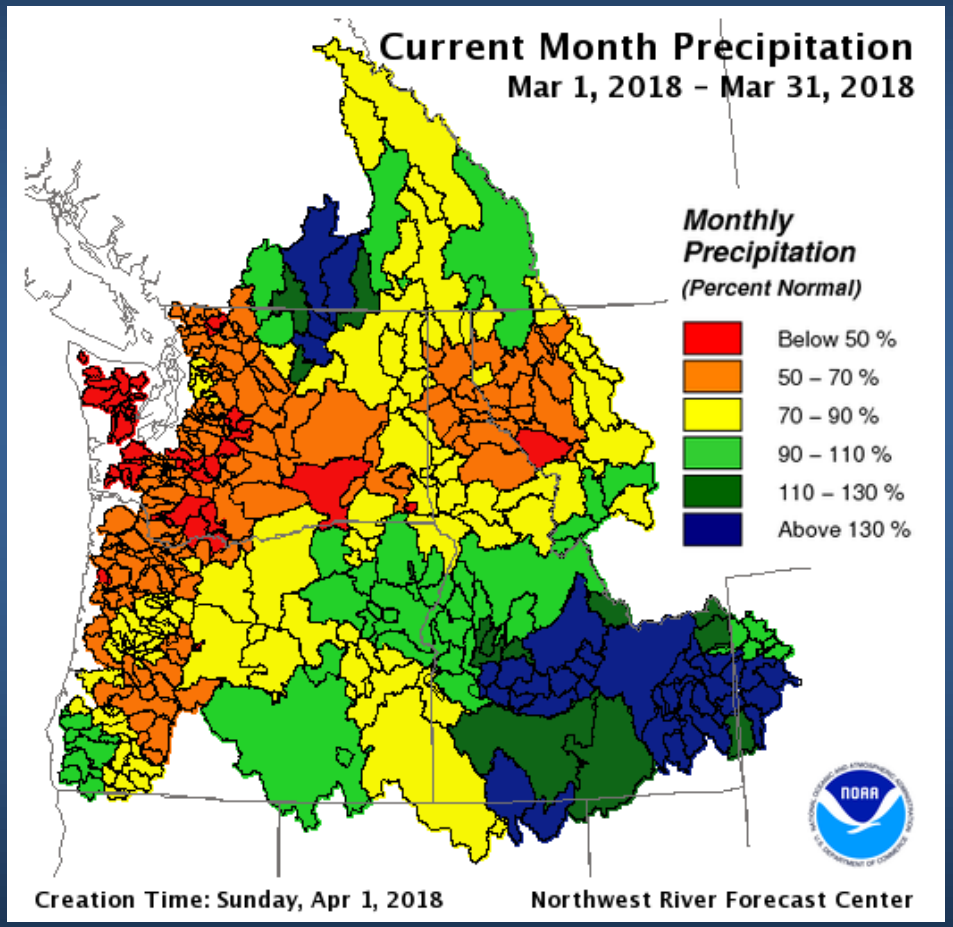
Source: water.weather.gov/precip/index.php?location_type=wfo&location_name=pqr

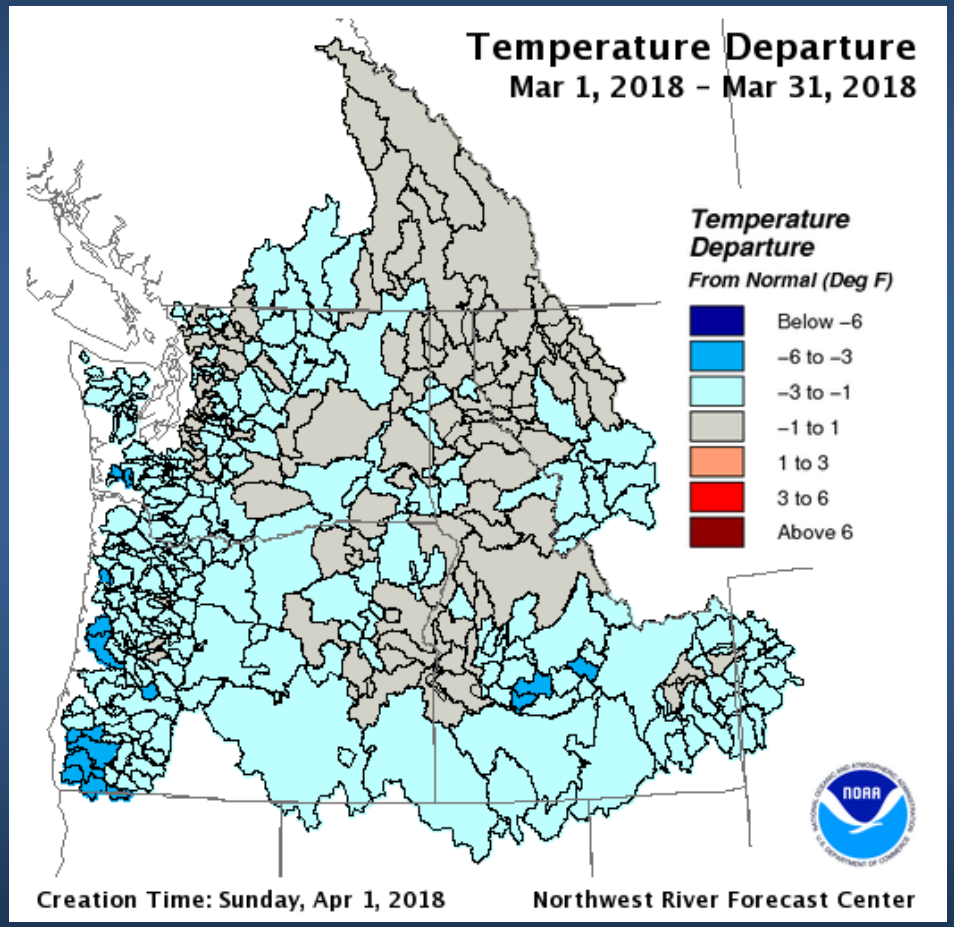
2/8/2018 - 4/8/2018 Temperatures (deg F) - Dep from Ave



