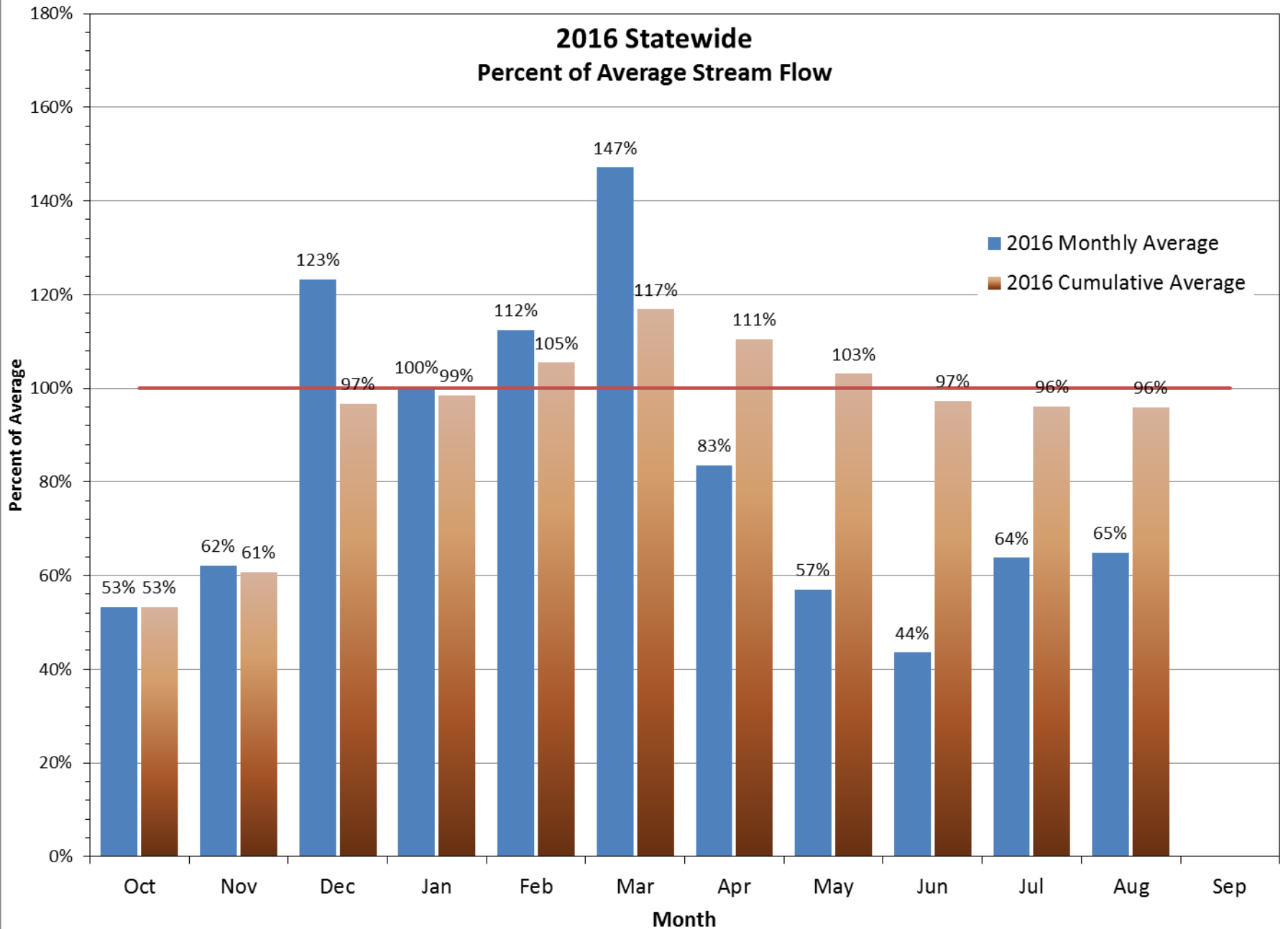


Surface Water Conditions Report
Water Supply Availability Committee

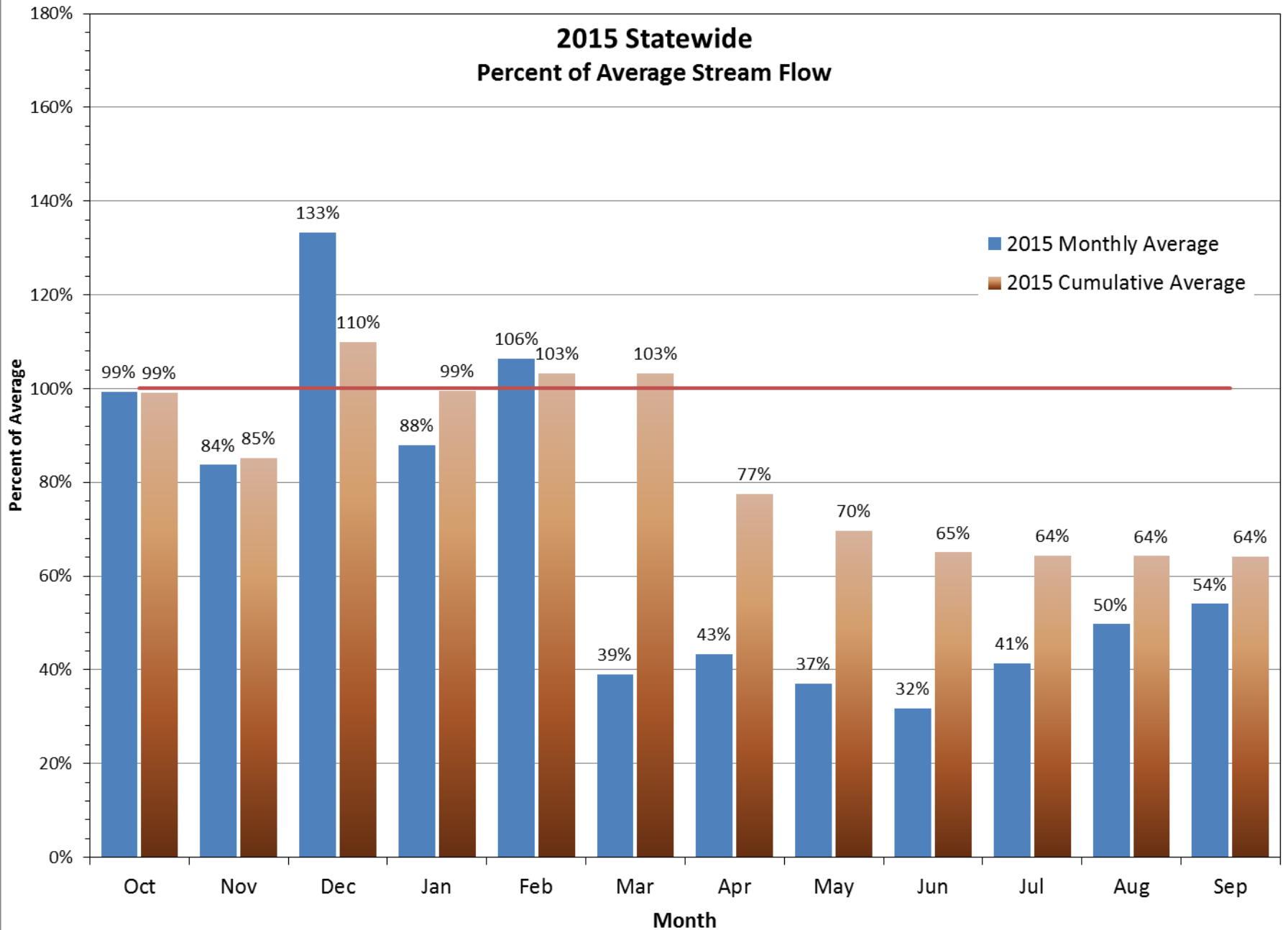


Ken Stahr
Oregon Water Resources
Department
September 13, 2016

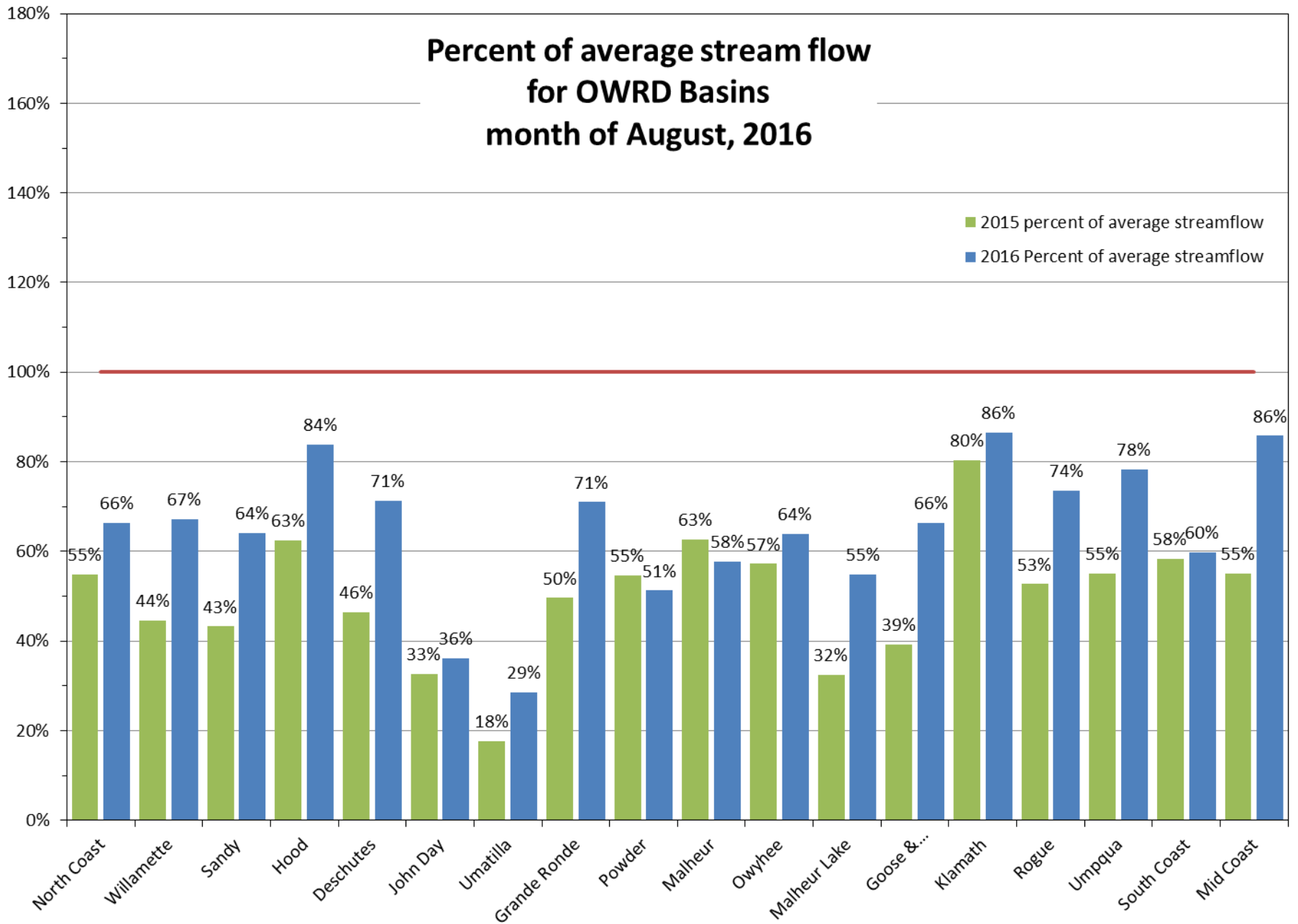
2016 Statewide Percent of Average Stream Flow



