

Oregon Water Supply Availability Committee

April 11, 2017



Klamath Basin Aerial Markers

April 1st Flight

Cox Flat (above) Elevation = 5750'

Finley Corrals (right) Elevation = 6000'

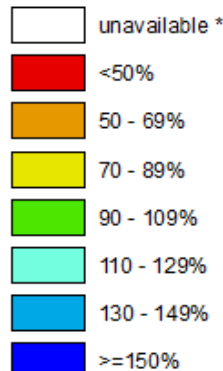
H. Scott Oviatt
Snow Survey Supervisory Hydrologist
USDA NRCS Snow Survey and Water
Supply Forecasting Program
Scott.Oviatt@or.usda.gov
503-414-3271
<http://www.nrcs.usda.gov/wps/portal/nrcs/main/or/snow/>

Statewide SNOTEL Snowpack was 133% of normal

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

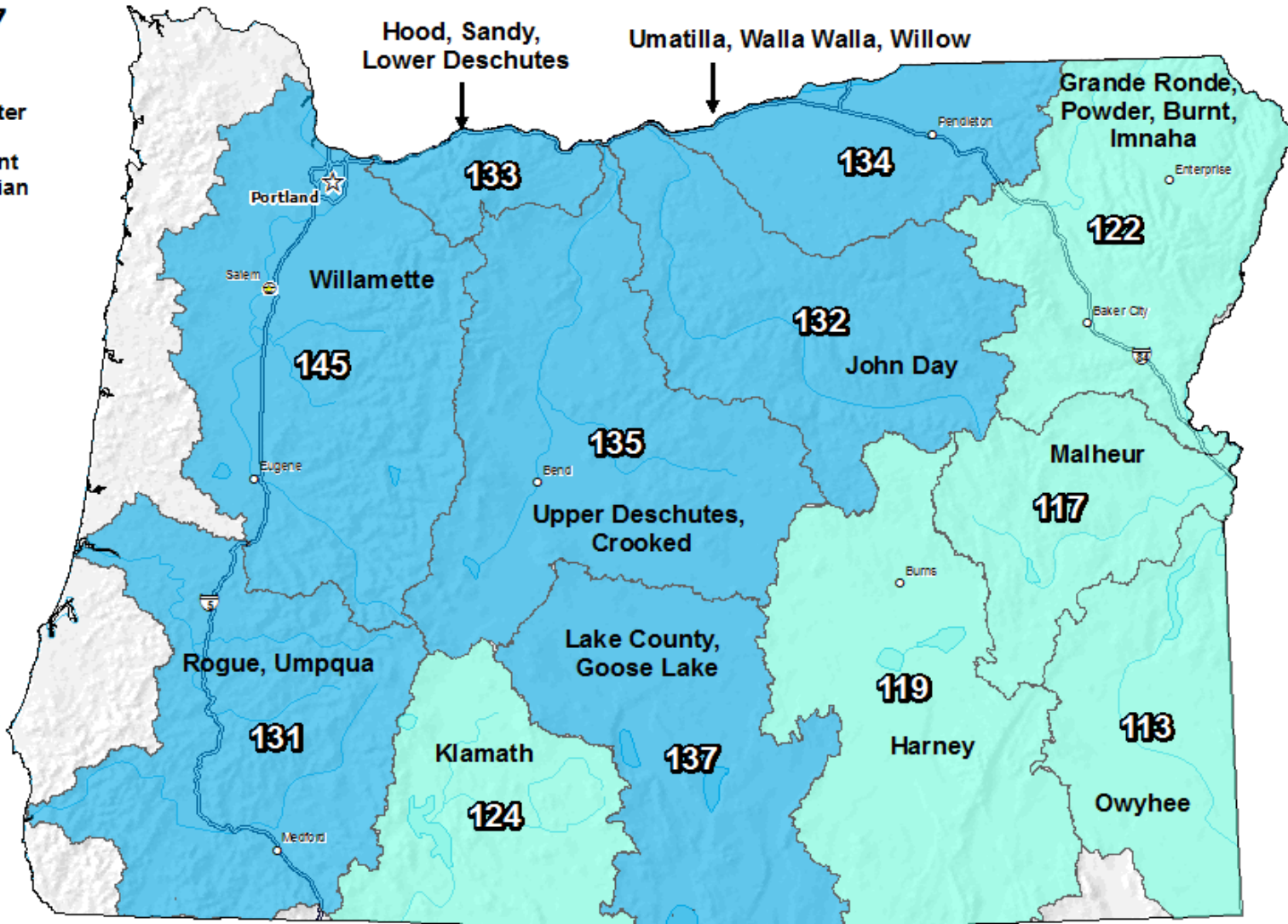
Mar 14, 2017

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).



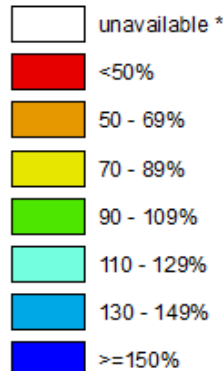
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

Statewide SNOTEL Snowpack is 129% of normal

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

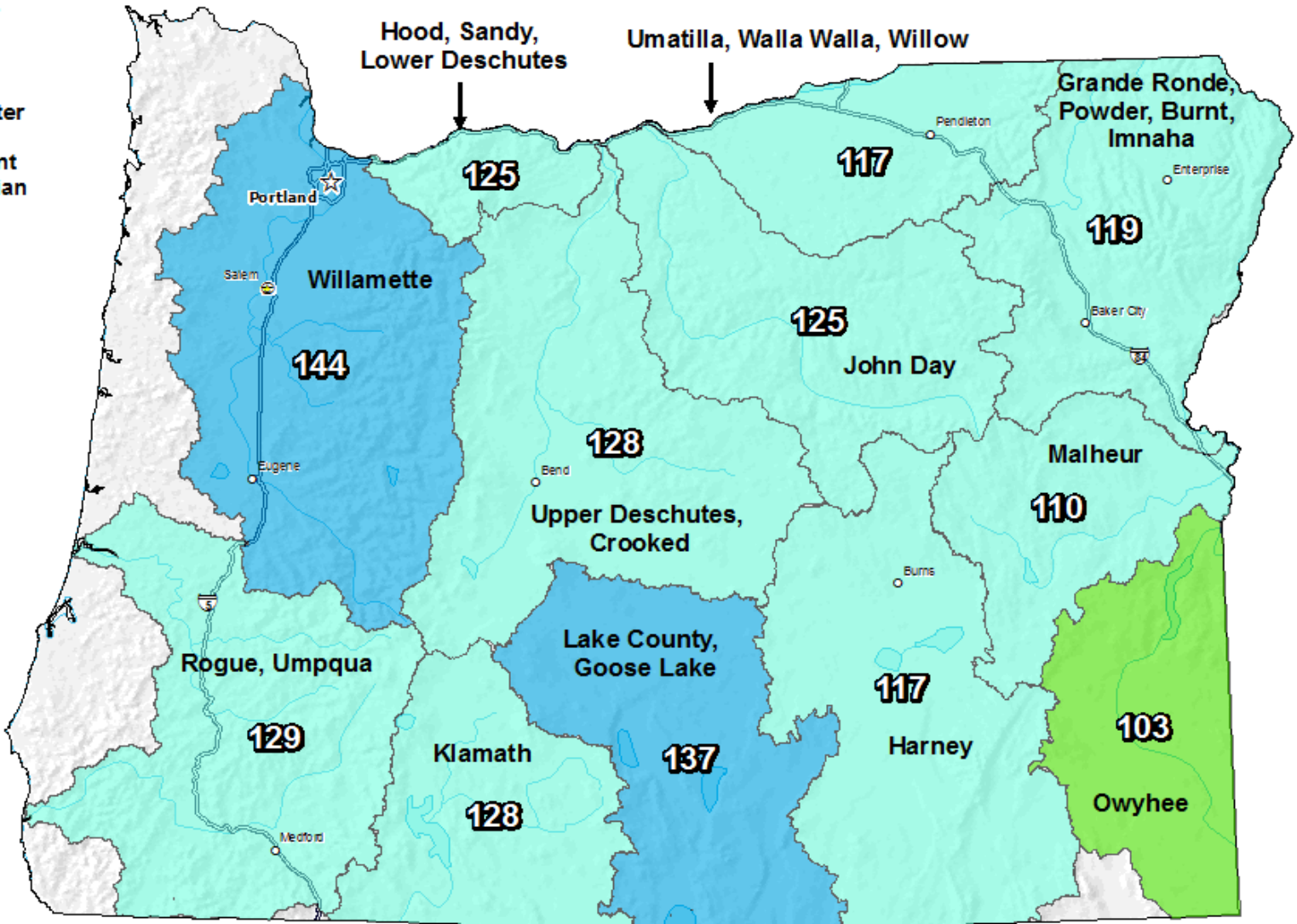
Apr 11, 2017

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

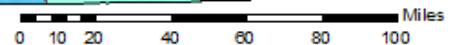


* Data unavailable at time of posting or measurement is not representative at this time of year

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).

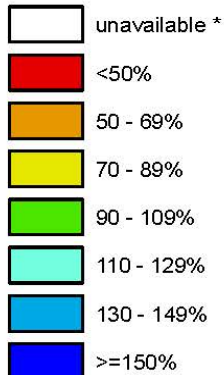


Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

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

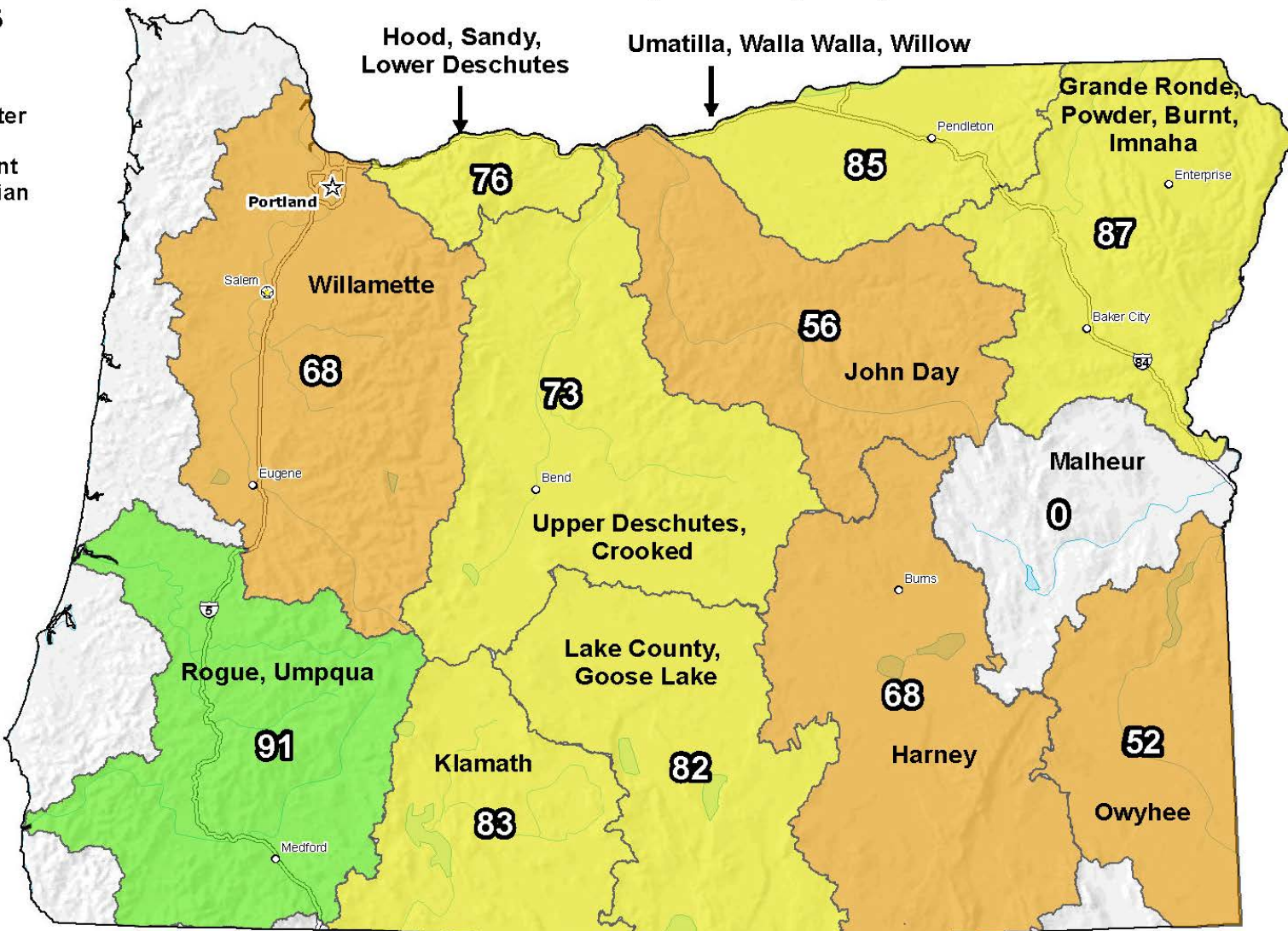
Apr 11, 2016

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

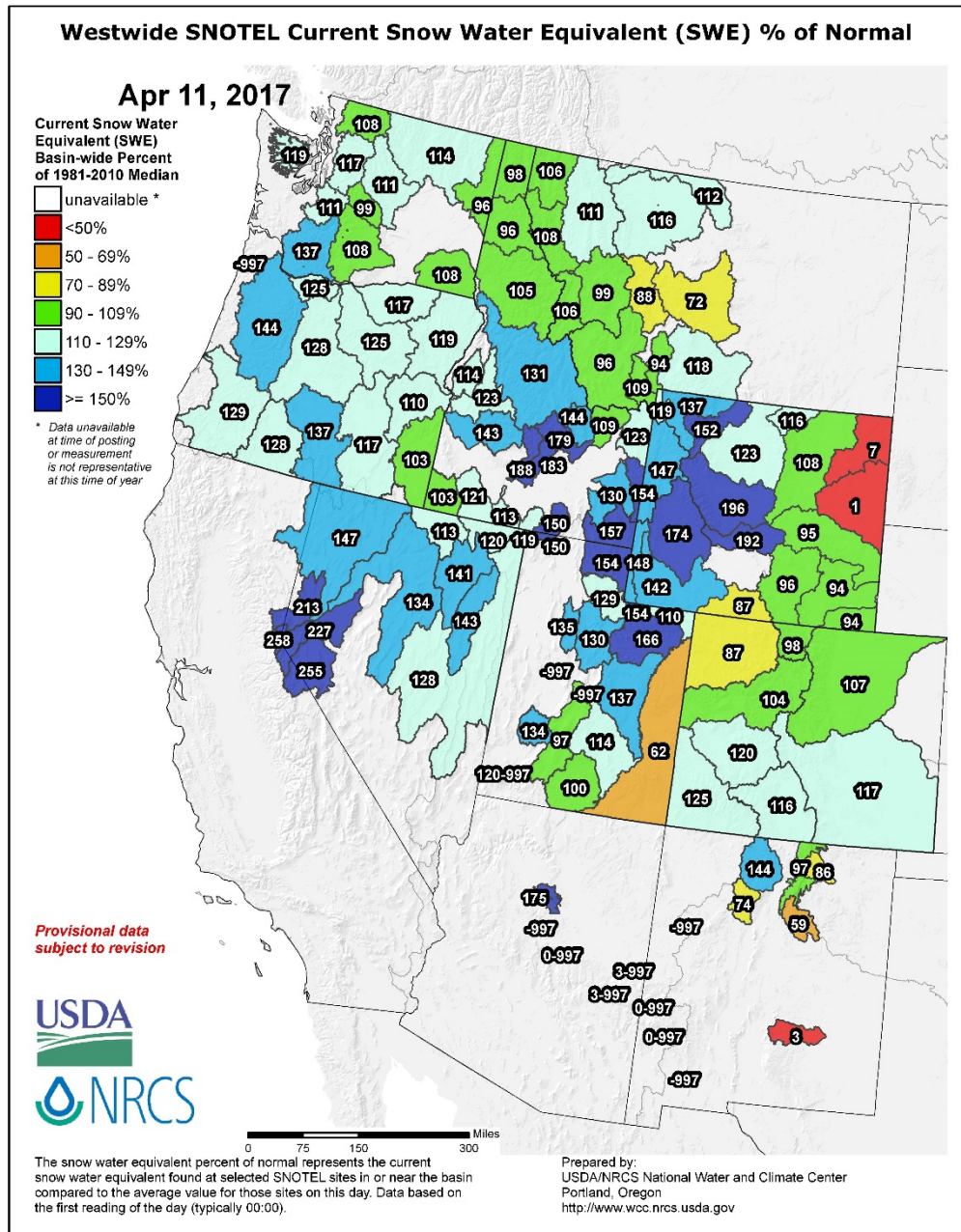


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

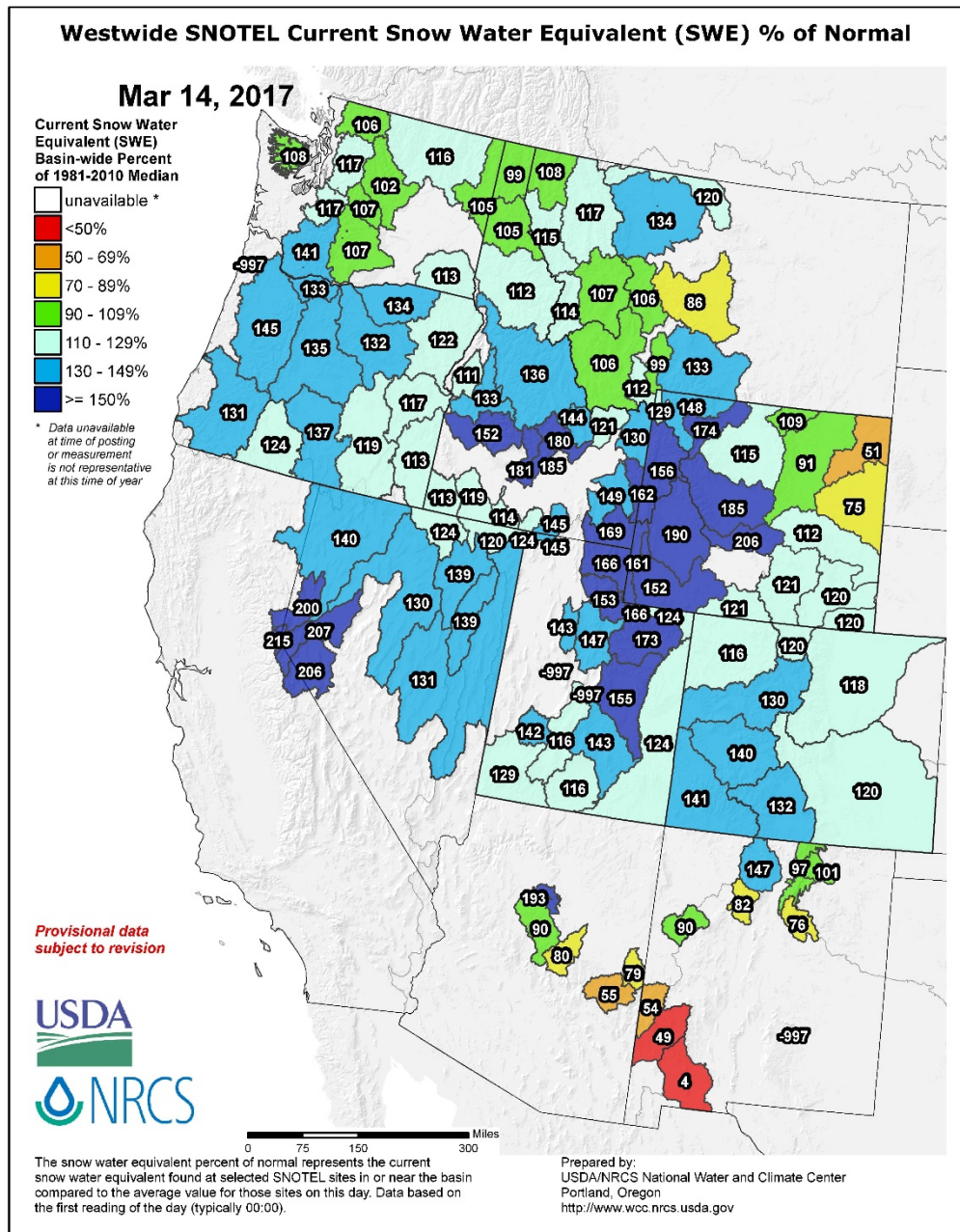


Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

West-Wide Snowpack – April 11, 2017



West-Wide Snowpack – March 14, 2017

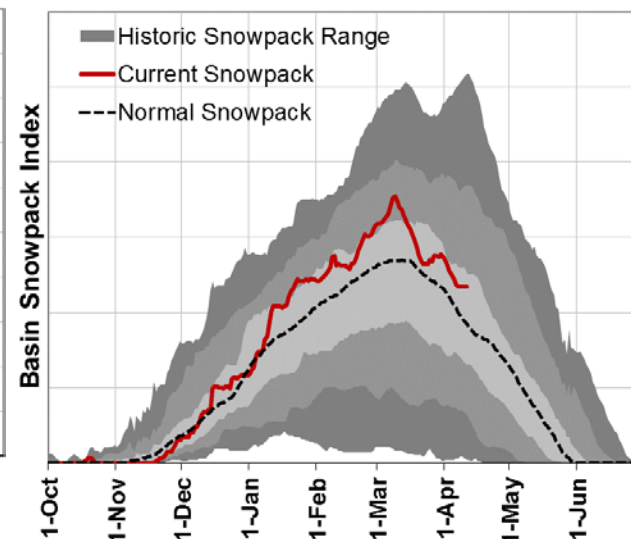
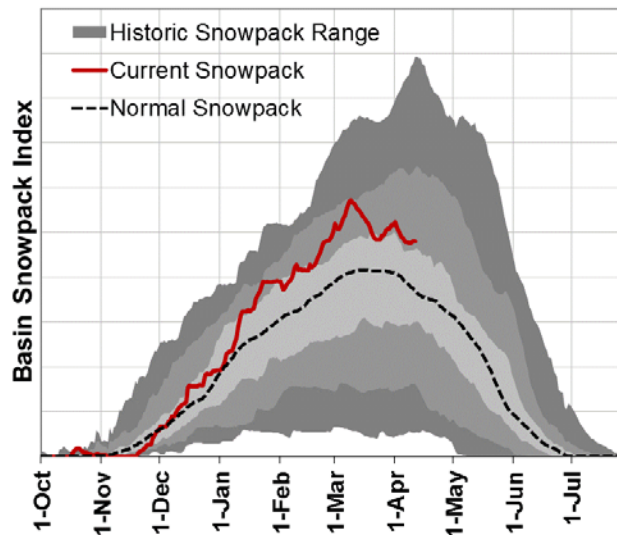