Source: wrcc.dri.edu/anom/ore_anom.html

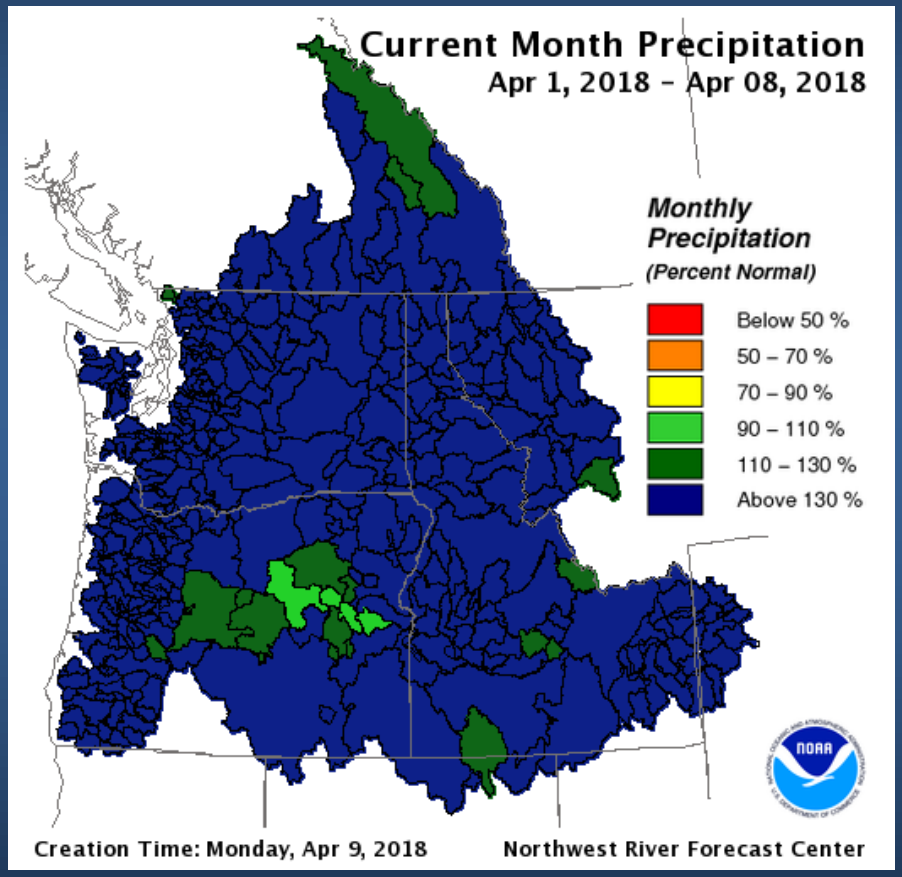
March 2018
Precipitation & Temperatures
Columbia Basin Conditions