2015 Statewide Percent of Average Stream Flow







Percent of average stream flow for OWRD Basins month of August, 2016



Percent of Average Streamflow Month of August, 2016

Percent of Average Streamflow

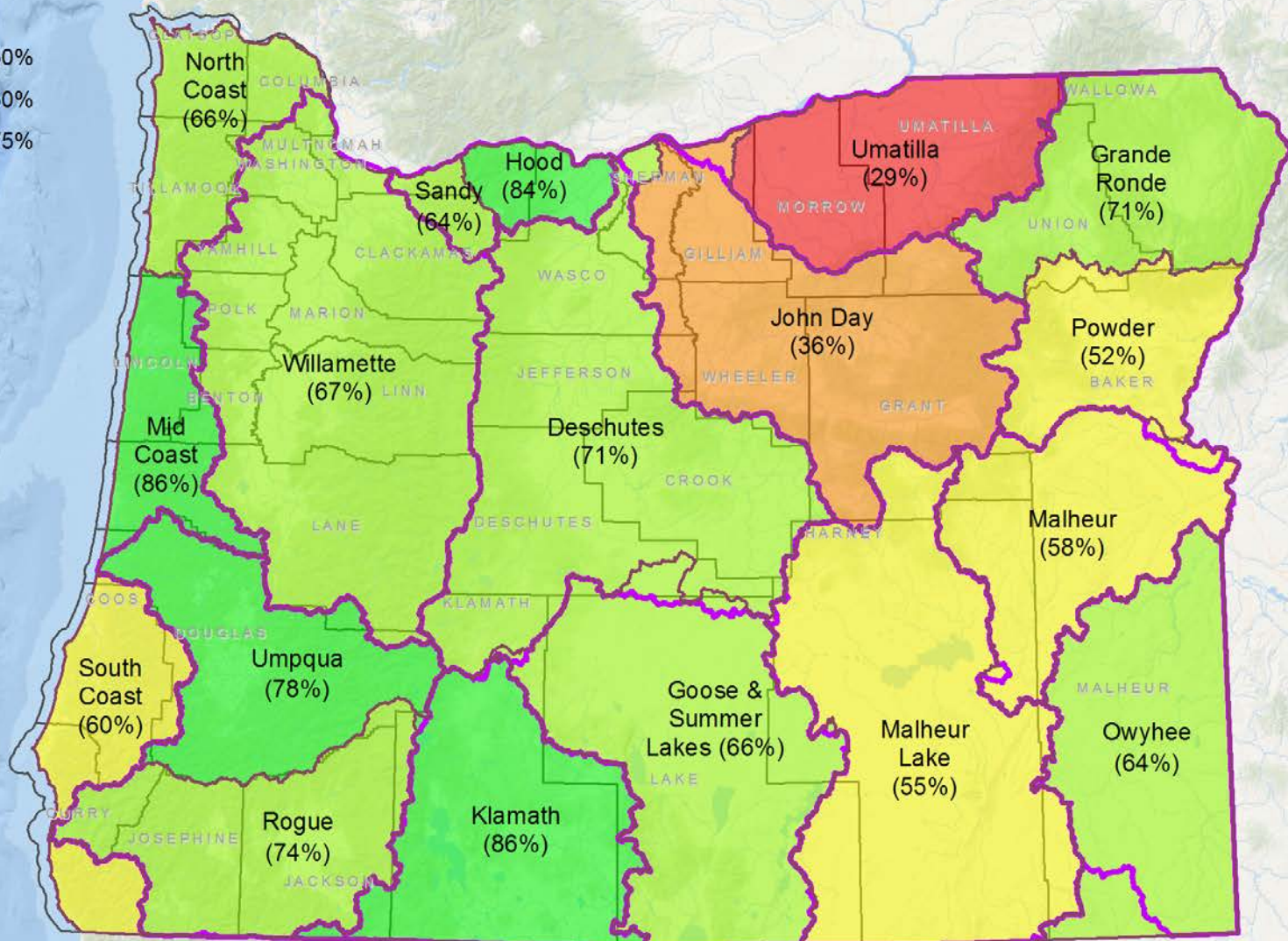
OWRD Basins

-  < 36%
-  36% - 50%
-  51% - 60%
-  61% - 75%
-  > 75%

NRCS Basins



Counties



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 September 6, 2016

Percent of Average Streamflow

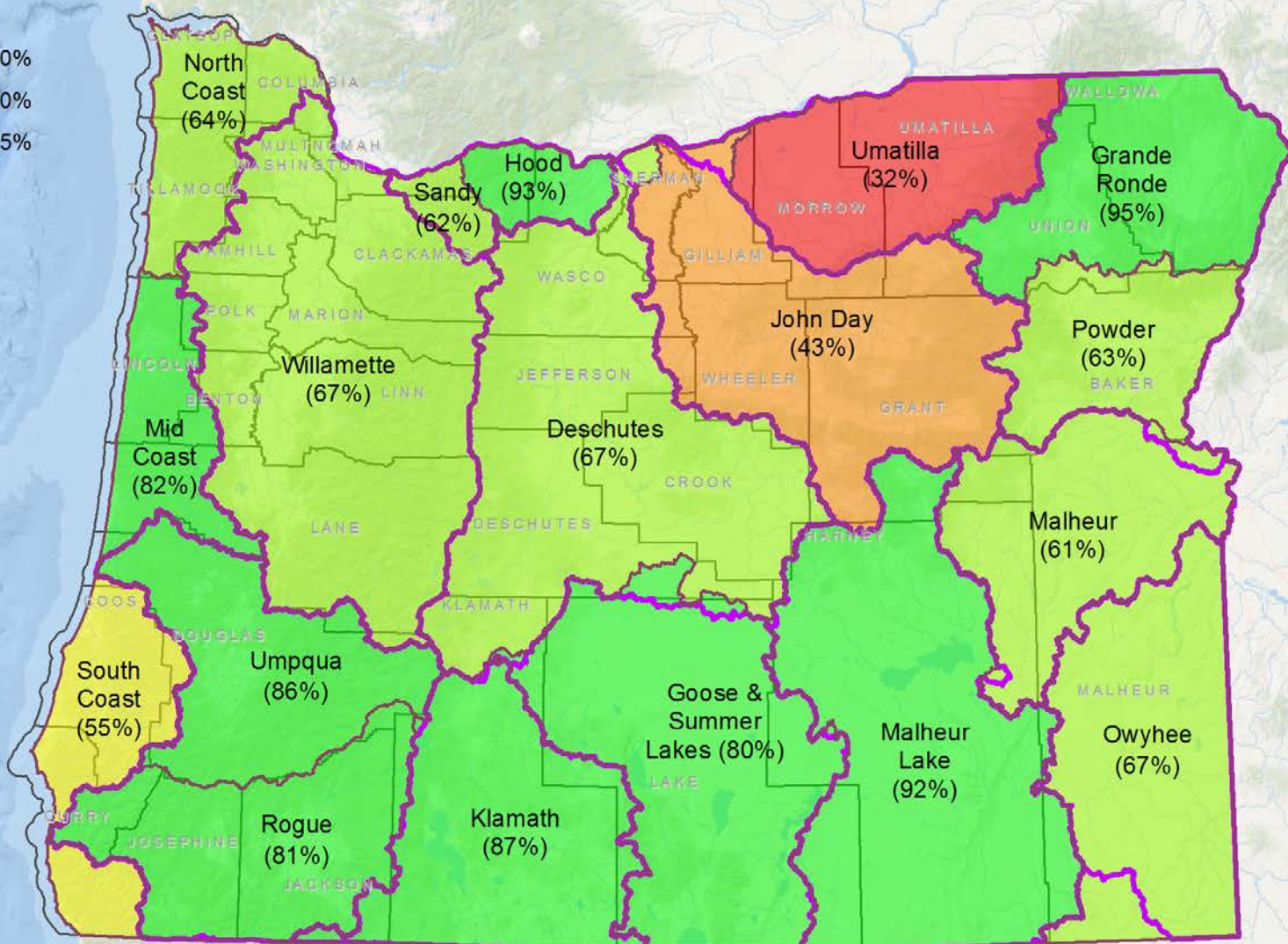
OWRD Basins

- < 36%
- 36% - 50%
- 51% - 60%
- 61% - 75%
- > 75%

NRCS Basins

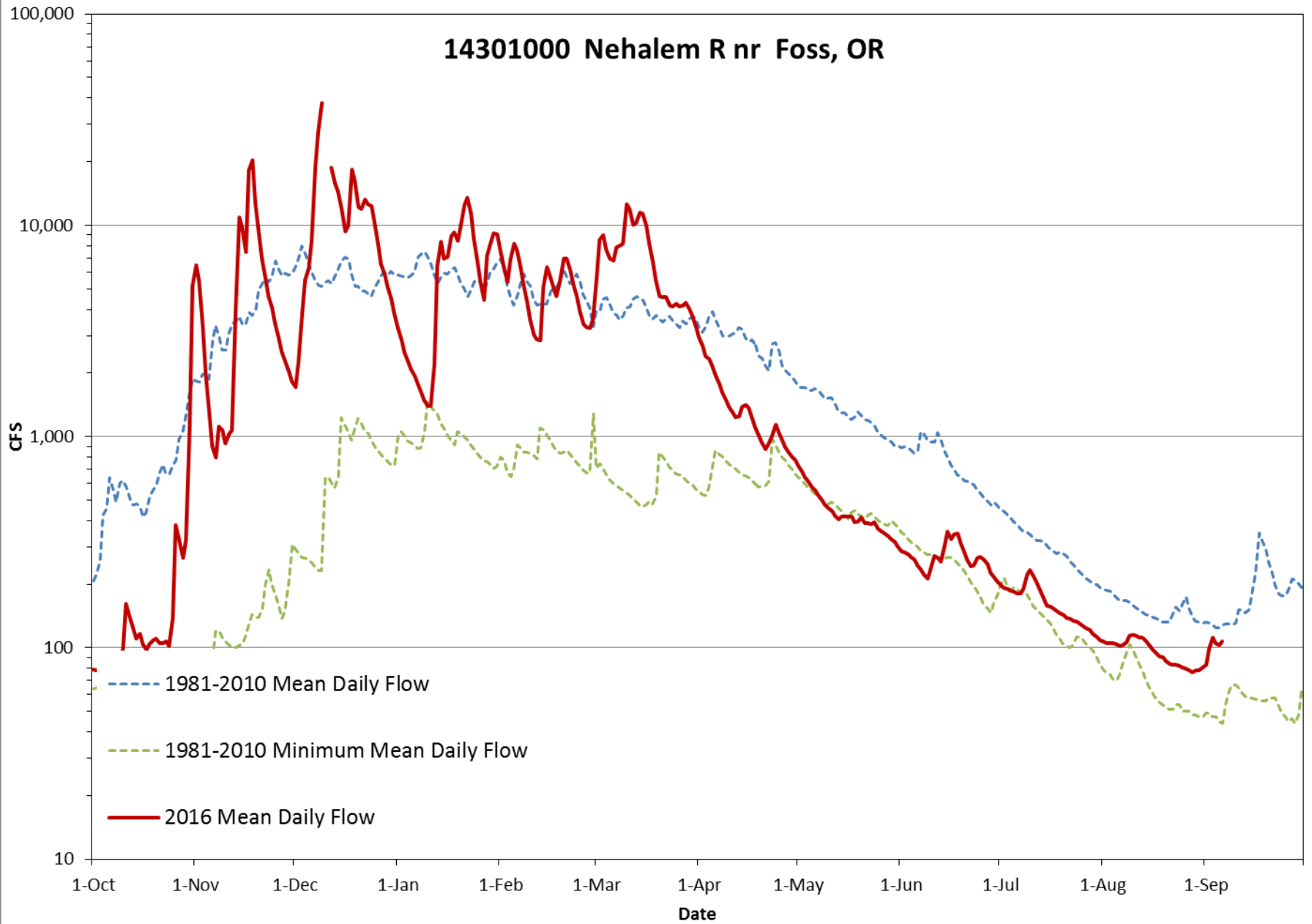


Counties

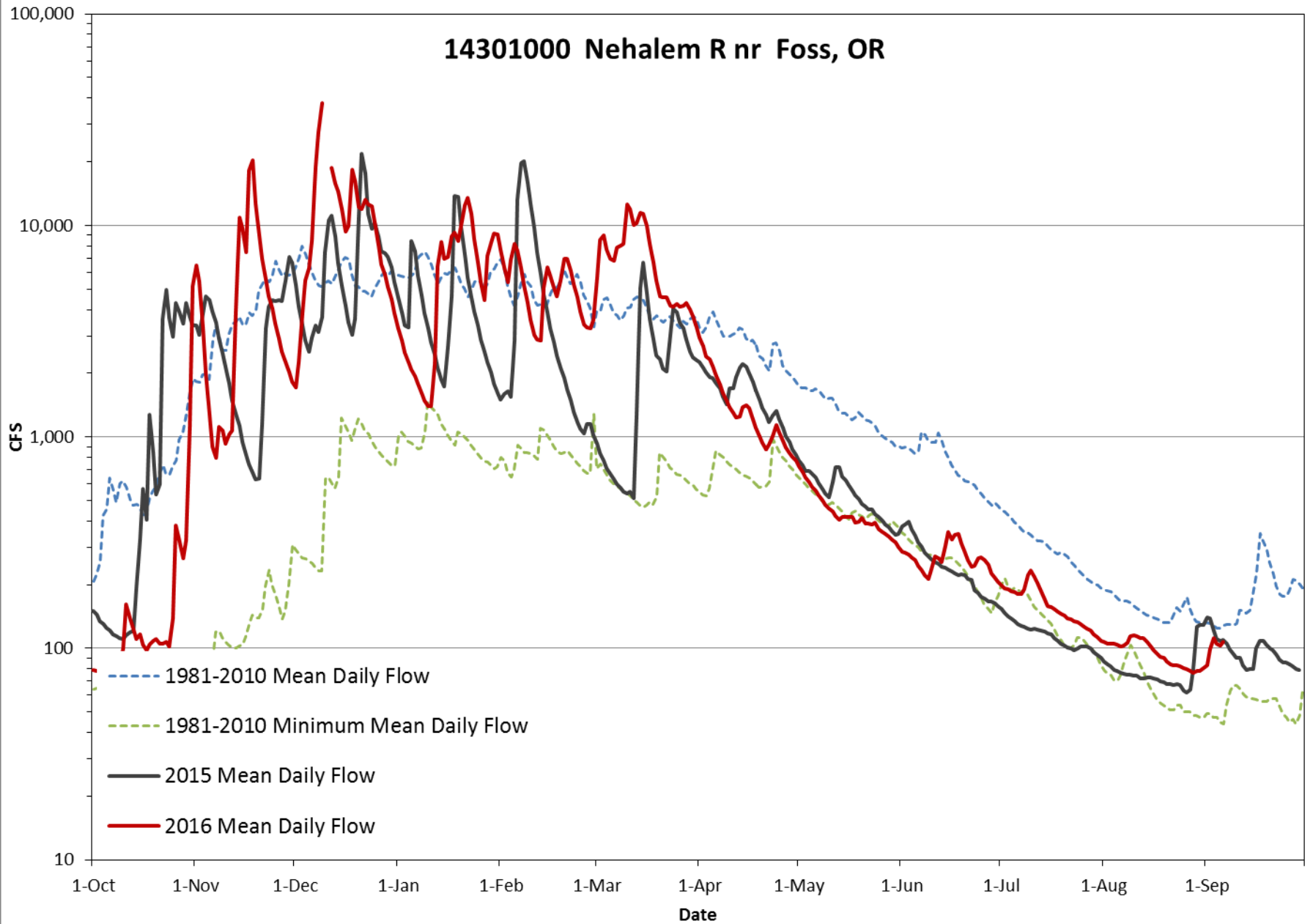


Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

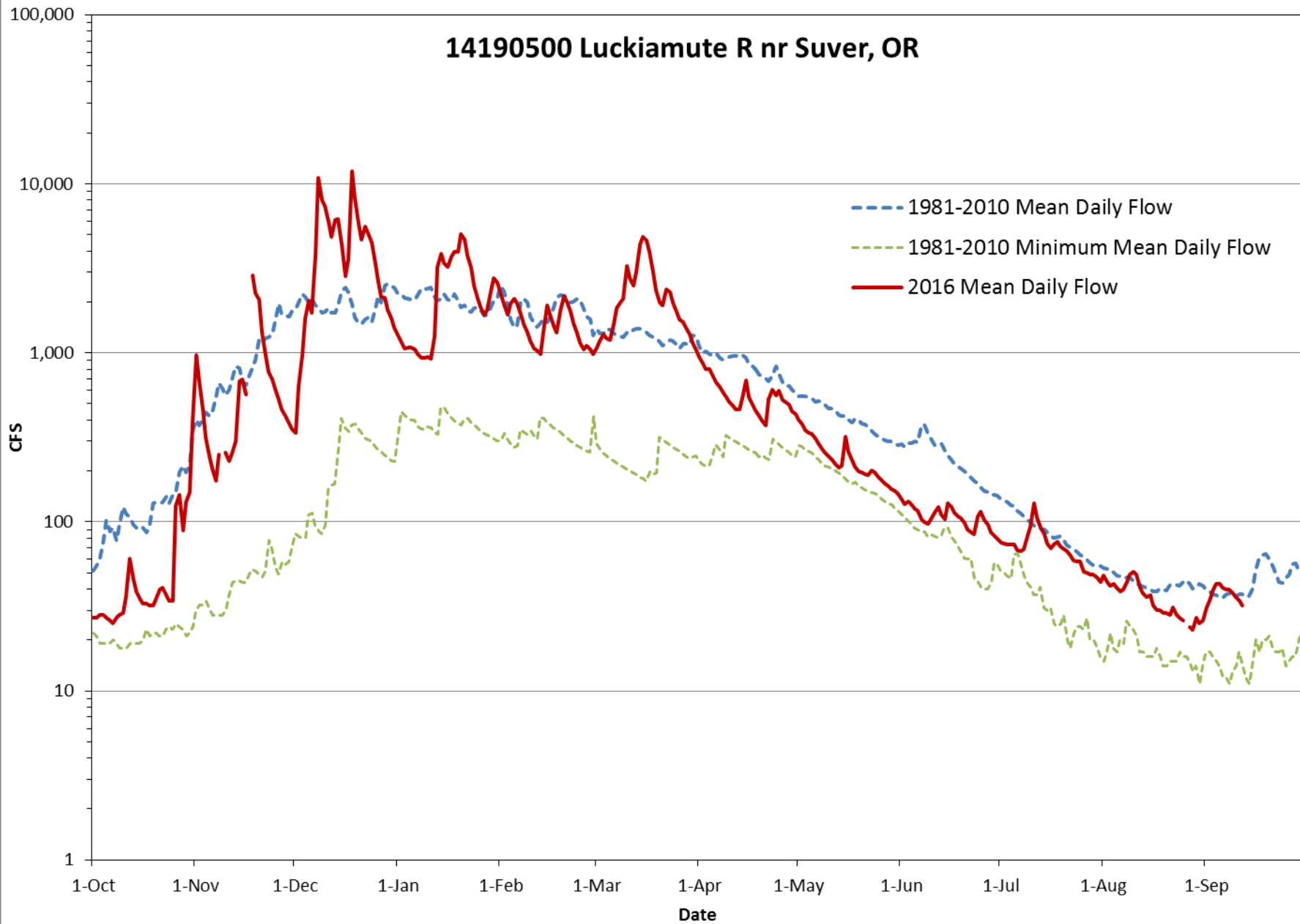
14301000 Nehalem R nr Foss, OR



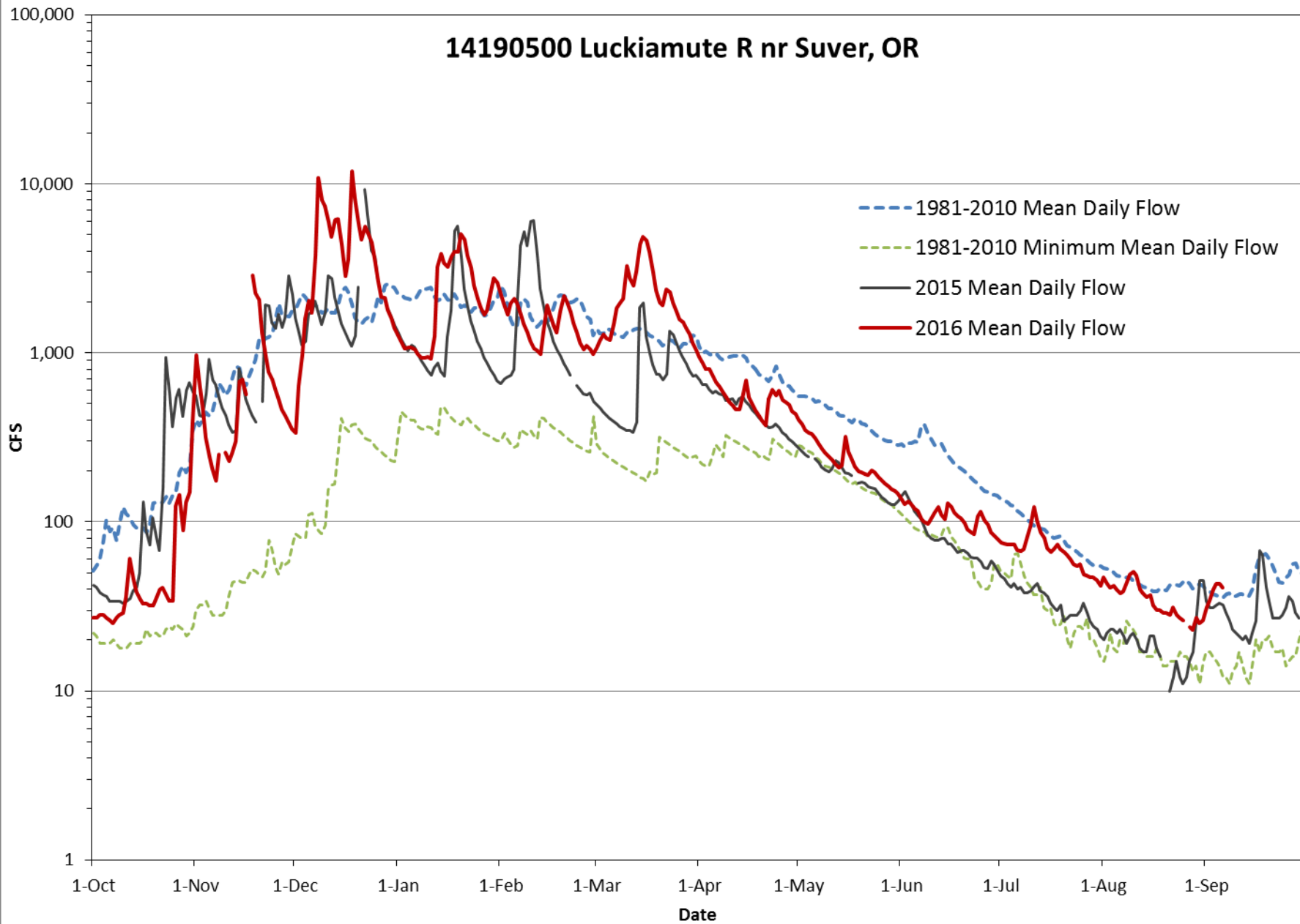
14301000 Nehalem R nr Foss, OR



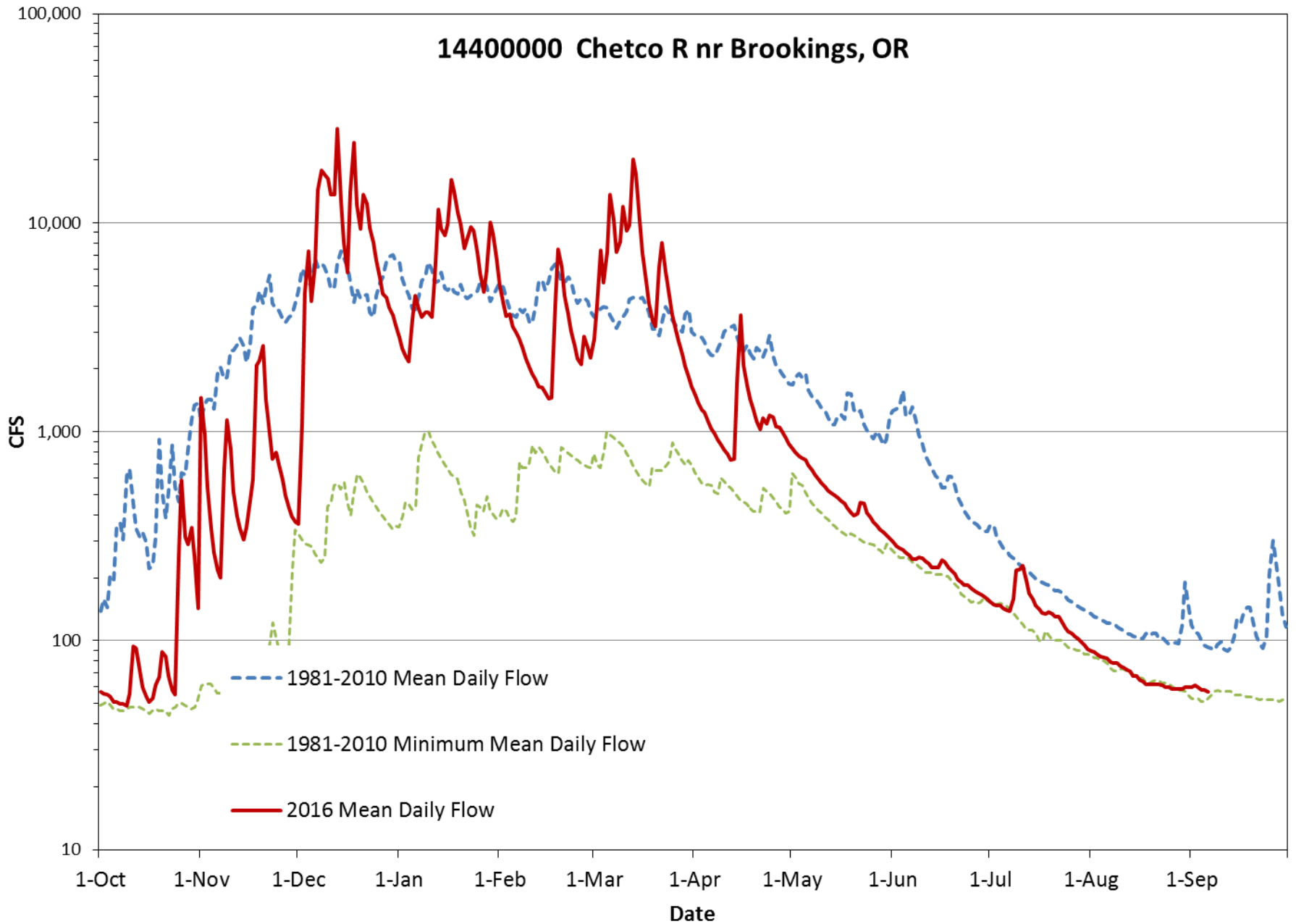
14190500 Luckiamute R nr Suver, OR



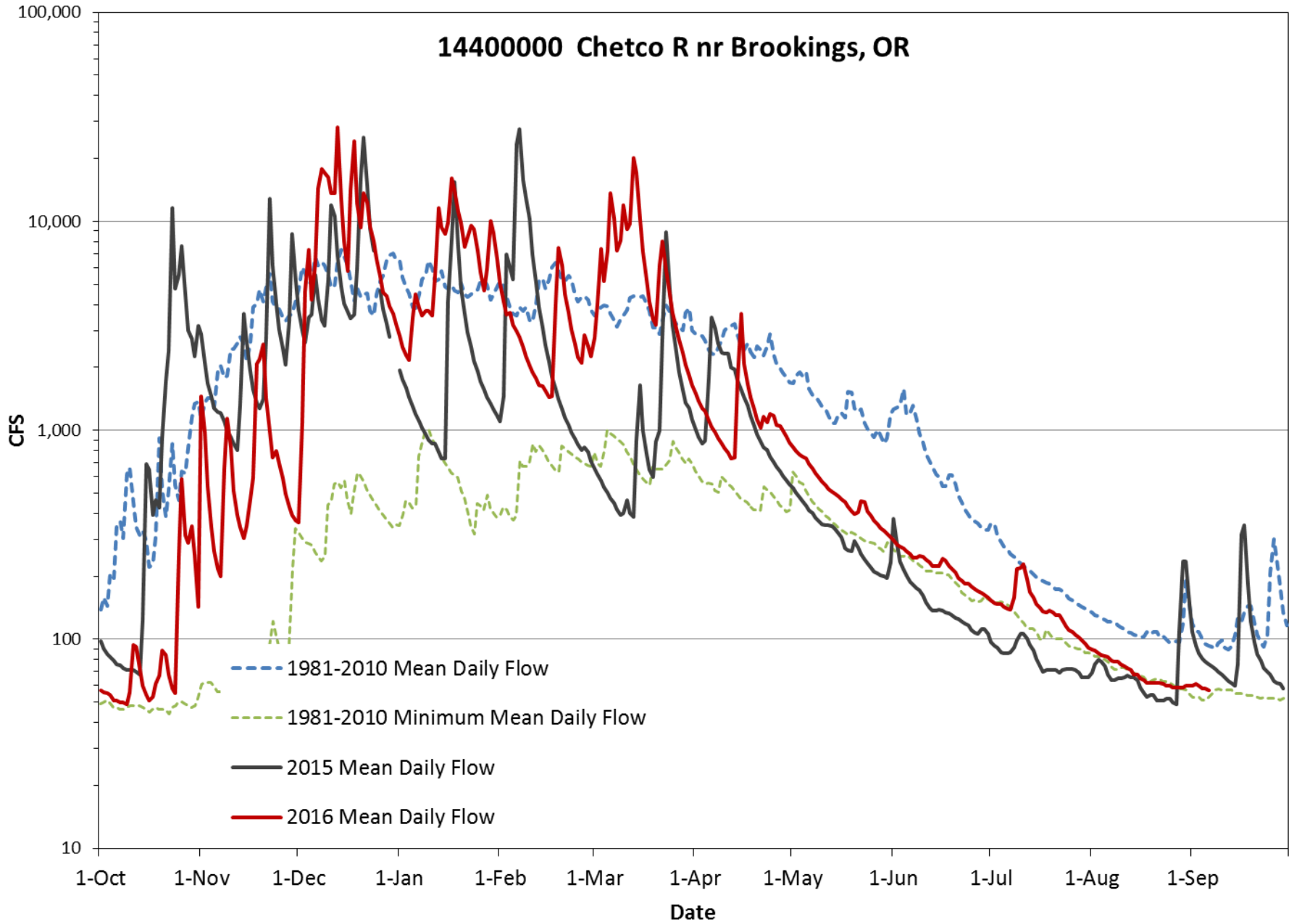