Water Year 2017 – April 11th

Willamette

Rogue/Umpqua

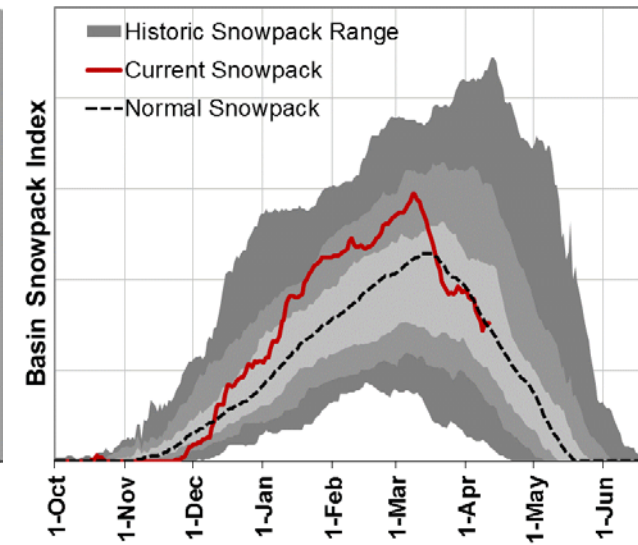
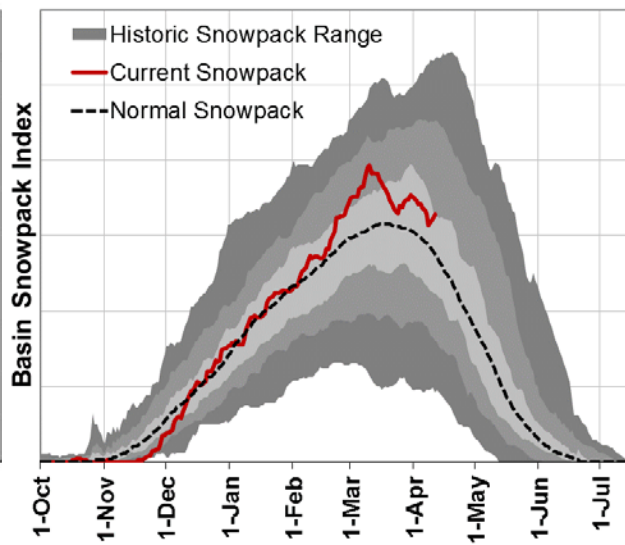
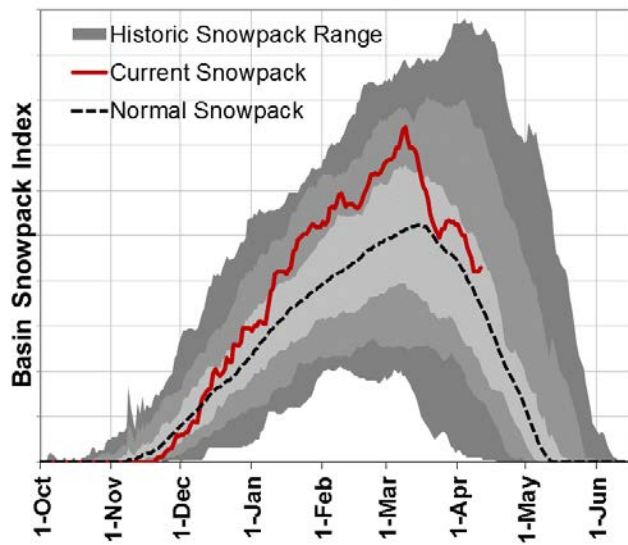
Klamath



John Day

Grande Ronde/Powder/Burnt

Owyhee/Malheur

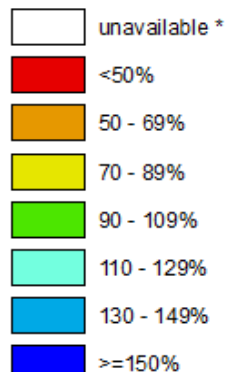


Statewide SNOTEL Precipitation was 130% of normal

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

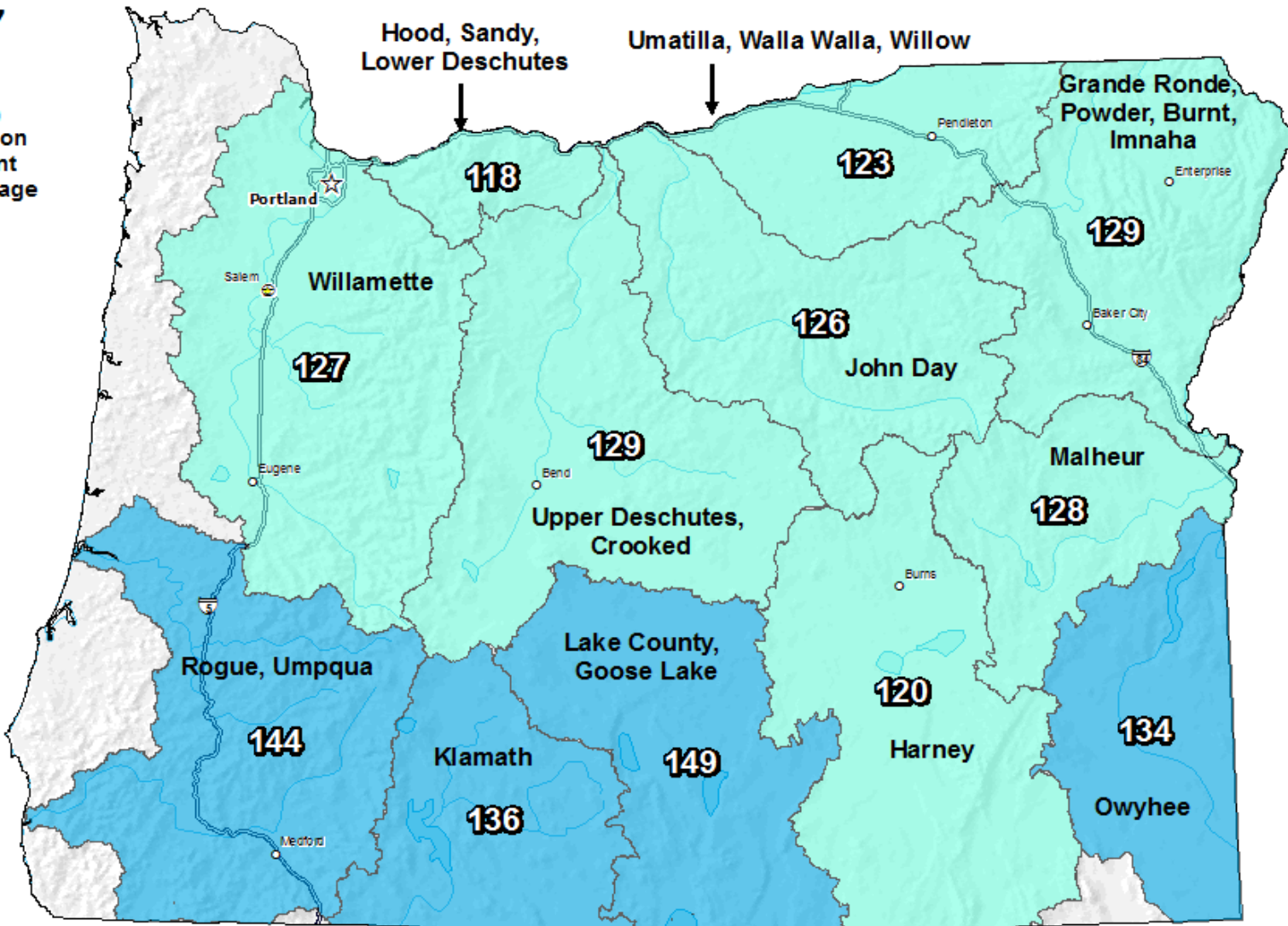
Mar 14, 2017

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).

0 10 20 40 60 80 100 Miles

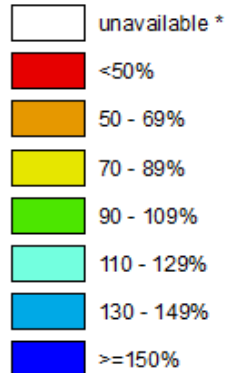
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

Statewide SNOTEL Precipitation is 131% of normal

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

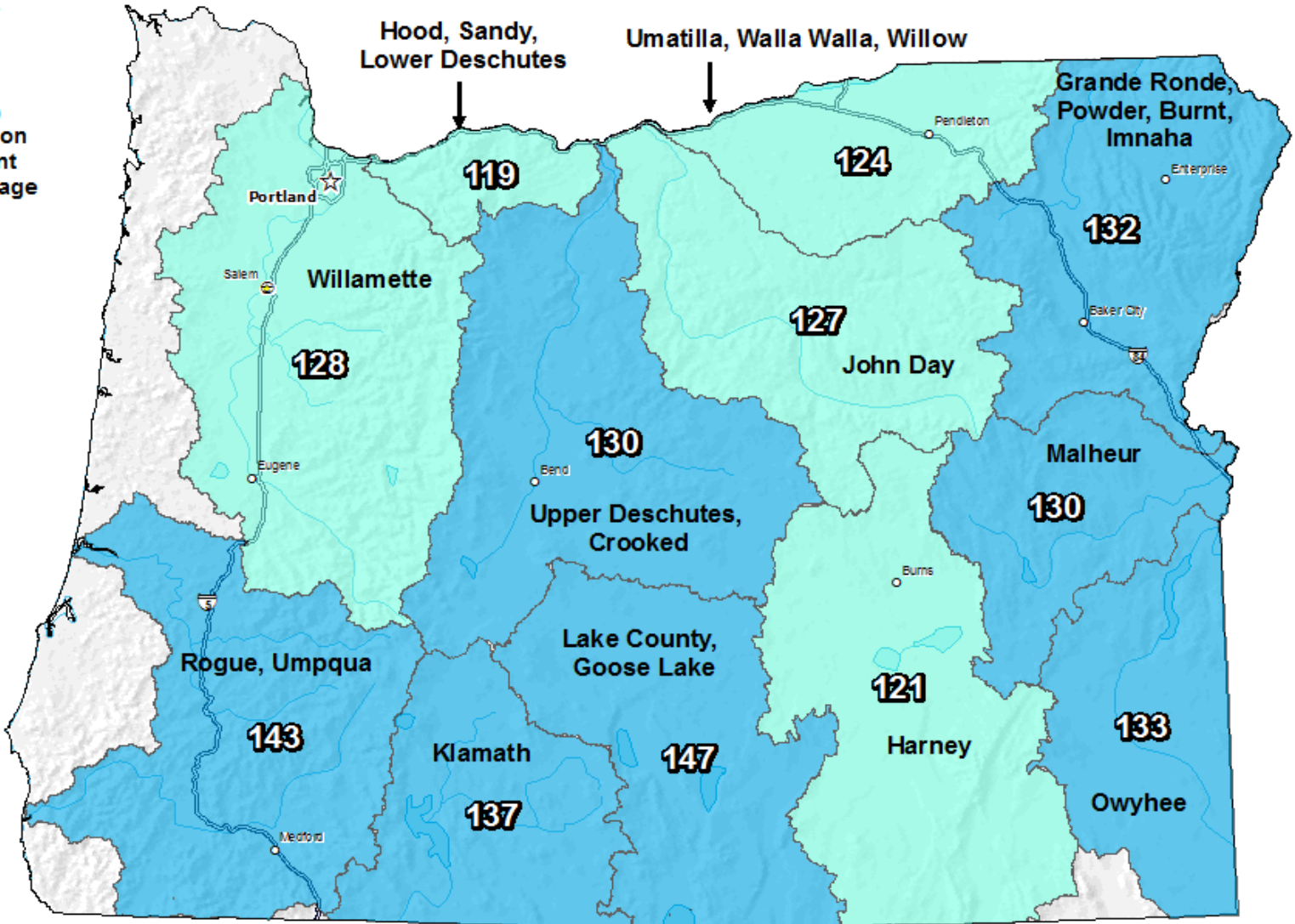
Apr 11, 2017

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

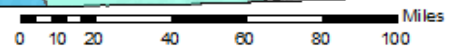


* Data unavailable at time of posting or measurement is not representative at this time of year

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).

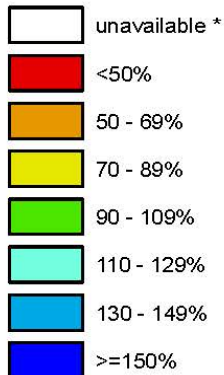


Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

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

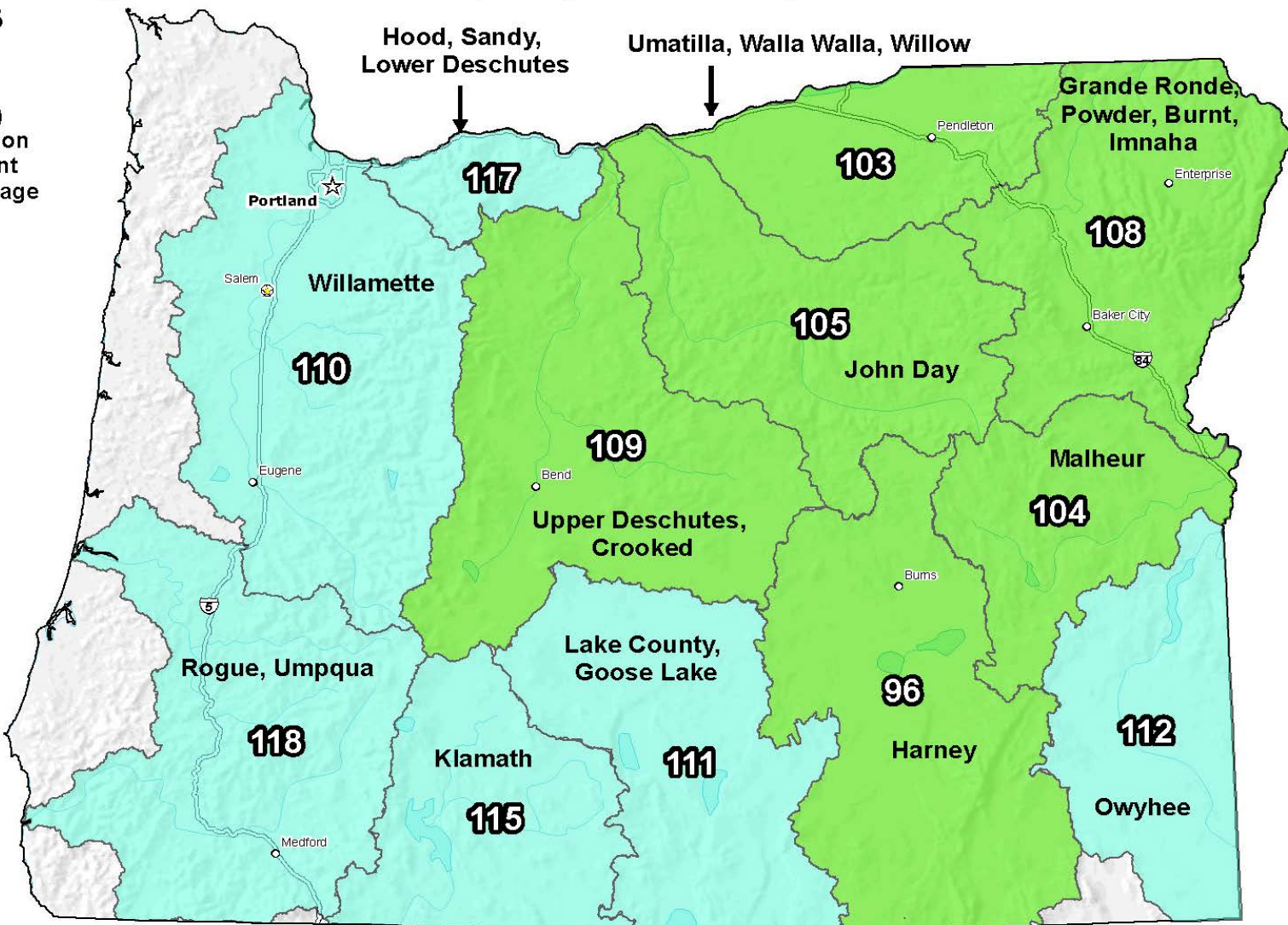
Apr 11, 2016

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).

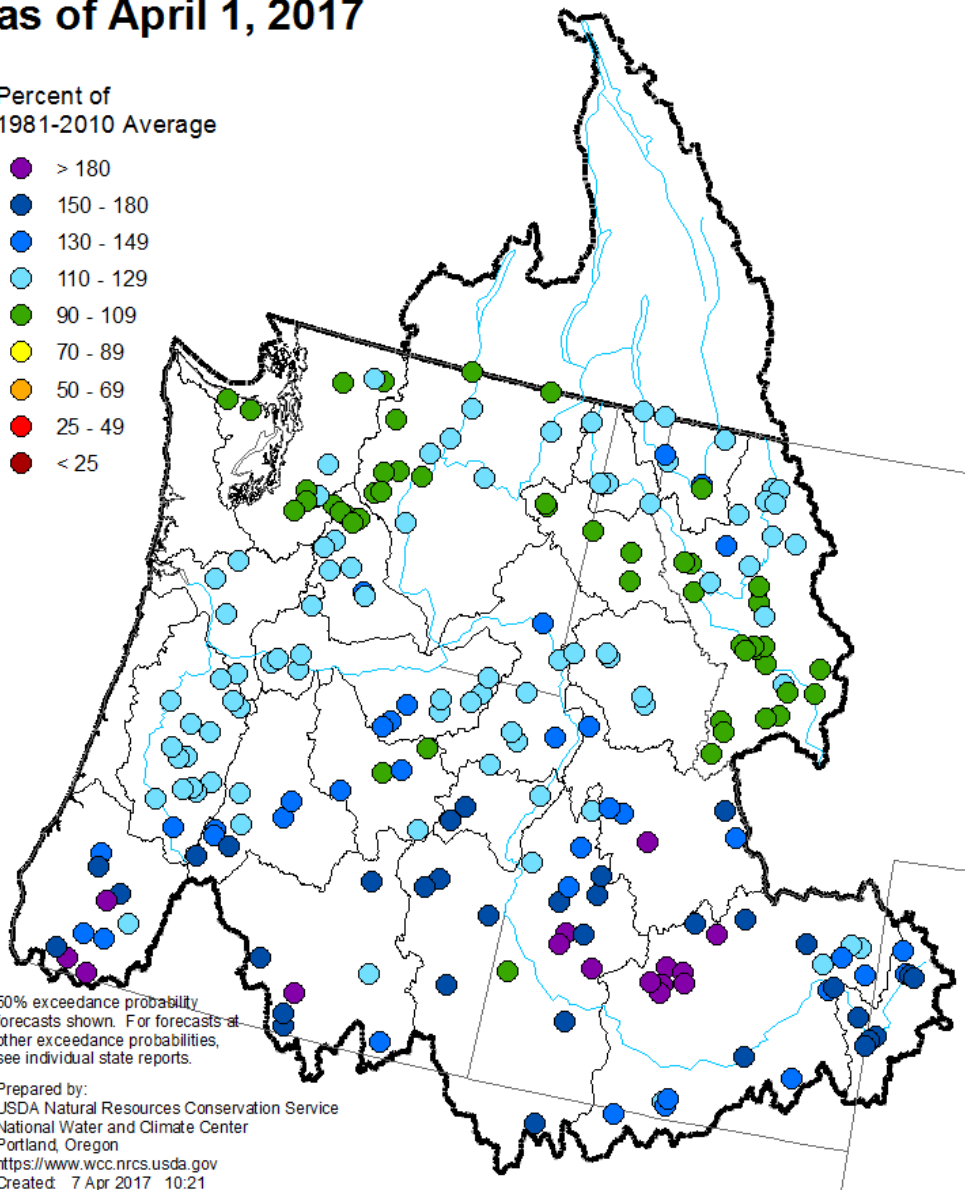


Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

Columbia River and Pacific Coastal Basins Spring and Summer Streamflow Forecasts as of April 1, 2017

Percent of
1981-2010 Average

- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25



50% exceedance probability forecasts shown. For forecasts at other exceedance probabilities, see individual state reports.