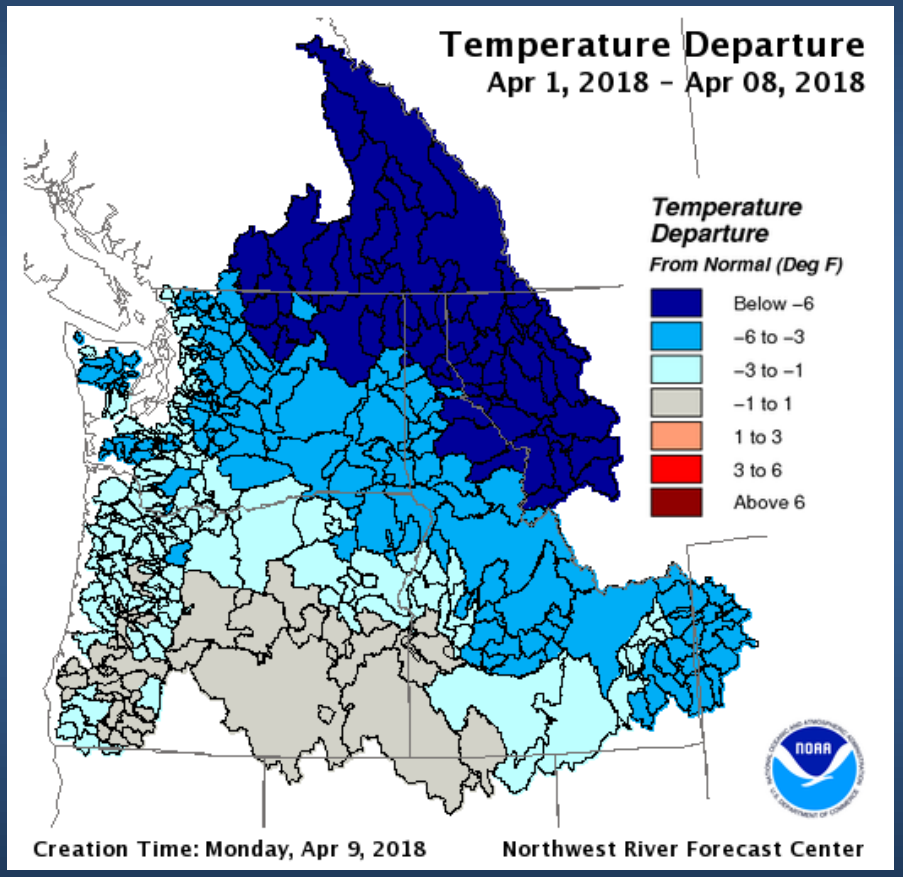




Source: www.nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=2

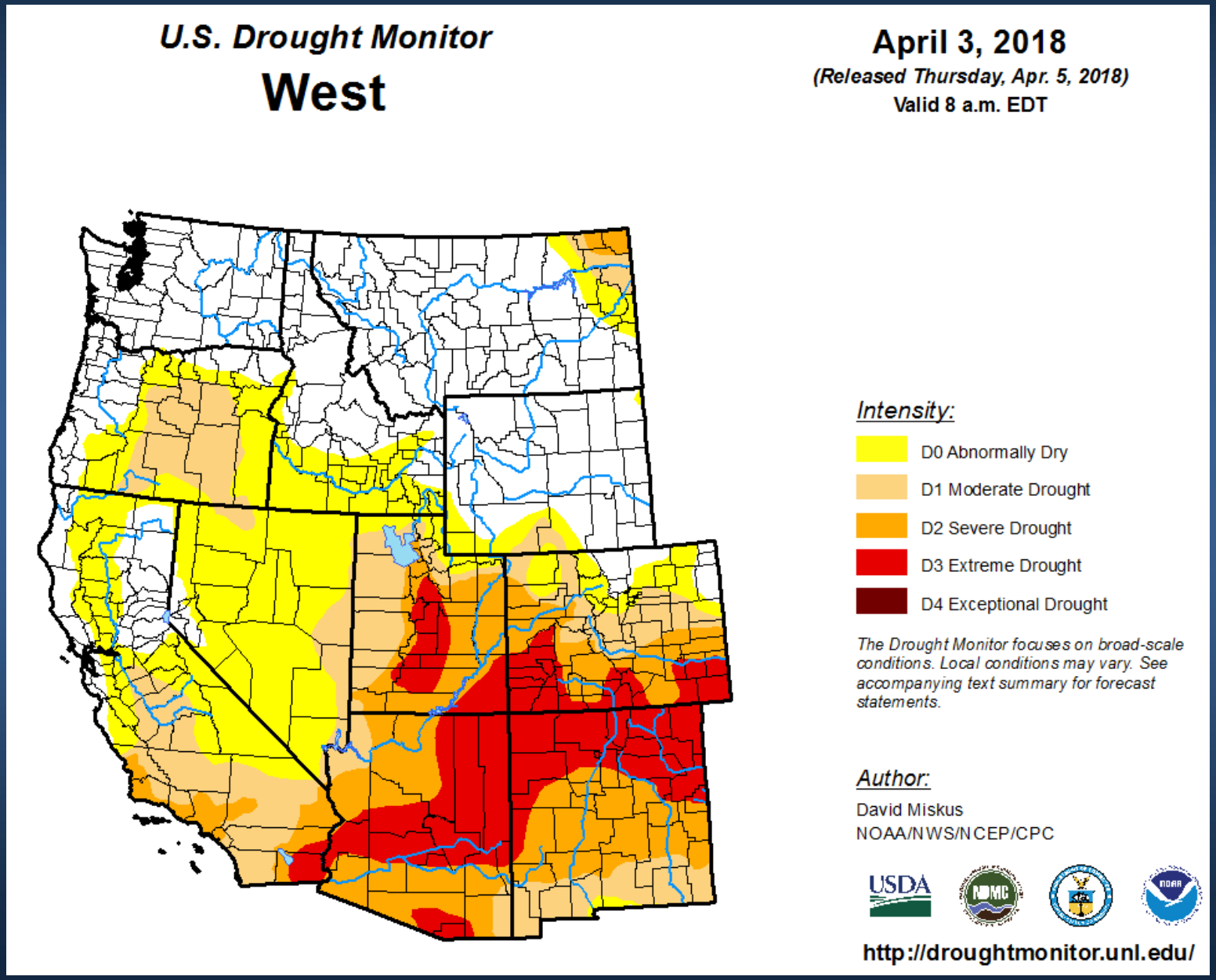
April 1 – 8, 2018
Precipitation & Temperatures
Columbia Basin Conditions





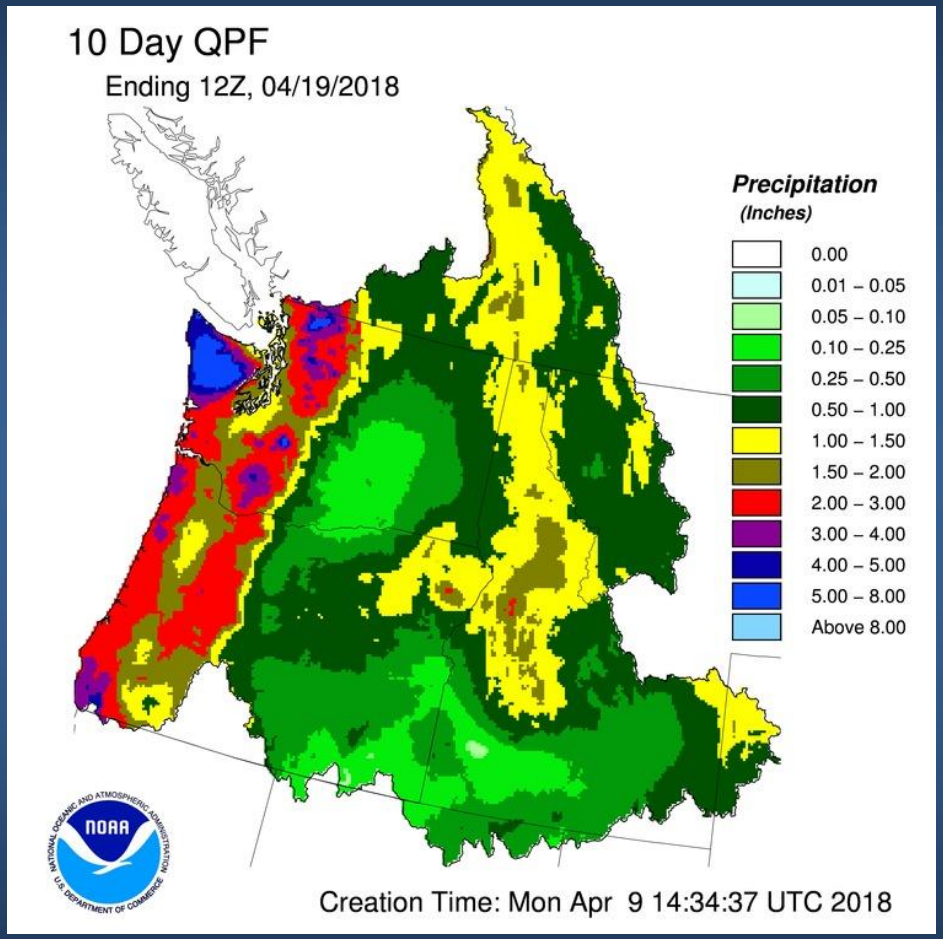
Source: www.nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=2