14190500 Luckiamute R nr Suver, OR



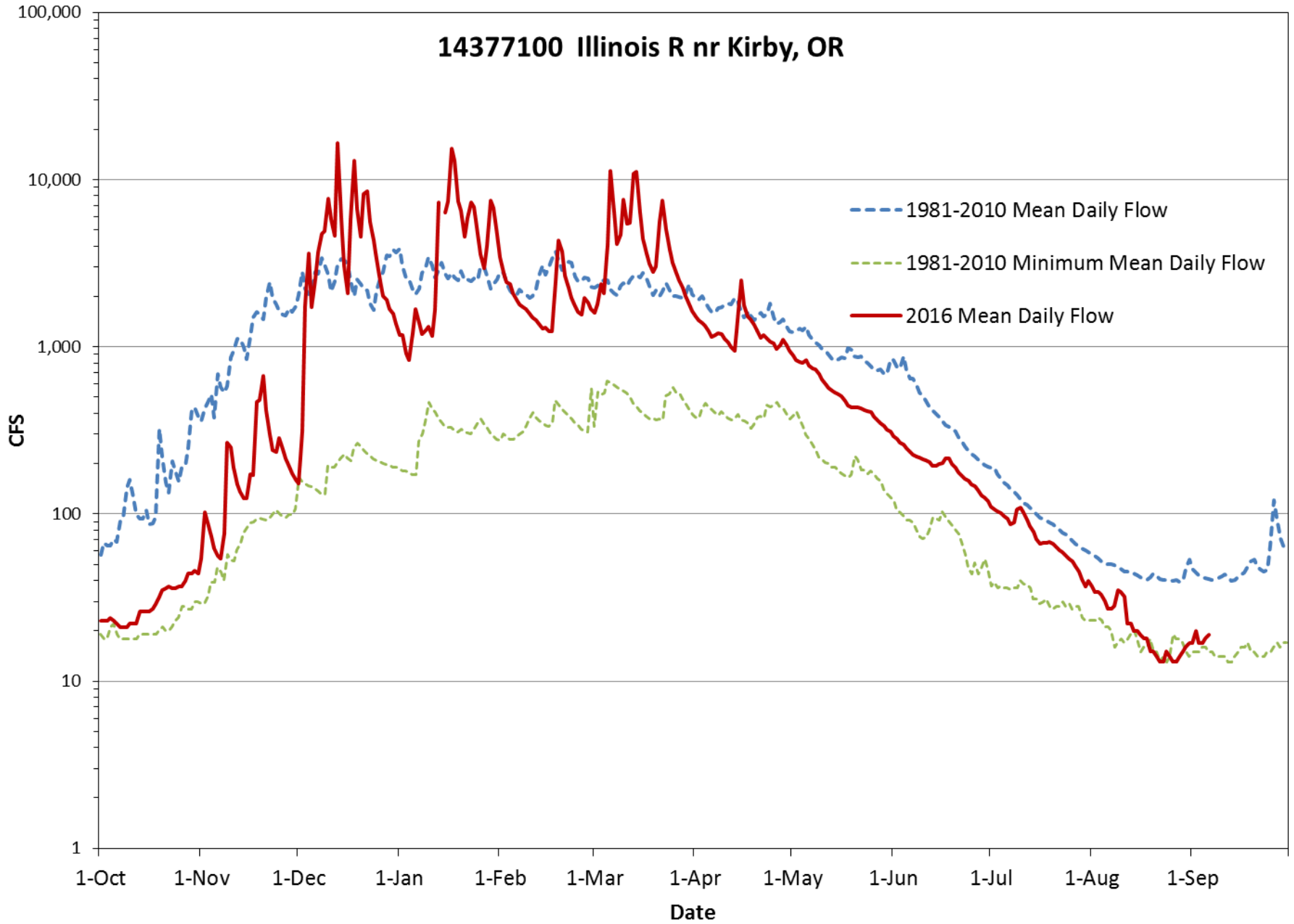
14400000 Chetco R nr Brookings, OR



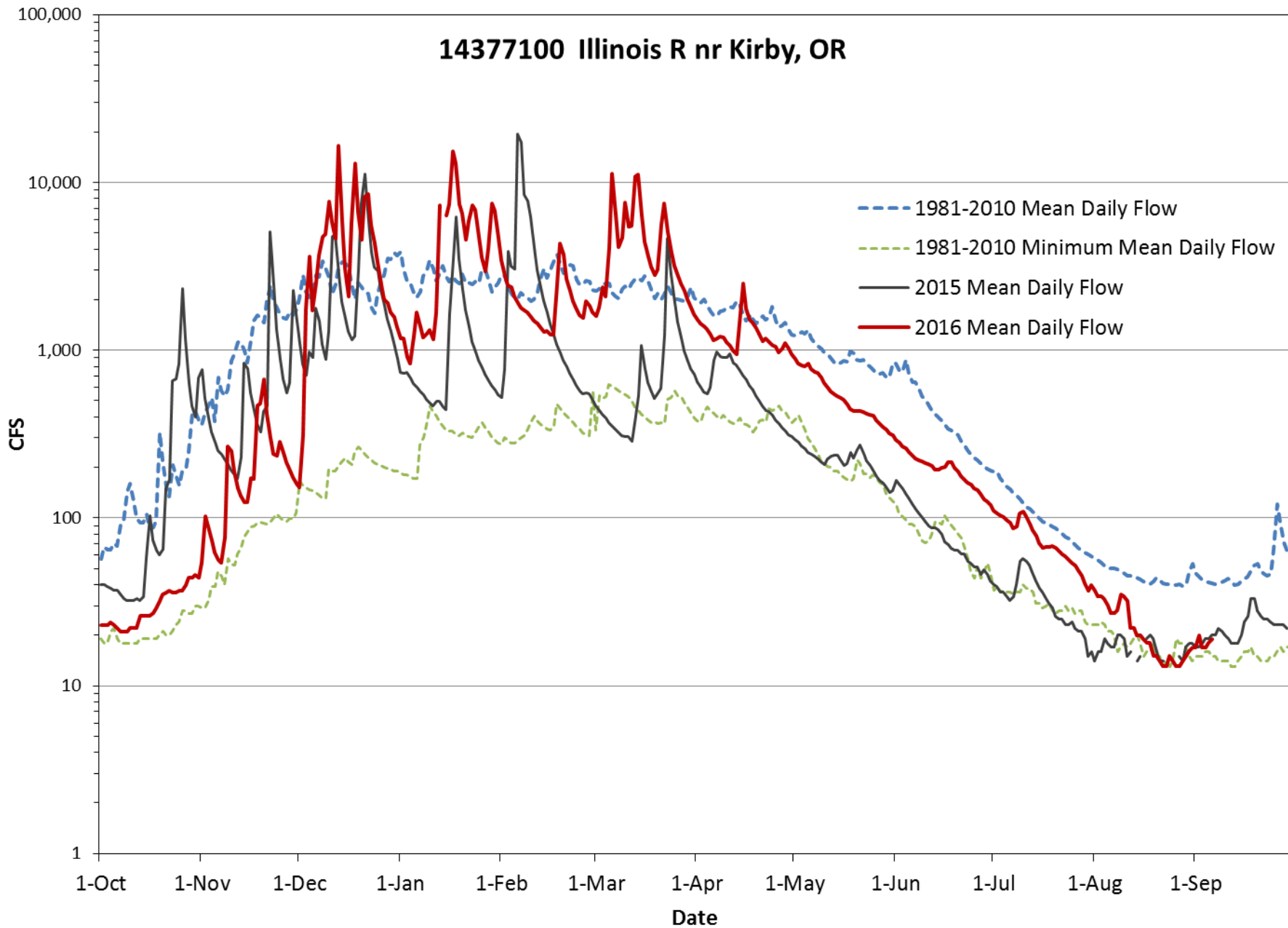
14400000 Chetco R nr Brookings, OR



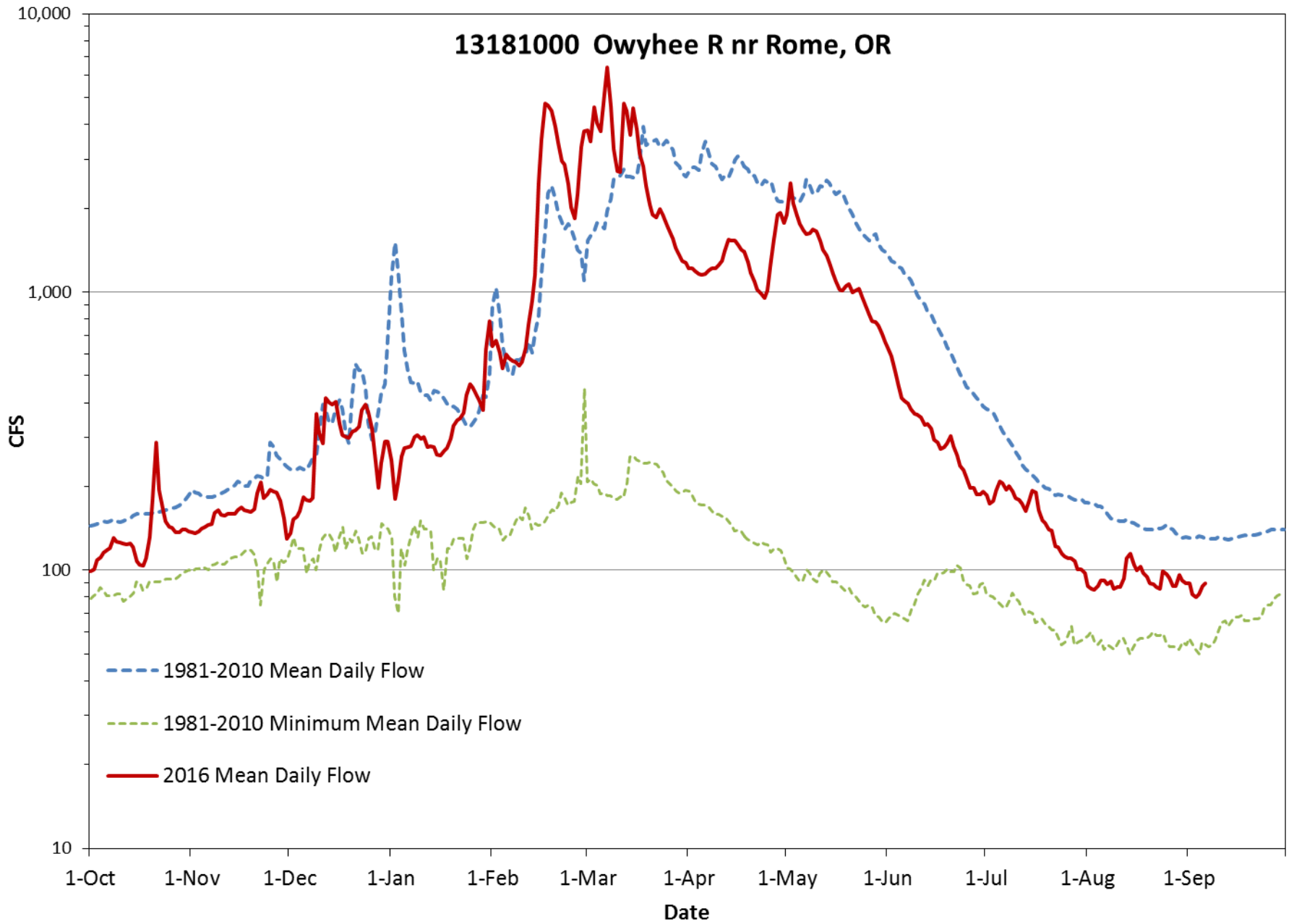
14377100 Illinois R nr Kirby, OR



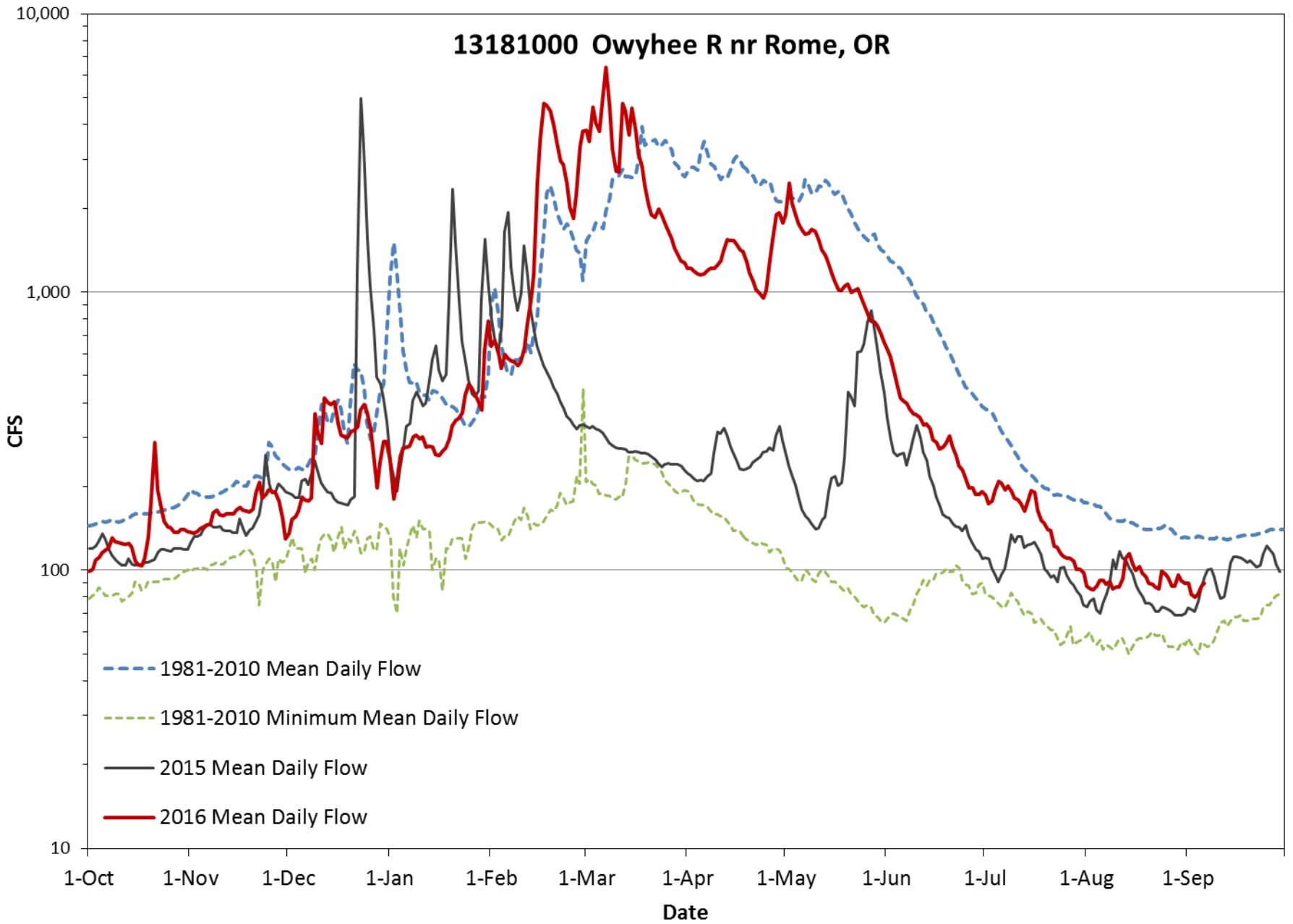
14377100 Illinois R nr Kirby, OR



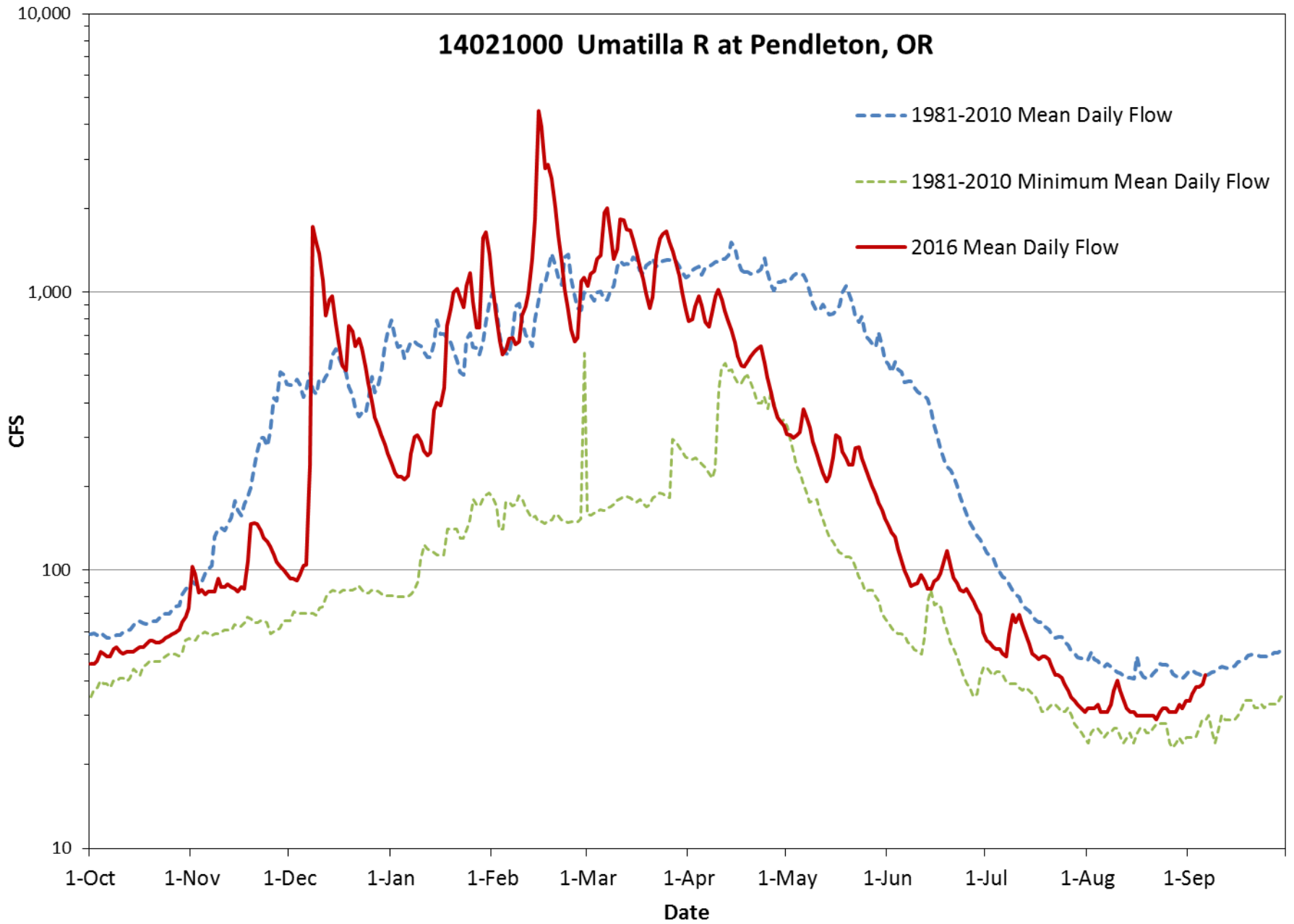
13181000 Owyhee R nr Rome, OR



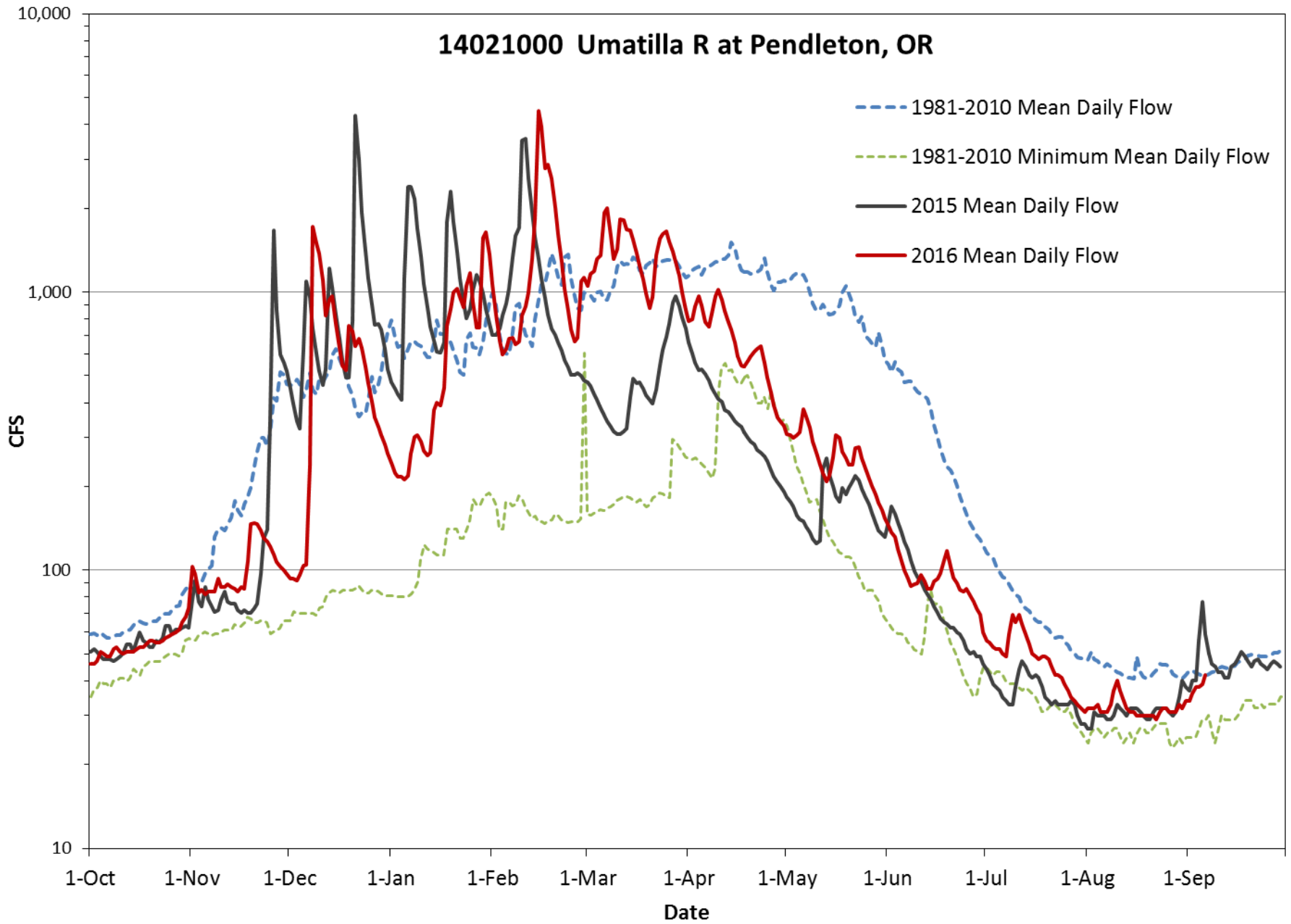
13181000 Owyhee R nr Rome, OR



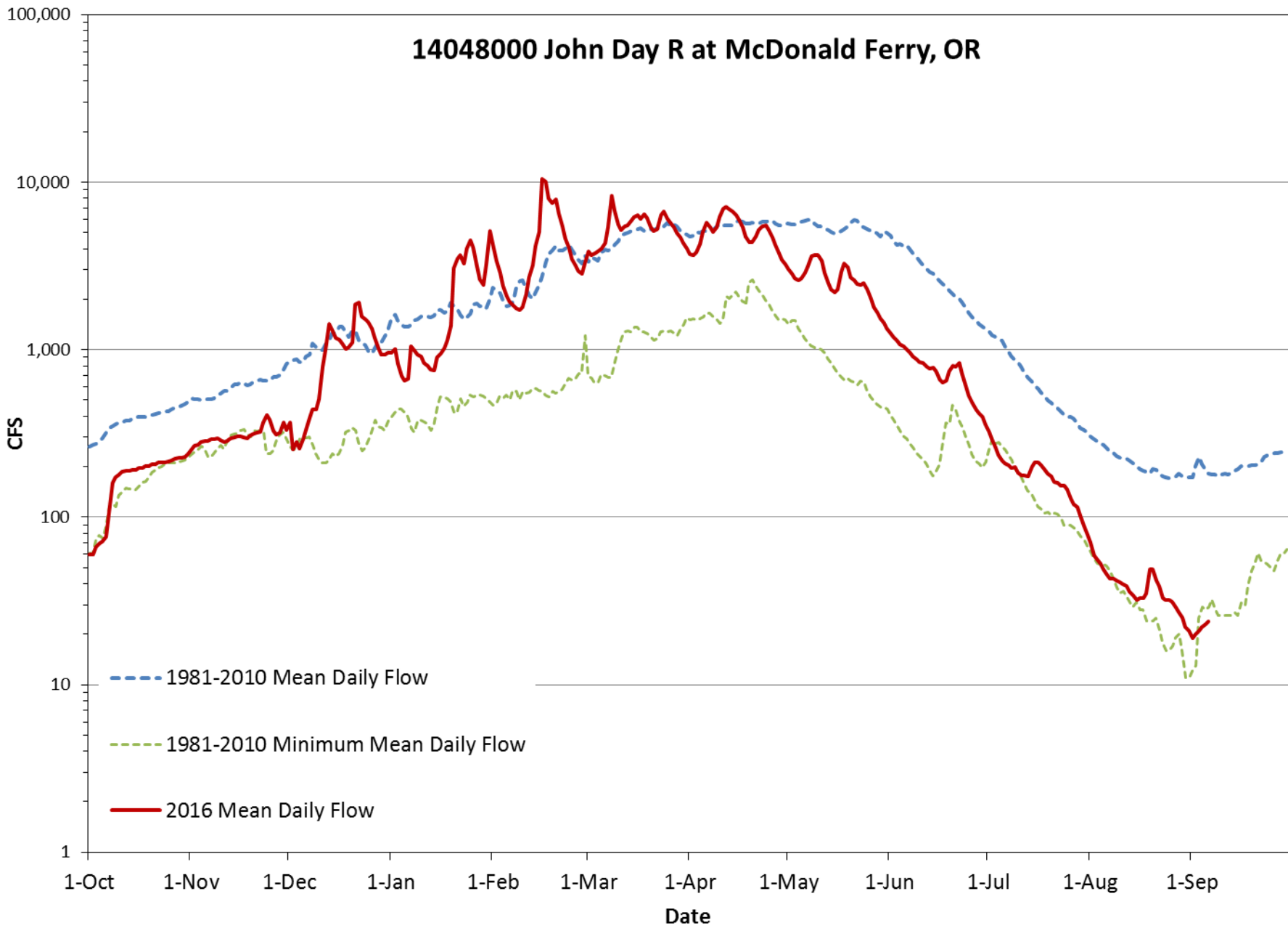
14021000 Umatilla R at Pendleton, OR



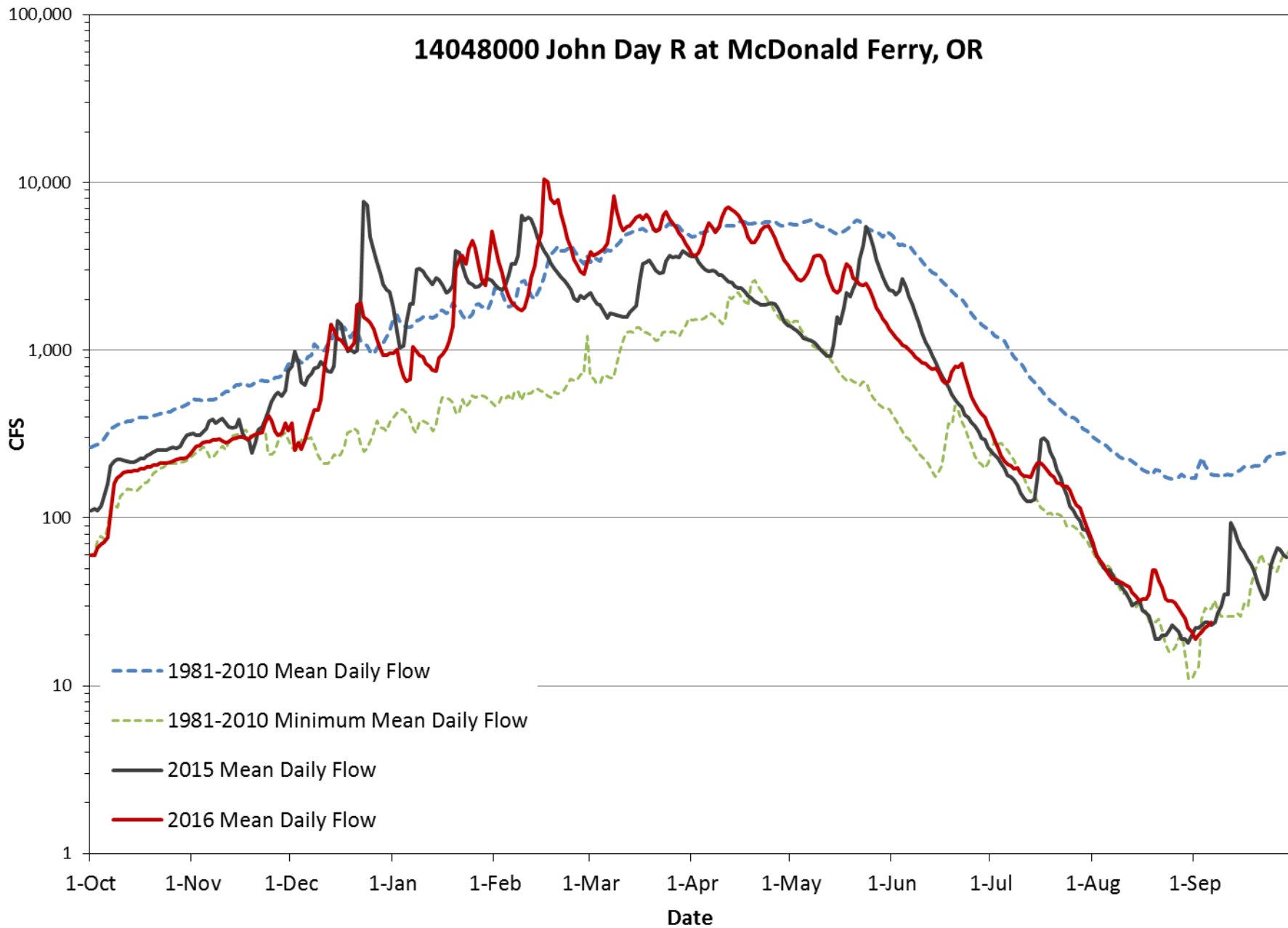
14021000 Umatilla R at Pendleton, OR



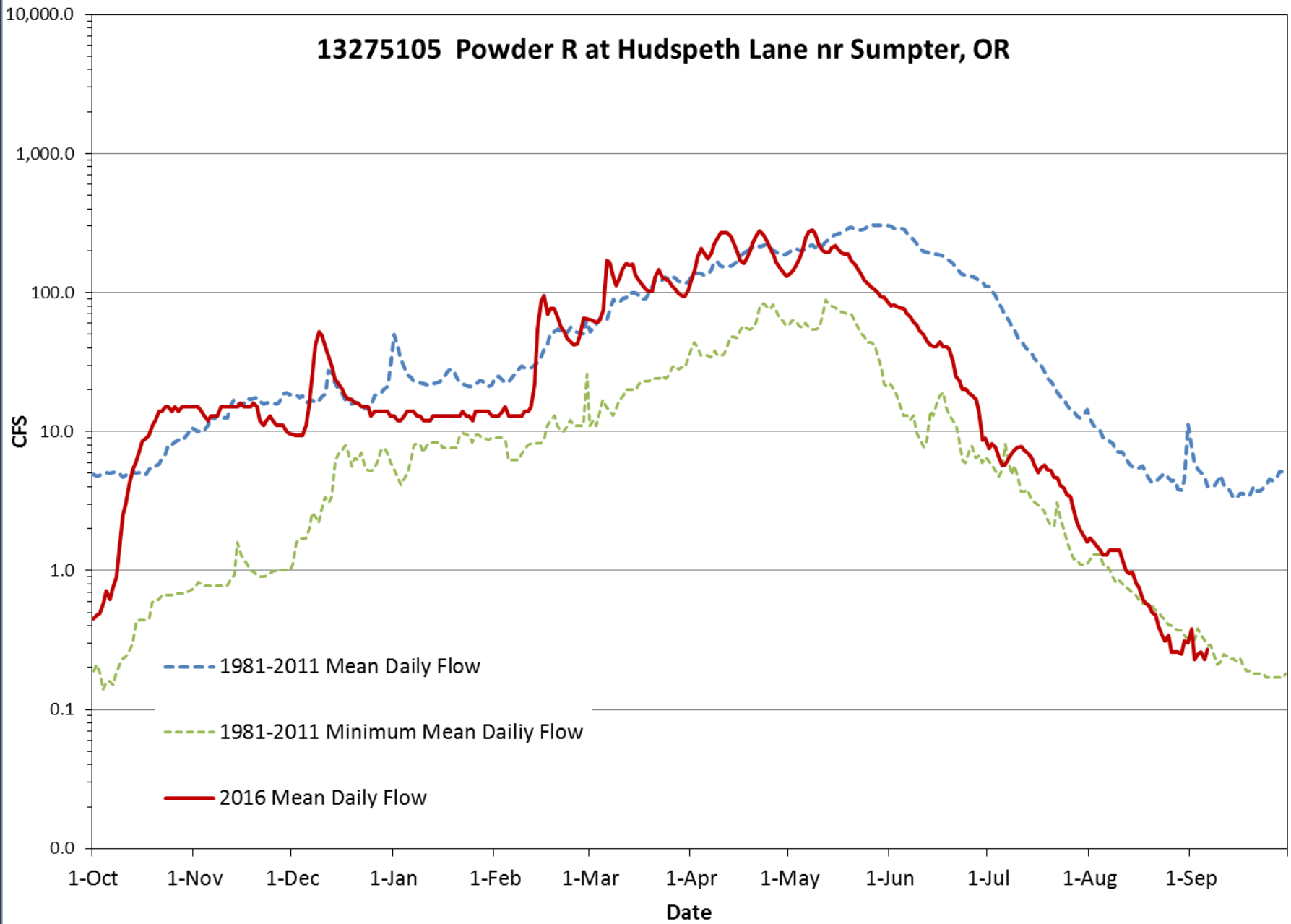
14048000 John Day R at McDonald Ferry, OR



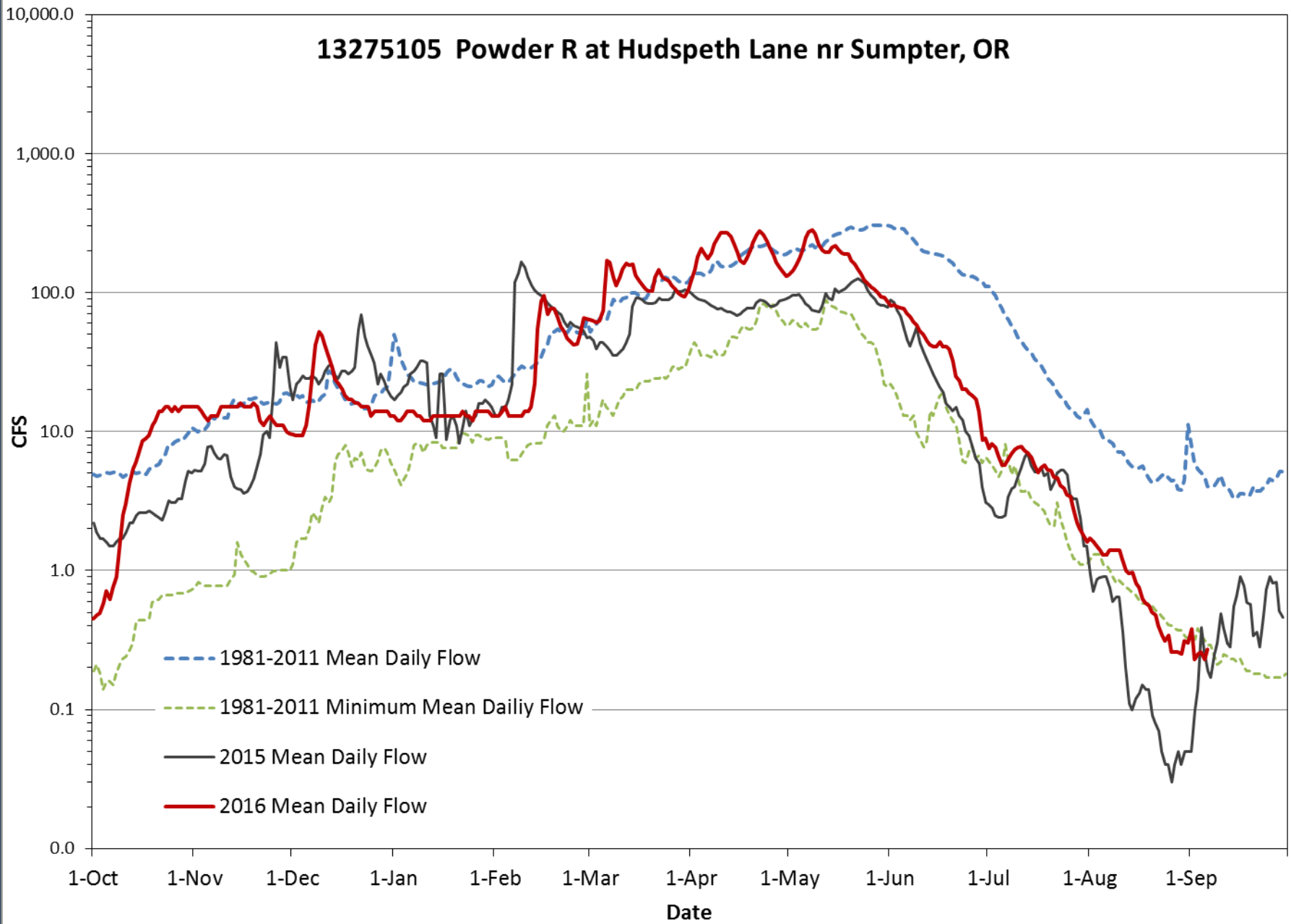
14048000 John Day R at McDonald Ferry, OR



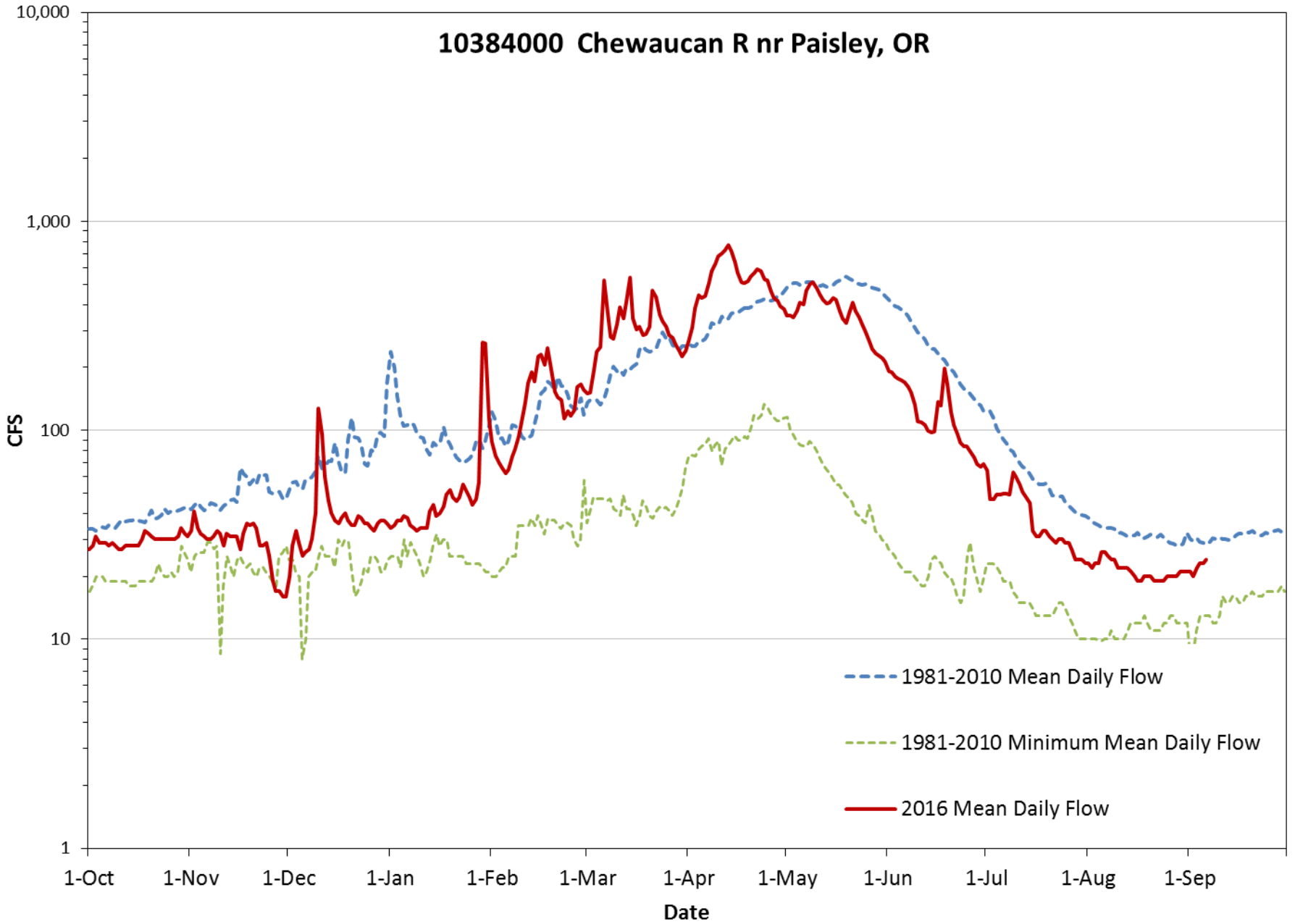
13275105 Powder R at Hudspeth Lane nr Sumpter, OR



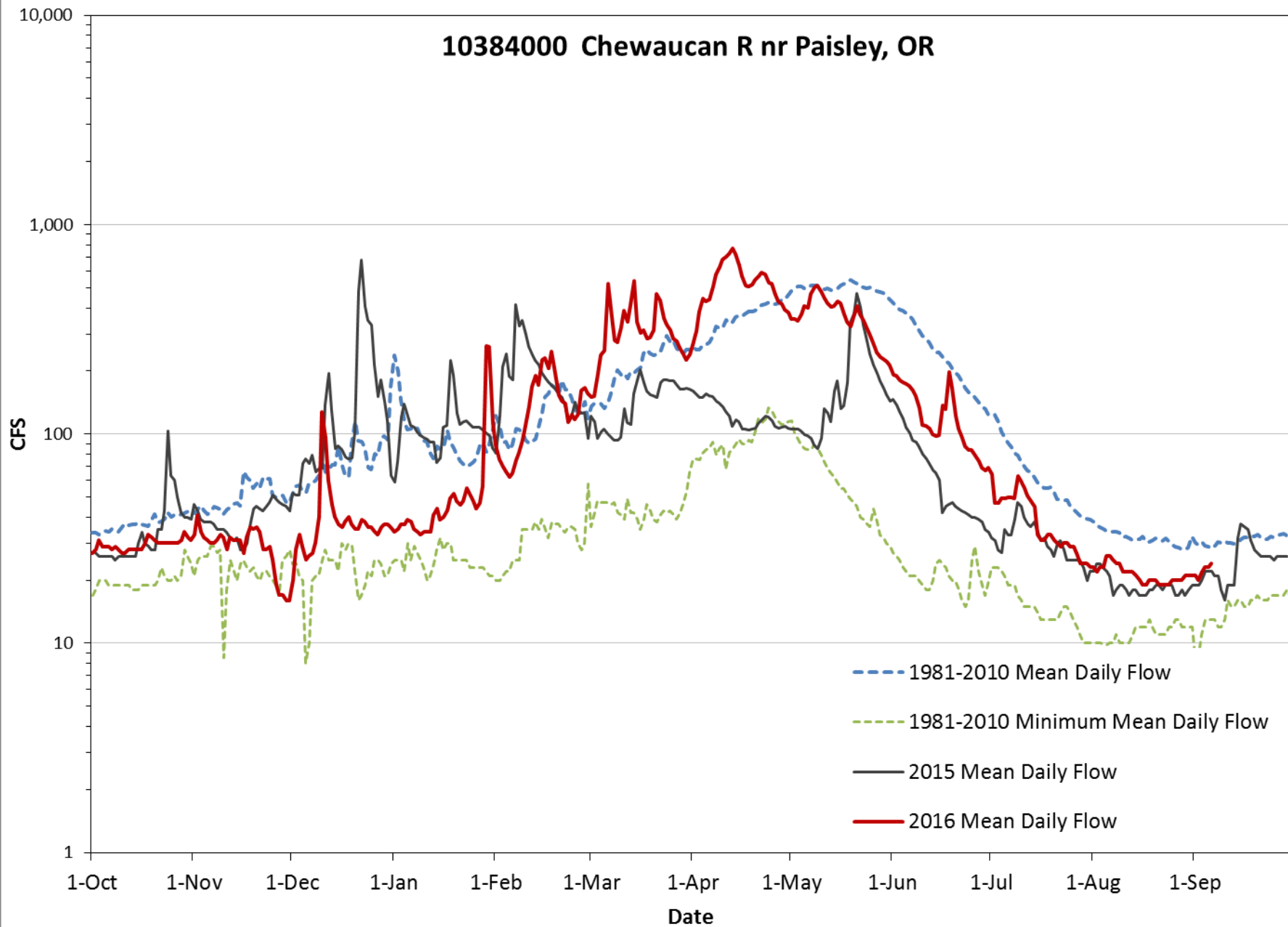
13275105 Powder R at Hudspeth Lane nr Sumpter, OR