Prepared by:
USDA Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
<https://www.wcc.nrcs.usda.gov>
Created: 7 Apr 2017 10:21

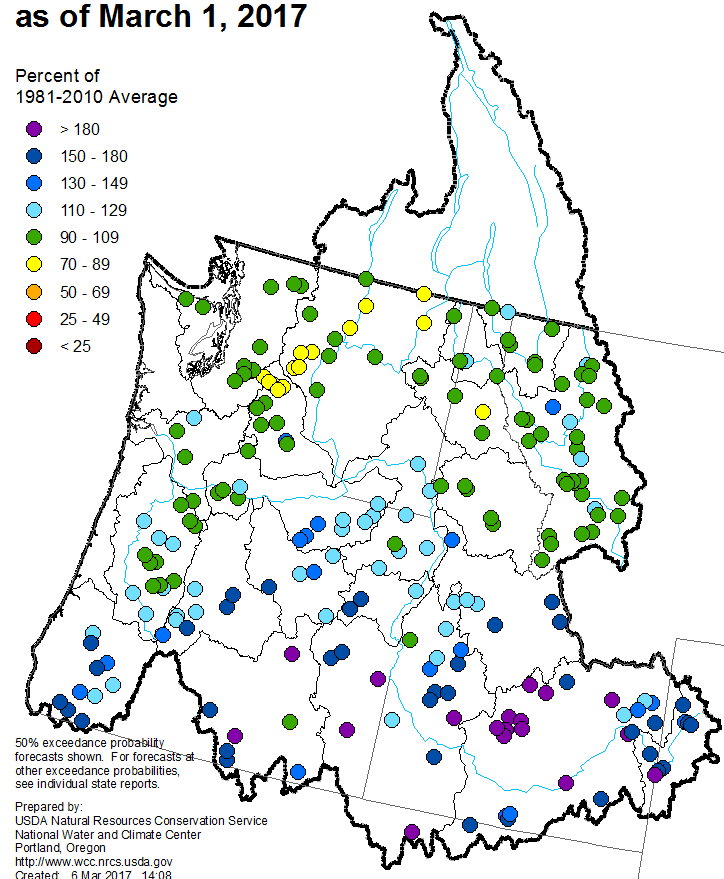
April thru September Streamflow Forecasts:

- Generally above normal to well above normal statewide

Columbia River and Pacific Coastal Basins Spring and Summer Streamflow Forecasts as of March 1, 2017

Percent of
1981-2010 Average

- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25



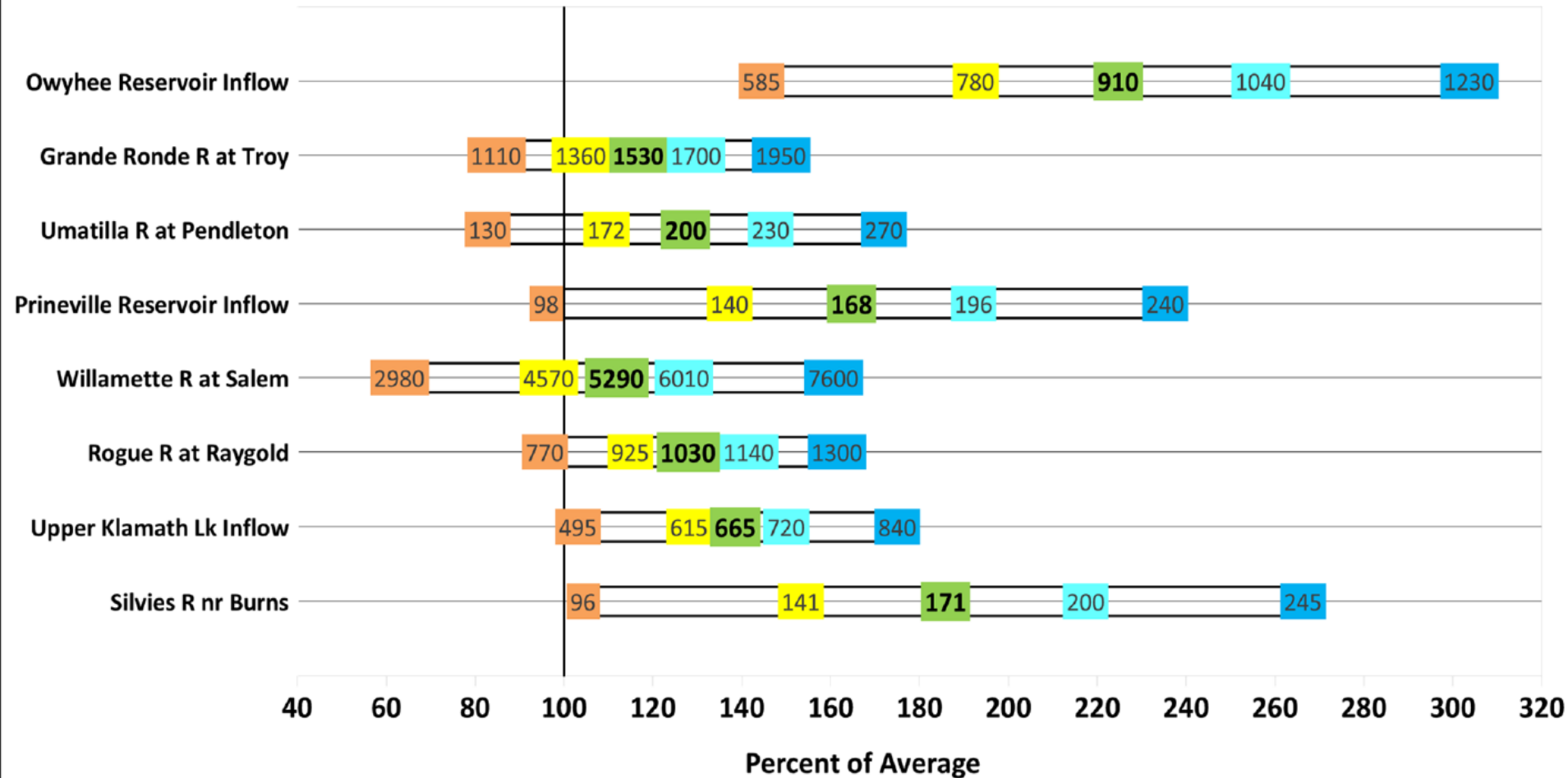
50% exceedance probability forecasts shown. For forecasts at other exceedance probabilities, see individual state reports.

Prepared by:
USDA Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>
Created: 6 Mar 2017 14:08

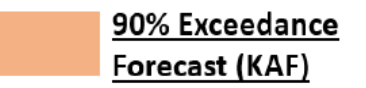
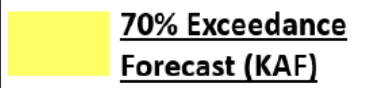
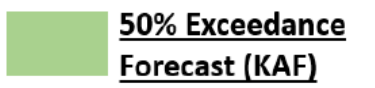
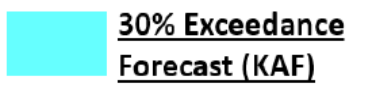
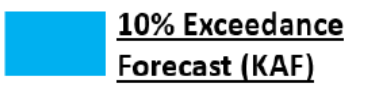
March 1, 2017

Summary of Streamflow Forecasts across Oregon

April through September Forecast Volumes at a Selection of Streamflow Points
(Volumes listed in KAF)



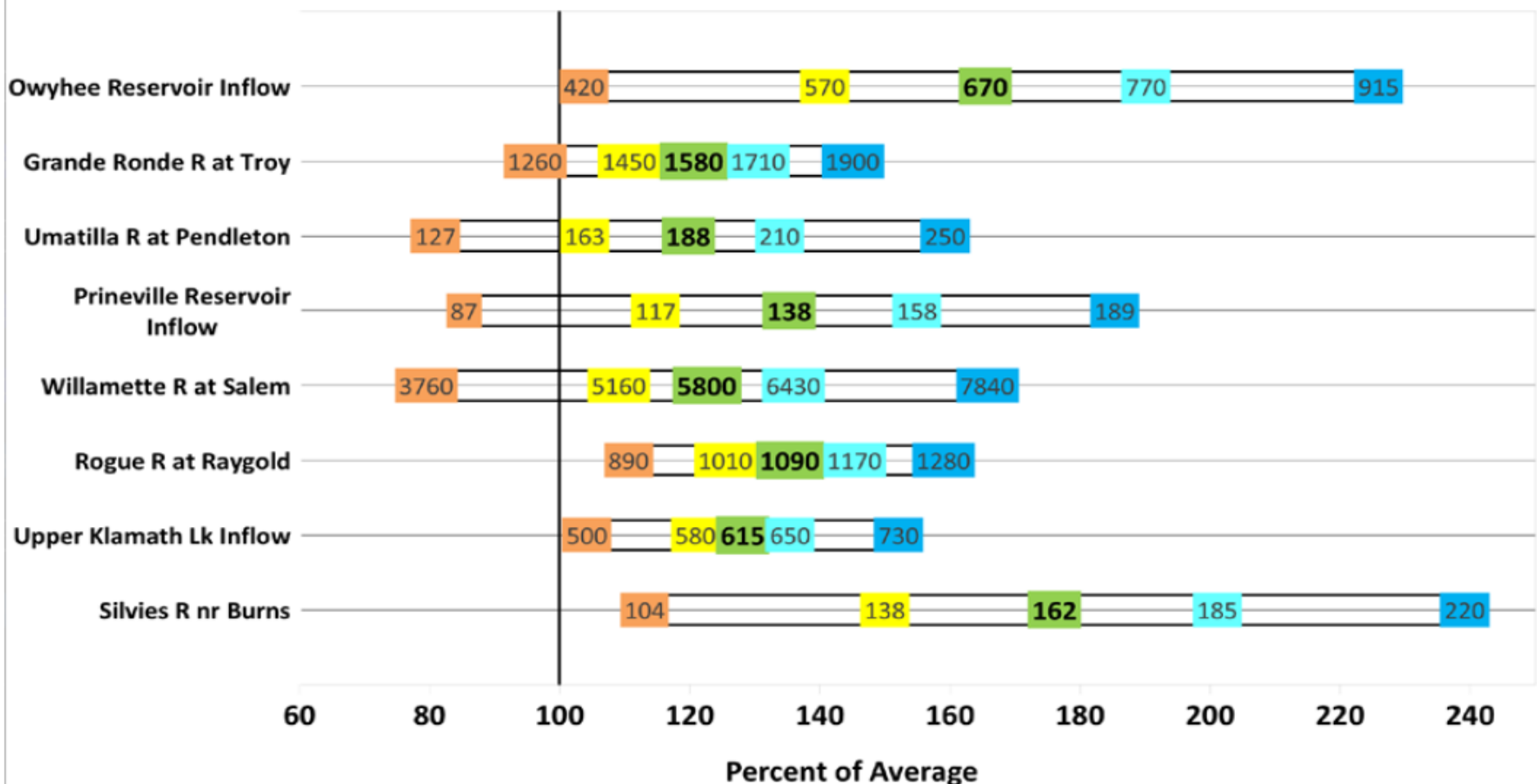
Legend: ←-----Drier-----**Future Conditions**-----Wetter-----→

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






April 1, 2017

Summary of Streamflow Forecasts across Oregon

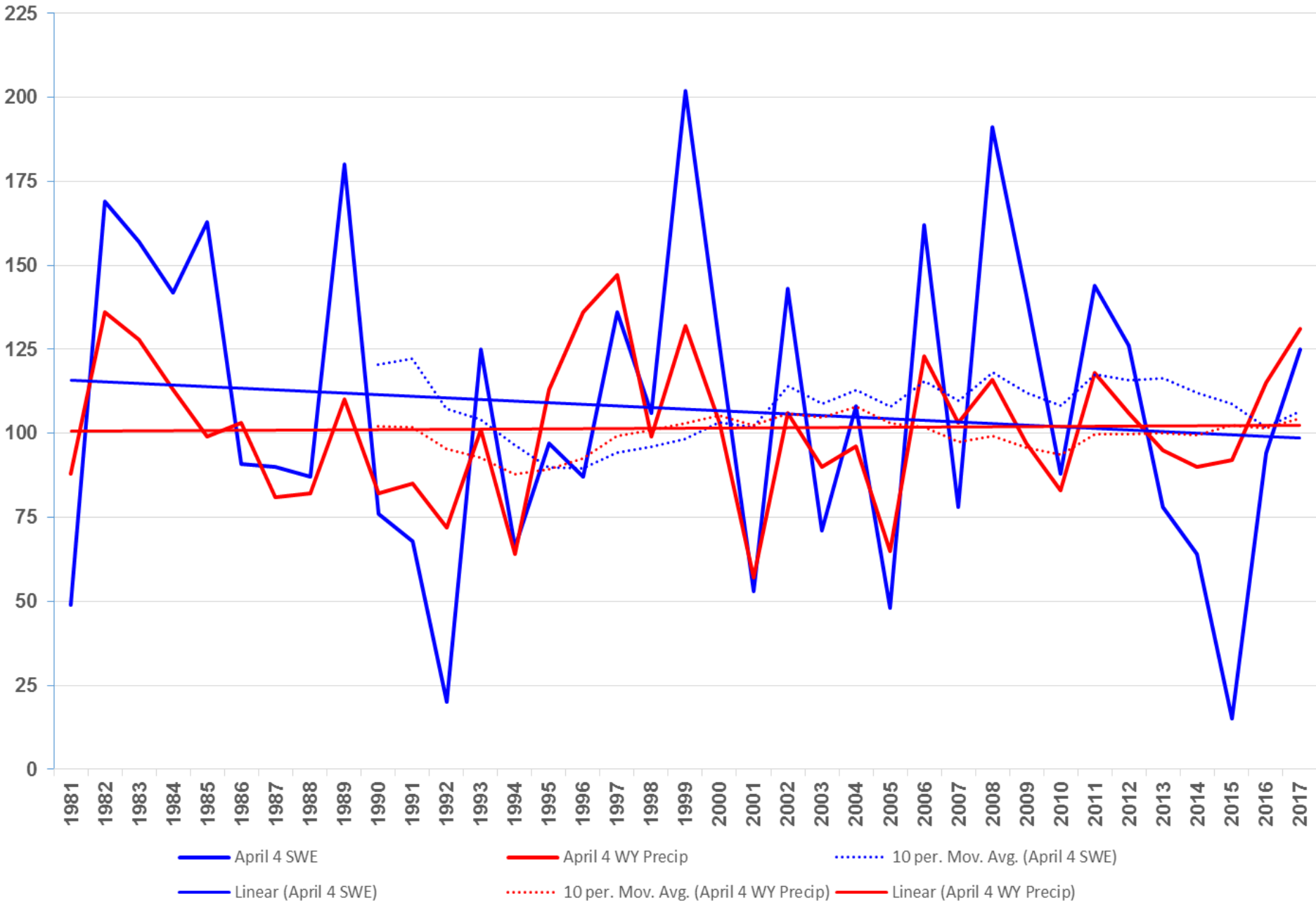
April through September Forecast Volumes at a Selection of Streamflow Points (Volumes listed in KAF)



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

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

APRIL 4th SNOTEL SWE and Water Year Precip % Normals OREGON



Thank you!

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.



Oregon Water Supply Availability

April 11, 2017 NWS Update



Andy Bryant, NWS Portland

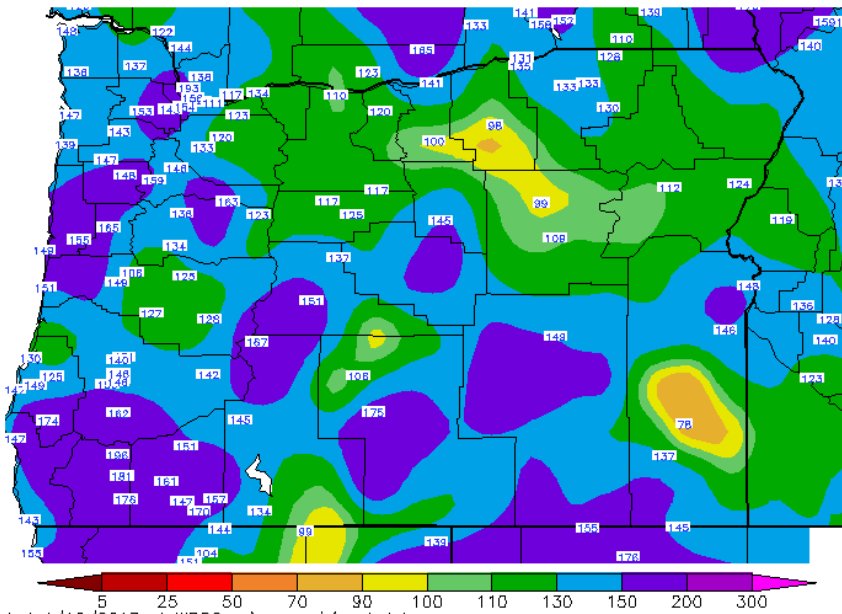


Seasonal Precipitation

Water Year - Percent of Average
Columbia Basin

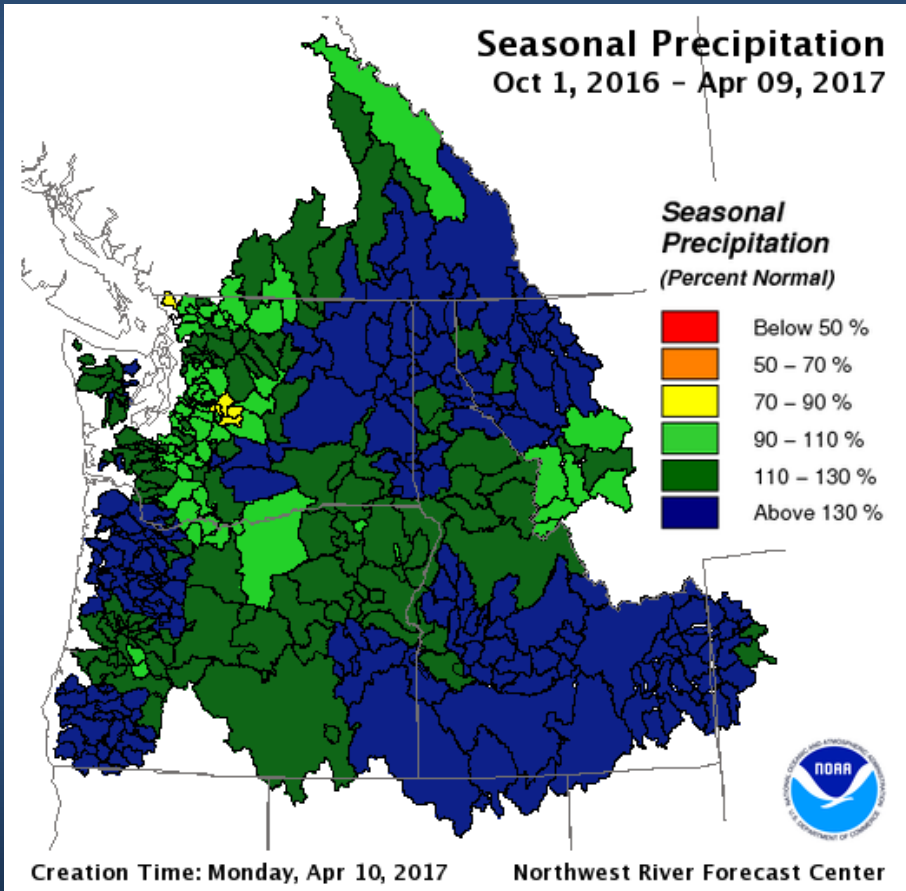
Water Year - Percent of Average

Percent of Average Precipitation (%)
10/1/2016 - 4/9/2017



Generated 4/10/2017 at WRCC using provisional data.
NOAA Regional Climate Centers

Seasonal Precipitation
Oct 1, 2016 - Apr 09, 2017

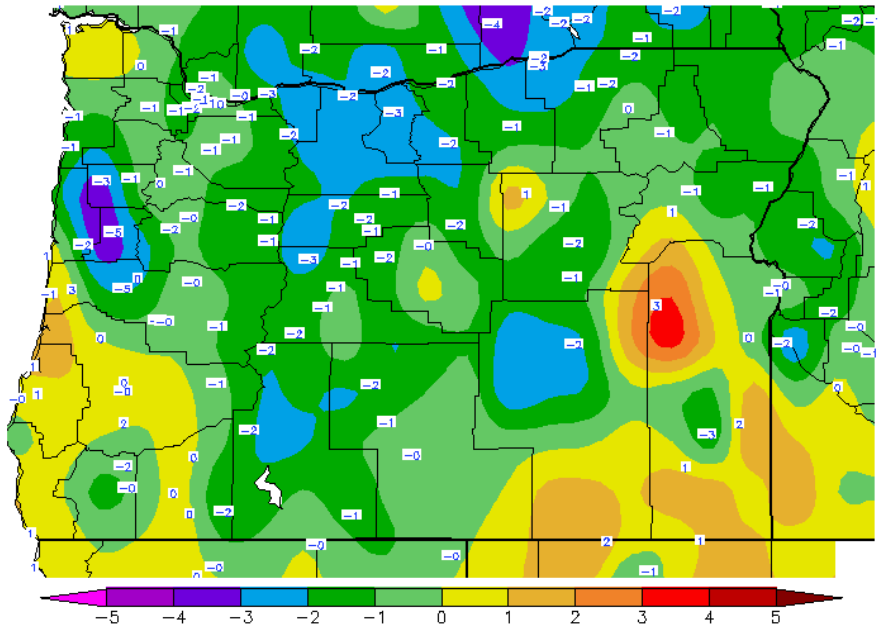




Seasonal Temperatures

Water Year - Departure from Average

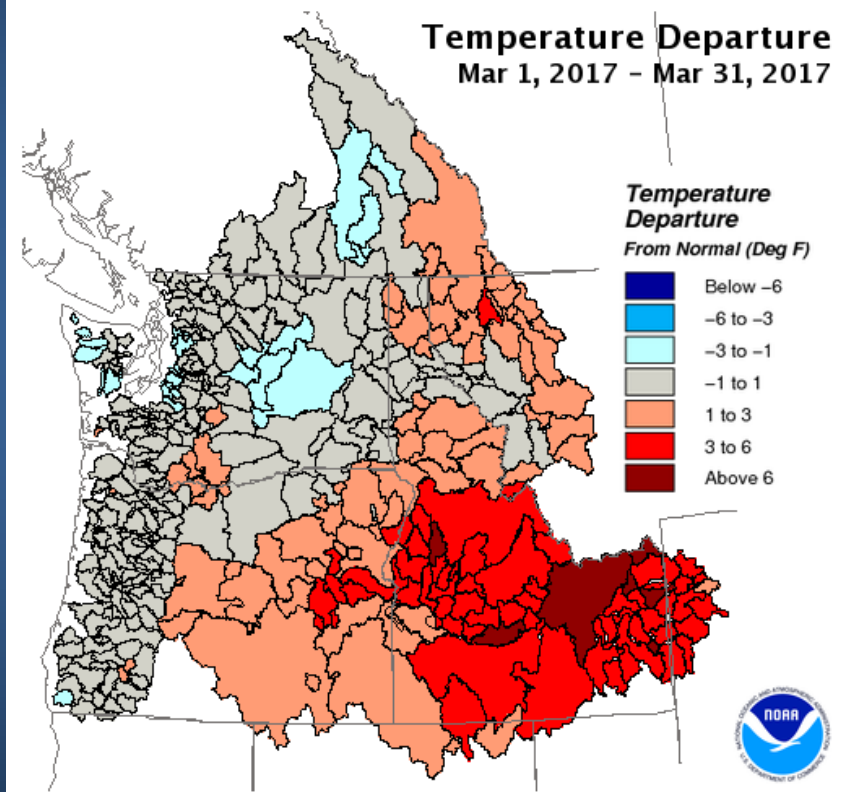
Ave. Temperature dep from Ave (deg F)
10/1/2016 - 4/9/2017



Generated 4/10/2017 at WRCC using provisional data.
NOAA Regional Climate Centers