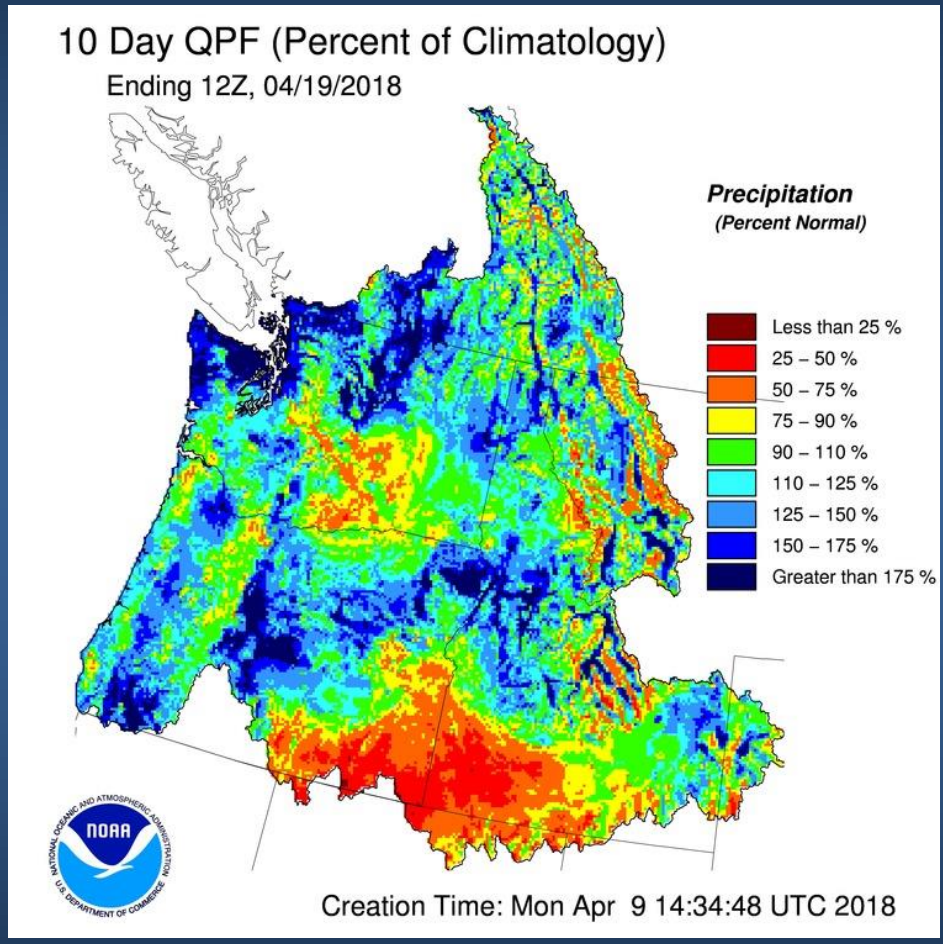
Drought Monitor



Mid-April Outlook

April 9-19, 2018 Forecast Precipitation

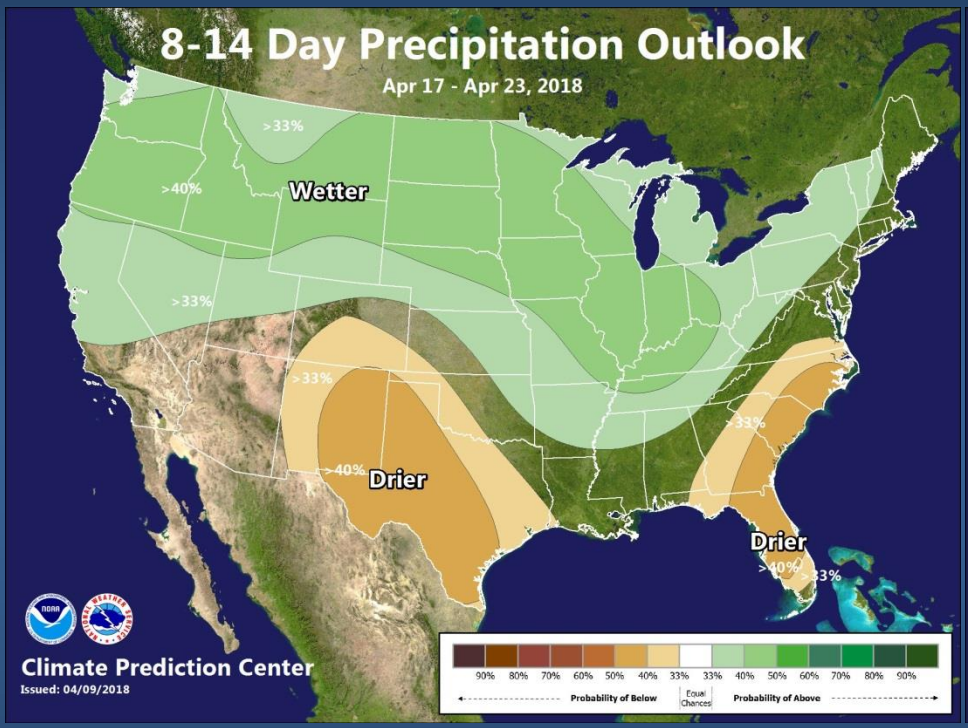