1038400 Chewaucan R nr Paisley, OR

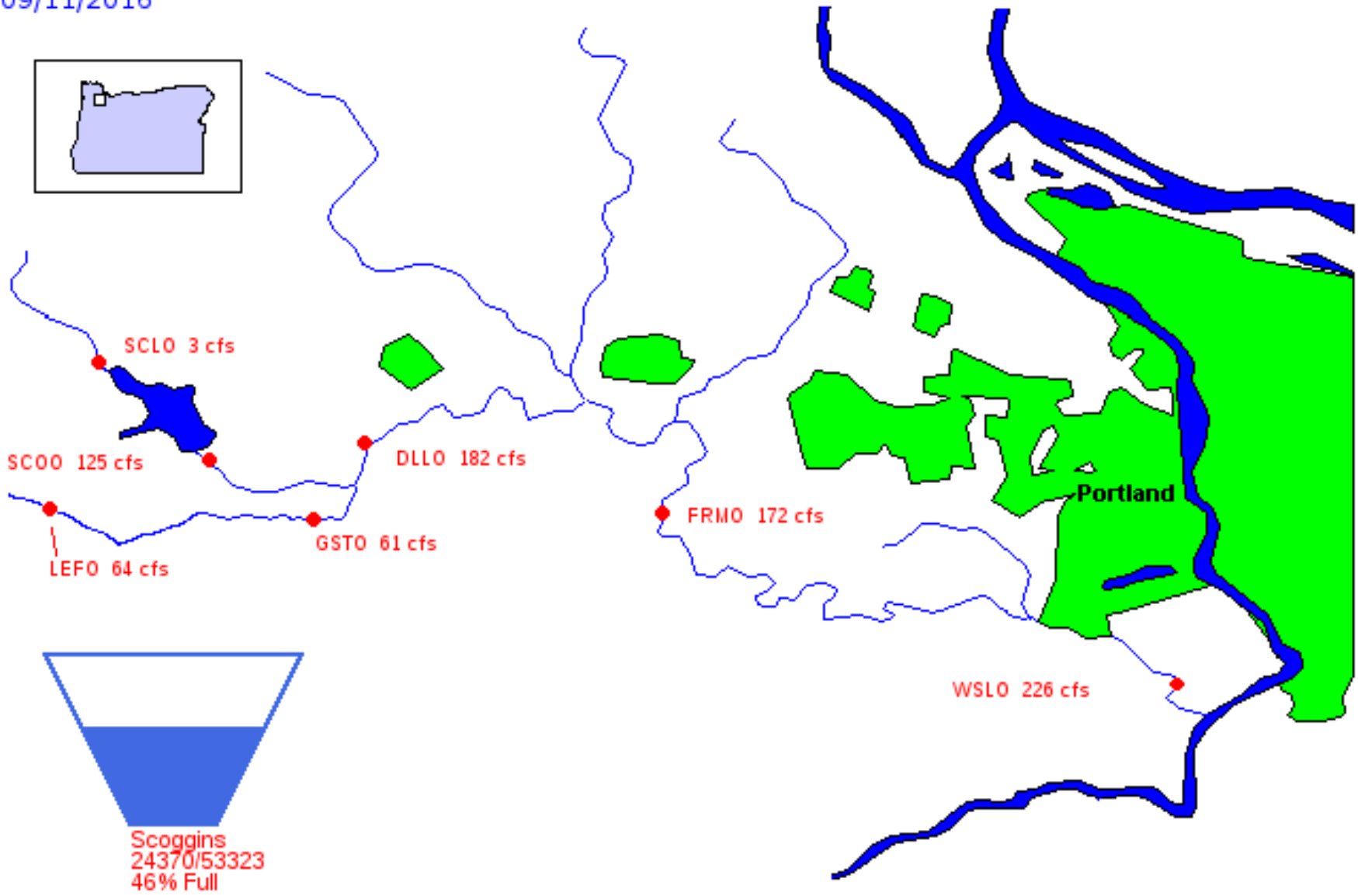


1038400 Chewaucan R nr Paisley, OR



Willamette

09/11/2016

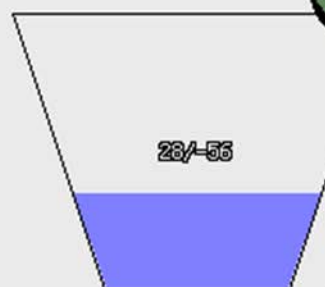


The Willamette Basin

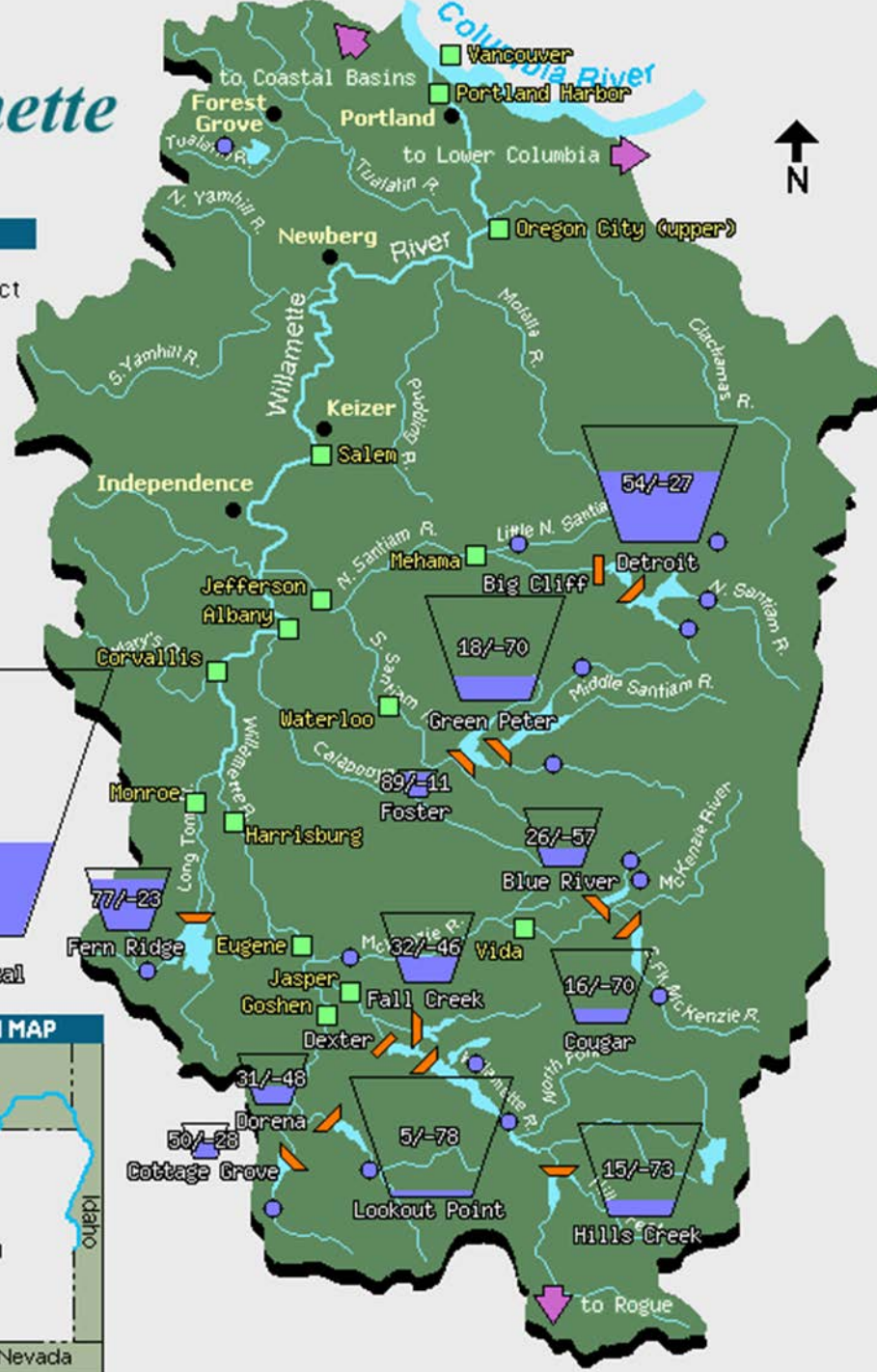
LEGEND

-  Storage Project
-  Run of River
-  Gage
-  No Alerts
-  Bank Full
-  Flood Stage

Overview

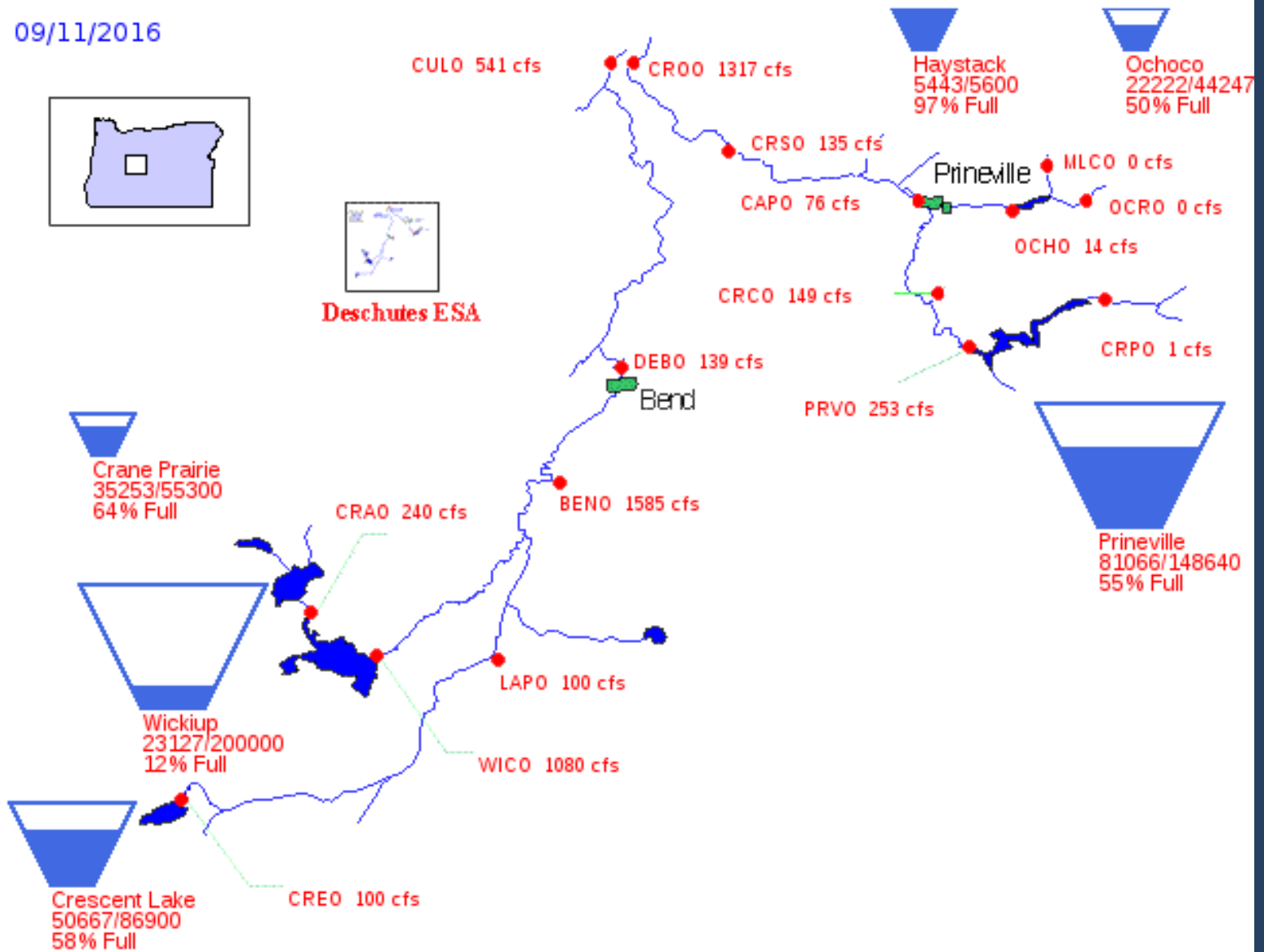


Willamette Total



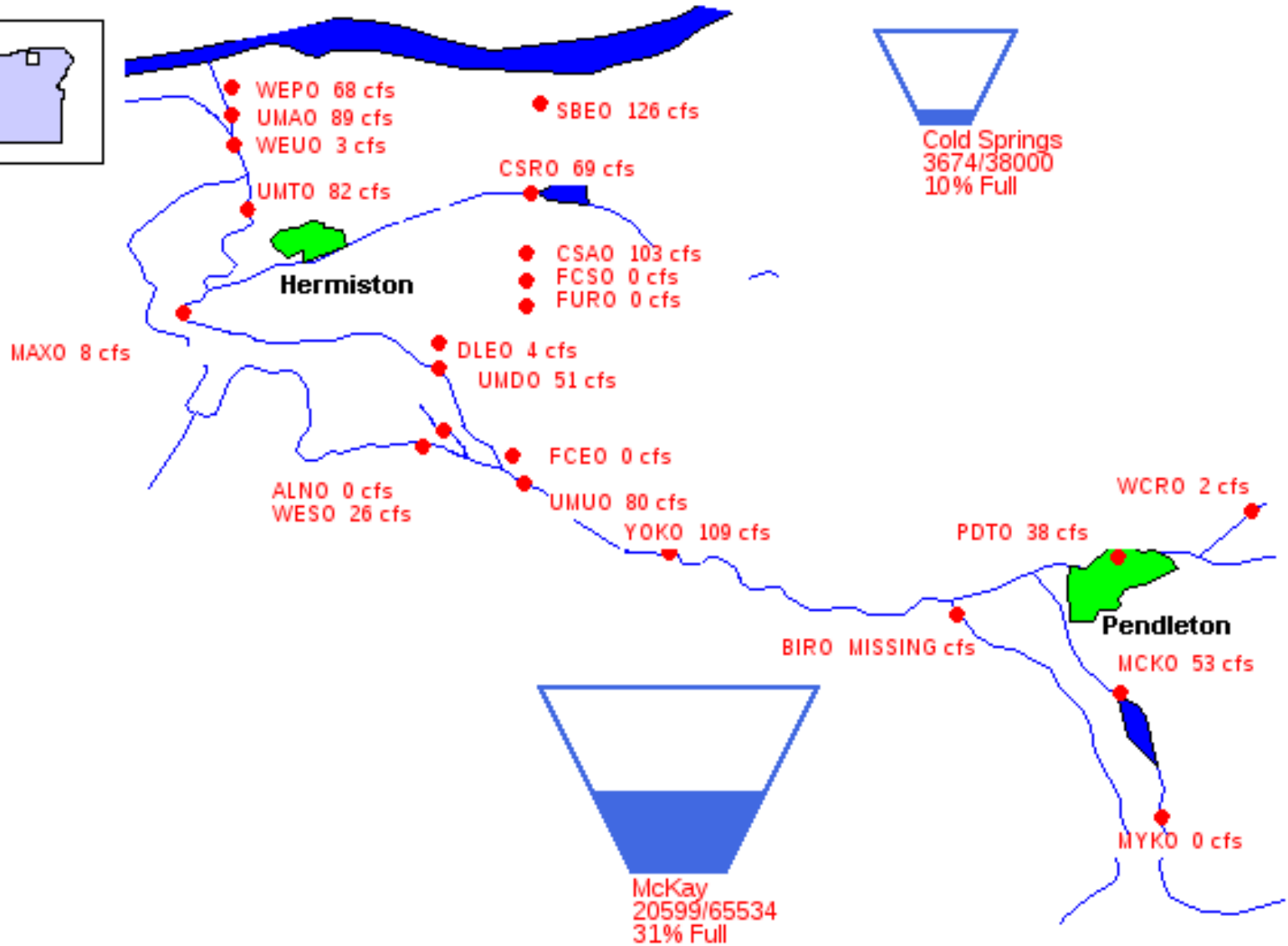
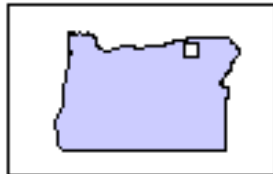
Deschutes

09/11/2016

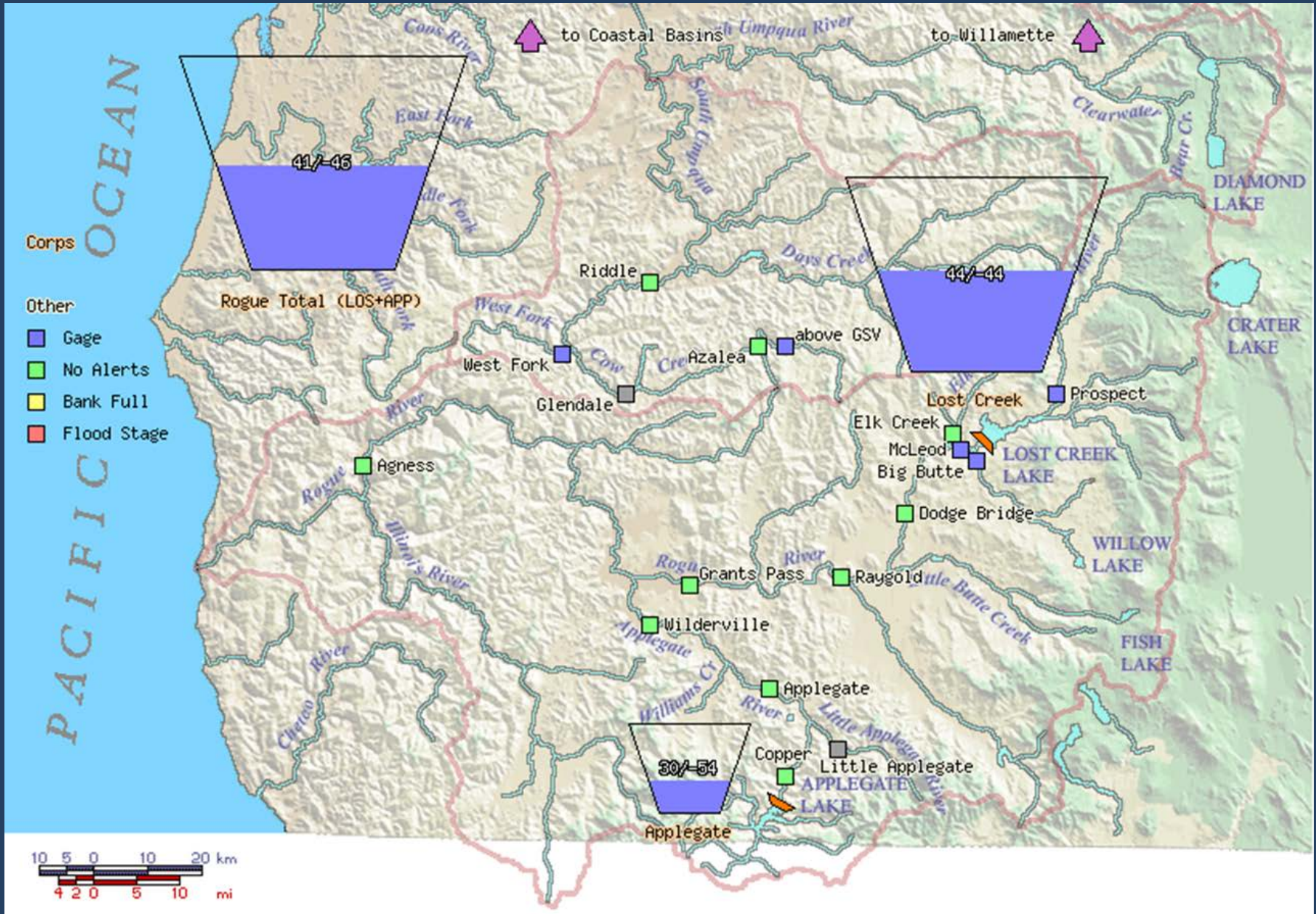


Umatilla

09/11/2016

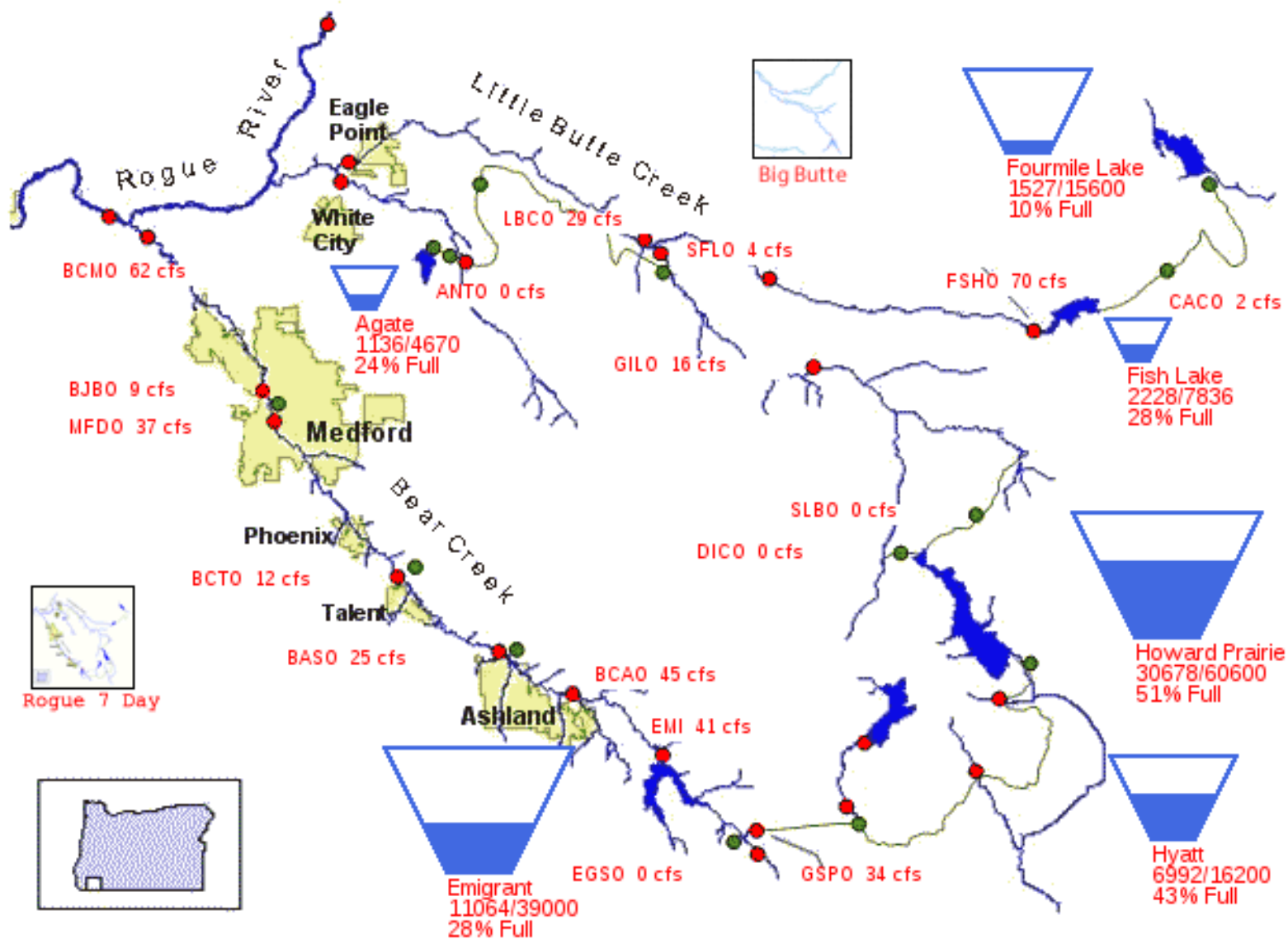


Rogue



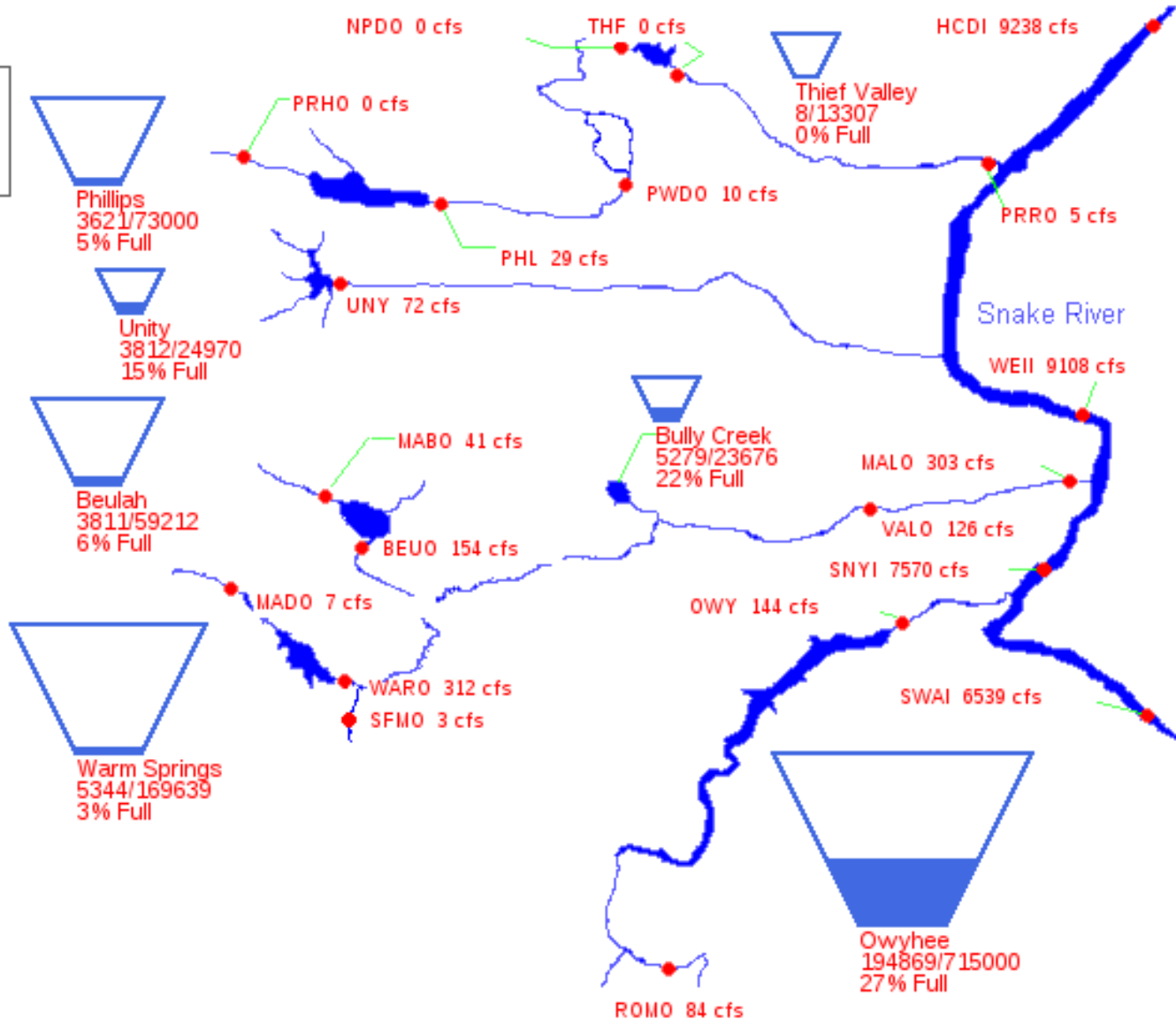
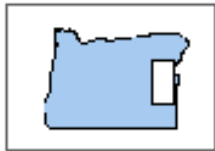
Rogue