March Temps in Columbia Basin

Temperature Departure
Mar 1, 2017 - Mar 31, 2017



Creation Time: Saturday, Apr 1, 2017

Northwest River Forecast Center



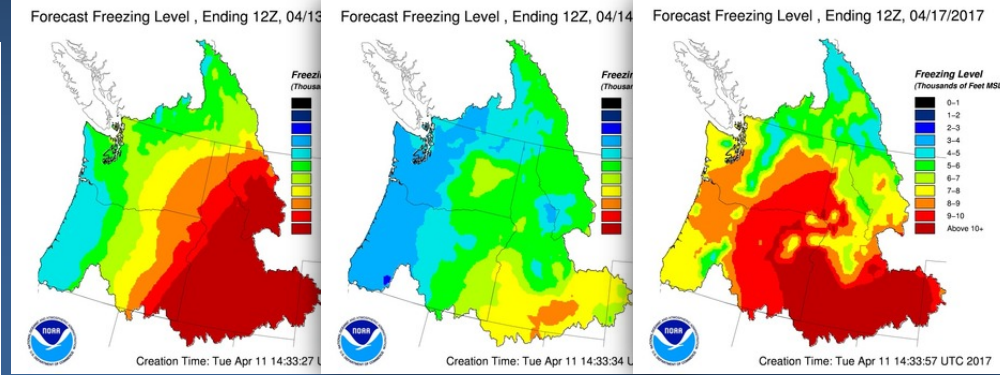
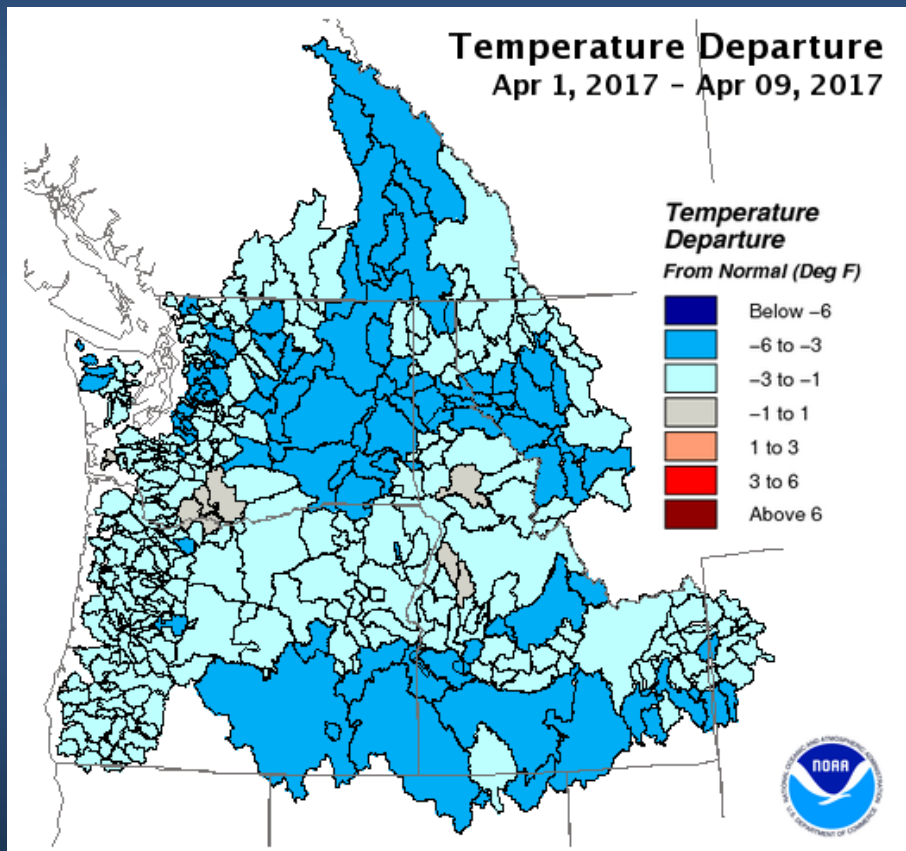
Image sources: www.wrcc.dri.edu & www.nwrfc.noaa.gov



April Temperatures

Early April observed temperatures

Temperatures next 7 days: big fluctuations relative to average; some days with high freezing levels & snowmelt



Late April Temperature Outlook

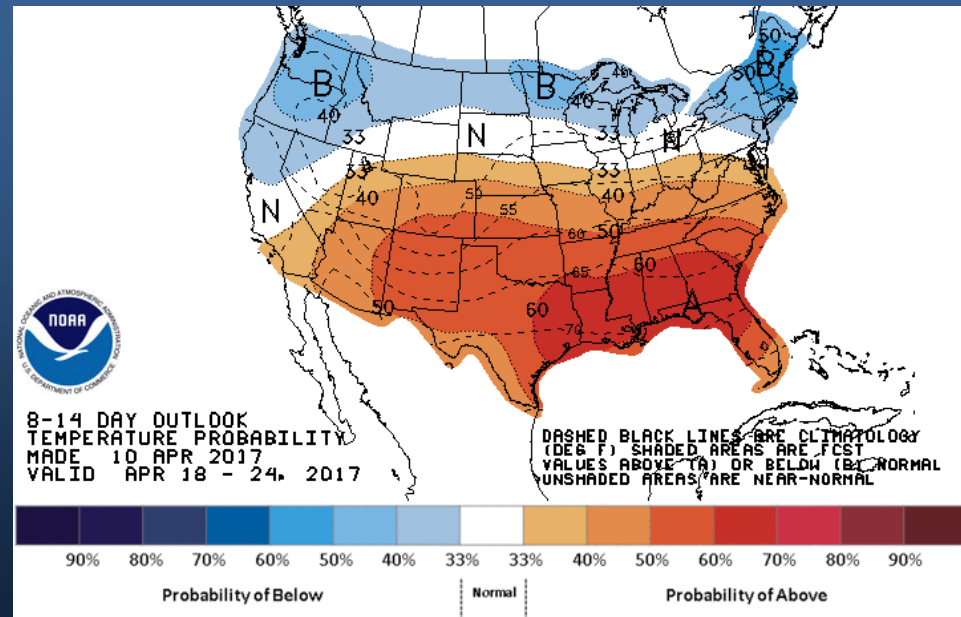


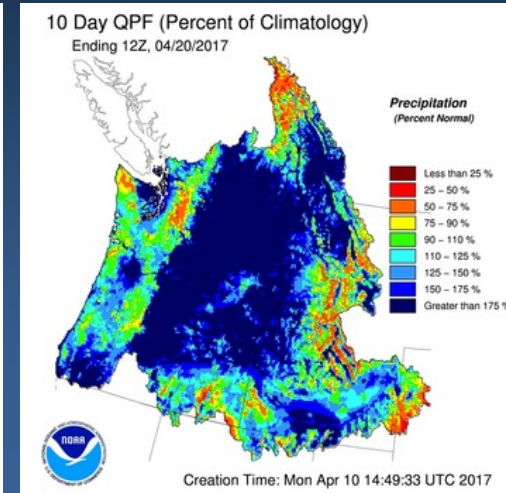
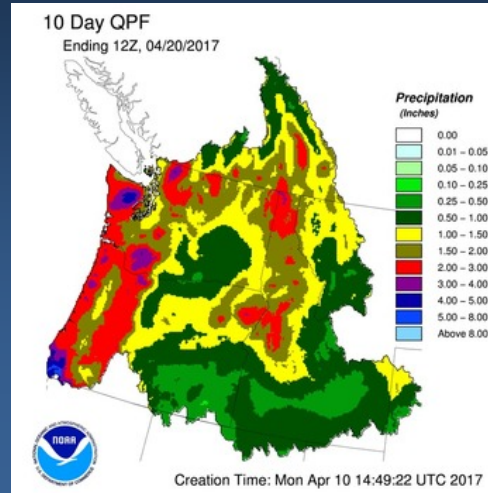
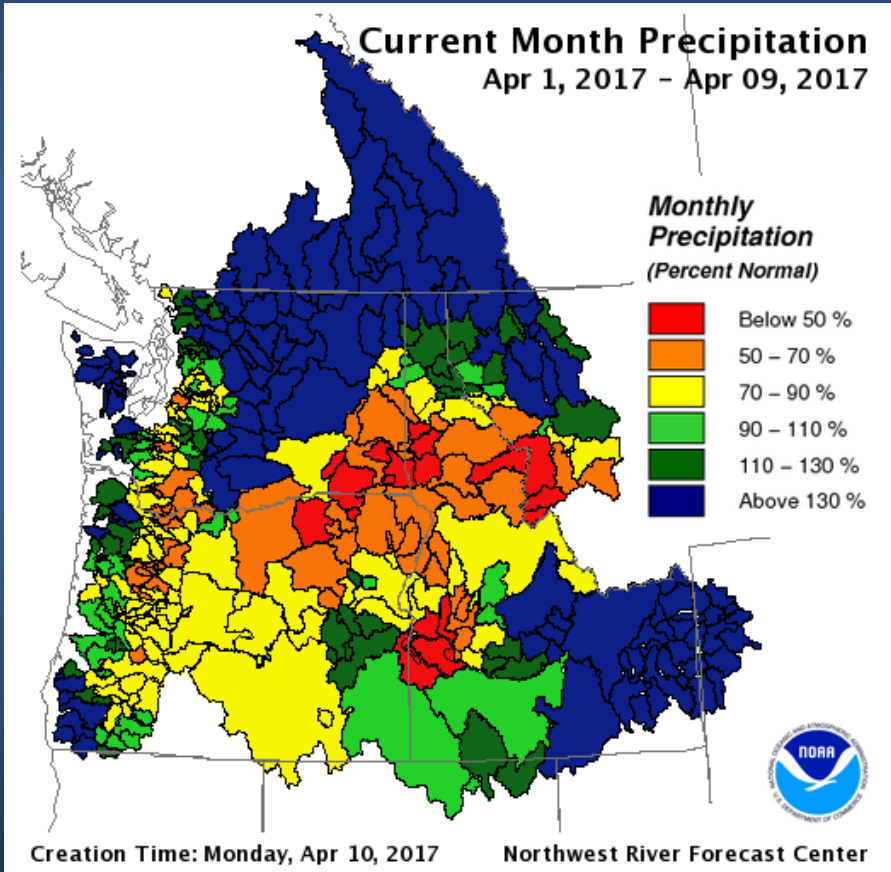
Image sources: www.nwrfc.noaa.gov & www.cpc.ncep.noaa.gov



April Precipitation

Forecast Precipitation next 10 days

Early April observed precipitation



Late April Precipitation Outlook

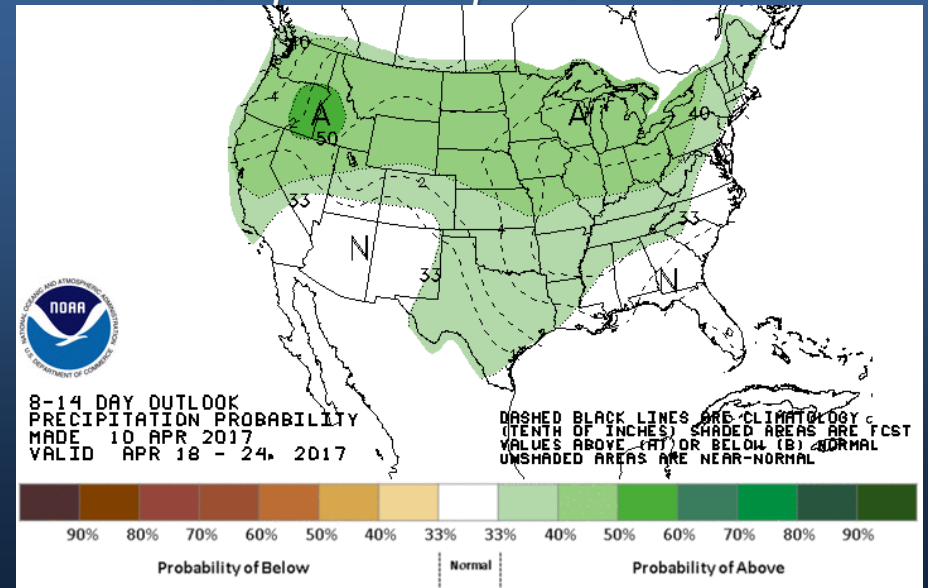
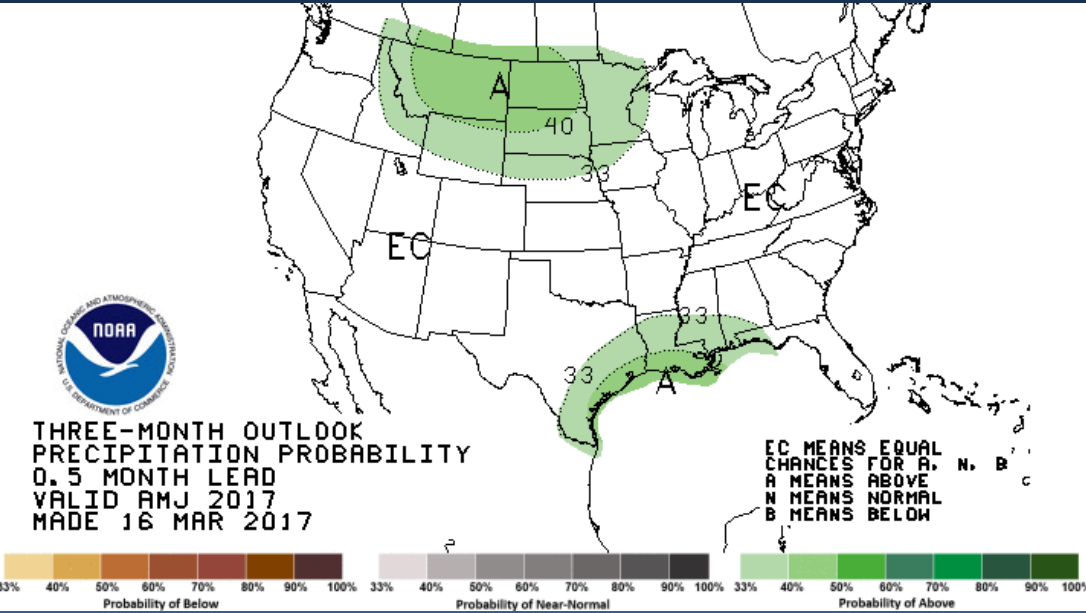


Image sources: www.nwrfc.noaa.gov,
www.wpc.ncep.noaa.gov, & www.cpc.ncep.noaa.gov



Outlook for May-June-July



Temperatures

Precipitation

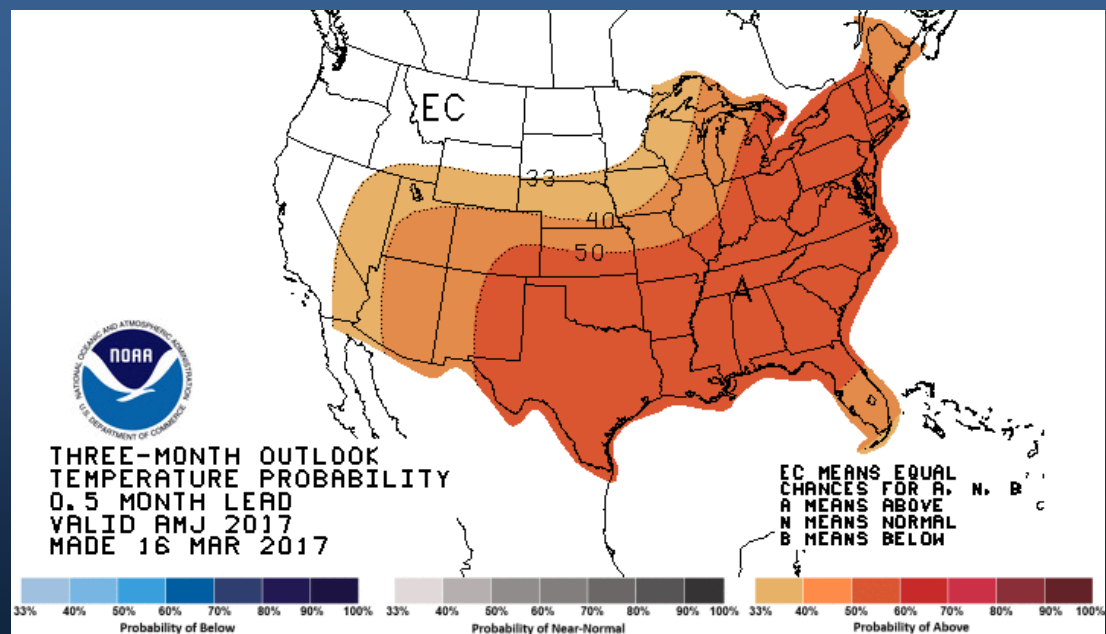


Image source: www.cpc.ncep.noaa.gov



Water Supply Forecasts

Klamath Basin (from California-Nevada RFC)

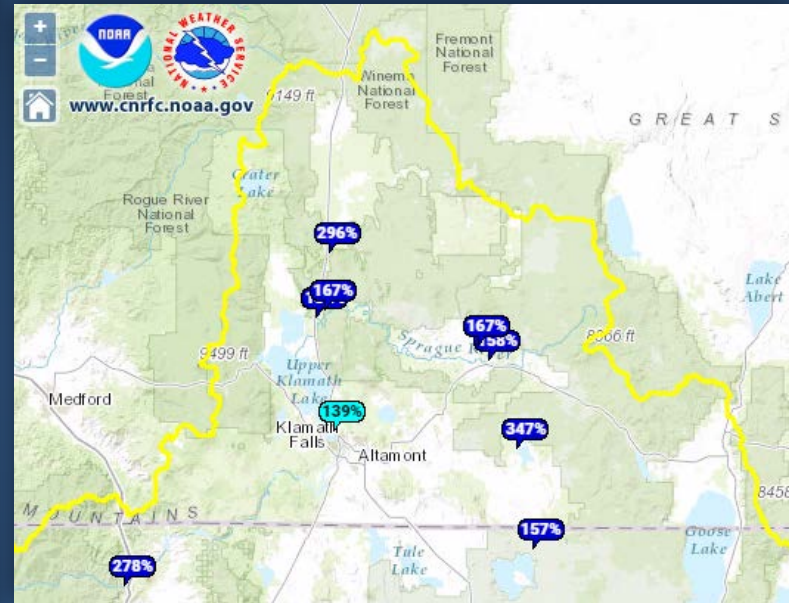
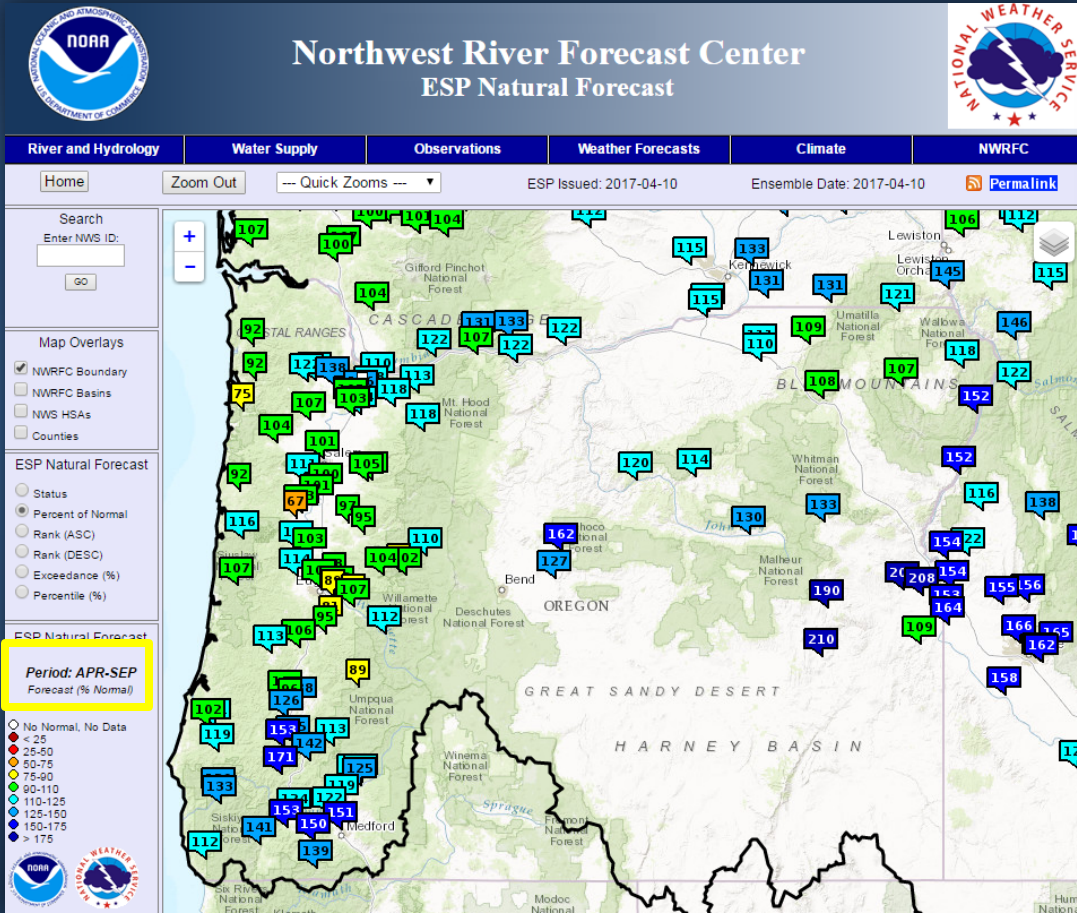