Below-average temperatures expected through this period

Late-April Outlook

April 17 - 23, 2018 Precipitation & Temperature Outlook



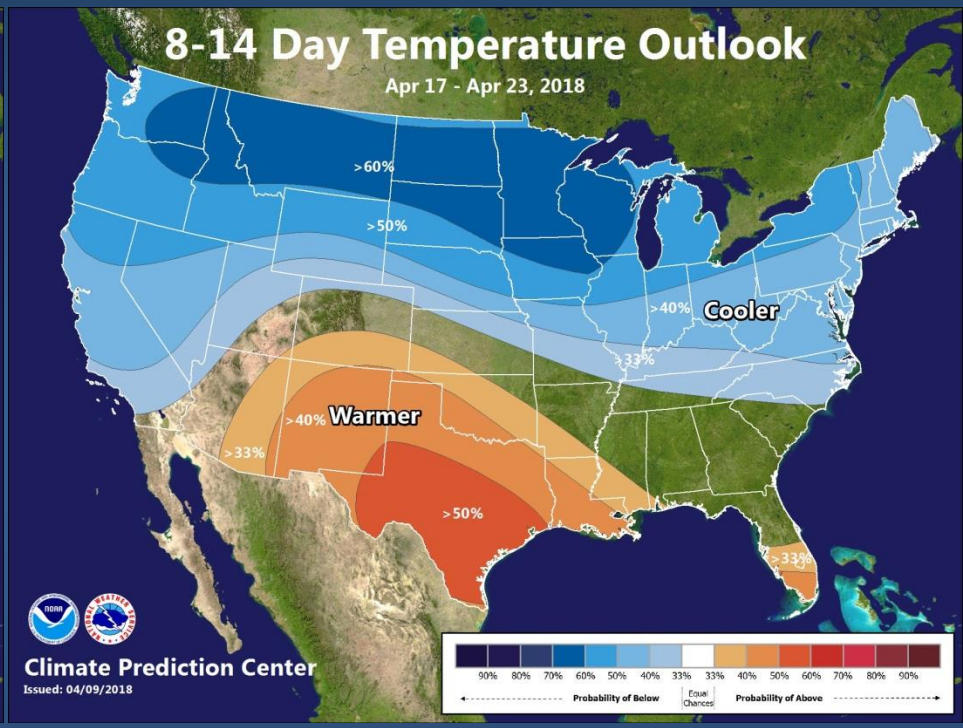
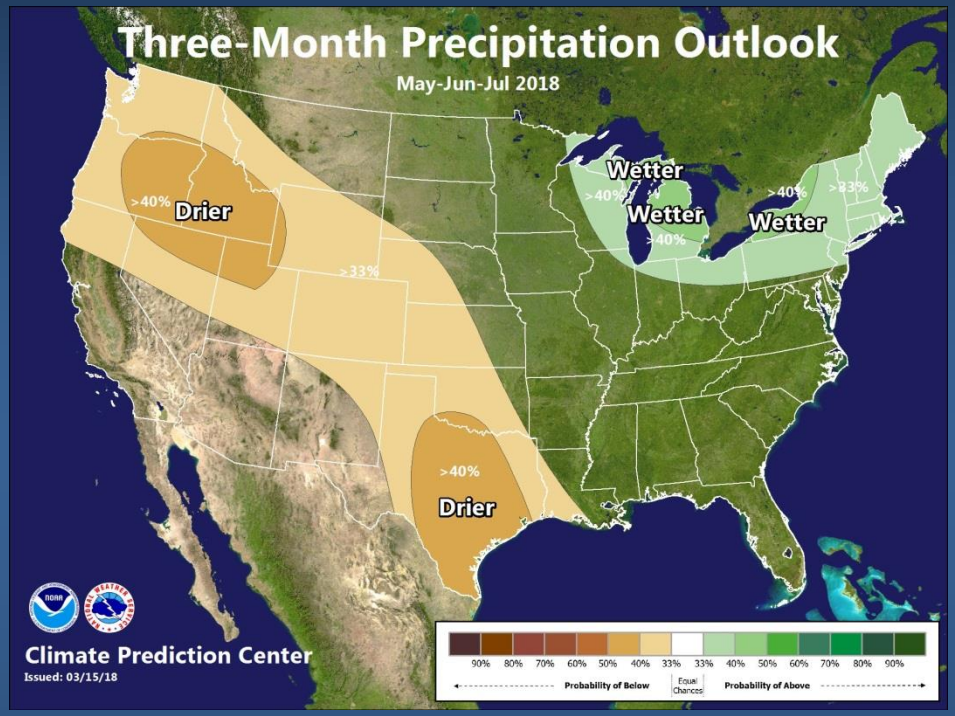