09/11/2016



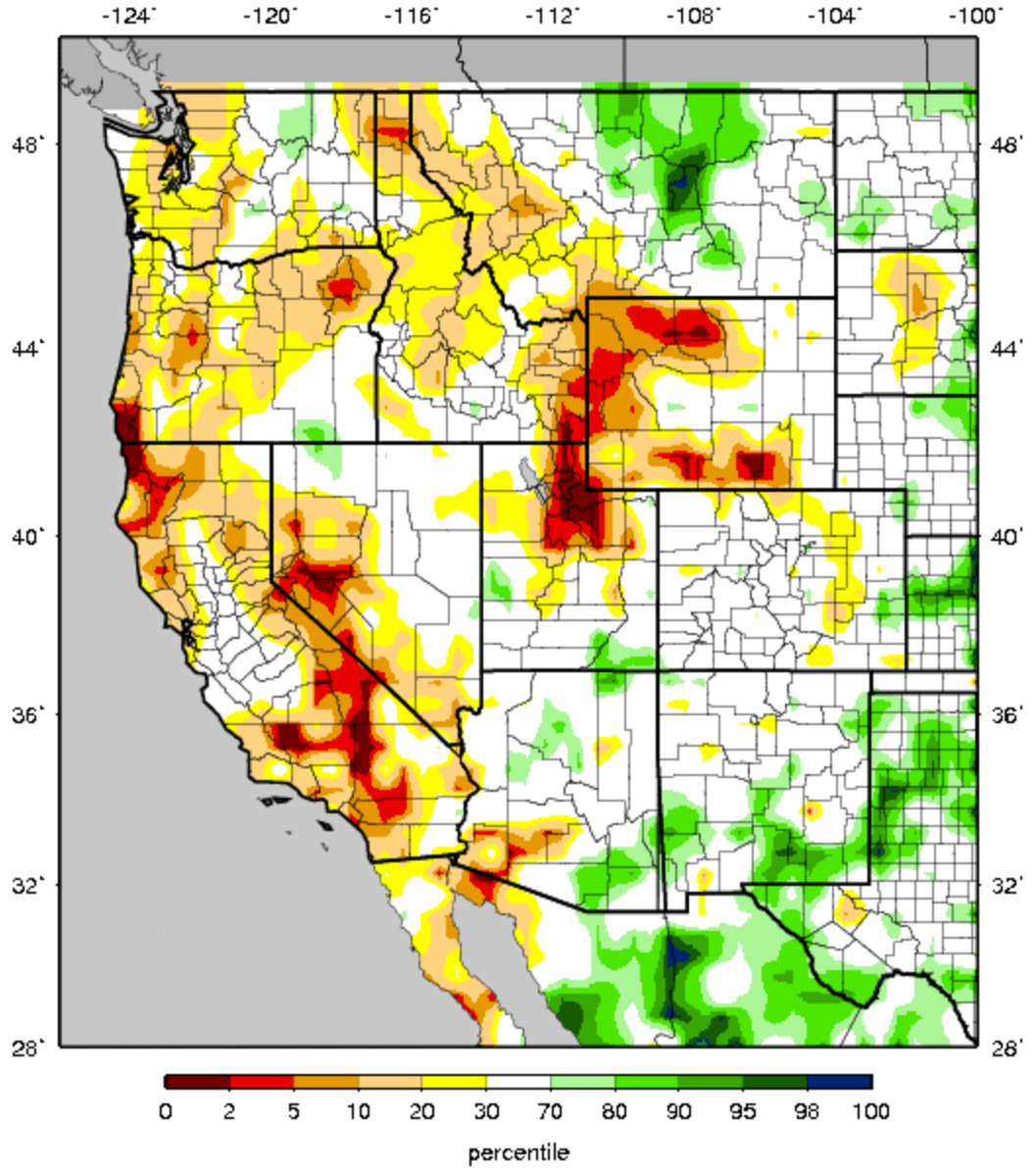
Powder, Malheur, and Owyhee

09/11/2016



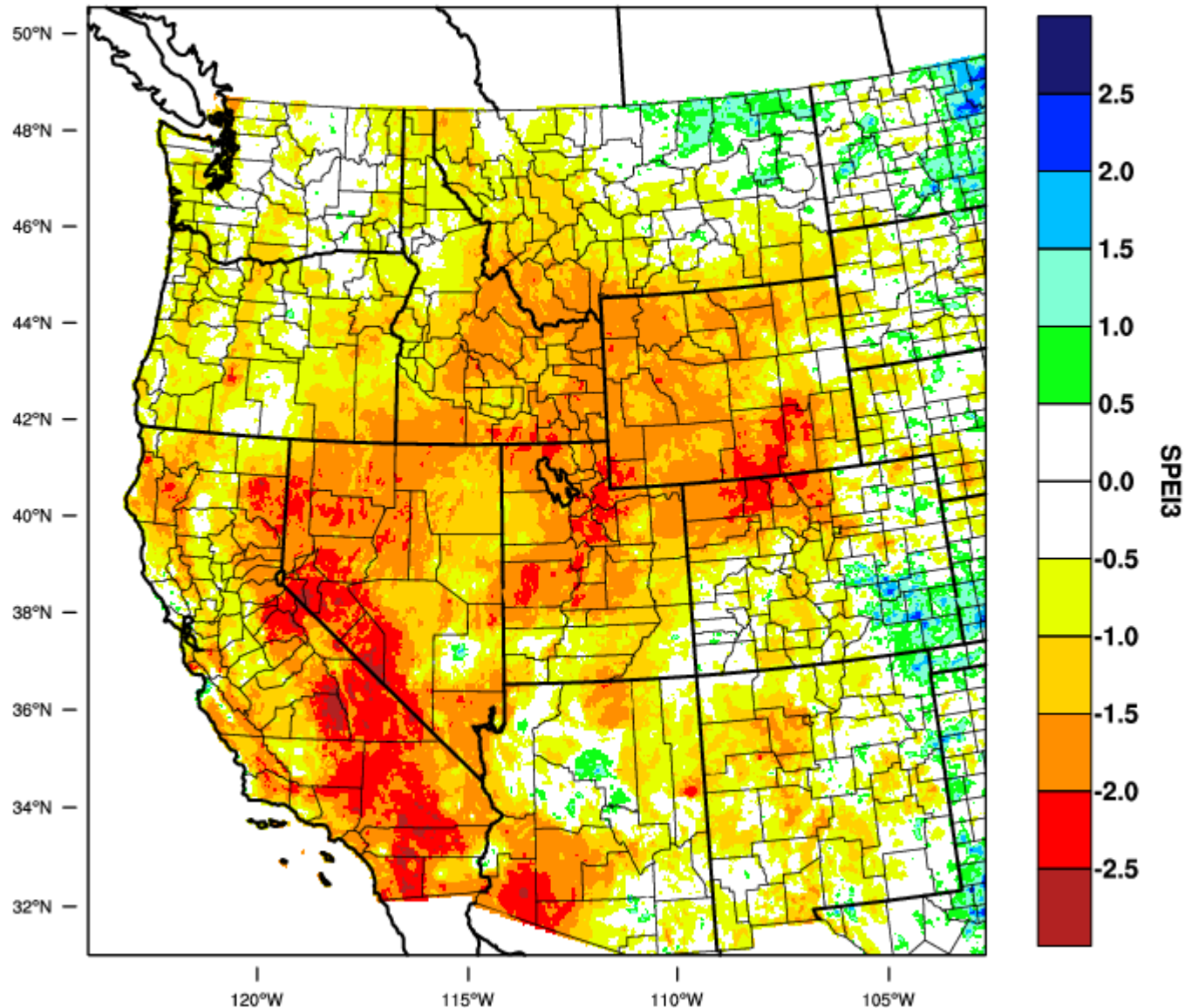
Thank You

VIC Soil Moisture Percentiles (wrt/ 1916-2004)
Western United States - 20160911



**Current Product:
PRISM > SPEI 3 Month > Western US**

**Western United States - 3 month SPEI
August 2016**



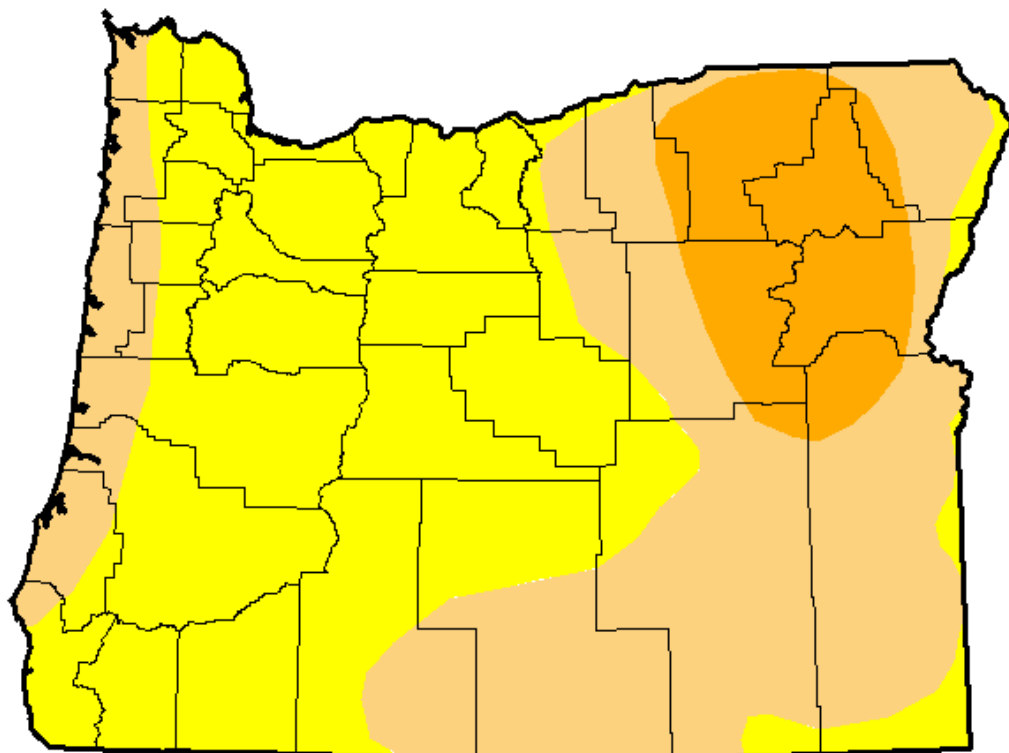
U.S. Drought Monitor

Oregon

September 6, 2016
 (Released Thursday, Sep. 8, 2016)
 Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	50.21	12.03	0.00	0.00
Last Week <i>8/30/2016</i>	0.00	100.00	50.21	12.03	0.00	0.00
3 Months Ago <i>6/7/2016</i>	0.59	99.41	29.72	0.00	0.00	0.00
Start of Calendar Year <i>1/2/2015</i>	14.52	85.48	80.45	65.33	39.55	0.00
Start of Water Year <i>9/29/2015</i>	0.00	100.00	100.00	100.00	67.29	0.00
One Year Ago <i>8/8/2015</i>	0.00	100.00	100.00	100.00	67.28	0.00



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

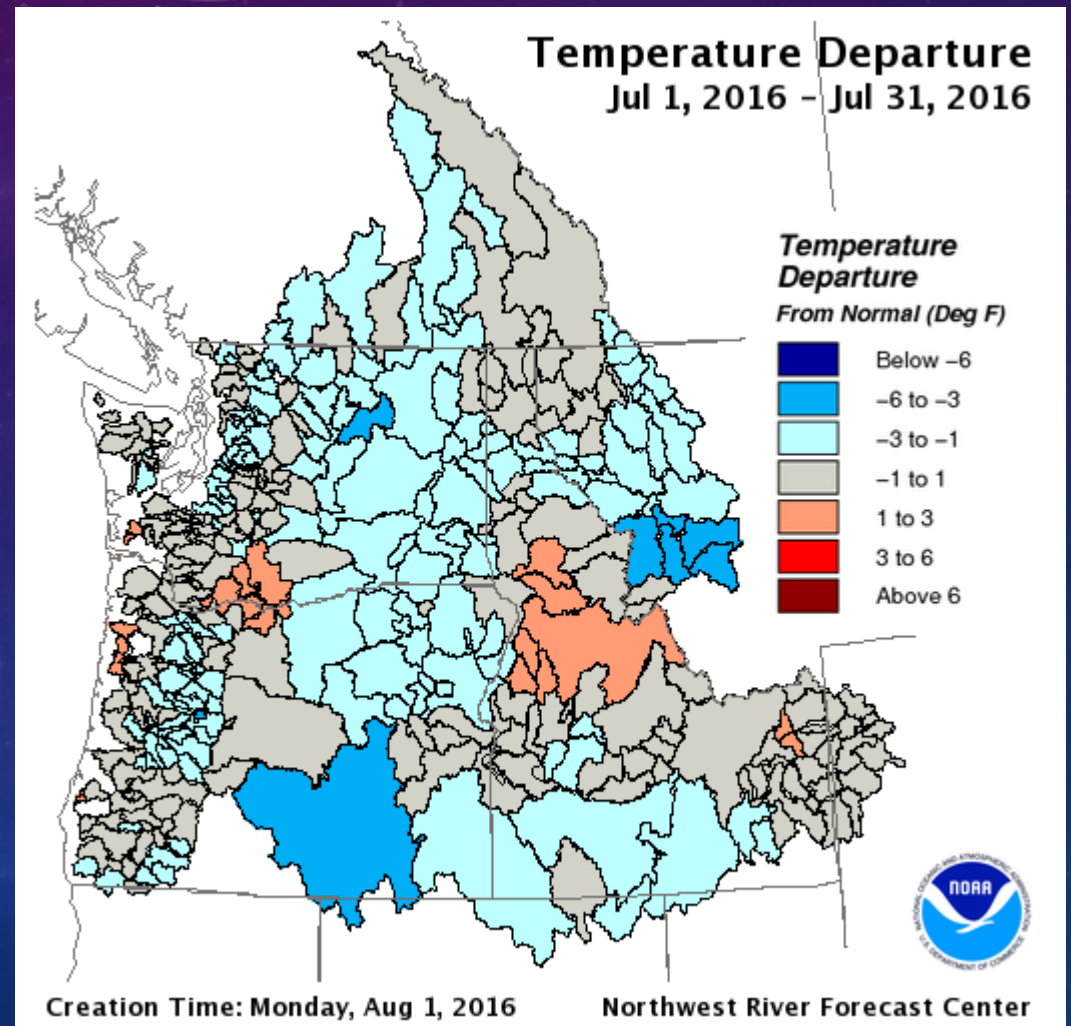
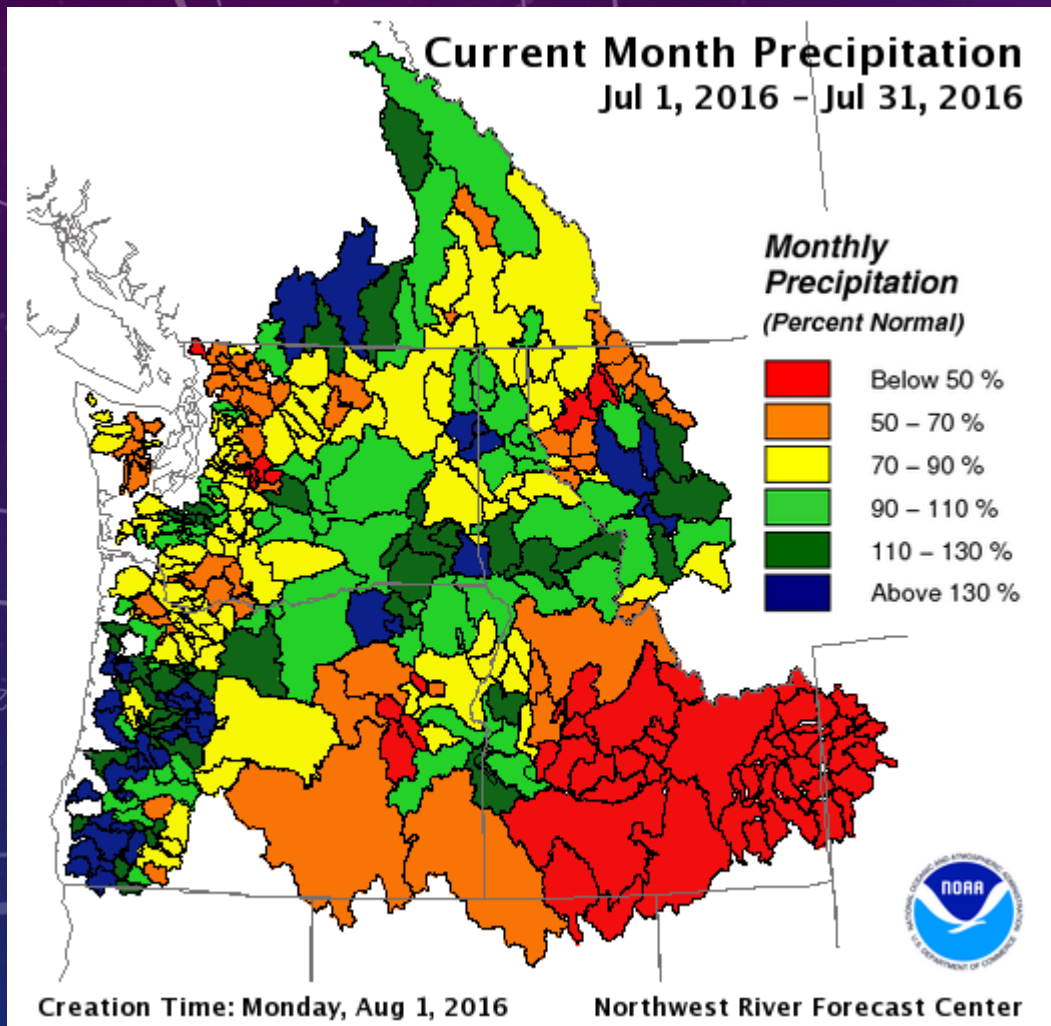
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
 David Simeral
 Western Regional Climate Center



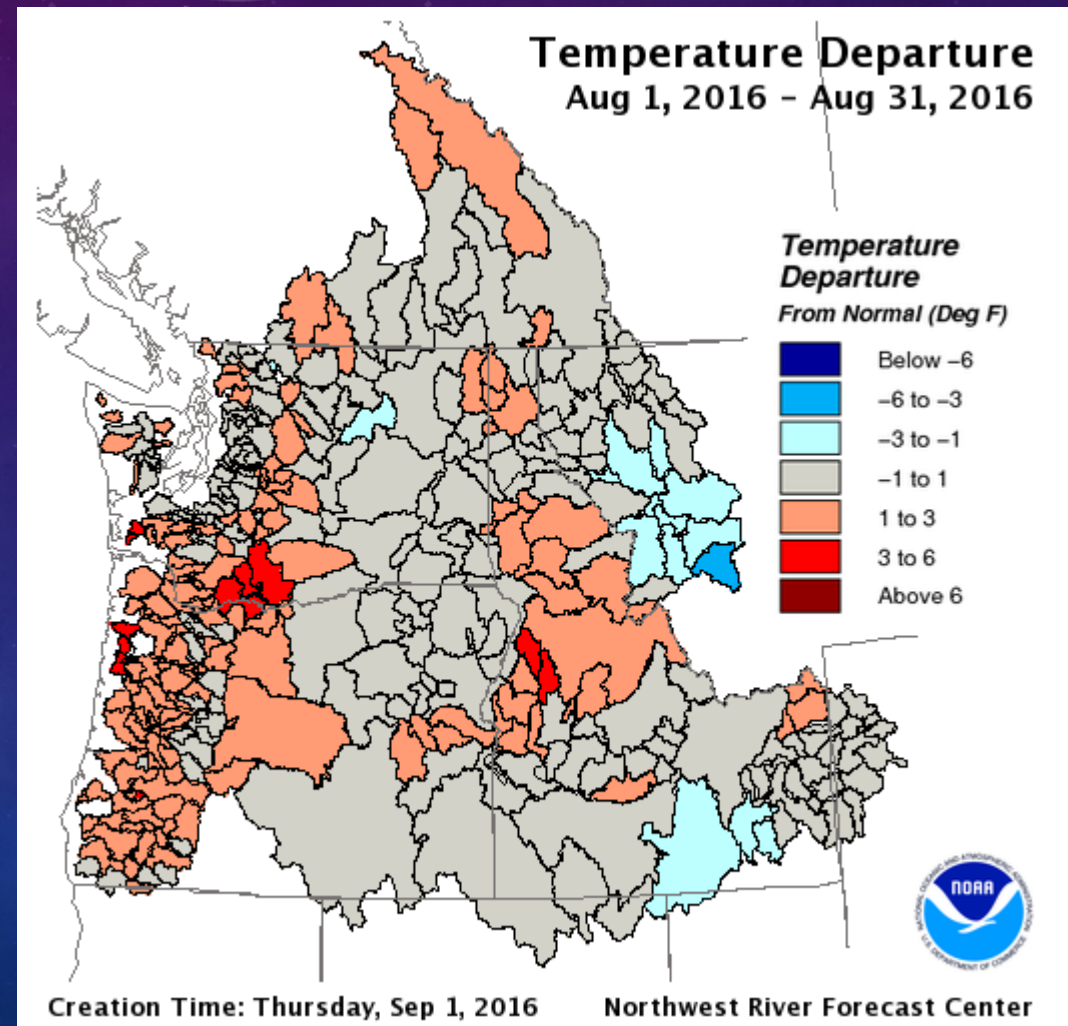
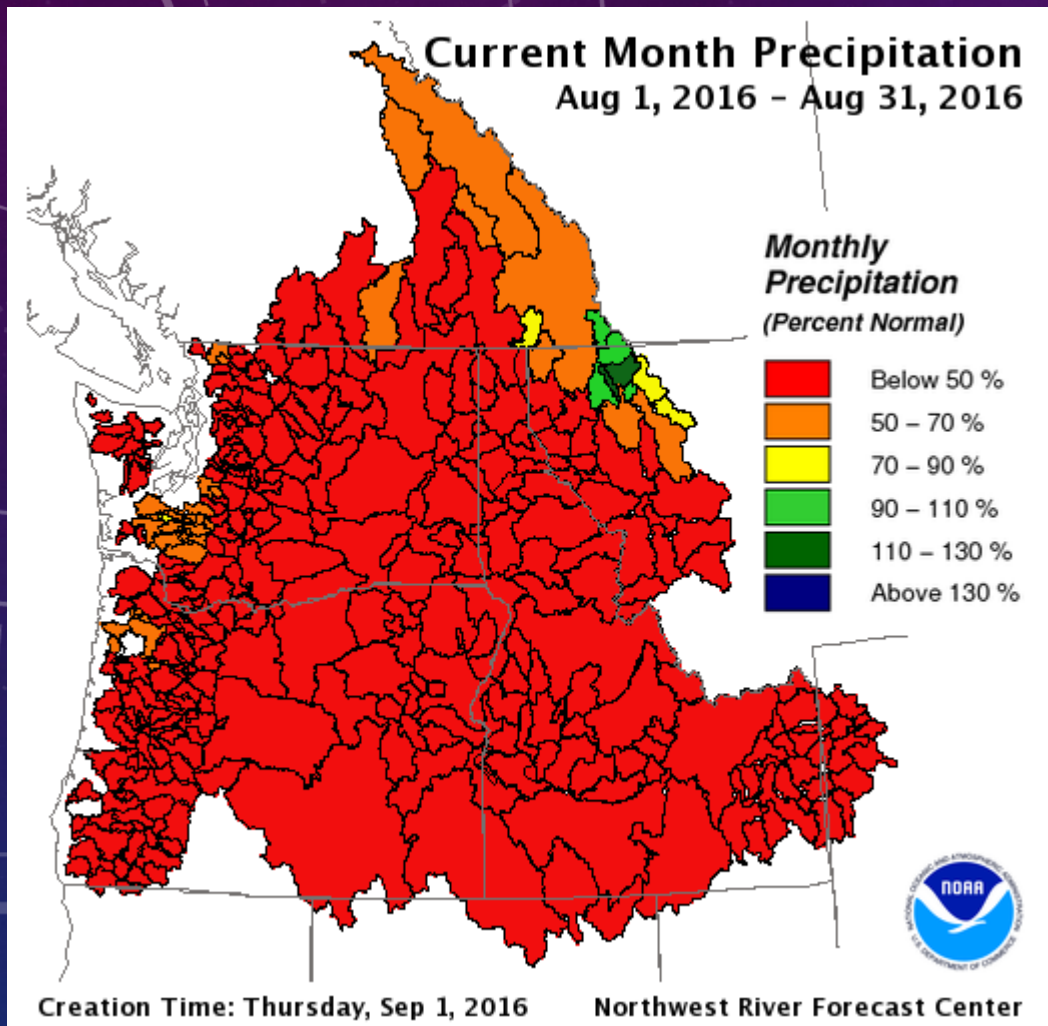
JULY TEMPS / PRECIP

NOAA NORTHWEST RIVER FORECAST CENTER



AUGUST TEMPS / PRECIP

NOAA NORTHWEST RIVER FORECAST CENTER

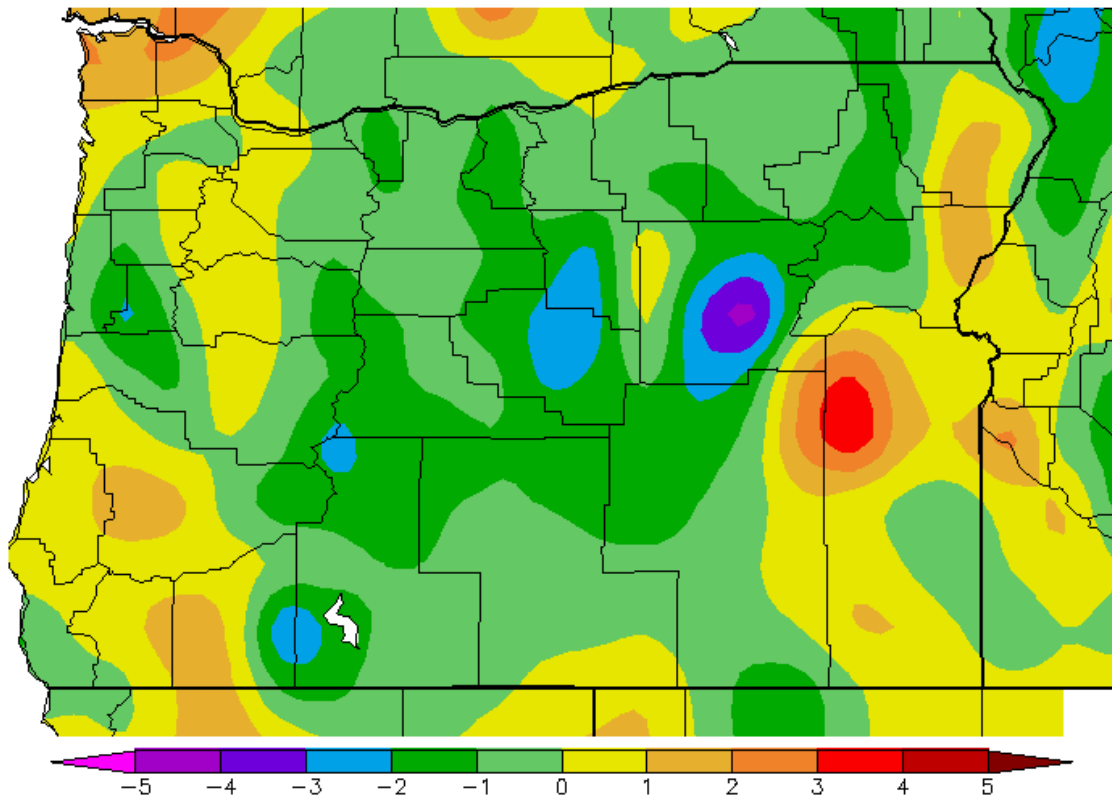


SUMMER REVIEW

WESTERN REGION CLIMATE CENTER

3 MONTH TEMPERATURES

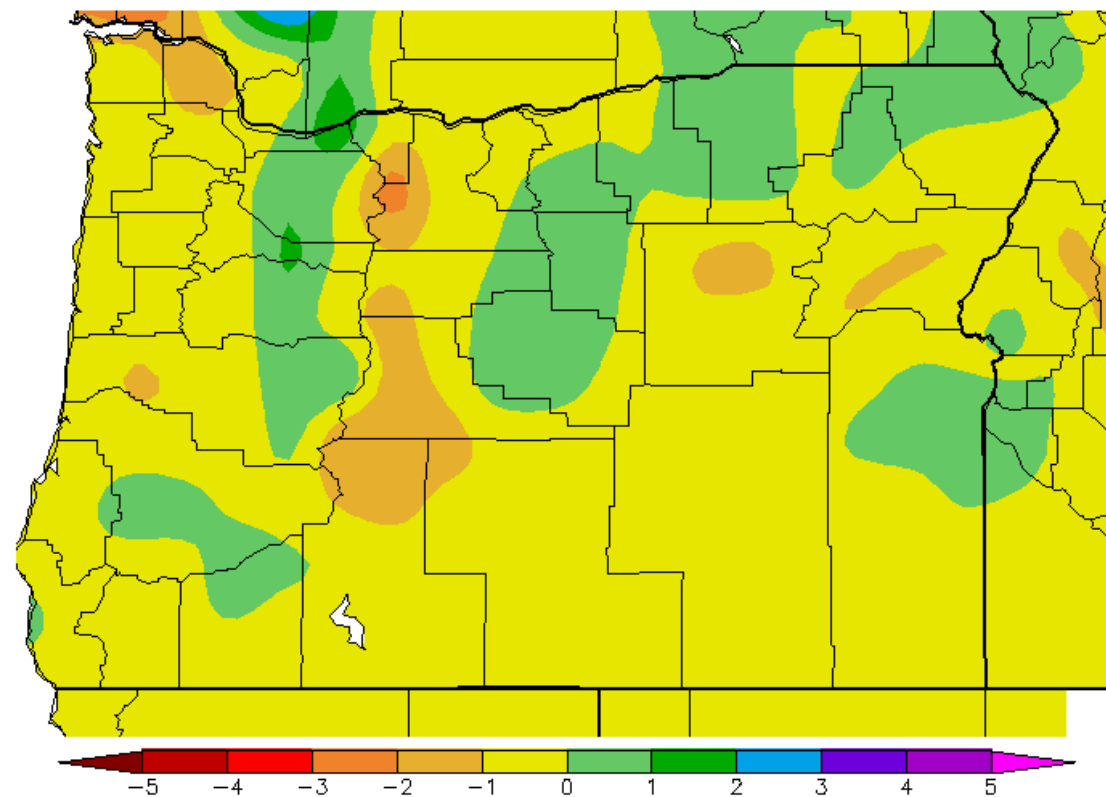
Ave. Temperature dep from Ave (deg F)
6/14/2016 - 9/11/2016



Generated 9/12/2016 at WRCC using provisional data.
NOAA Regional Climate Centers