Image sources: www.nwrfc.noaa.gov & www.cnrfc.noaa.gov

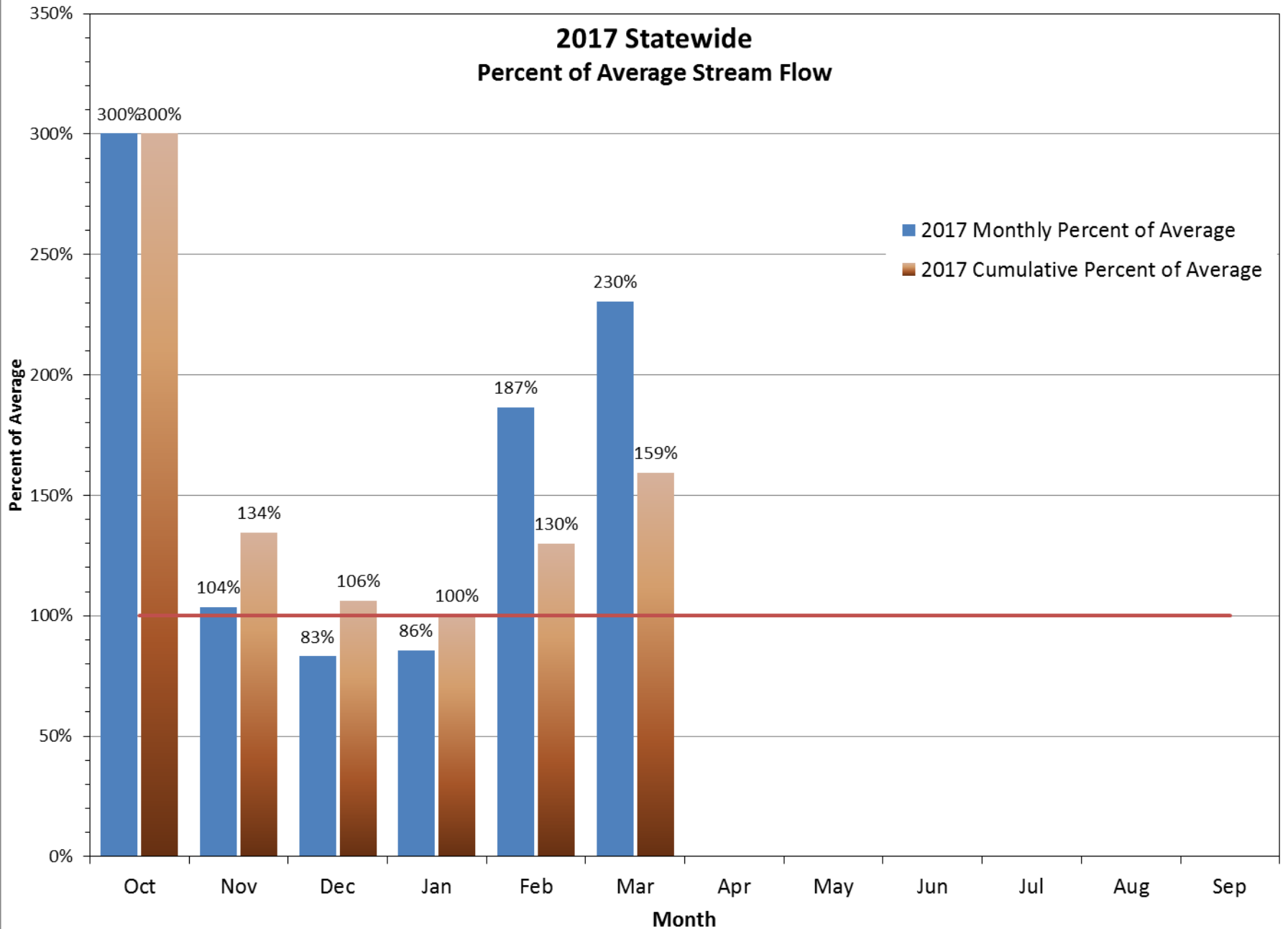
Surface Water Conditions Report

Water Supply Availability Committee

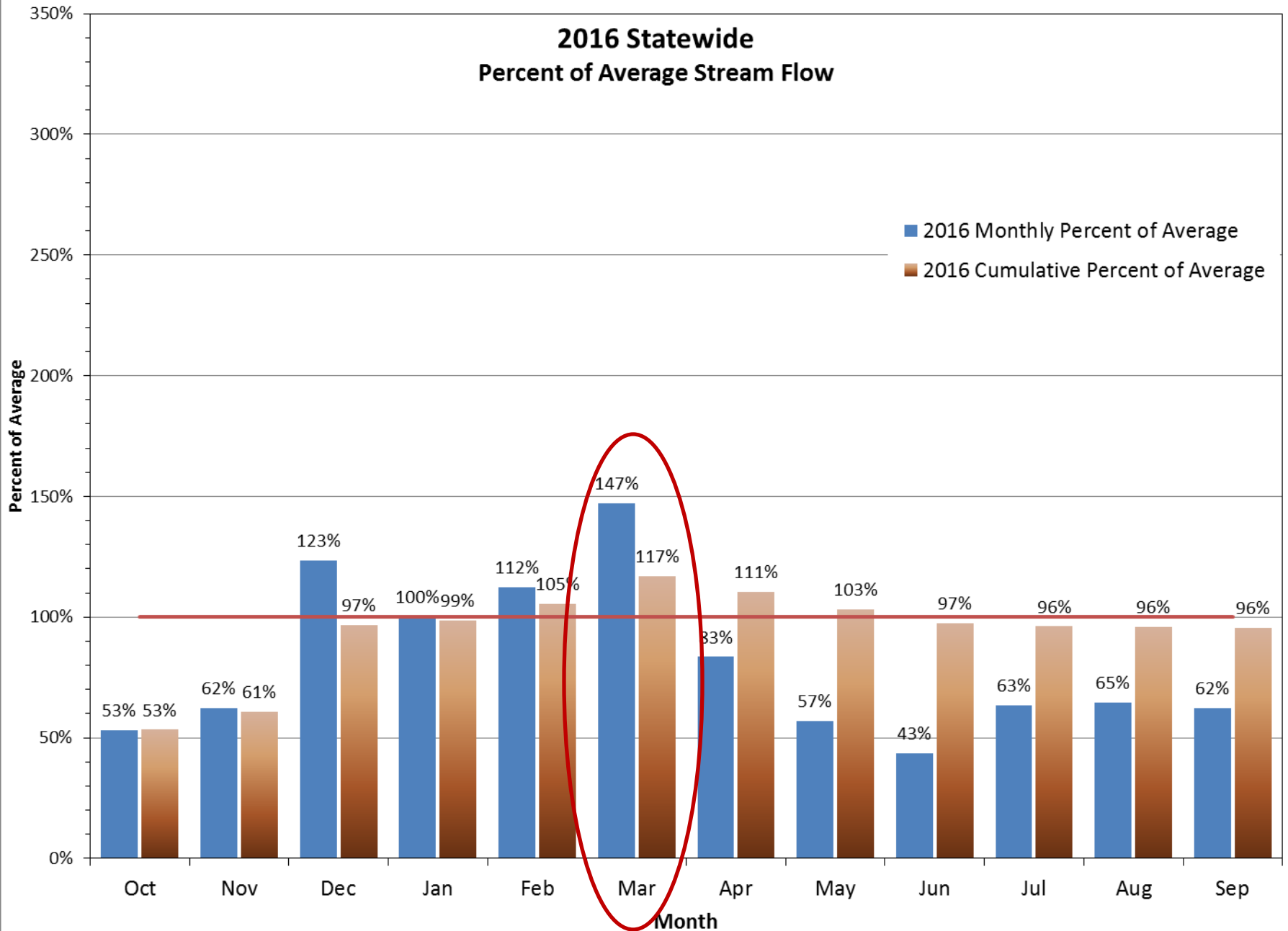


Ken Stahr
Oregon Water Resources
Department
April 11, 2017

2017 Statewide Percent of Average Stream Flow



2016 Statewide Percent of Average Stream Flow



Percent of Average Streamflow Month of March, 2017

Percent of Average Streamflow

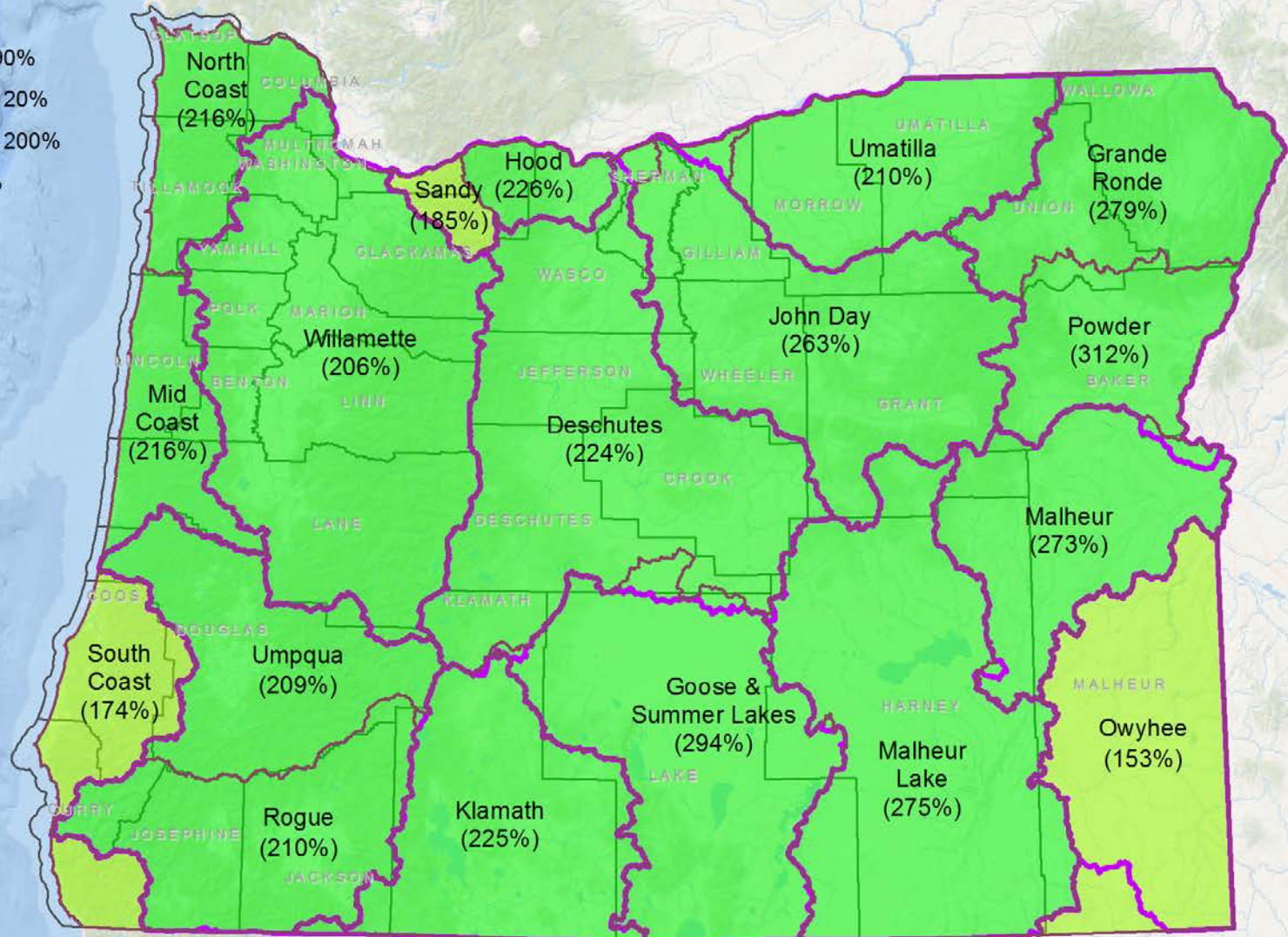
WRD Basin

- < 85%
- 85% - 90%
- 91% - 120%
- 121% - 200%
- > 200%

NRCS Basin



County

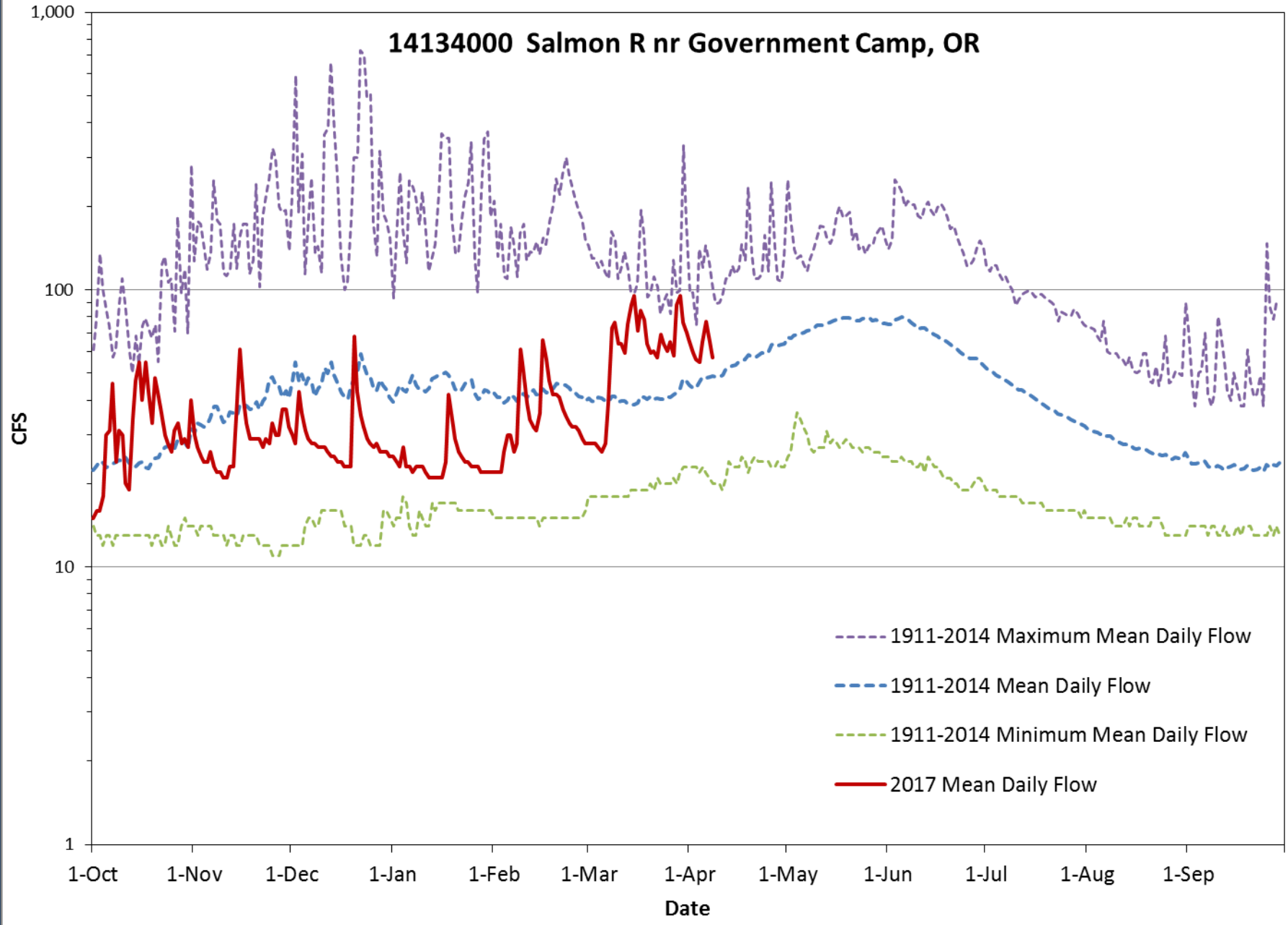


Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

| Basin | Water Year % of average thru March | % of average for March | % of average for 04/09/2017 | # of data points |
|----------------------|--|---------------------------|-----------------------------------|------------------------|
| North Coast | 155% | 216% | 102% | 4 |
| Willamette | 144% | 207% | 103% | 11 |
| Sandy | 104% | 185% | 89% | 3 |
| Hood | 100% | 223% | 142% | 3 |
| Deschutes | 137% | 223% | 157% | 9 |
| John Day | 176% | 263% | 184% | 9 |
| Umatilla | 135% | 209% | 107% | 7 |
| Grande Ronde | 152% | 279% | 187% | 4 |
| Powder | 167% | 312% | 248% | 3 |
| Malheur | 174% | 274% | 268% | 2 |
| Owyhee | 181% | 153% | 108% | 1 |
| Malheur Lake | 191% | 275% | 189% | 3 |
| Goose & Summer Lakes | 239% | 296% | 220% | 5 |
| Klamath | 167% | 240% | 190% | 4 |
| Rogue | 181% | 210% | 163% | 6 |
| Umpqua | 156% | 208% | 91% | 4 |
| South Coast | 172% | 174% | 179% | 1 |
| Mid Coast | 148% | 216% | 102% | 5 |
| West Side | 151% | 202% | 118% | 34 |
| East Side | 165% | 250% | 182% | 50 |
| State | 160% | 231% | 157% | 84 |