Image source: www.cpc.ncep.noaa.gov

Outlook for May-June-July 2018



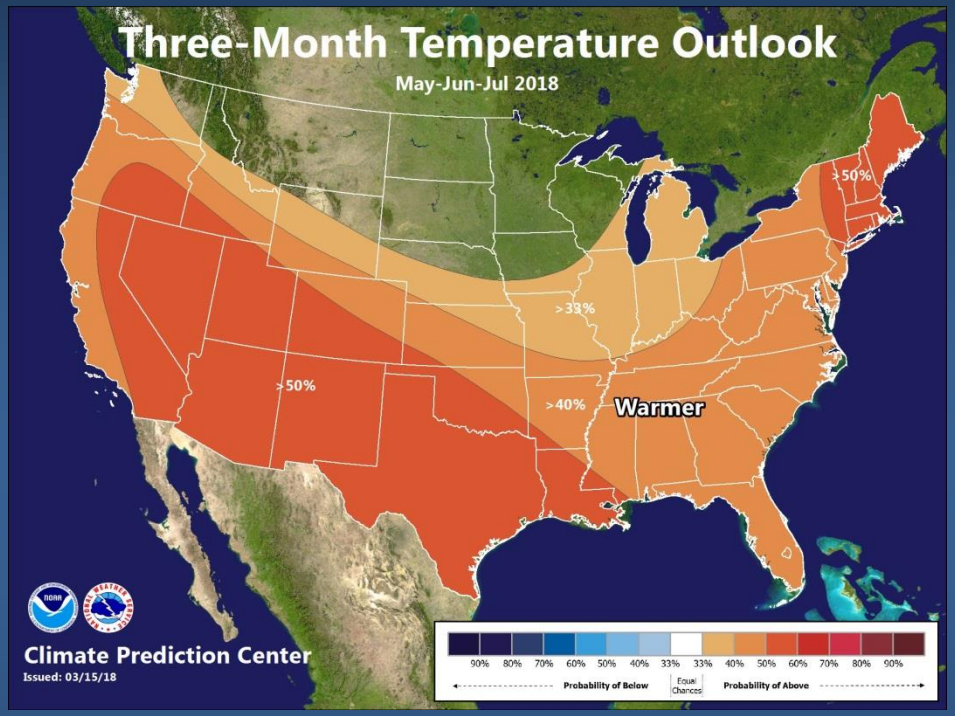
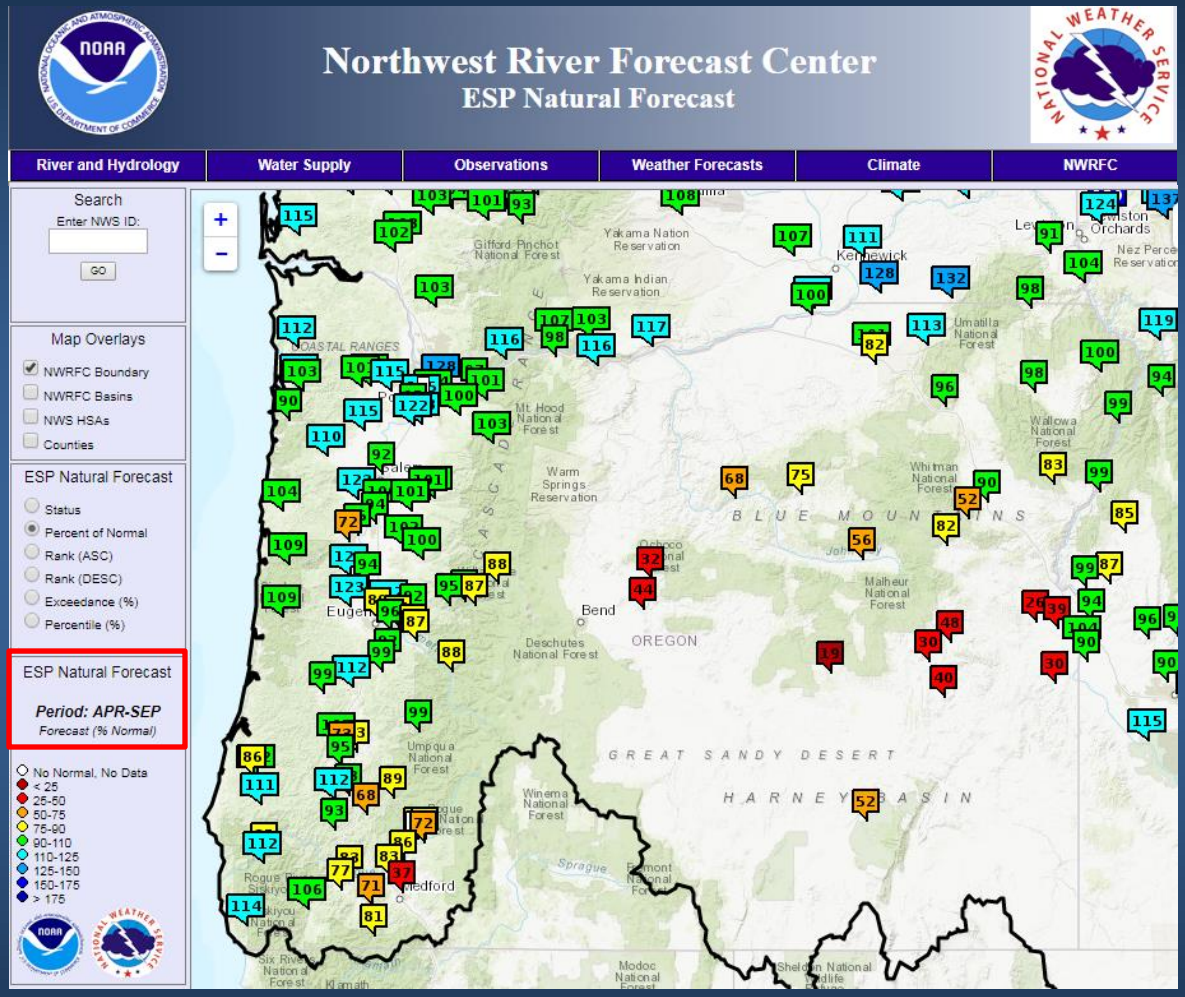
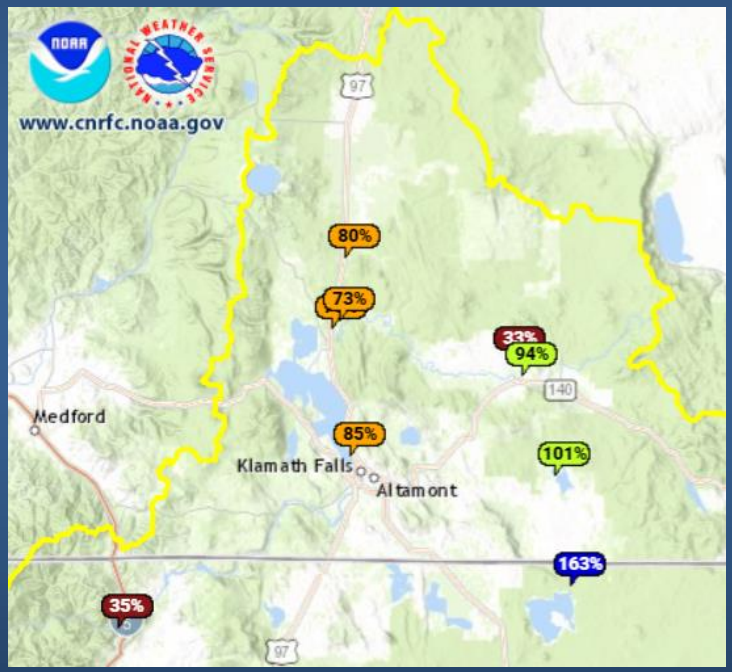