3 MONTH PRECIPITATION

Precipitation Departure from Average (in.)
6/14/2016 - 9/11/2016

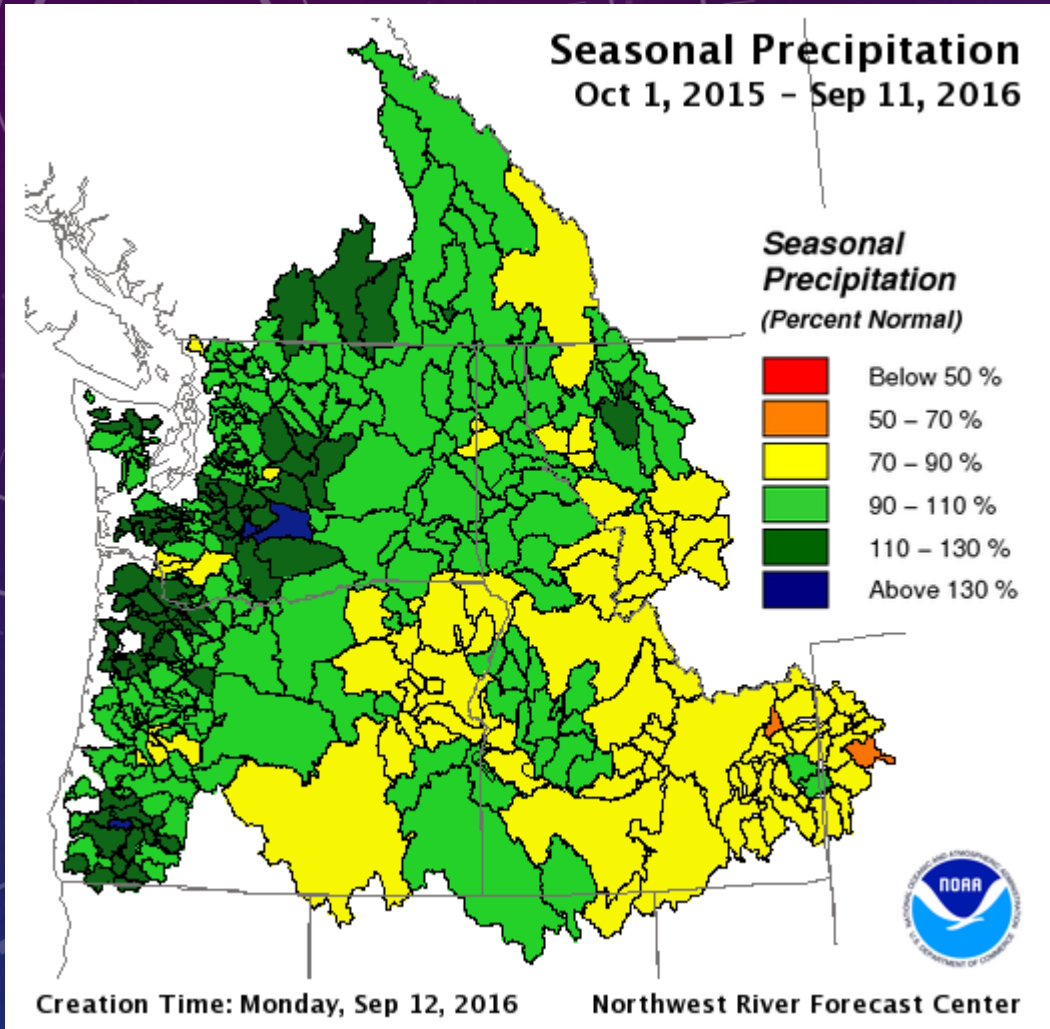


Generated 9/12/2016 at WRCC using provisional data.
NOAA Regional Climate Centers

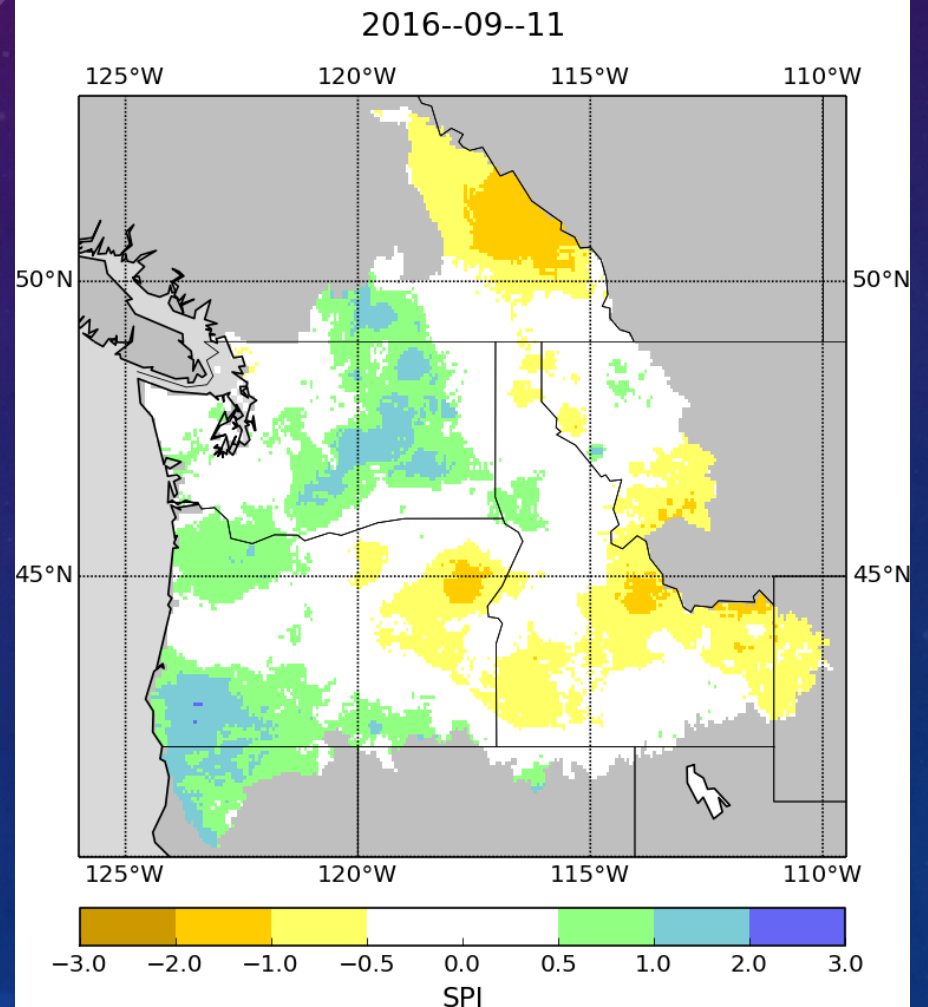
OBSERVED PRECIPITATION

NOAA NORTHWEST RIVER FORECAST CENTER
& UW DROUGHT MONITORING SYSTEM

WATER YEAR PERCENT OF AVERAGE



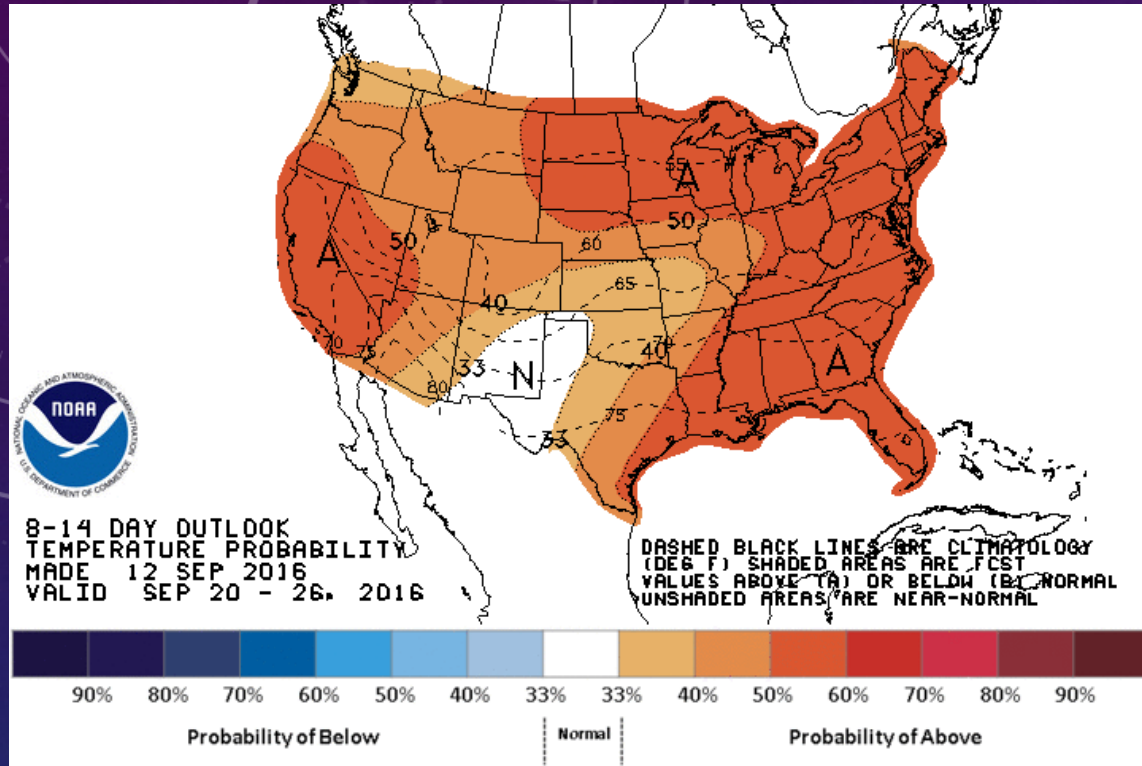
9 MONTH SPI AS OF SEPTEMBER 11 2016
Standardized Precipitation Index (9-Month)



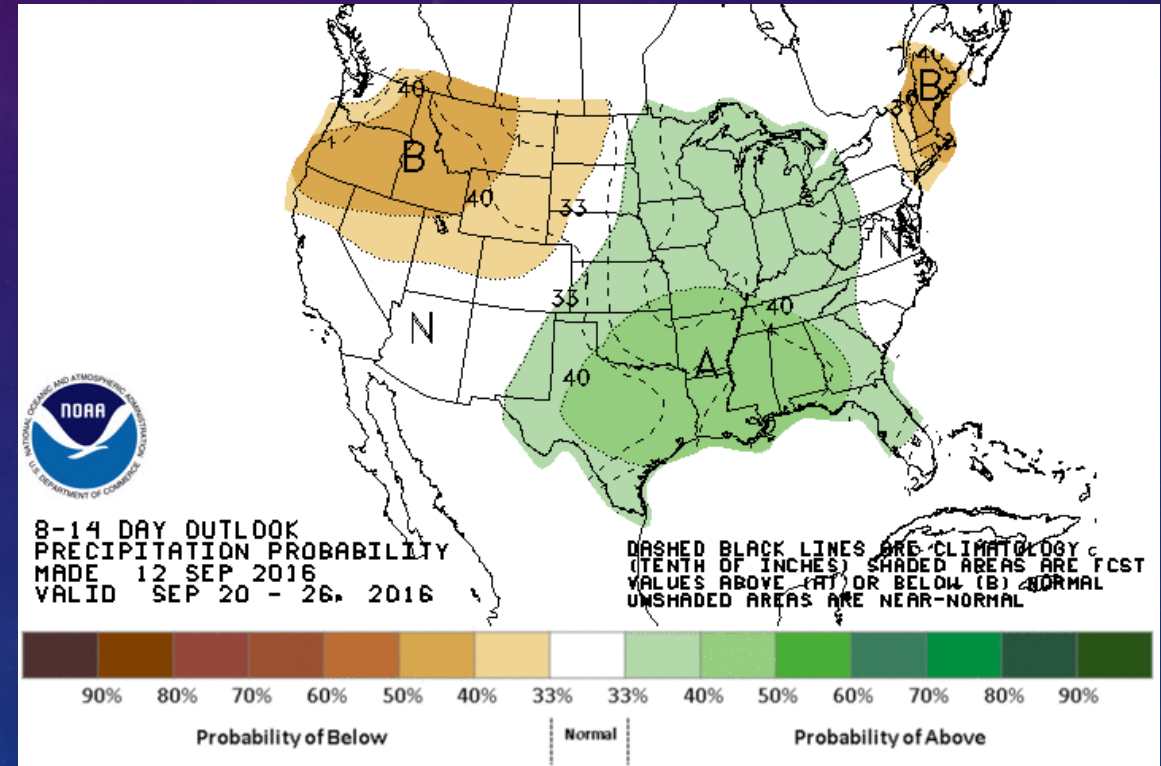
8 TO 14 DAY OUTLOOK

NOAA CLIMATE PREDICTION CENTER

TEMPERATURES



PRECIPITATION

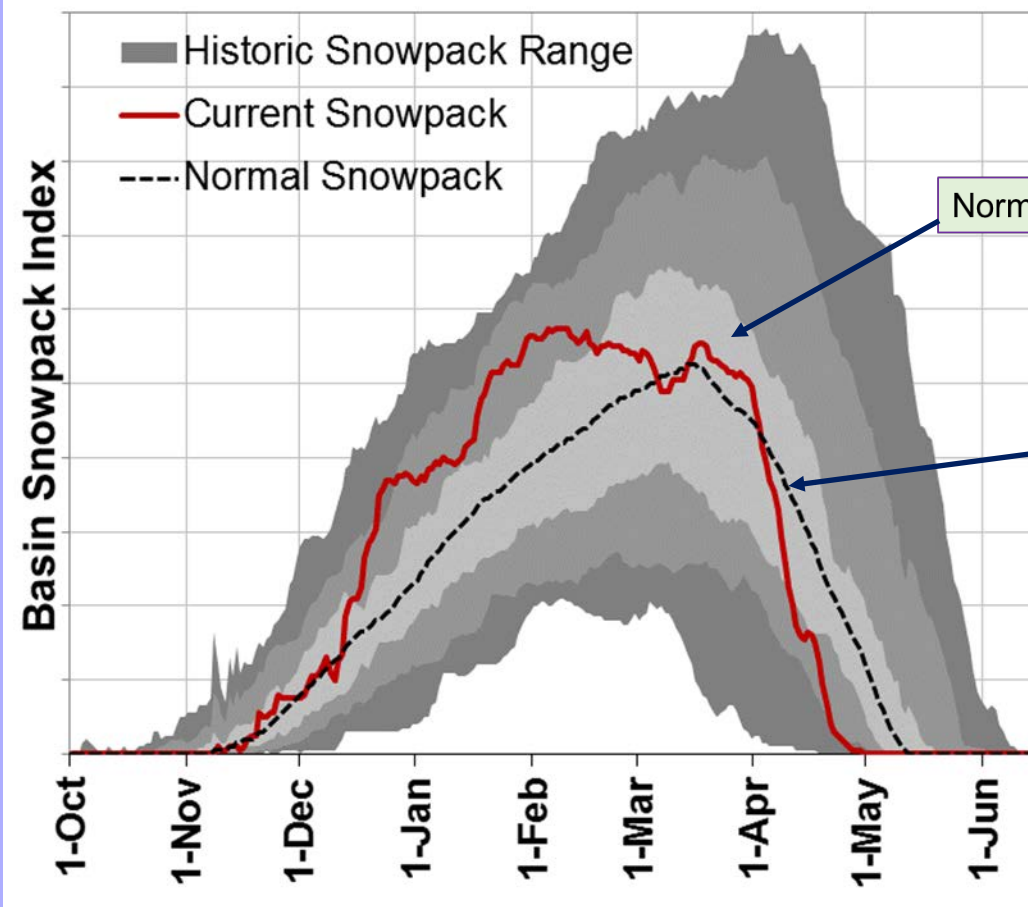


Oregon Water Supply Availability Committee

September 13, 2016

John Day Basin

Mountain Snowpack

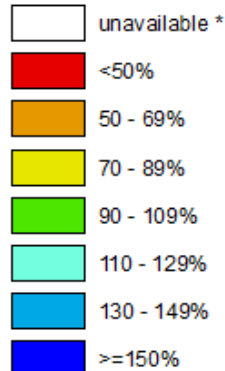


H. Scott Oviatt
Snow Survey Supervisory Hydrologist
USDA NRCS Oregon
Scott.Oviatt@or.usda.gov
503-414-3271
<http://www.nrcs.usda.gov/wps/portal/nrcs/main/or/snow/>

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

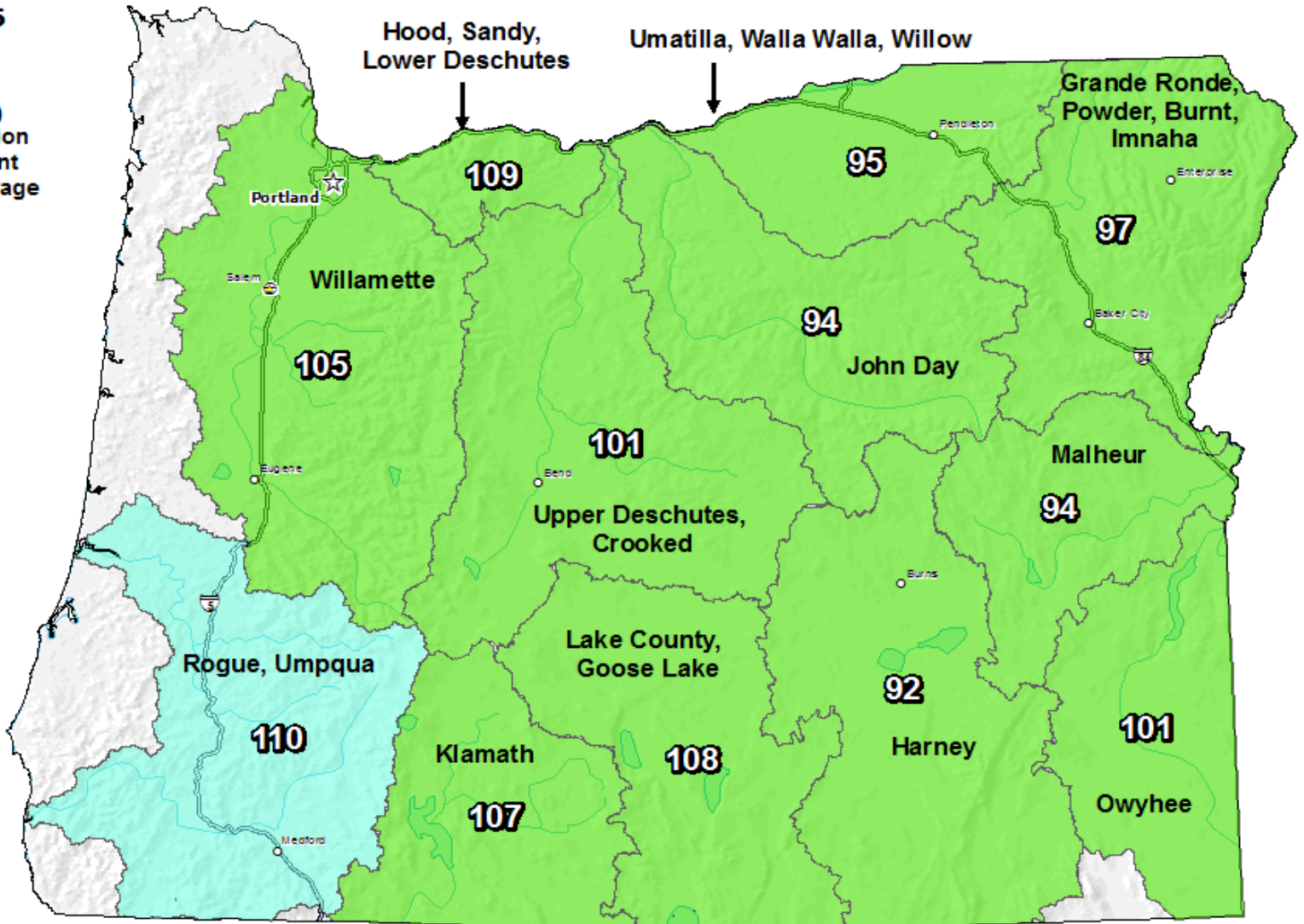
Sep 01, 2016

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

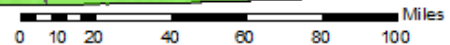


* Data unavailable at time of posting or measurement is not representative at this time of year

*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>

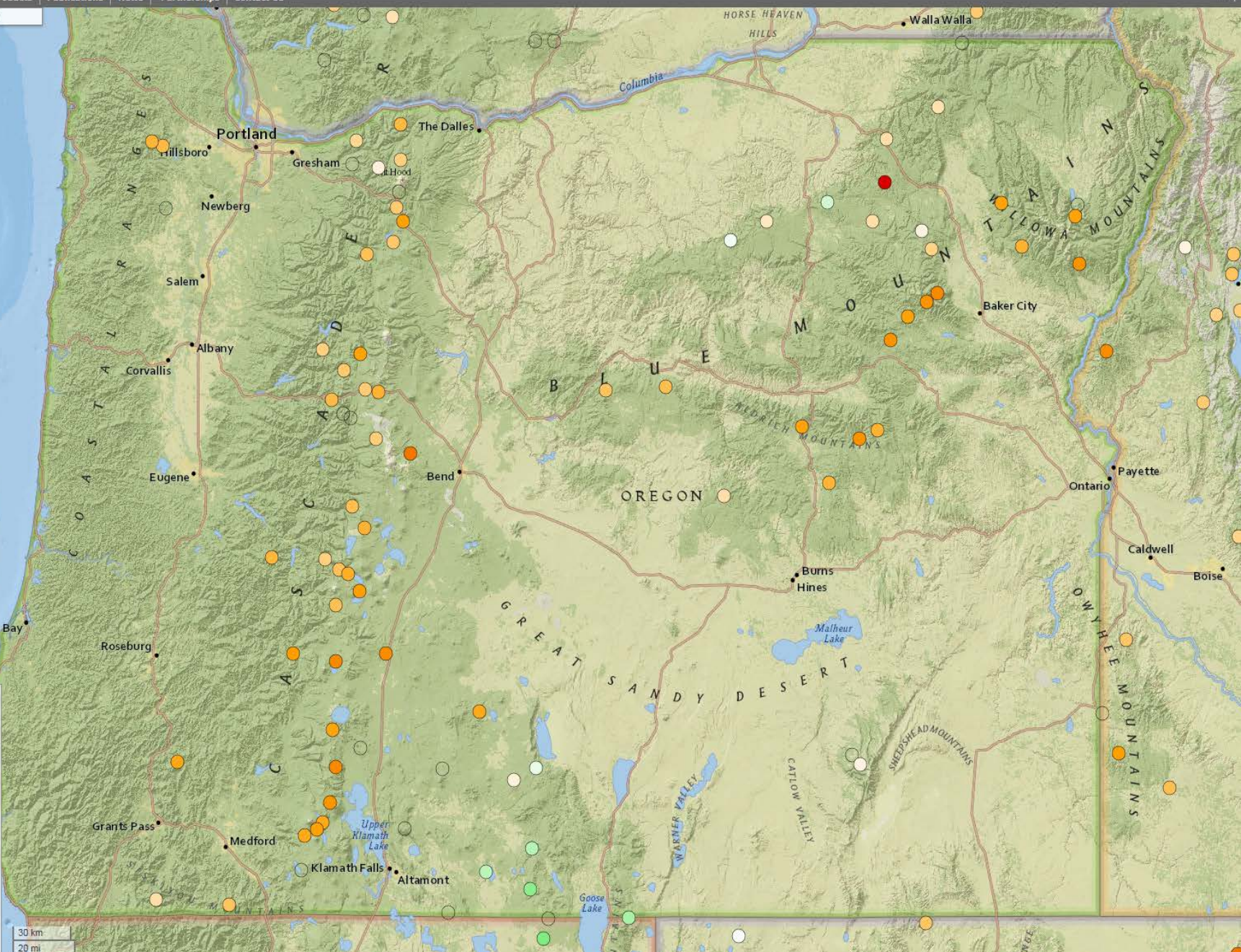
Selected Stations: 1091



130 day Precipitation
Percent NRCS 1981-2010
Average
May 1, 2016 through
September 7, 2016

Blue	≥ 200%
Dark Blue	175%
Light Blue	150%
Green	125%
Light Green	100%
Yellow	75%
Orange	50%
Red-Orange	25%
Red	≤ 0%

NRCS Natural Resources Conservation Service
Created 9-08-2016, 10:22 AM PDT



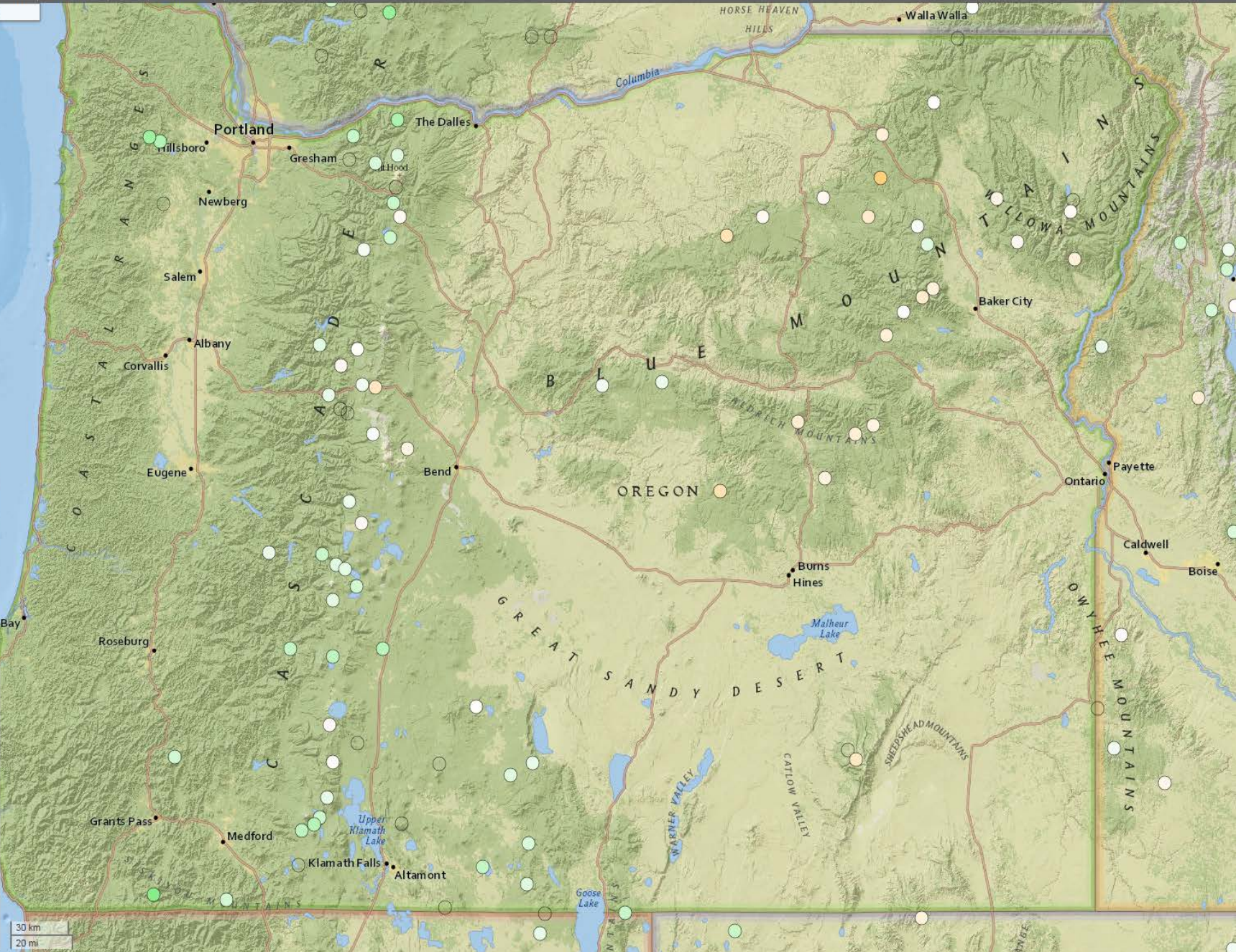
Selected Stations: 1091



Water Year to Date Precipitation
 Percent NRCS 1981-2010 Average
 October 1, 2015 through September 7, 2016

Dark Blue	≥ 200%
Blue	175%
Light Blue	150%
Green	125%
Light Green	100%
White	75%
Yellow	50%
Orange	25%
Red	≤ 0%

NRCS Natural Resources Conservation Service
 Created 9-05-2016, 10:26 AM PDT

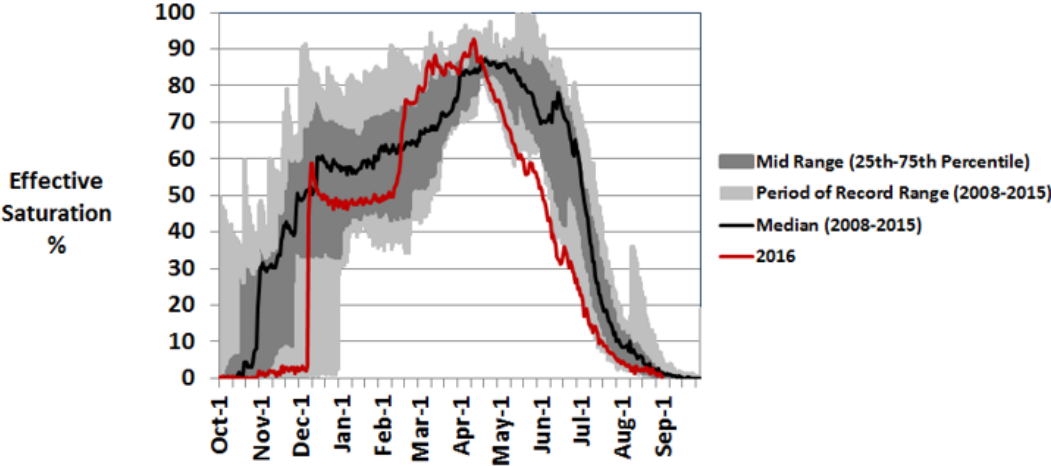
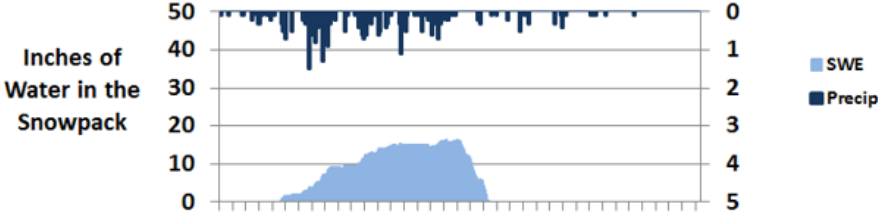


30 km
20 mi

Bourne, 5850' elevation

2016 Soil Moisture Conditions:

- Spring soil moisture levels reached record lows during May and June.
- As of September 1st, the soil moisture is 0.5% effectively saturated when it is normally 1.6%.