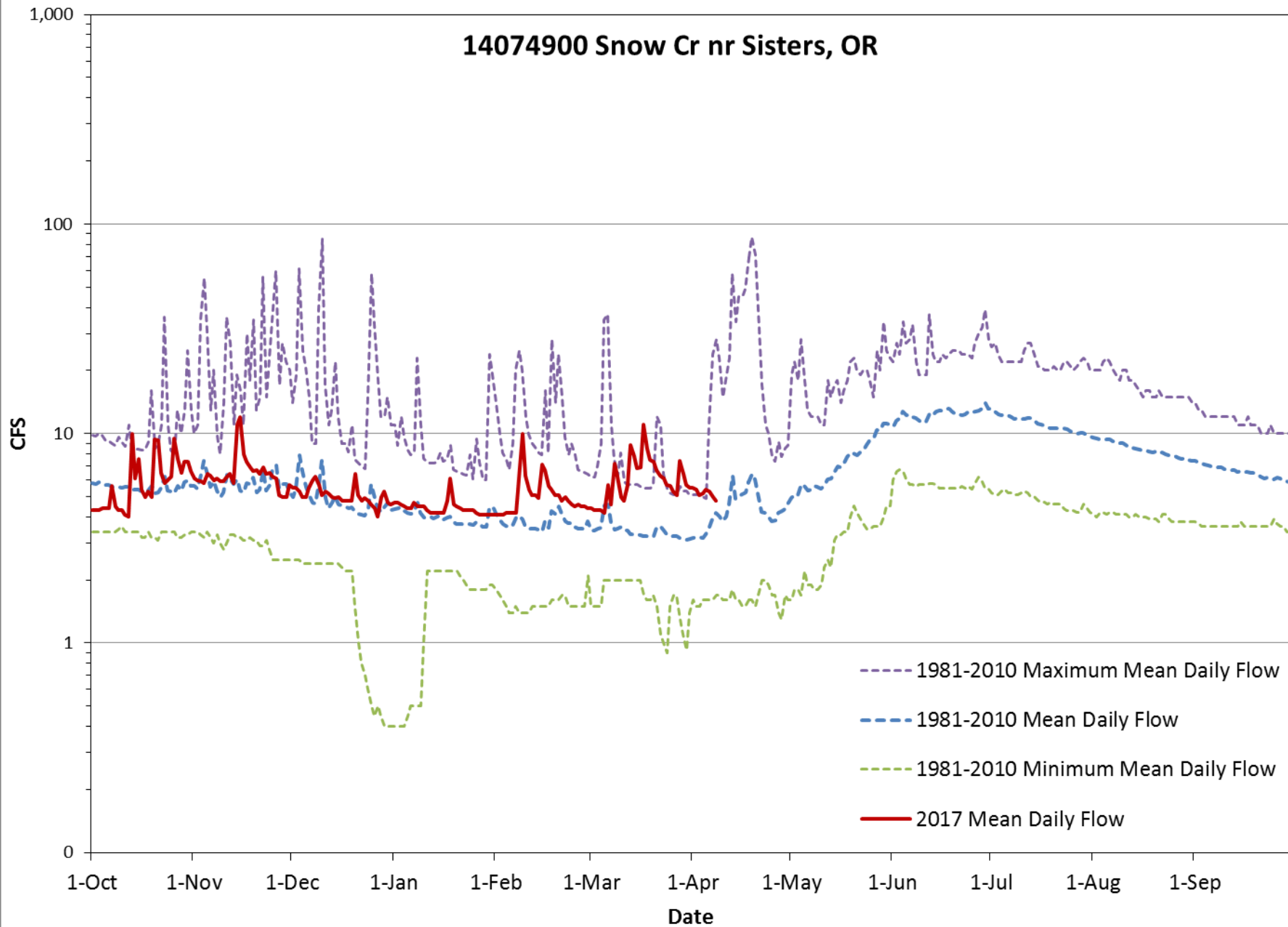
Sandy

14134000 Salmon R nr Government Camp, OR



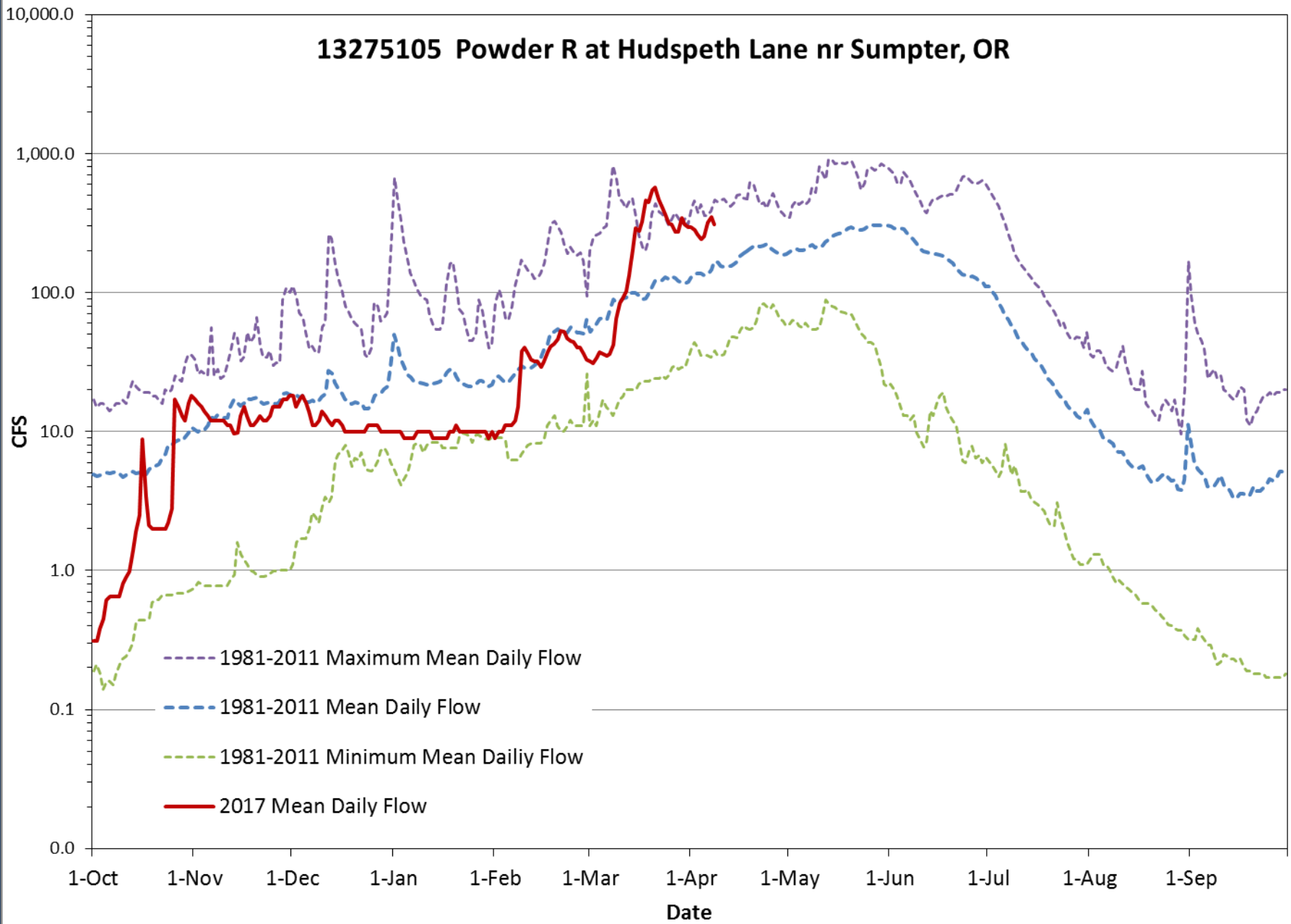
Deschutes

14074900 Snow Cr nr Sisters, OR



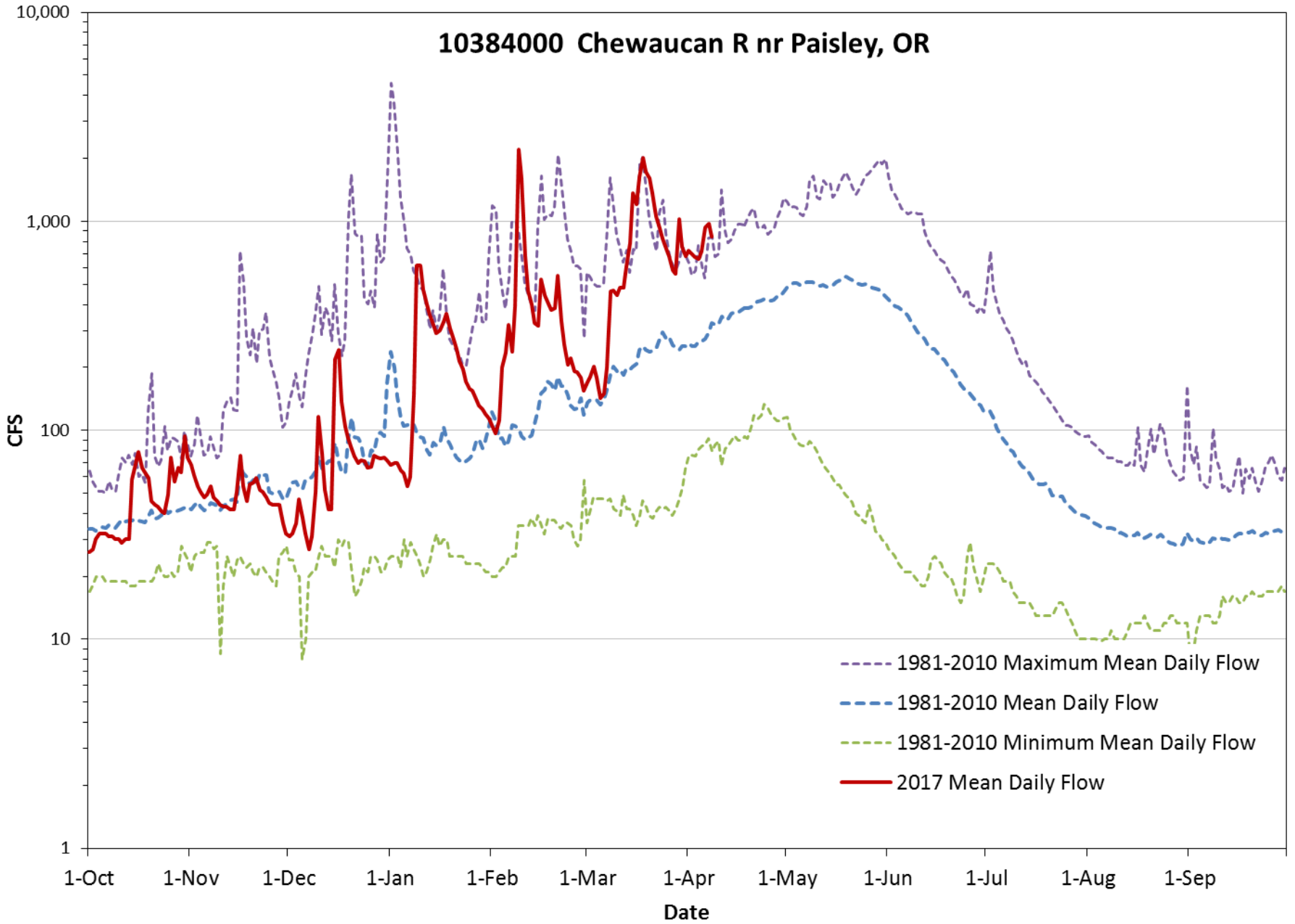
Powder

13275105 Powder R at Hudspeth Lane nr Sumpter, OR



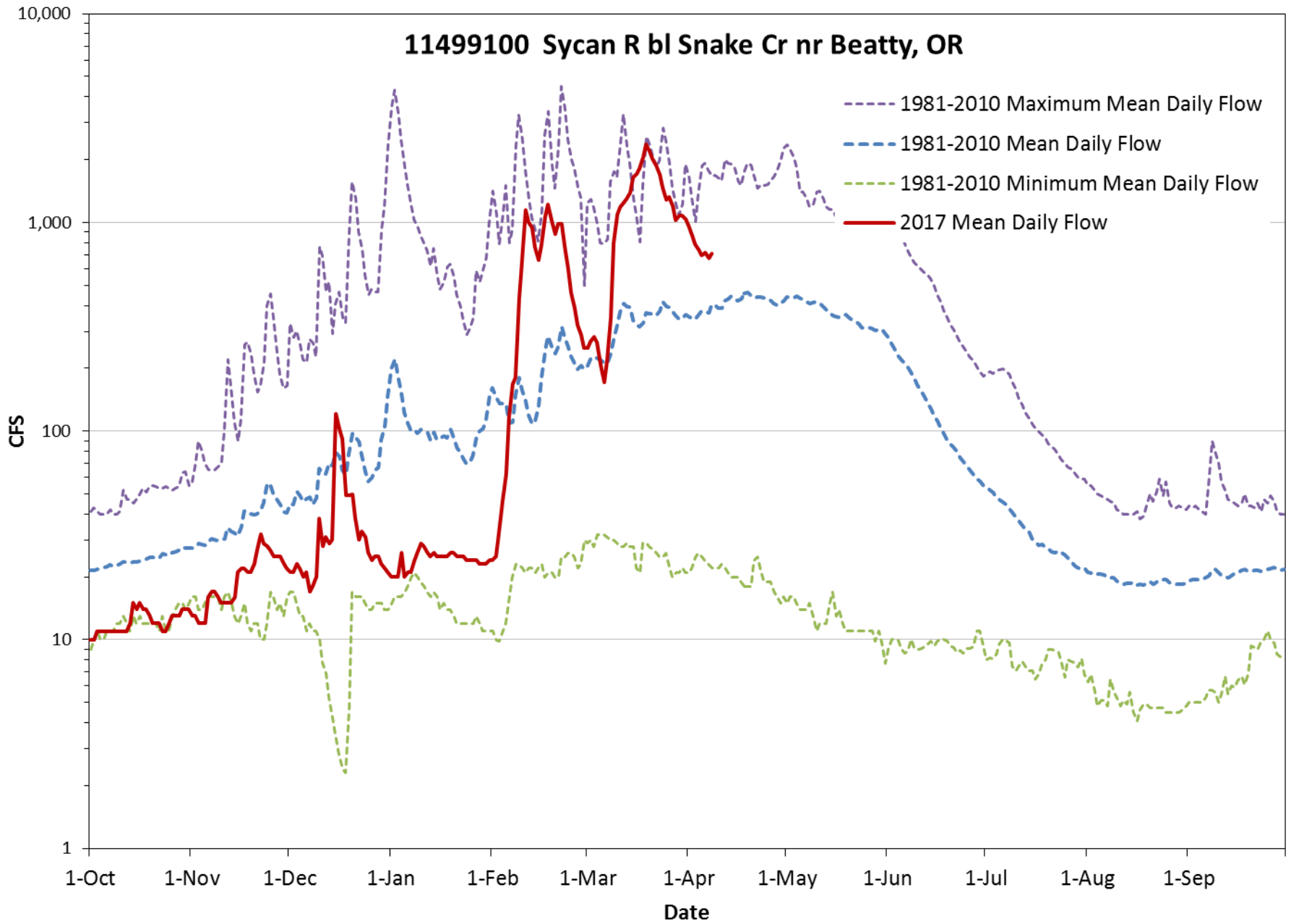
Lake County

1038400 Chewaucan R nr Paisley, OR



Klamath

11499100 Sycan R bl Snake Cr nr Beatty, OR



Storage

Reservoir Storage Summary for the end of March, 2017

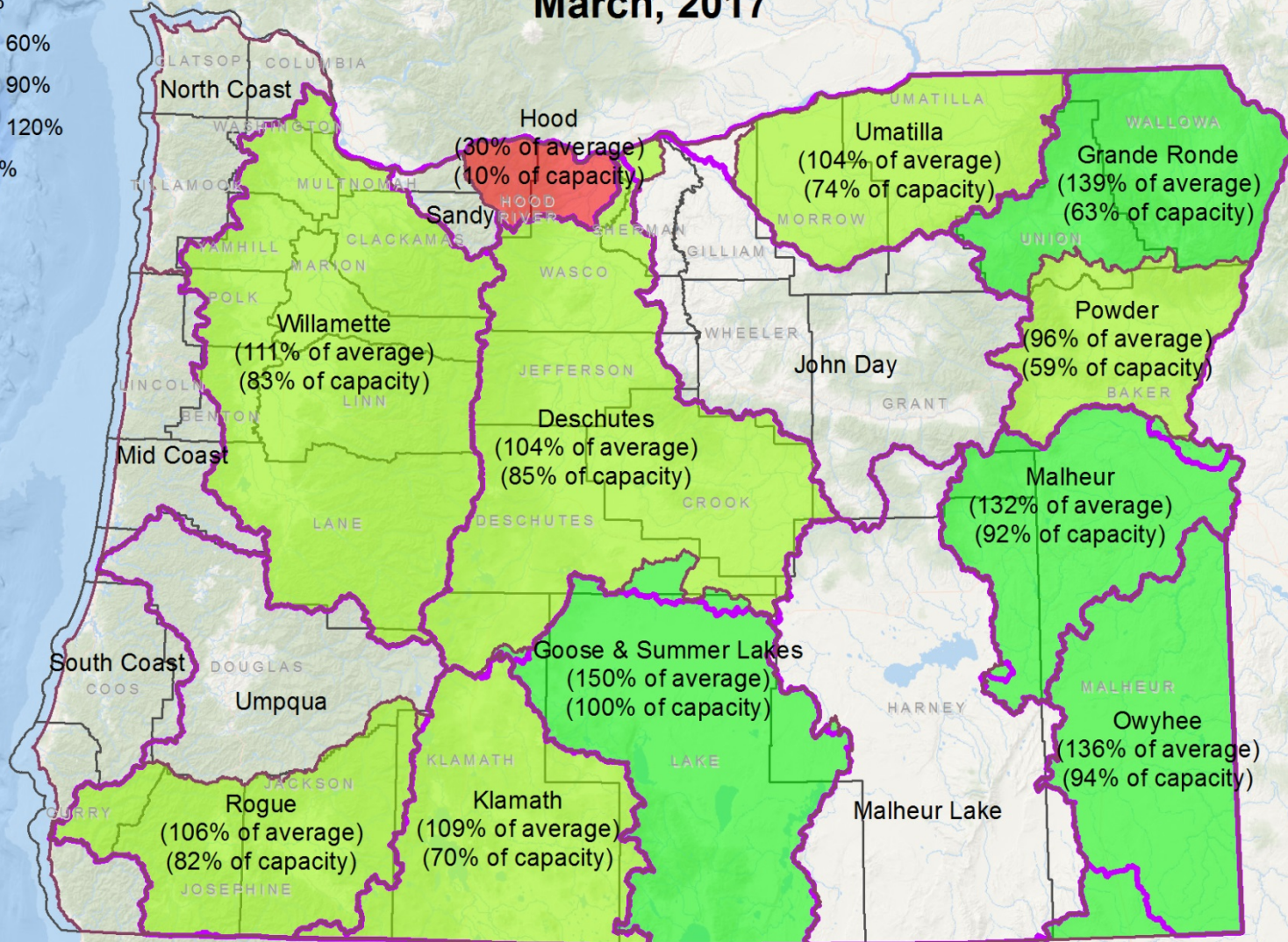
Percent of Average Storage

WRD Basin

- < 36%
- 36% - 60%
- 61% - 90%
- 91% - 120%
- > 120%

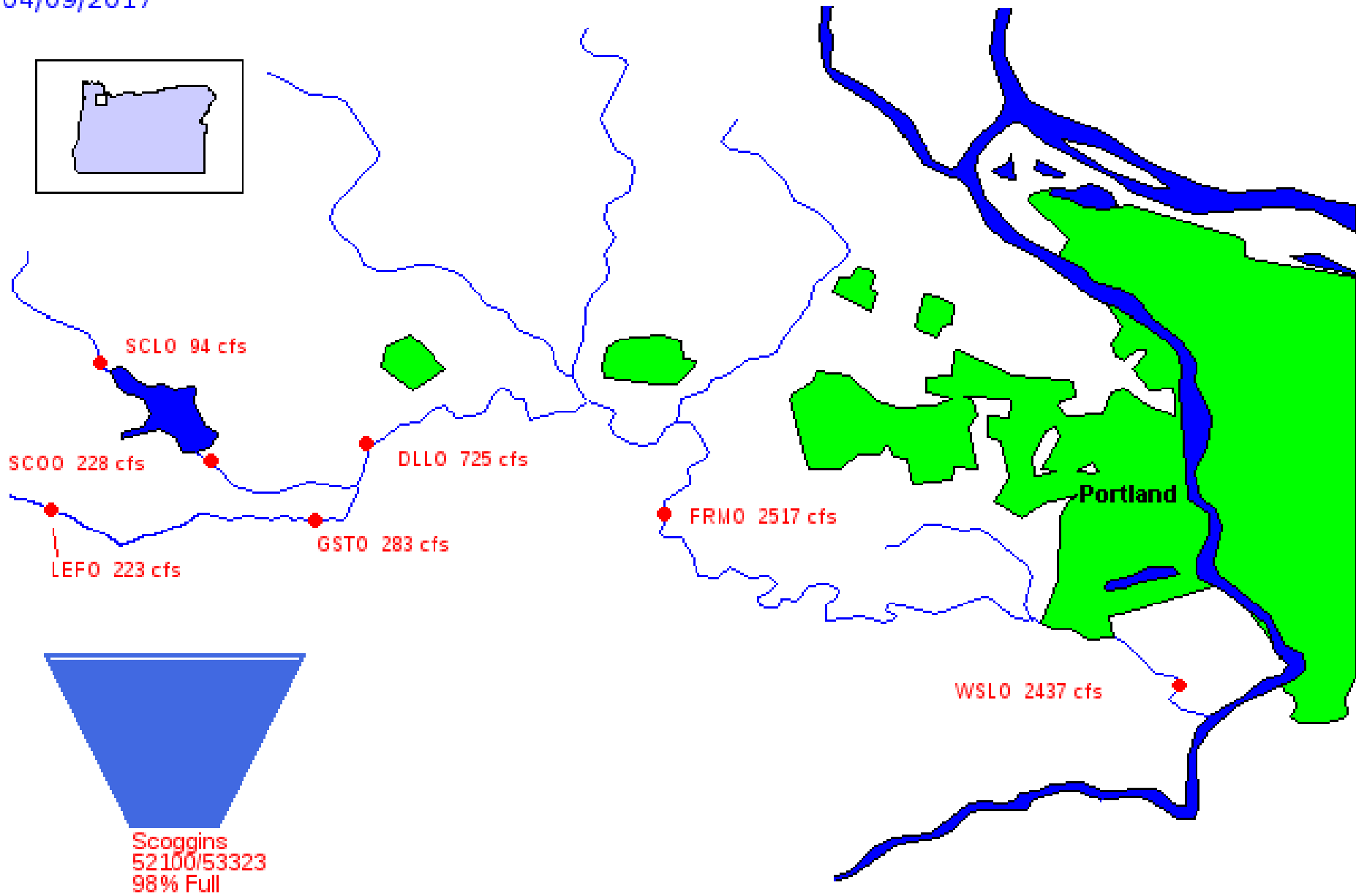
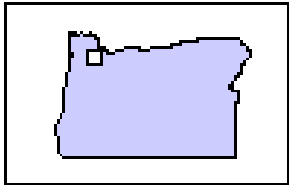
NRCS Basin

-
- County



NRCS Basinwide Summary: April 1, 2017
(averages based on 1981-2010 reference period)

04/09/2017

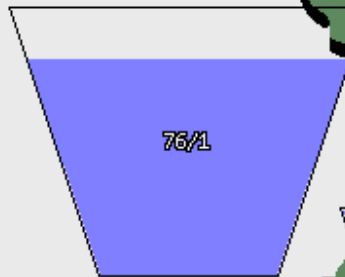


The Willamette Basin

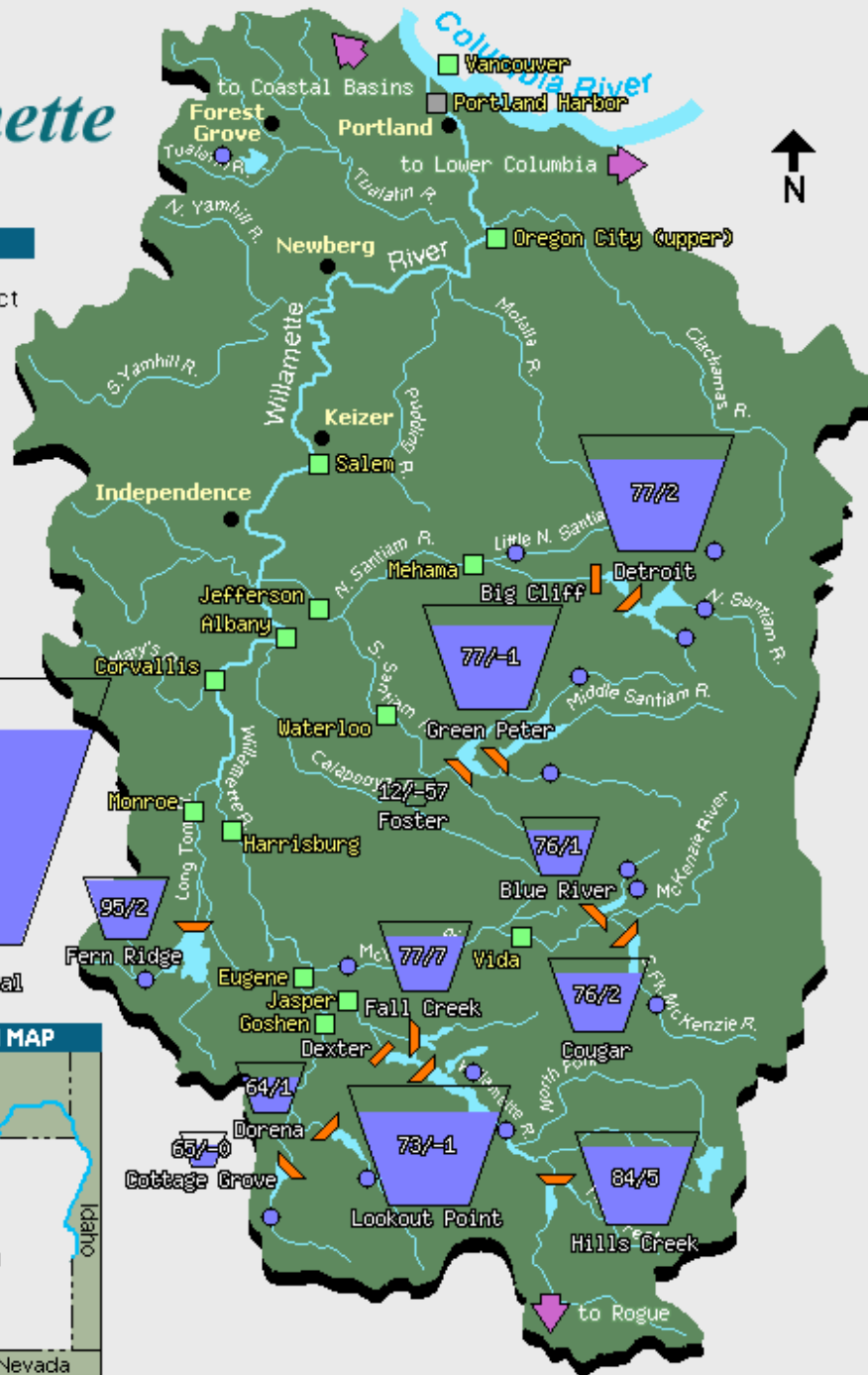
LEGEND

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

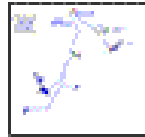
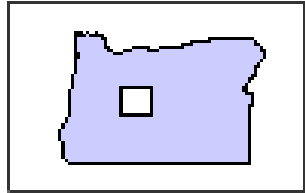
Overview