Image source: www.cpc.ncep.noaa.gov

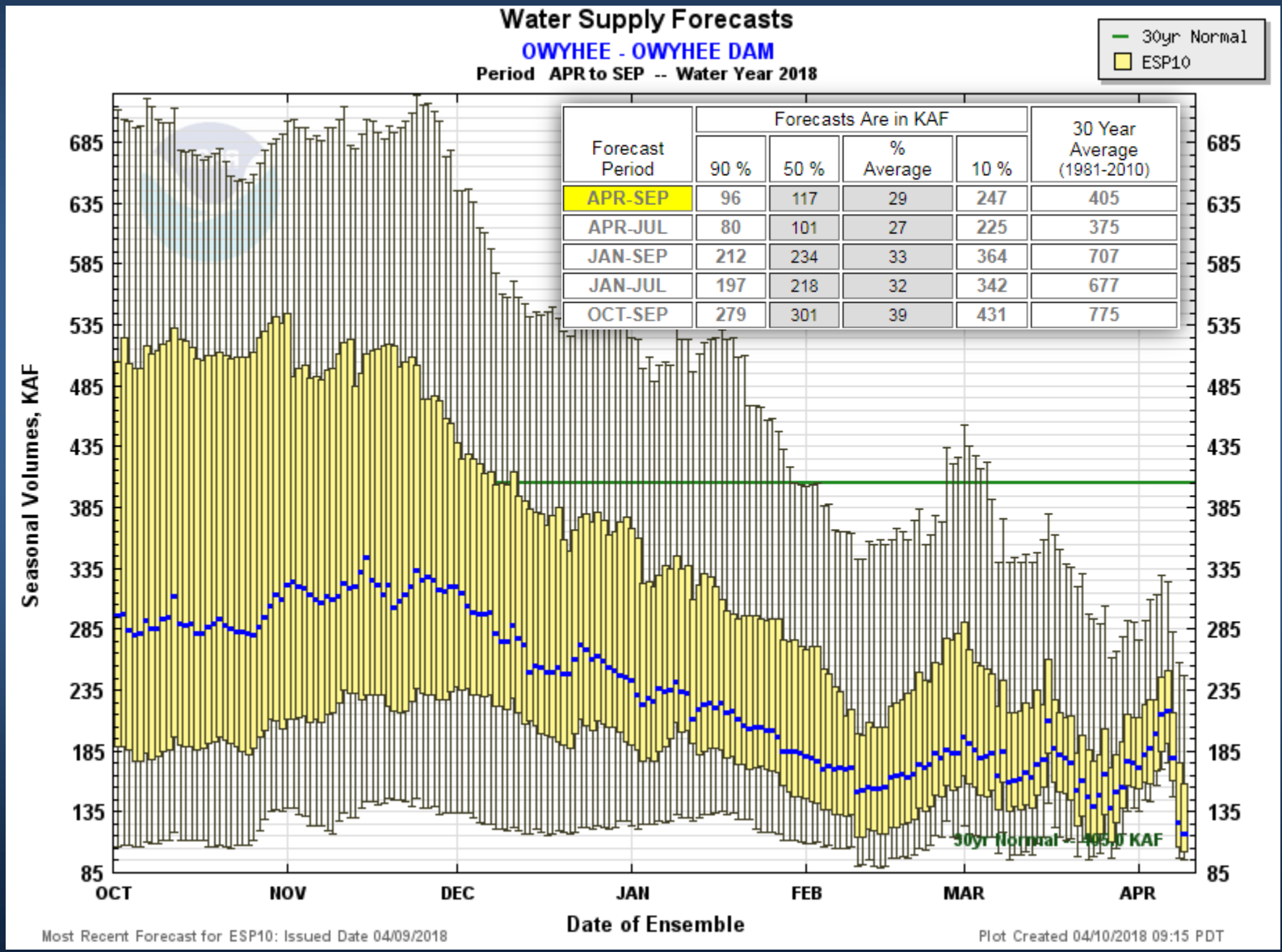
Water Supply Forecasts





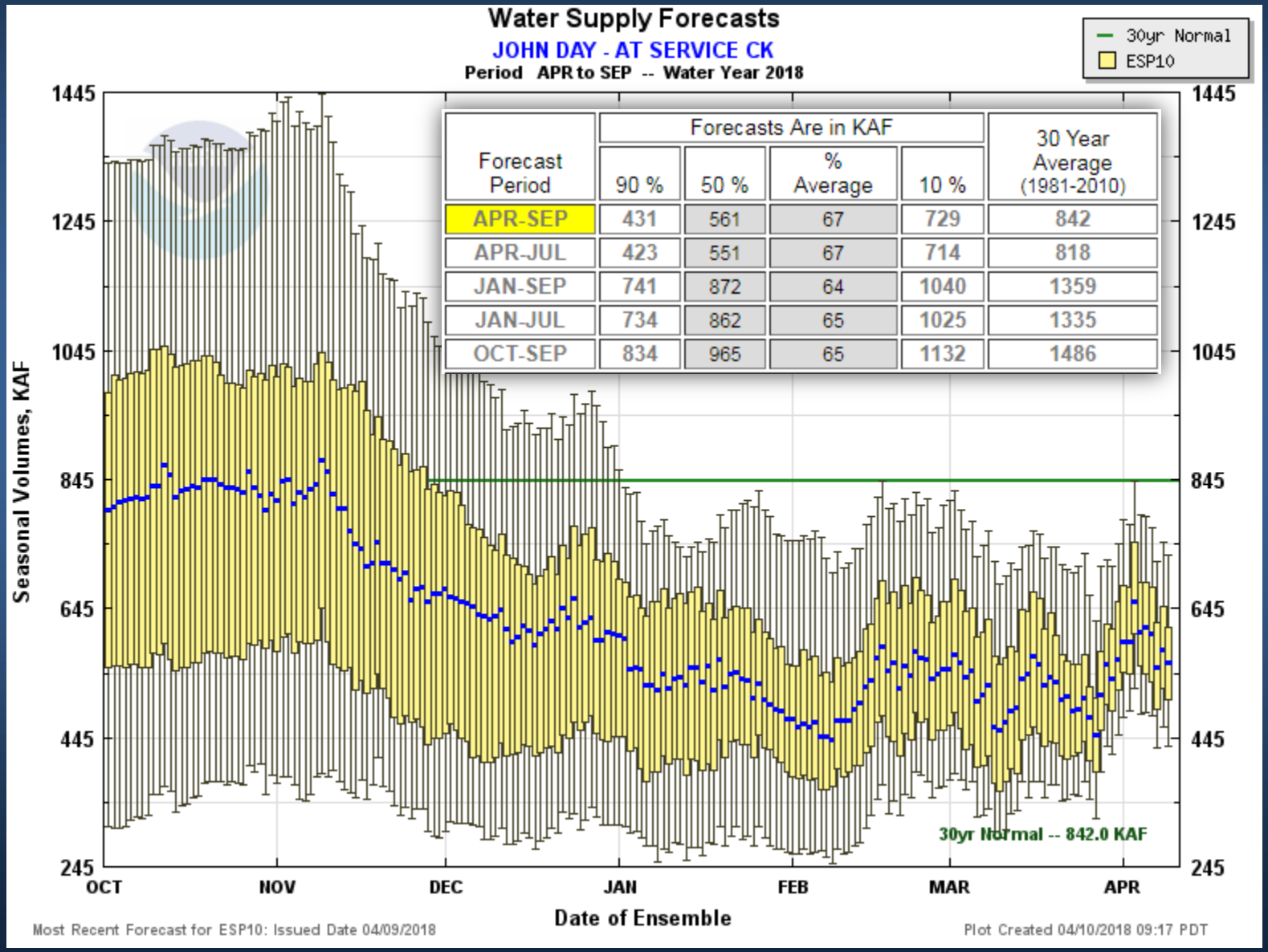
Source: www.nwrfc.noaa.gov & www.cnrfc.noaa.gov