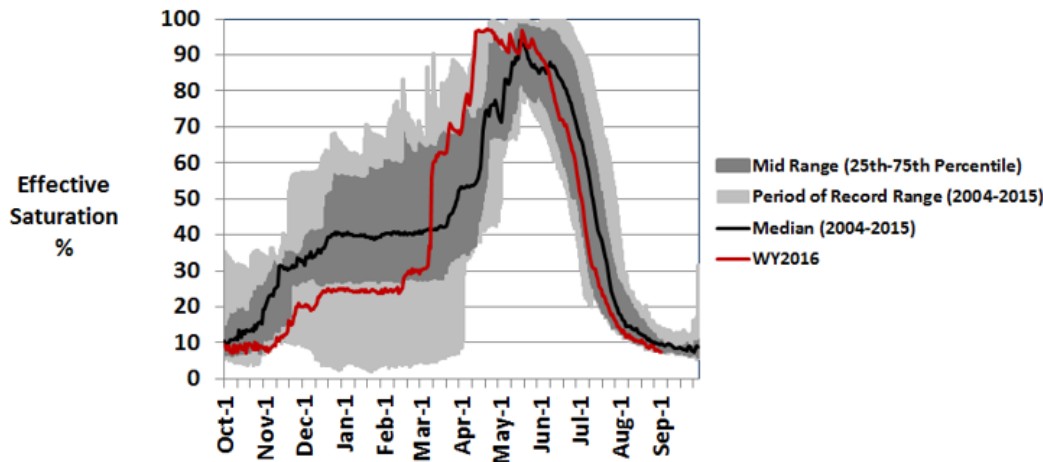
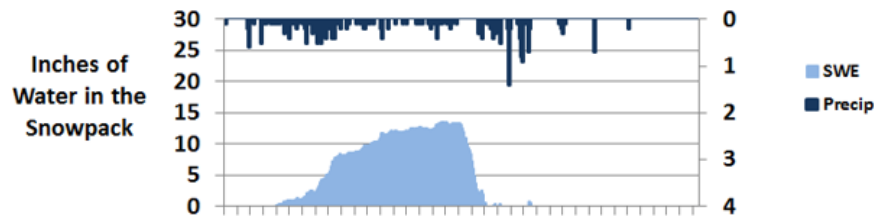


Site Characteristics: Bourne SNOTEL site sits on volcanic soils formed from ash overlying colluvium and residuum from andesitic basalt and basalt. The soil series is Monumentrock, which consists of deep, well drained soils. The site has a slope of 25 percent. Mean annual precipitation is approximately 33 inches, with roughly 50% falling as snow. Vegetation is subalpine fir, lodgepole pine, western larch, grand fir, Douglas fir, grouse huckleberry, bearberry, buffalo berry, willow, sickleton lousewort, heartleaf arnica, pearly everlasting, grasses and sedges. Soil moisture probes have been installed here since 2008, at depths of 2, 4, 8 and 40 inches. The silt equation is currently being applied to all probes.

Silvies, 6990' elevation

2016 Soil Moisture Conditions:

- As of September 1st, the soil moisture is 7% effectively saturated when it is normally 10% on this date.

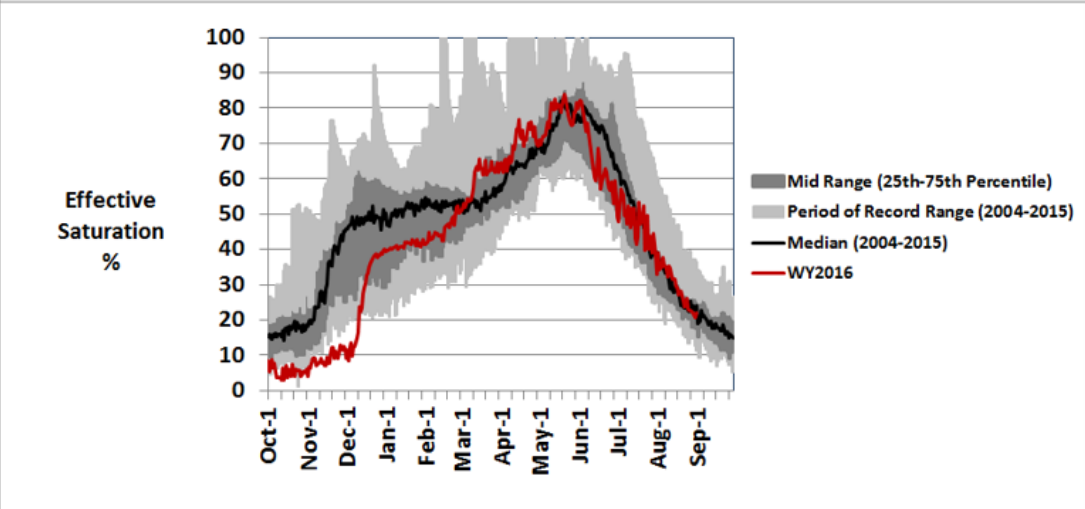
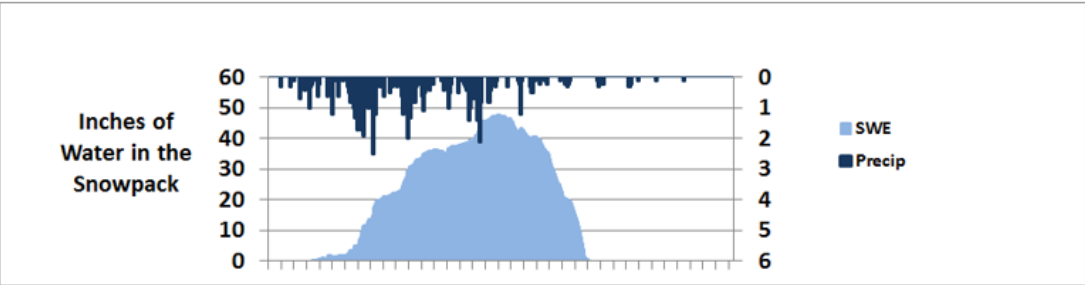


Site Characteristics: Silvies SNOTEL site sits on the Hackwood soil series which consists of very deep, well drained soils that formed in alluvium and colluvium derived from quartzite, conglomerate, and igneous rocks with a component of loess. The site has a slope of 2 percent. Mean annual precipitation is approximately 31 inches, with roughly 58% falling as snow. Vegetation is forest canopy of quaking aspen with a sparse understory of mountain brome and tall bluegrass. Soil moisture probes have been installed here since 2004, at depths of 2, 8, 20 and 40 inches. The silt equation is currently being applied to all probes.

Annie Springs, 6010' elevation

2016 Soil Moisture Conditions:

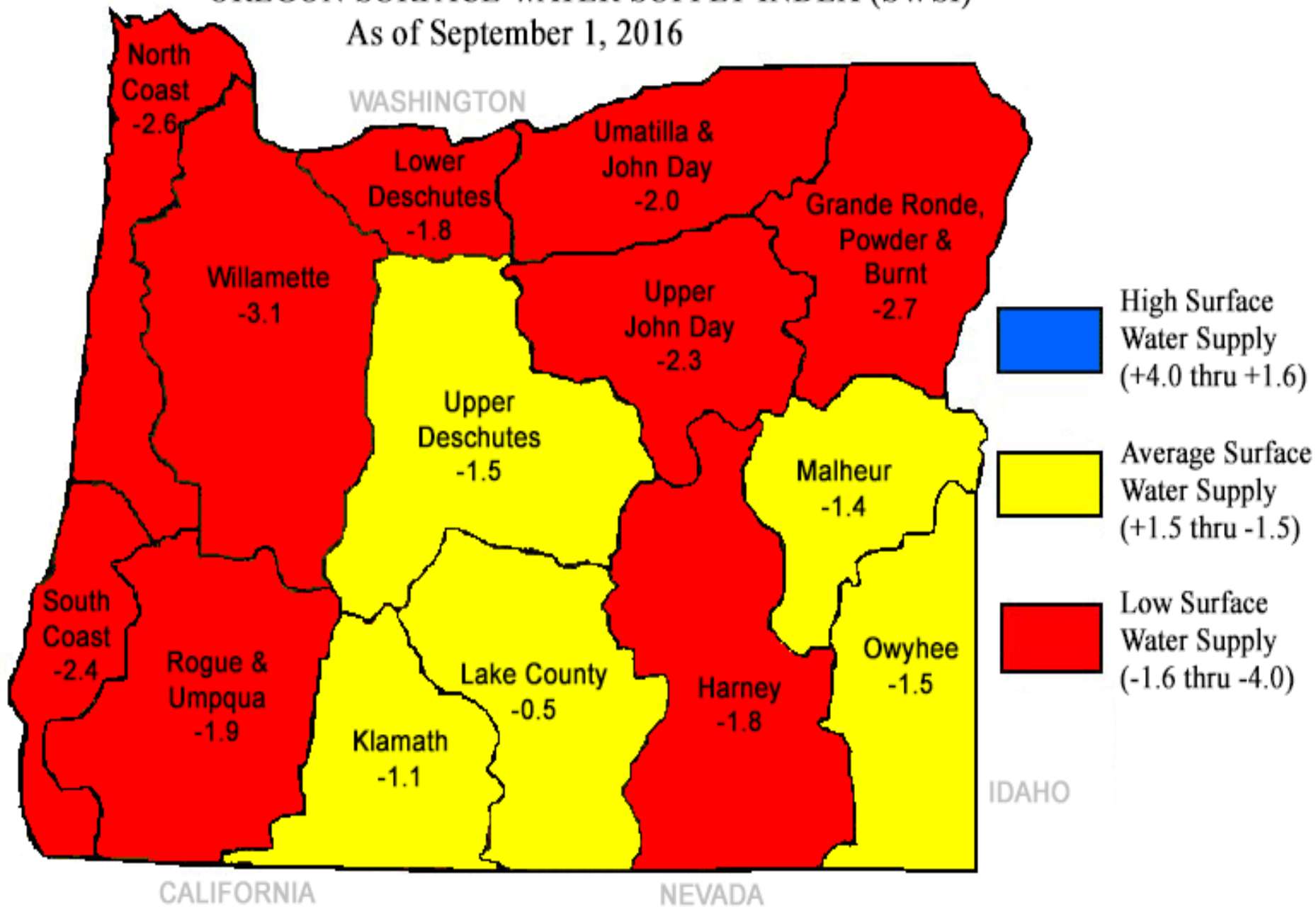
- As of September 1st, the soil moisture is 22% effectively saturated which is normal for this time of year.



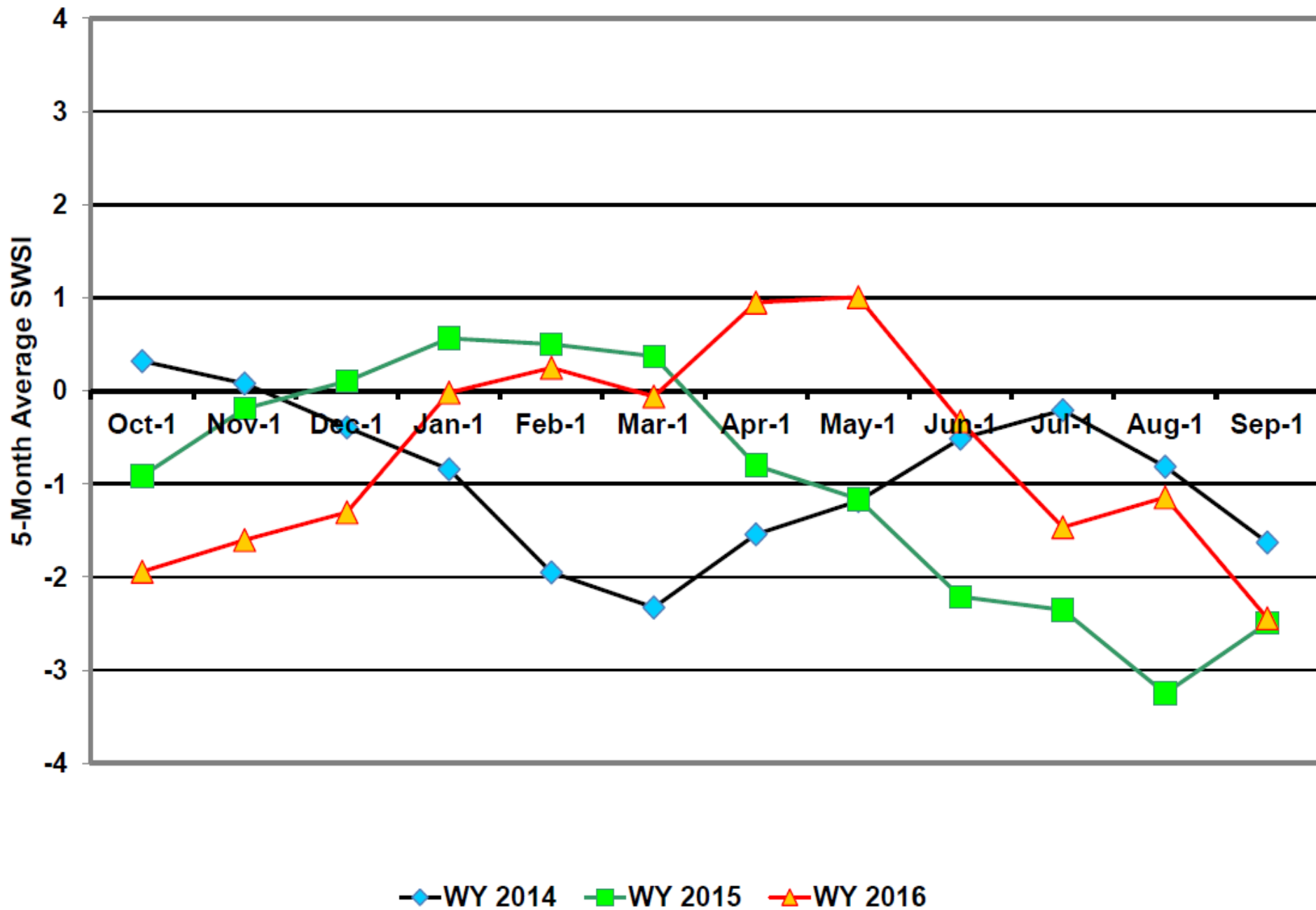
Site Characteristics: [Annie Springs](#) SNOTEL site sits on volcanic soils formed when Mt. Mazama erupted, forming nearby Crater Lake. The soil series is Castlecrest, which consists of very deep, somewhat excessively drained soils formed in ash mixed with pumice, cinders and other volcanic fragments. The site has a slope of 2 to 10 percent. Mean annual precipitation is approximately 70 inches, with roughly 56% falling as snow. Vegetation is mountain hemlock, Shasta red fir, and lodge pole pine with a sparse understory of shrubs and herbs. Soil moisture probes have been installed here since 2004, at depths of 2, 4, 8, 20 and 40 inches. The silt equation is currently being applied to all probes.

OREGON SURFACE WATER SUPPLY INDEX (SWSI)

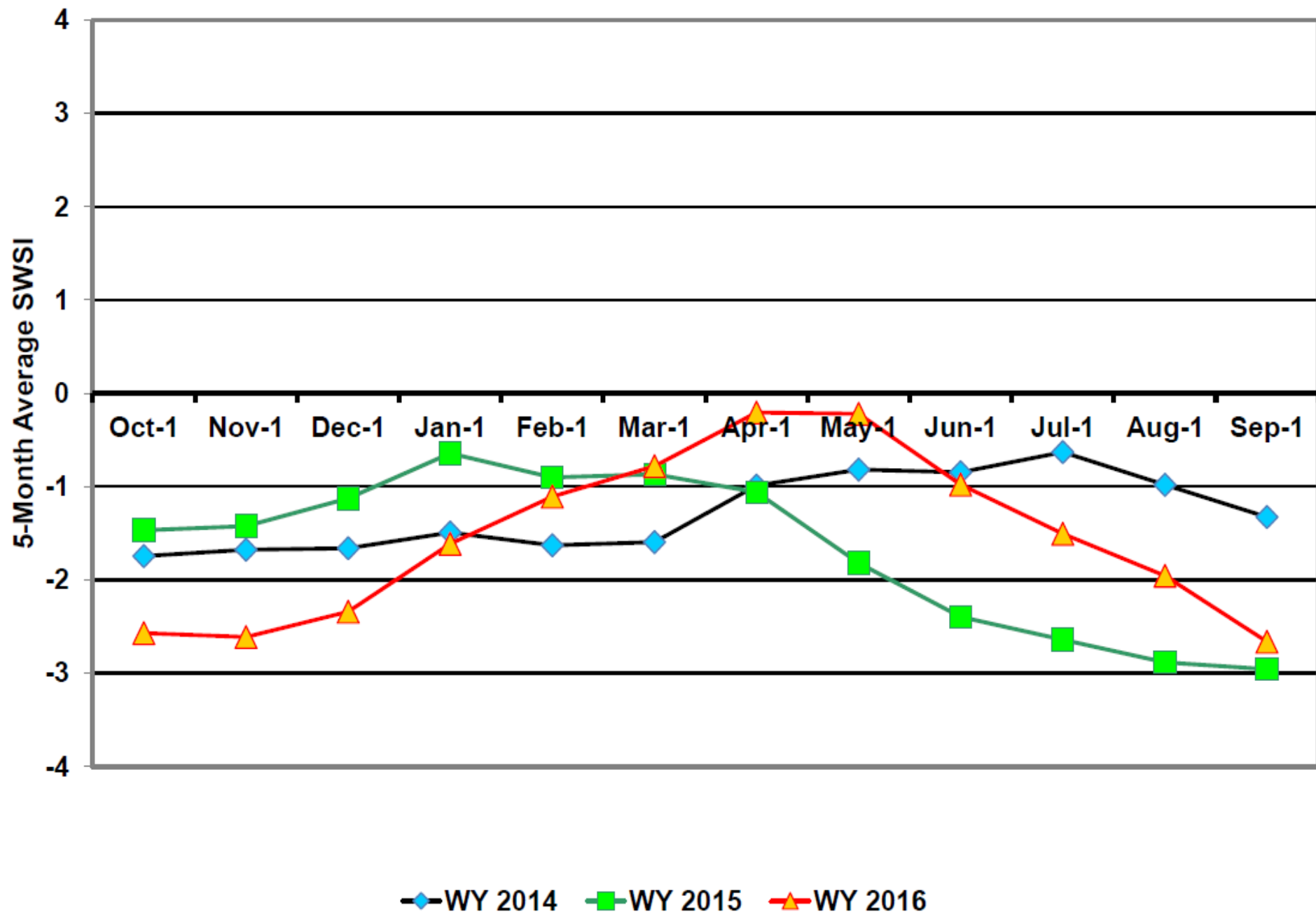
As of September 1, 2016



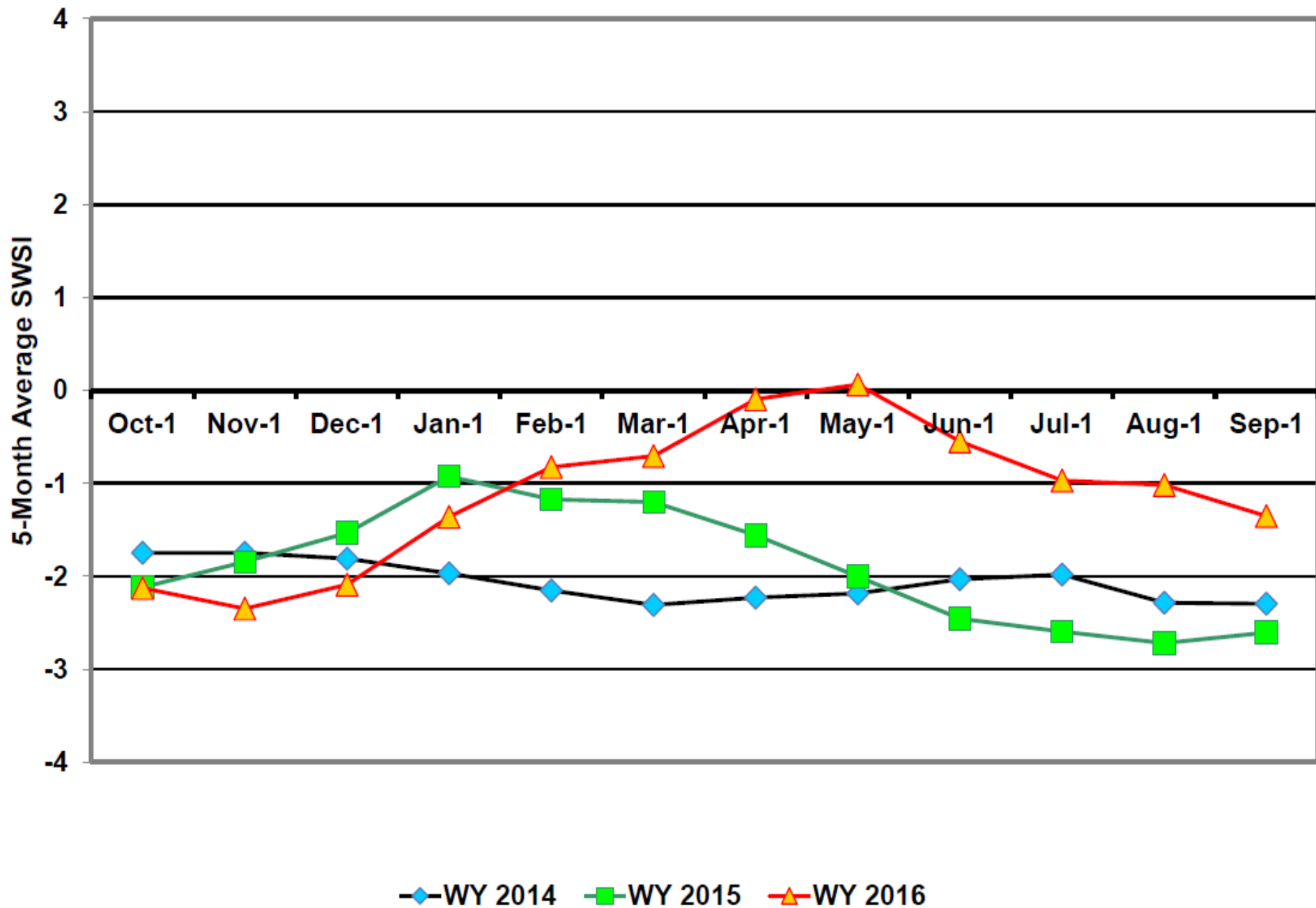
SWSI Values for the South Coast Basin



SWSI Values for the Grande Ronde Basin



SWSI Values for the Malheur Basin

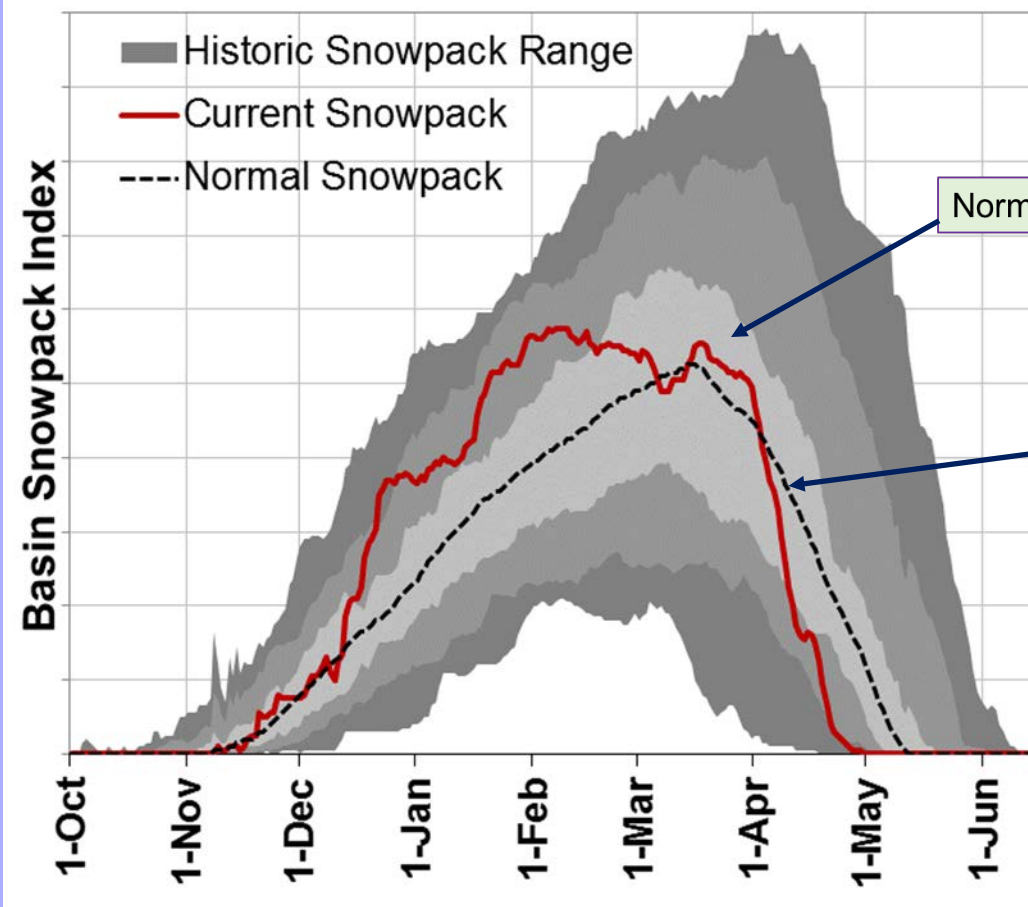


Oregon Water Supply Availability Committee

September 13, 2016

John Day Basin

Mountain Snowpack



H. Scott Oviatt
Snow Survey Supervisory Hydrologist
USDA NRCS Oregon
Scott.Oviatt@or.usda.gov
503-414-3271
<http://www.nrcs.usda.gov/wps/portal/nrcs/main/or/snow/>

Thank you!

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Water Supply Availability Committee September 2016

http://or.water.usgs.gov/data_dir/war_dir/war1604.html

http://or.water.usgs.gov/sw_studies/index.html

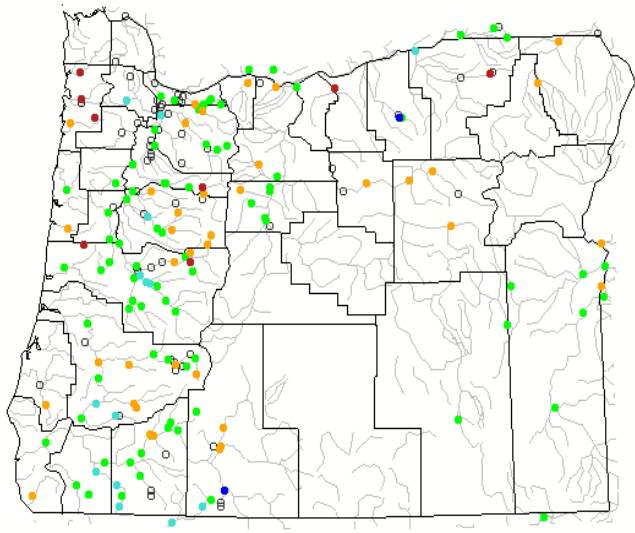
Data are provisional and subject to revision until they have been thoroughly reviewed and received final approval.