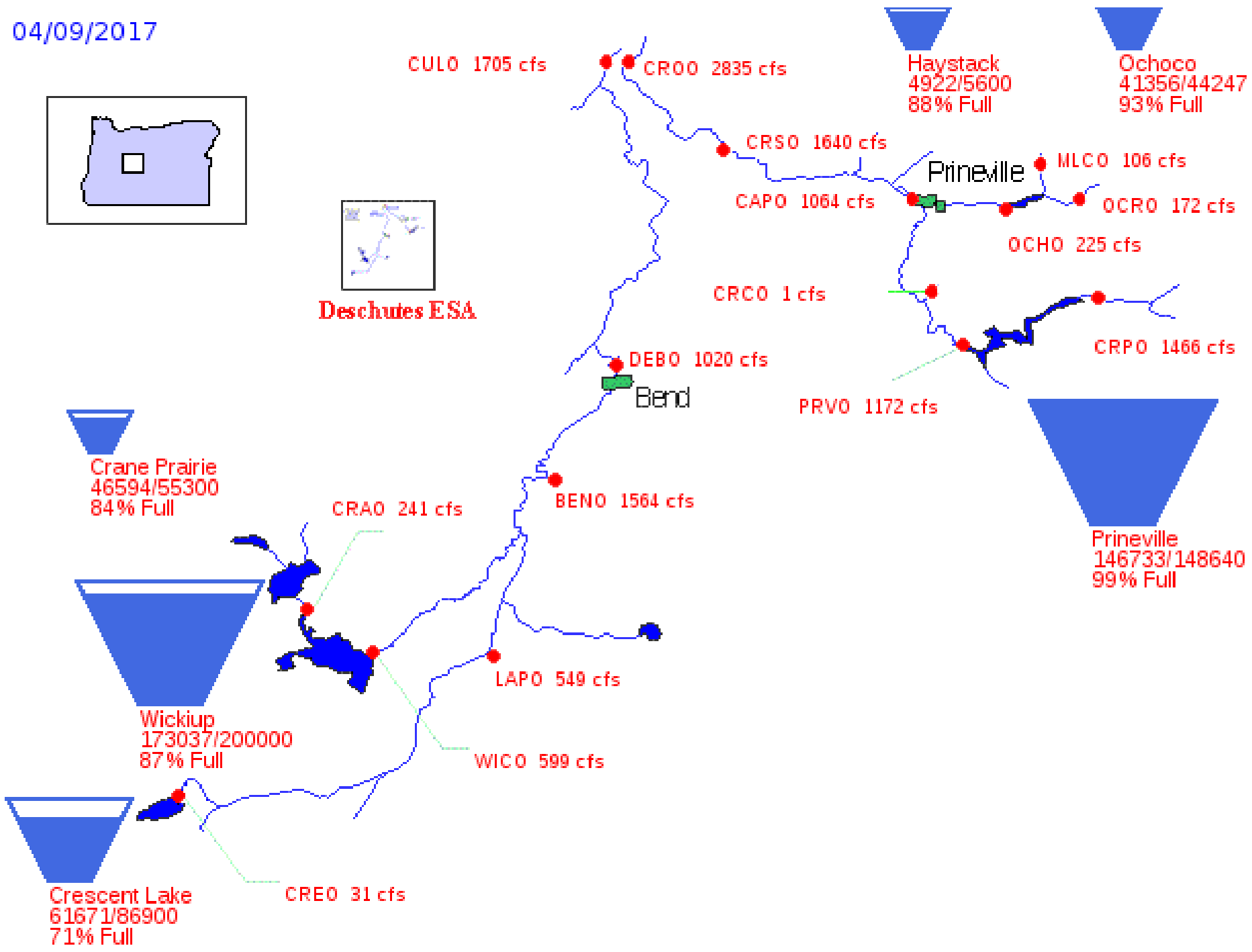
Willamette Total

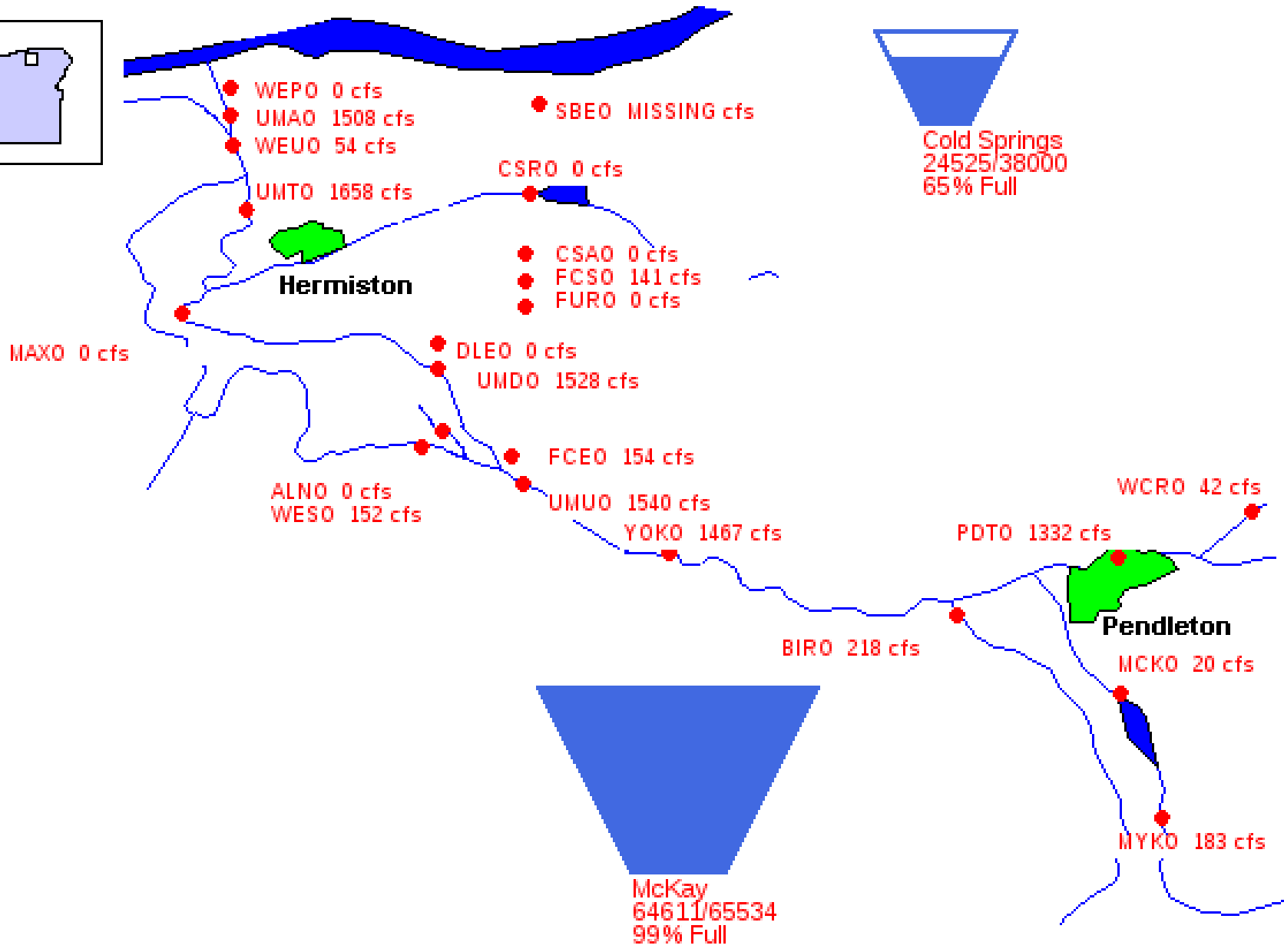
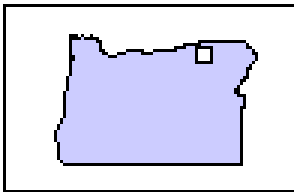


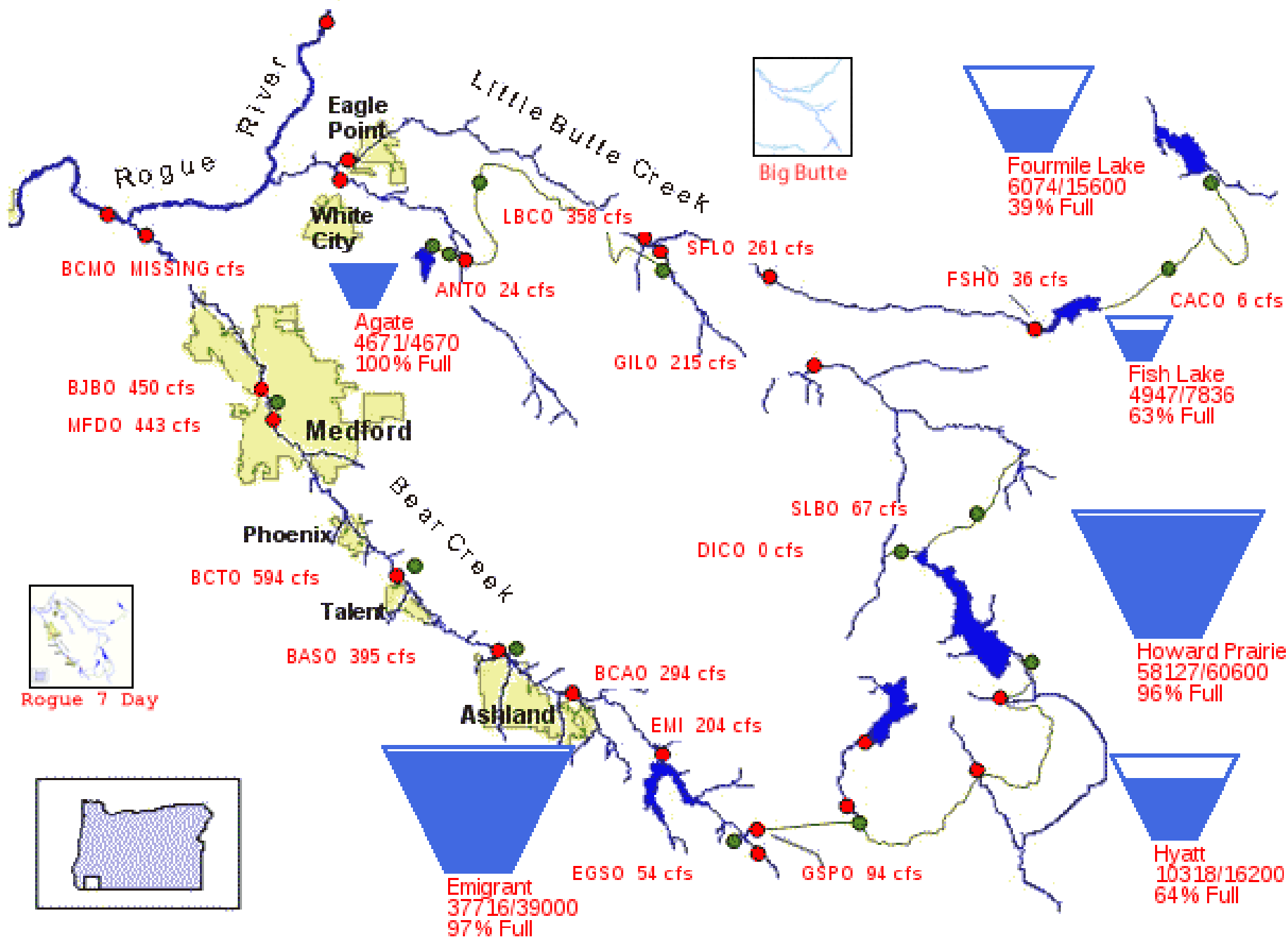
04/09/2017



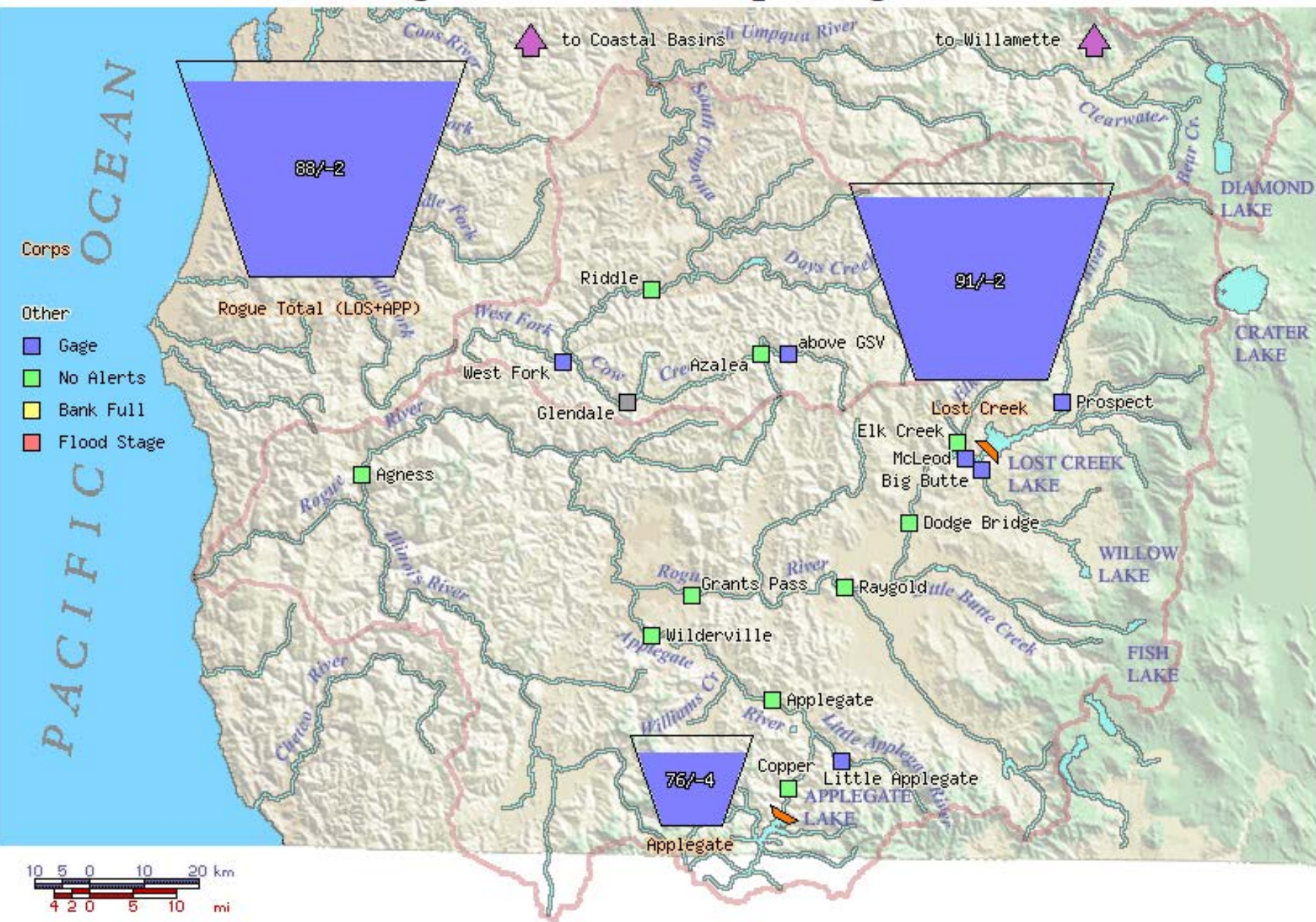
Deschutes ESA



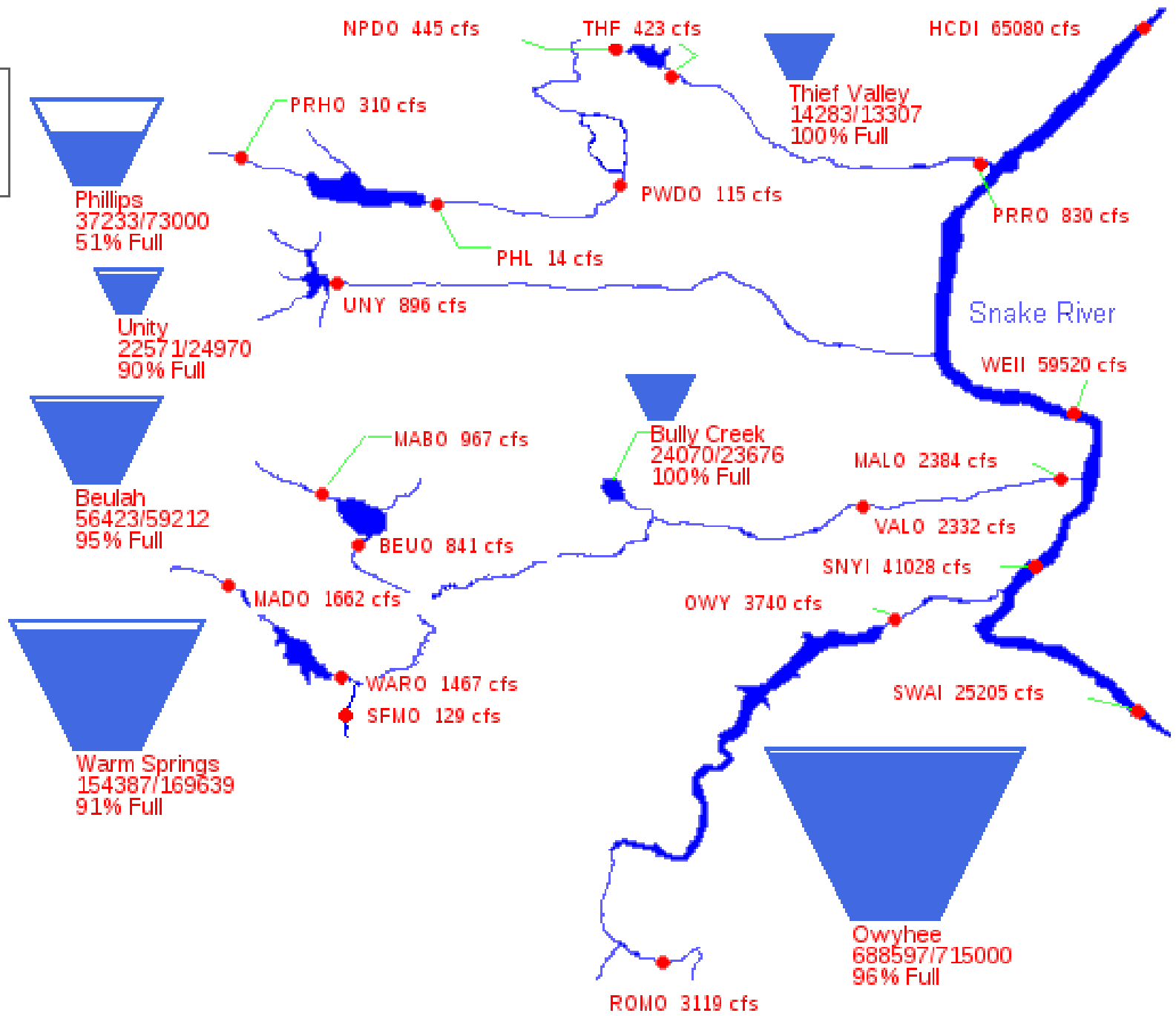
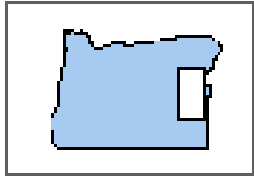


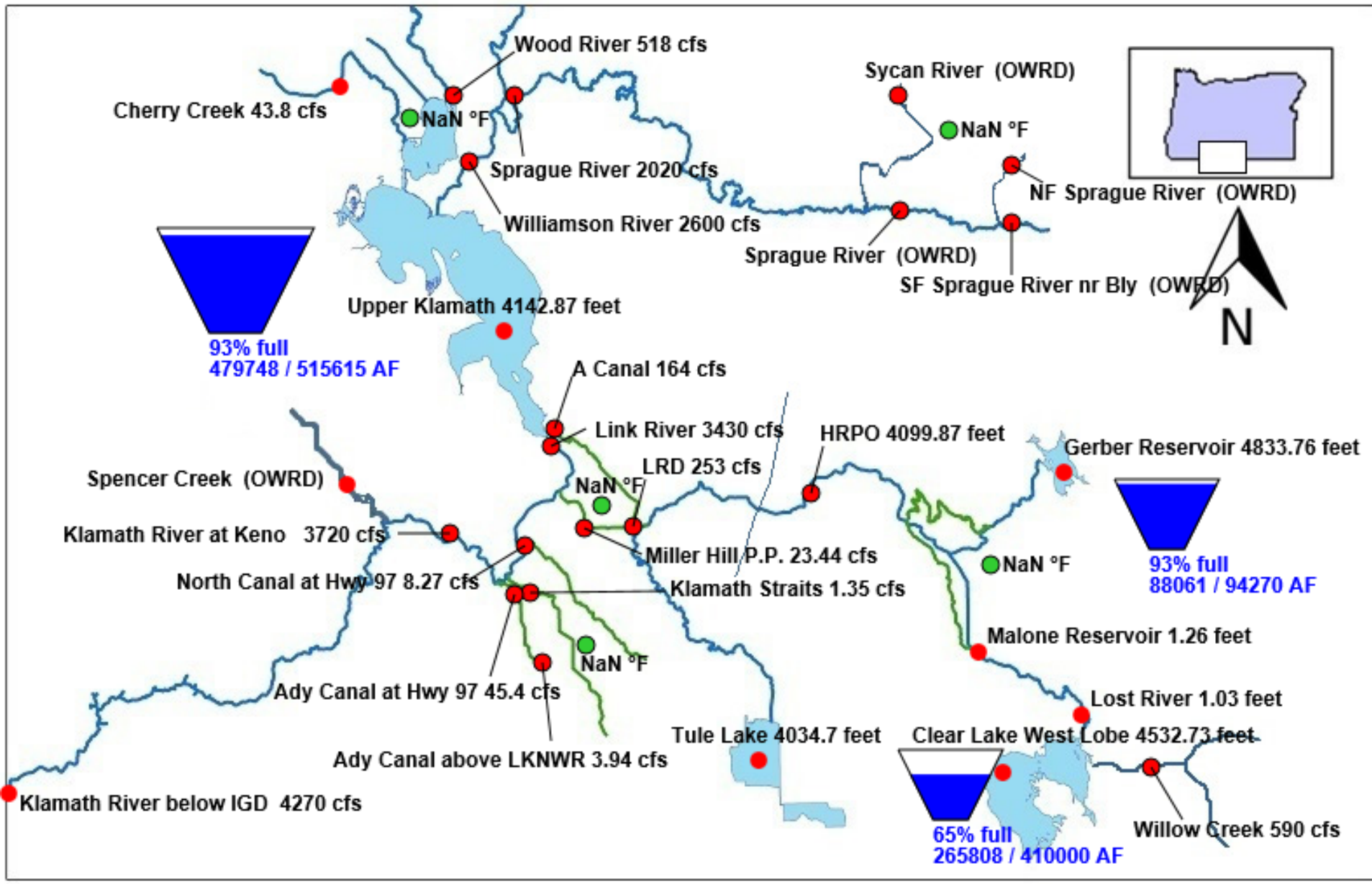


Rogue Basin Teacup Diagram



04/09/2017





Thank You

Surface Water Conditions Report
Water Supply Availability Committee



Ken Stahr
Oregon Water Resources
Department
April 11, 2017

Water Supply Availability Committee

April 2017

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.