Water Supply Forecasts
Owyhee R below Owyhee Dam

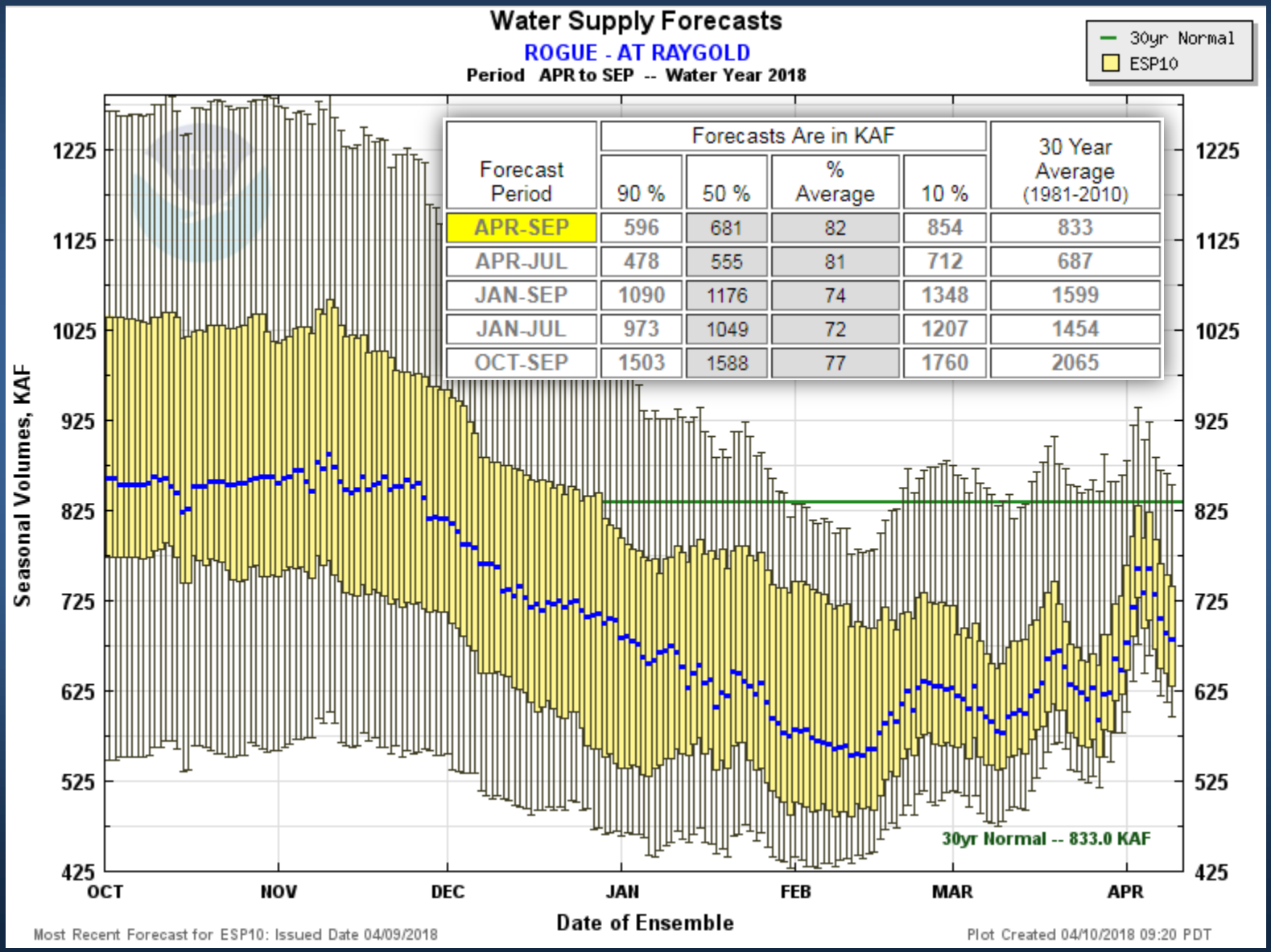


Water Supply Forecasts

John Day R at Service Creek



Water Supply Forecasts
Rogue R at Raygold



Water Supply Forecasts
Willamette R at Salem