Maps of 28-day average USGS streamflow compared to historical streamflow for the day of the year (Oregon). Screen Captures for July 2016 and August 2016

Map of monthly streamflow compared to historical streamflow for the month of the year (Oregon)

Oregon or Water-Resources Regions

July 2016



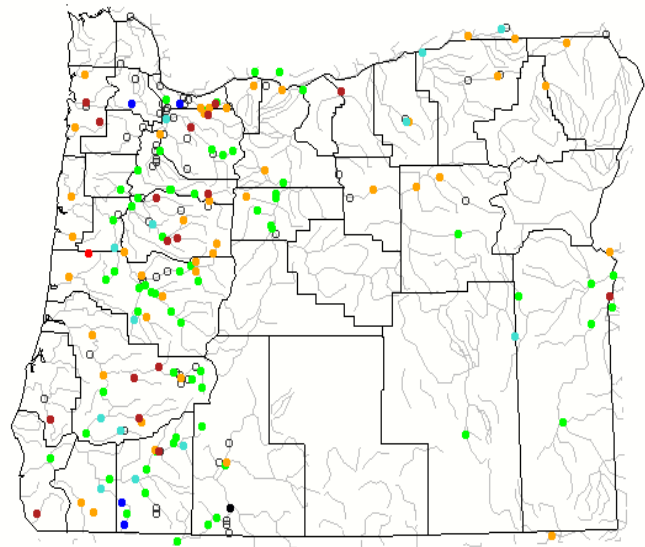
Choose a data retrieval option and select a location on the map
 List of all stations Single station Nearest stations Peak flow

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 monthly streamflow compared to historical streamflow for the month of the year (Oregon)

Oregon or Water-Resources Regions

August 2016



Choose a data retrieval option and select a location on the map
 List of all stations Single station Nearest stations Peak flow

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

August Report

Station	NRCS SWSI Basin	Monthly mean discharge		Change in discharge from previous month (percent)	Accumulated Runoff For the Period Oct. to Aug.	
		Cubic feet per second	Percent of average		Percent of average	Percent of average
Donner Und Blitzen nr Frenchglen	Harney	35	69	-39	77	
(*)Deep Creek above Adel	Lake County	7	50	-42	80	
(*)Chewaucan River near Paisley	Lake County	21	66	-46	93	
Williamson River near Chiloquin	Klamath	472	102	-3	84	
Owyhee River near Rome	Owyhee	93	62	-40	83	
(*)NF Malheur River near Beulah	Malheur	42	89	-18	89	
Grande Ronde R at Troy	Grande Ronde Powder/Burnt	506	67	-50	86	
Umatilla River nr Gibbon	Umatilla Lower John Day	43	96	-14	92	
John Day River at Service Crk	Upper John Day	46	23	-74	82	
(*)Little Deschutes River nr LaPine	Upper Deschutes	91	58	47	89	
Hood River nr Hood River	Lower Deschutes Mt.Hood	284	84	-24	116	
Willamette River at Salem	Willamette	5,966	85	-14	103	
Wilson River near Tillamook	North Coast	63	64	-41	135	
Umpqua River near Elkton	Rogue/Umpqua	1,074	92	-23	121	
Rogue River near Agness	Rogue/Umpqua	2,310	99	5	126	
SF Coquille River at Powers	South Coast	19	54	-55	117	
Chetco River near Brookings	South Coast	70	61	-51	111	

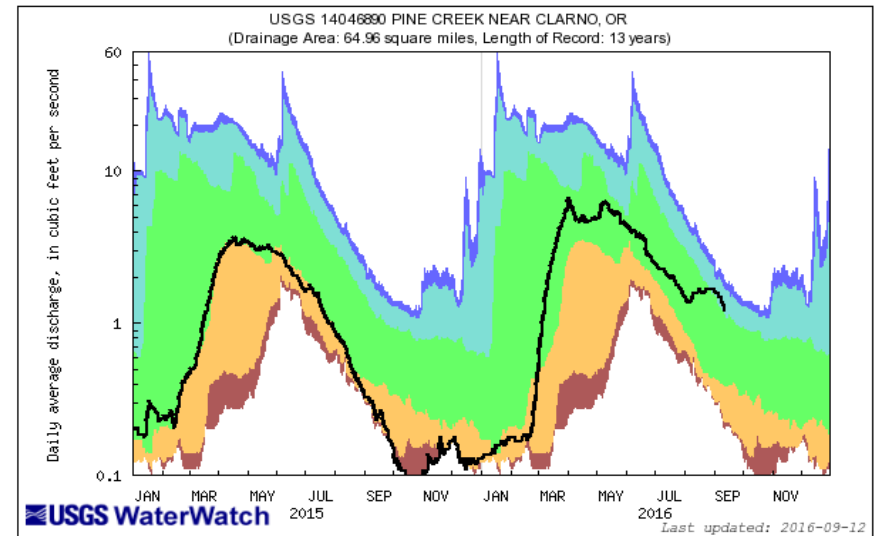
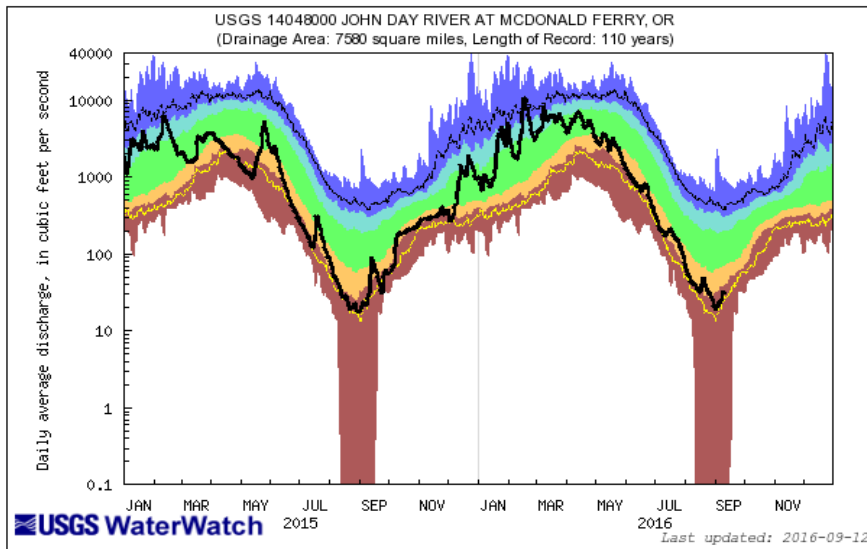
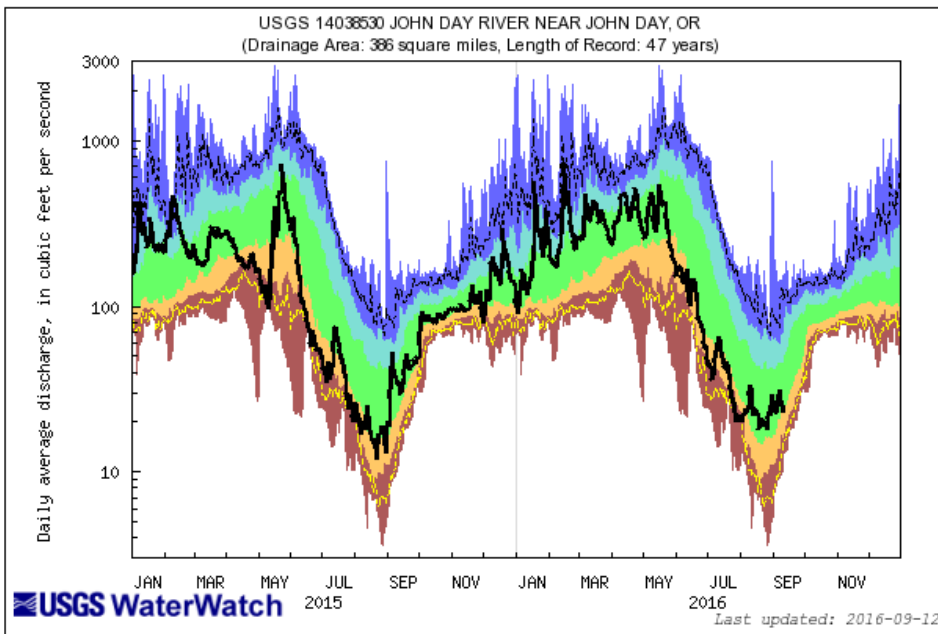
Monthly mean discharge	
Cubic feet per second	Percent of average (p
57	56
12	35
39	59
487	89
156	65
51	76
1,016	54
50	85
177	29
62	36
376	77
6,931	91
107	65
1,391	86
2,193	89
42	69
144	68

Water Availability Report linked below

http://or.water.usgs.gov/data_dir/war/war1604.html

July Report

John Day



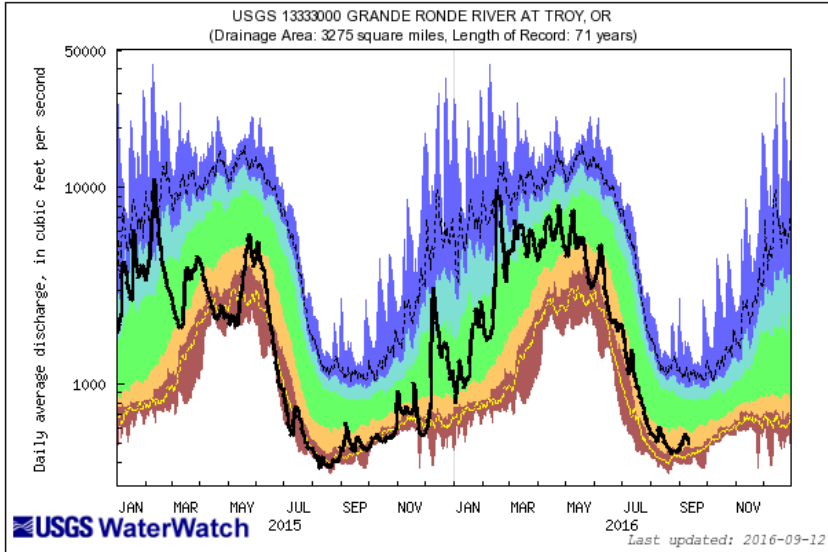
Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile - highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow

Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile - highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow

USGS Streamflow Duration Hydrograph Builder

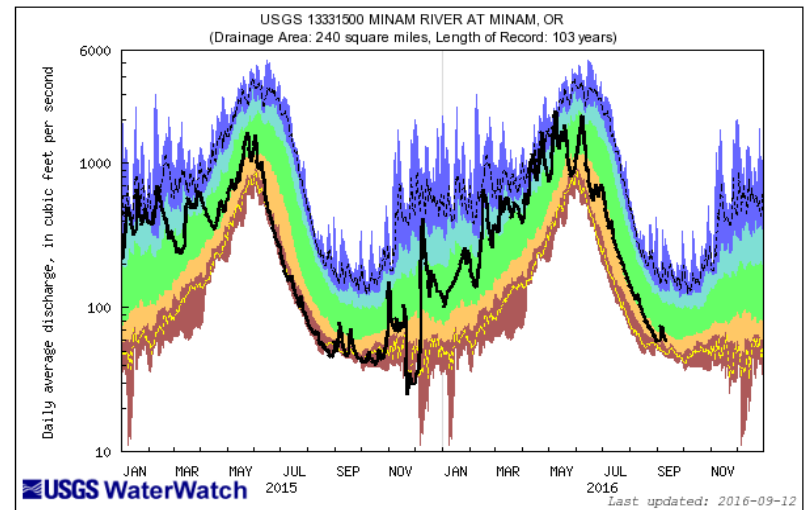
Site Number: 13333000 Year: 2016 No. of years: 2 Flow: Daily cfs GO
 5th and 95th percentiles: Line Overlay 3 Year Type: Calendar Year Output: Hydrograph

For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can affect depictions of flow conditions.



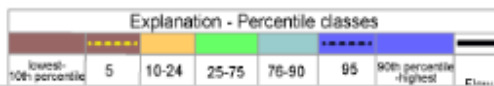
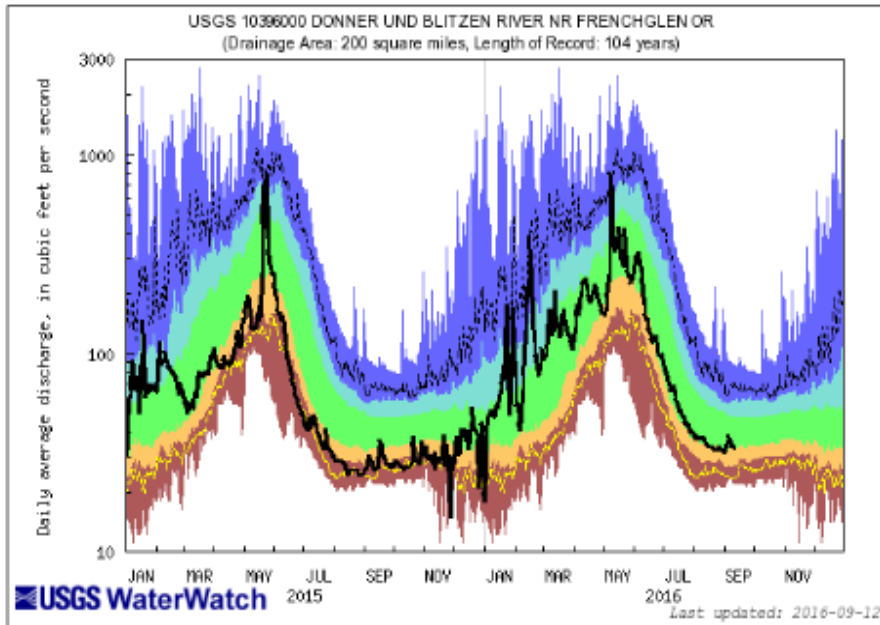
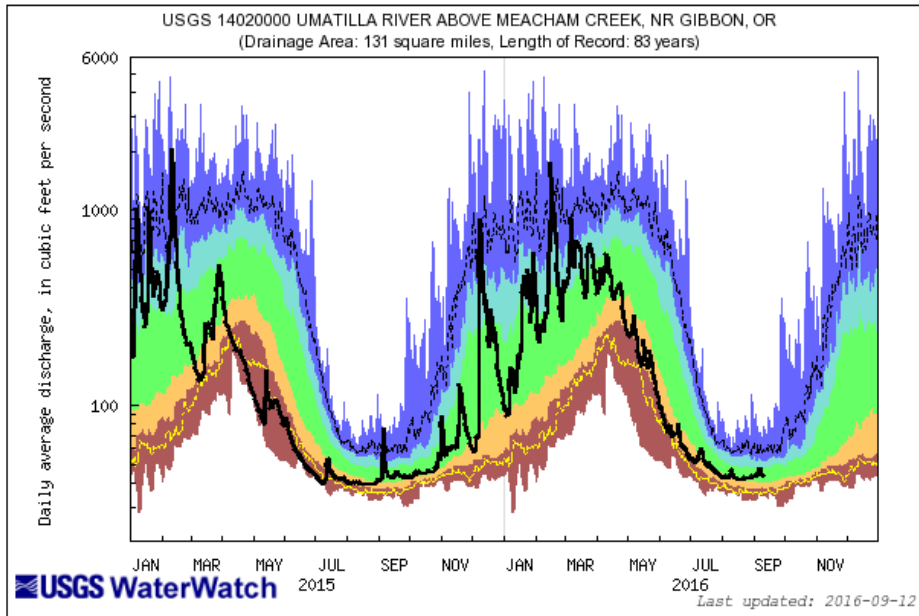
Grande Ronde

and unregulated flows; this can affect depictions of flow conditions.

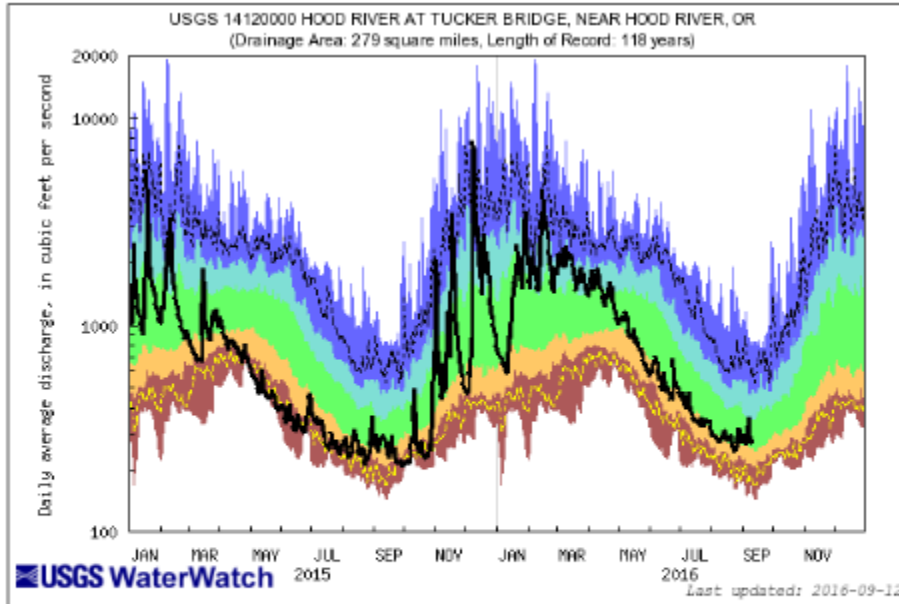


Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow

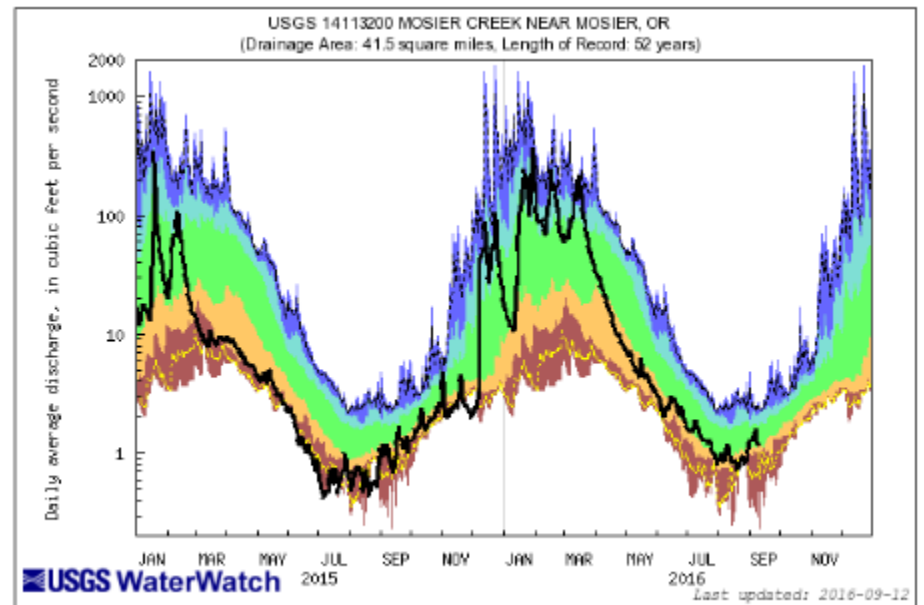
Umatilla Harney



Hood River Area



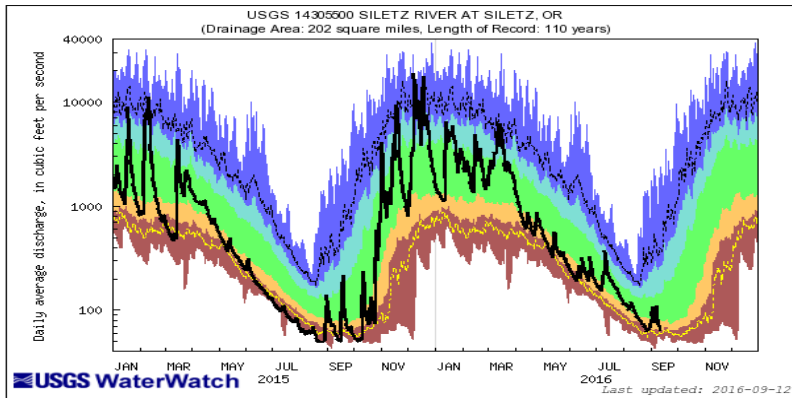
Explanation - Percentile classes						Flow	
lowest-10th percentile	5	10-24	25-75	75-90	95		90th percentile-highest
Much below normal		Below normal	Normal	Above normal		Much above normal	



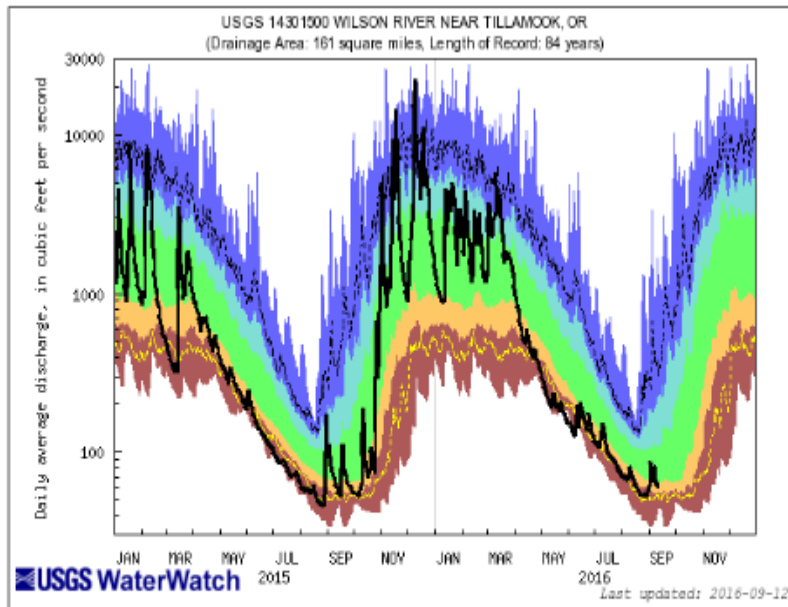
USGS Streamflow Duration Hydrograph Builder

Site Number: 14305500 | Year: 2016 | No. of years: 2 | Flow: Daily | cfs | GO
 5th and 95th percentiles: Line | Overlay 3 | Year Type: Calendar Year | Output: Hydrograph

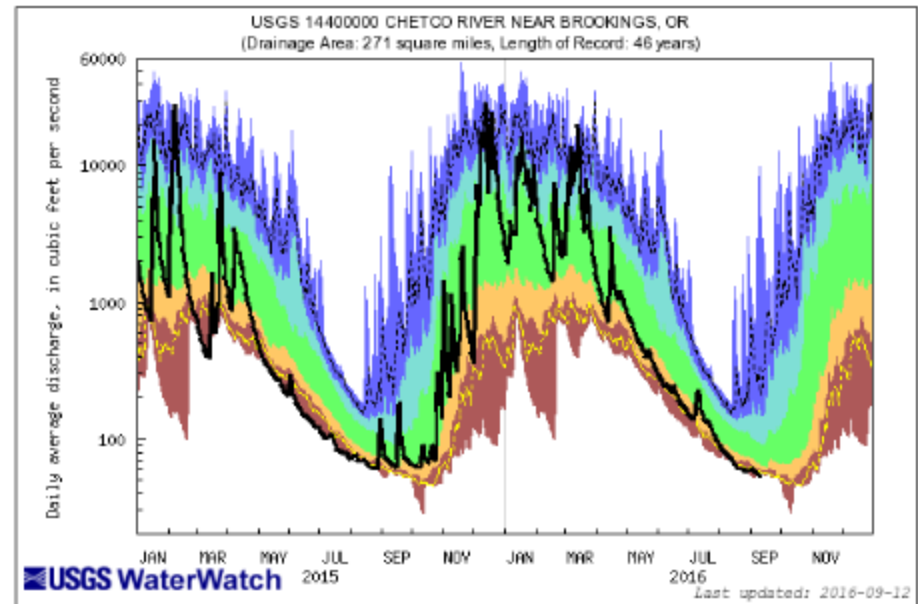
For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can affect depictions of flow conditions.



Explanation - Percentile classes



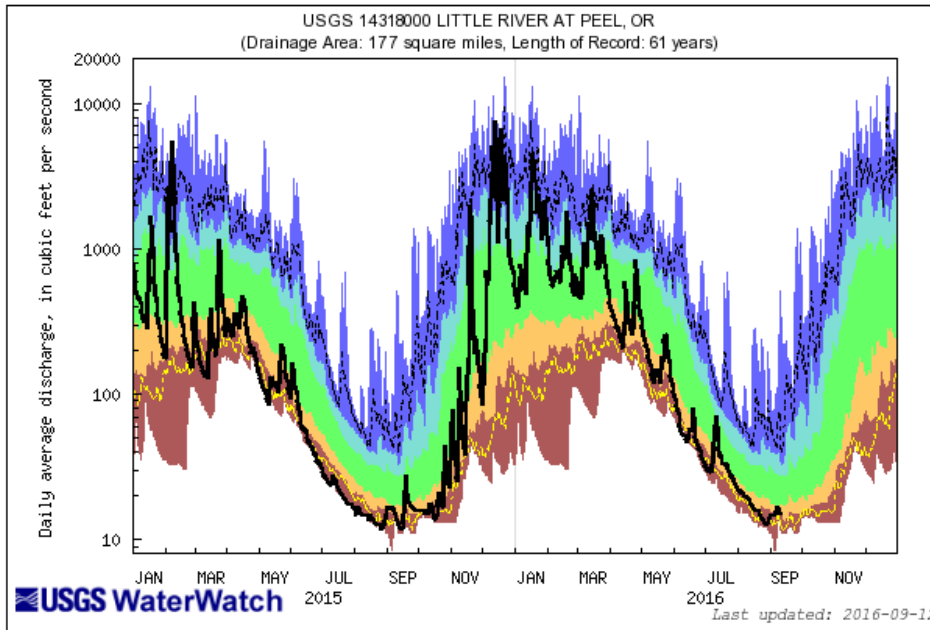
Explanation - Percentile classes						
lowest 5th percentile	5	10-24	25-75	76-90	95	90th percentile - highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow



Explanation - Percentile classes						
lowest 5th percentile	5	10-24	25-75	76-90	95	90th percentile - highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow

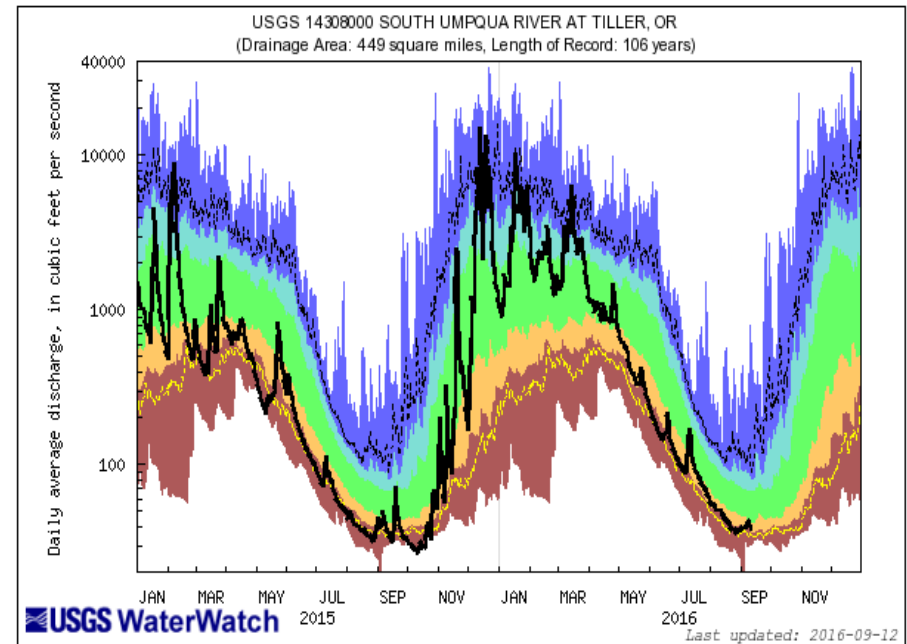
Coast

Umpqua

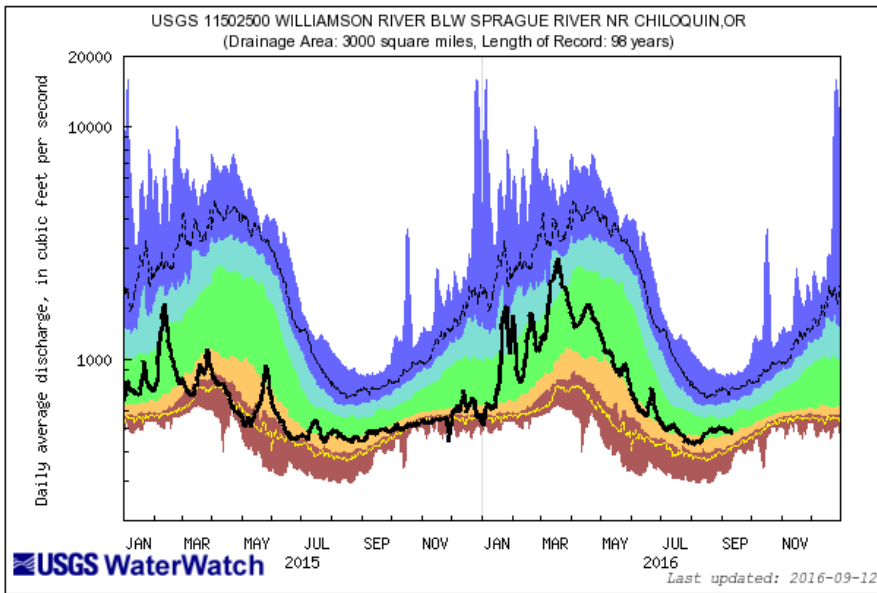


Explanation - Percentile classes

lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile - highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		



Klamath



Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95 90th percentile-highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal	

<http://waterwatch.usgs.gov/>

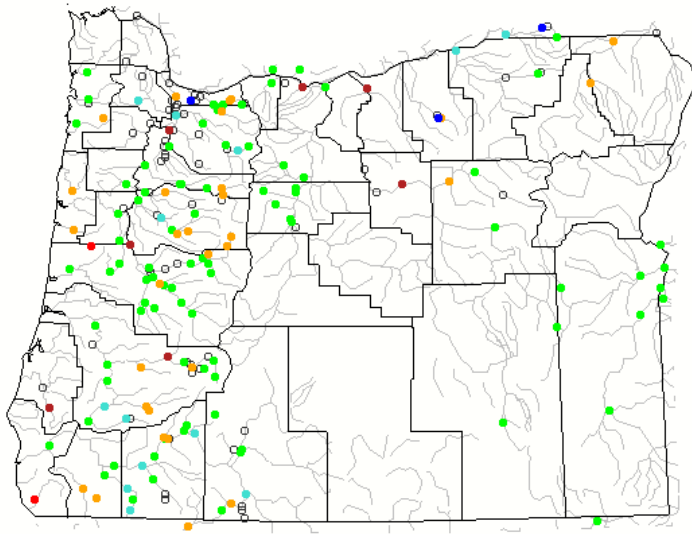
http://waterwatch.usgs.gov/index.php?id=wwchart_sitedur



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

Oregon or Water-Resources Regions All Days

Sunday, September 11, 2016



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

Map of 7-day average USGS streamflow compared to historical streamflow for the day of the year (09/11)

Basins/Areas with Stressed Streamflow Indicators

- Central and Southern Coast
- Umatilla
- Upper John Day



Thank You

Provisional Data Statement

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

Real-time data relayed by satellite or other telemetry are automatically screened to not display improbable values until they can be verified.

Provisional data may be inaccurate due to instrument malfunctions or physical changes at the measurement site. Subsequent review based on field inspections and measurements may result in significant revisions to the data.

Data users are cautioned to consider carefully the provisional nature of the information before using it for decisions that concern personal or public safety or the conduct of business that involves substantial monetary or operational consequences.

Information concerning the accuracy and appropriate uses of these data or concerning other hydrologic data may be obtained from the USGS