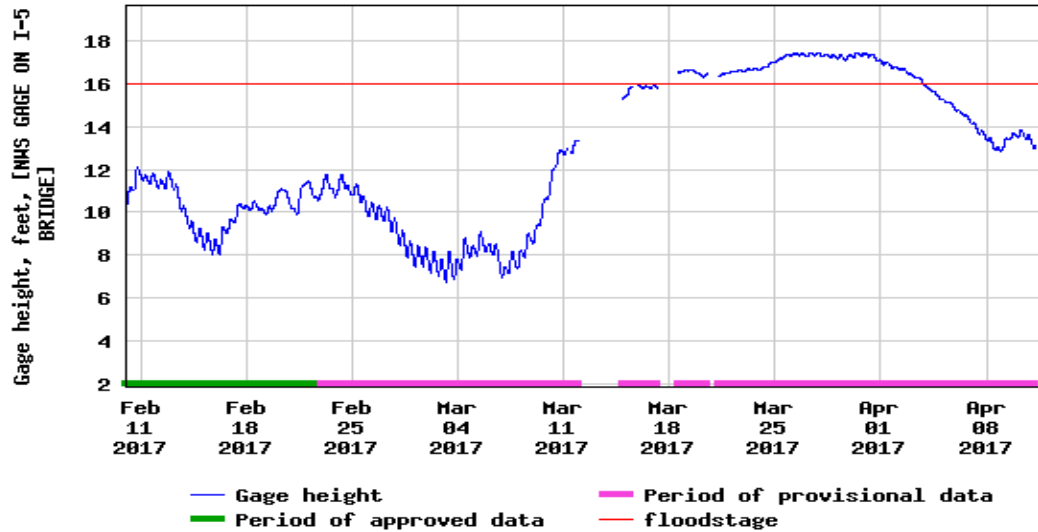
WAC April 2017

Columbia River at I-5 bridge

Gage height, feet, [NWS GAGE ON I-5 BRIDGE]

Most recent instantaneous value: 13.10 04-11-2017 05:30 PDT

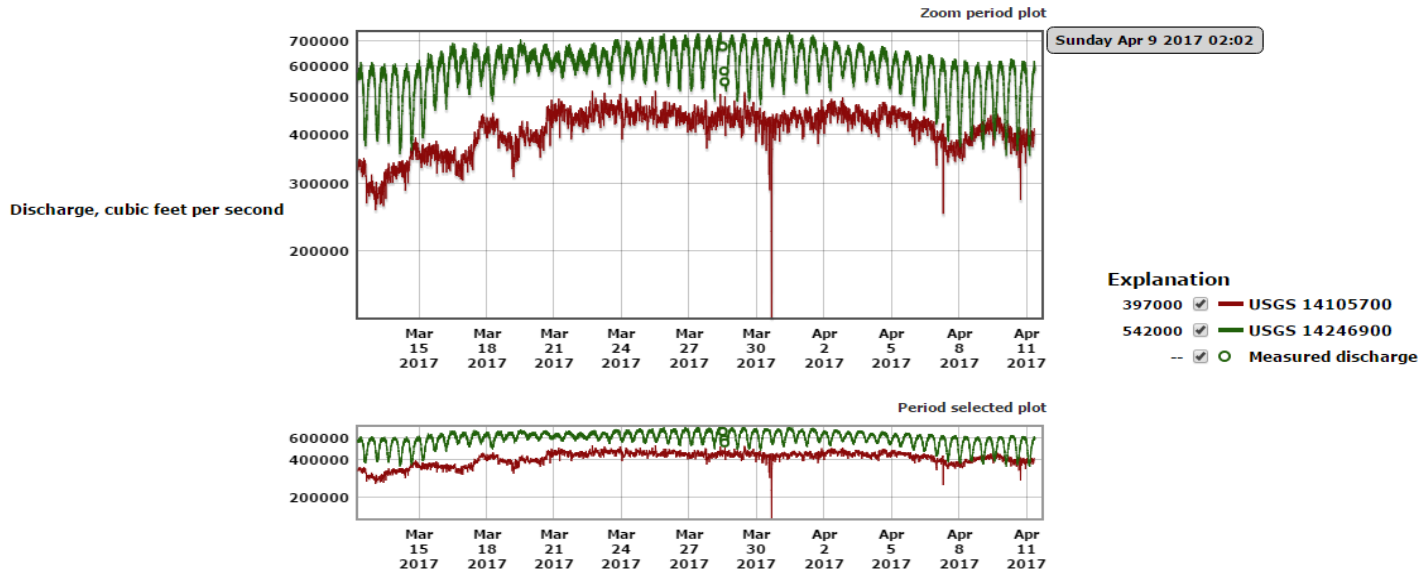
USGS 14144700 COLUMBIA RIVER AT VANCOUVER, WA



A
" E
E
n
a
n
t

USGS 14105700 COLUMBIA RIVER AT THE DALLES, OR

USGS 14246900 COLUMBIA RIVER @ BEAVER ARMY TERMINAL NR QUINCY, OR , [FROM DOLPHIN ARGONAUT]



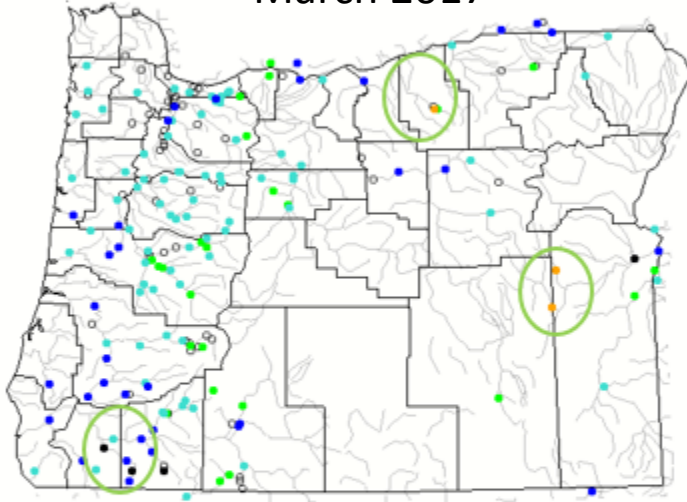
Sunday Apr 9 2017 02:02

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

Oregon or Water-Resources Regions

Monday, March 13, 2017

March 2017



Search USGS streamgage

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

- List of all stations
- Single station
- Nearest stations

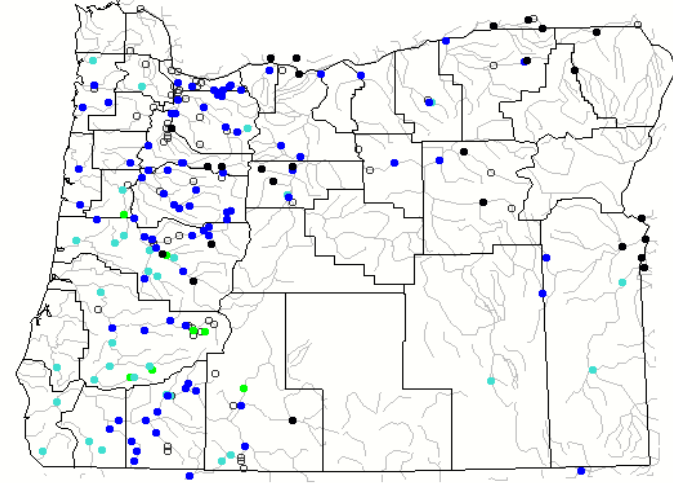
| Explanation - Percentile classes | | | | | | | |
|----------------------------------|-------------------|--------------|--------|--------------|-------------------|------|------------|
| | | | | | | | |
| Low | <10 | 10-24 | 25-75 | 76-90 | >90 | High | Not-ranked |
| | Much below normal | Below normal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

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

Oregon or Water-Resources Regions

Monday, April 10, 2017

Current April 2017



Search USGS streamgage

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

- List of all stations
- Single station
- Nearest stations

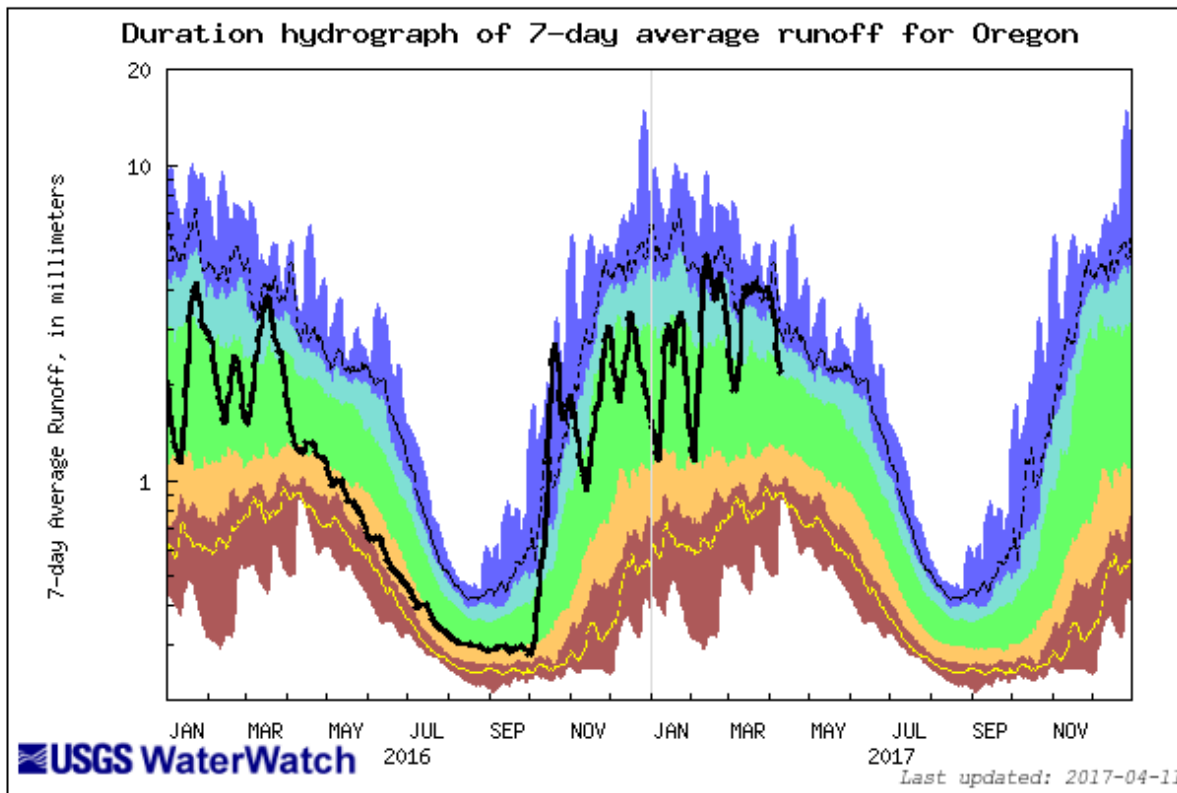
| Explanation - Percentile classes | | | | | | | |
|----------------------------------|-------------------|--------------|--------|--------------|-------------------|------|------------|
| | | | | | | | |
| Low | <10 | 10-24 | 25-75 | 76-90 | >90 | High | Not-ranked |
| | Much below normal | Below normal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

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

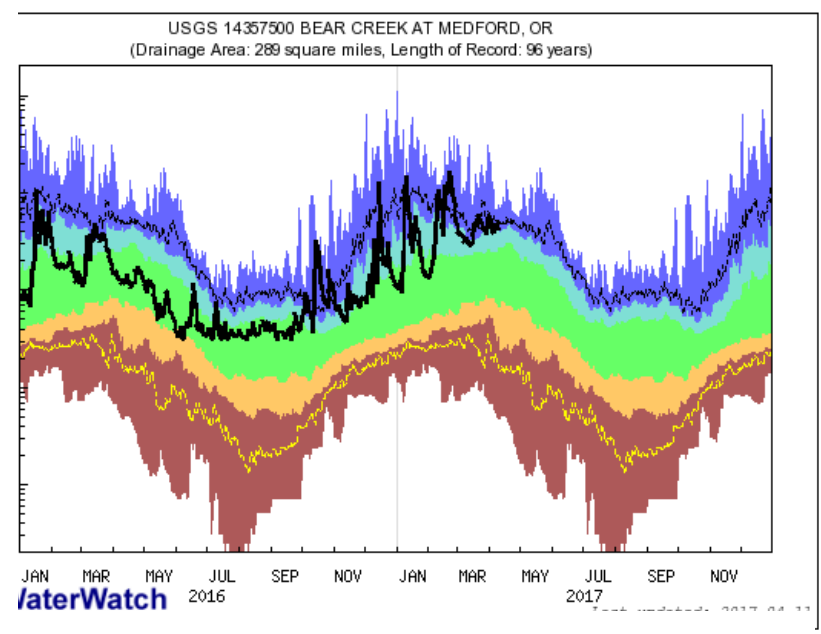
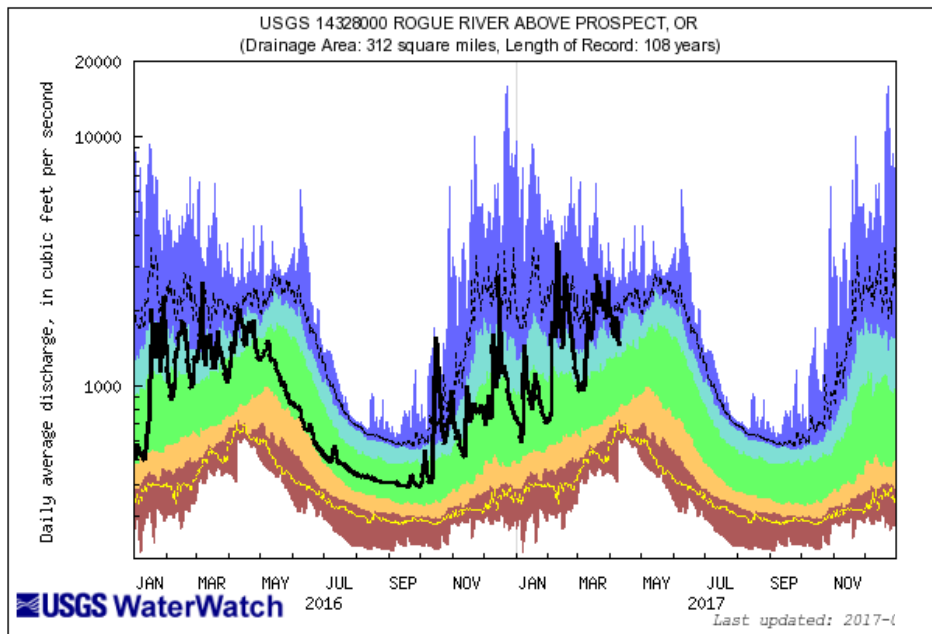
USGS Area-Based Runoff Duration Hydrograph Builder

| | | | | | |
|--|-------------------|--------------------------|-----------------------|--------------------|----|
| State Oregon | Water Res. Region | Year: 2017 | Runoff type: 7-day | No. of years: 2 | GO |
| Draw 5th and 95th percentiles as: Line | | 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.

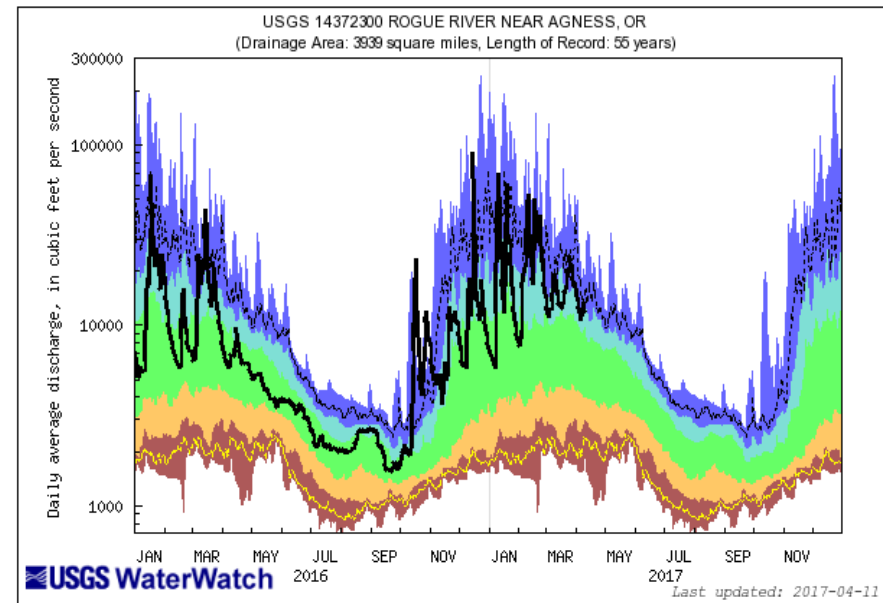


| Explanation - Percentile classes | | | | | | | |
|----------------------------------|--------------|--------|--------------|-------------------|----|-------------------------|--------|
| lowest-10th percentile | 5 | 10-24 | 25-75 | 76-90 | 95 | 90th percentile-highest | Runoff |
| Much below Normal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



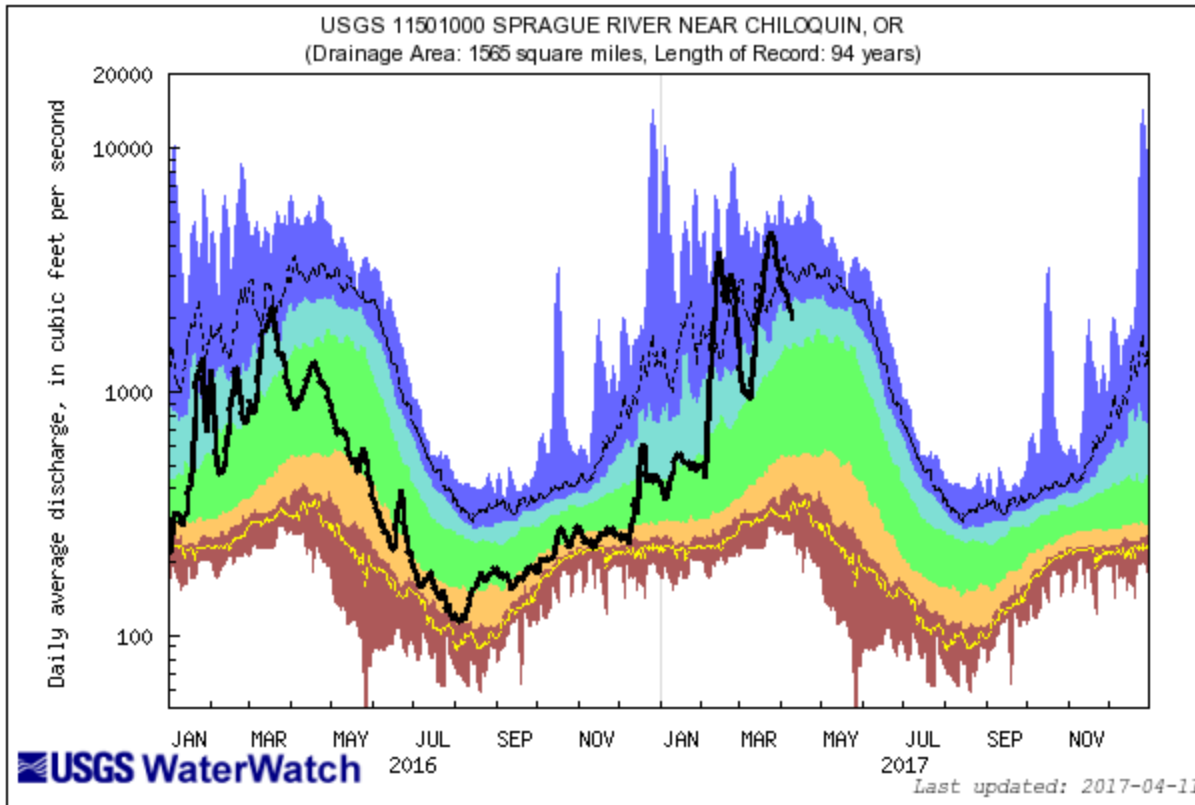
| Explanation - Percentile classes | | | | | | | |
|----------------------------------|--------------|--------|--------------|-------------------|----|-------------------------|------|
| lowest-10th percentile | 5 | 10-24 | 25-75 | 76-90 | 95 | 90th percentile-highest | Flow |
| Much below Normal | Below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

Southern Oregon



| 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 | | | |

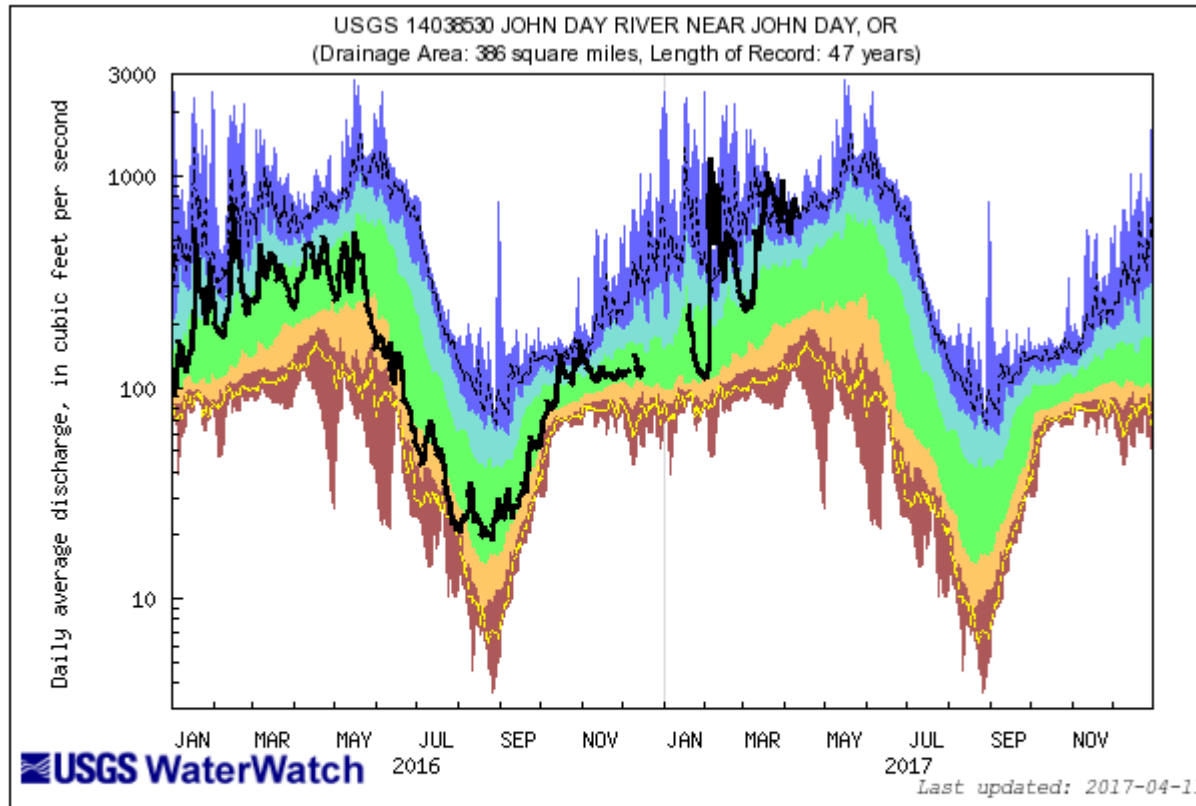
Klamath



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 | |

John Day



| 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 | | | |

| Station | NRCS SWSI Basin | Monthly mean discharge | | Change in dis- charge from previous month (percent) | Accumulated Runoff For the Period Oct. to Mar. Percent of average |
|--|------------------------------|-----------------------------|--------------------------|---|---|
| | | Cubic feet per second | Percent of average | | |
| Donner Und Blitzen nr Frenchglen | Harney | 185 | 109 | 85 | 88 |
| (*)Deep Creek above Adel | Lake County | 858 | 336 | 46 | 266 |
| (*)Chewaucan River near Paisley | Lake County | 747 | 352 | 75 | 261 |
| Williamson River near Chiloquin | Klamath | 3,022 | 175 | 31 | 125 |
| Owyhee River near Rome | Owyhee | 4,046 | 150 | -10 | 182 |
| (*)NF Malheur River near Beulah | Malheur | 786 | 299 | 438 | 187 |
| Grande Ronde R at Troy | Grande Ronde Powder/Burnt | 12,640 | 268 | 163 | 167 |
| Umatilla River nr Gibbon | Umatilla Lower John Day | 1,131 | 262 | 114 | 158 |
| John Day River at Service Crk | Upper John Day | 9,457 | 215 | 63 | 166 |
| (*)Little Deschutes River nr LaPine | Upper Deschutes | 373 | 178 | 136 | 110 |
| Hood River nr Hood River | Lower Deschutes Mt.Hood | 2,655 | 209 | 122 | 103 |
| Willamette River at Salem | Willamette | 60,940 | 226 | 6 | 135 |
| Wilson River near Tillamook | North Coast | 3,728 | 228 | 12 | 148 |
| Umpqua River near Elkton | Rogue/Umpqua | 20,950 | 191 | -15 | 162 |
| Rogue River near Agness | Rogue/Umpqua | 15,830 | 201 | -39 | 207 |
| SF Coquille River at Powers | South Coast | 2,254 | 175 | -36 | 181 |
| Chetco River near Brookings | South Coast | 6,479 | 178 | -28 | 160 |

All data should be considered provisional and subject to revision.
Percent of average computed using 30-year base period, water years 1981-2010.
(*) provided by Oregon Water Resources Department

4/4/2017

Water
Availability
Report
linked below

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

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