



Drought Update

Columbia River Policy Advisory Group

Jeff Marti

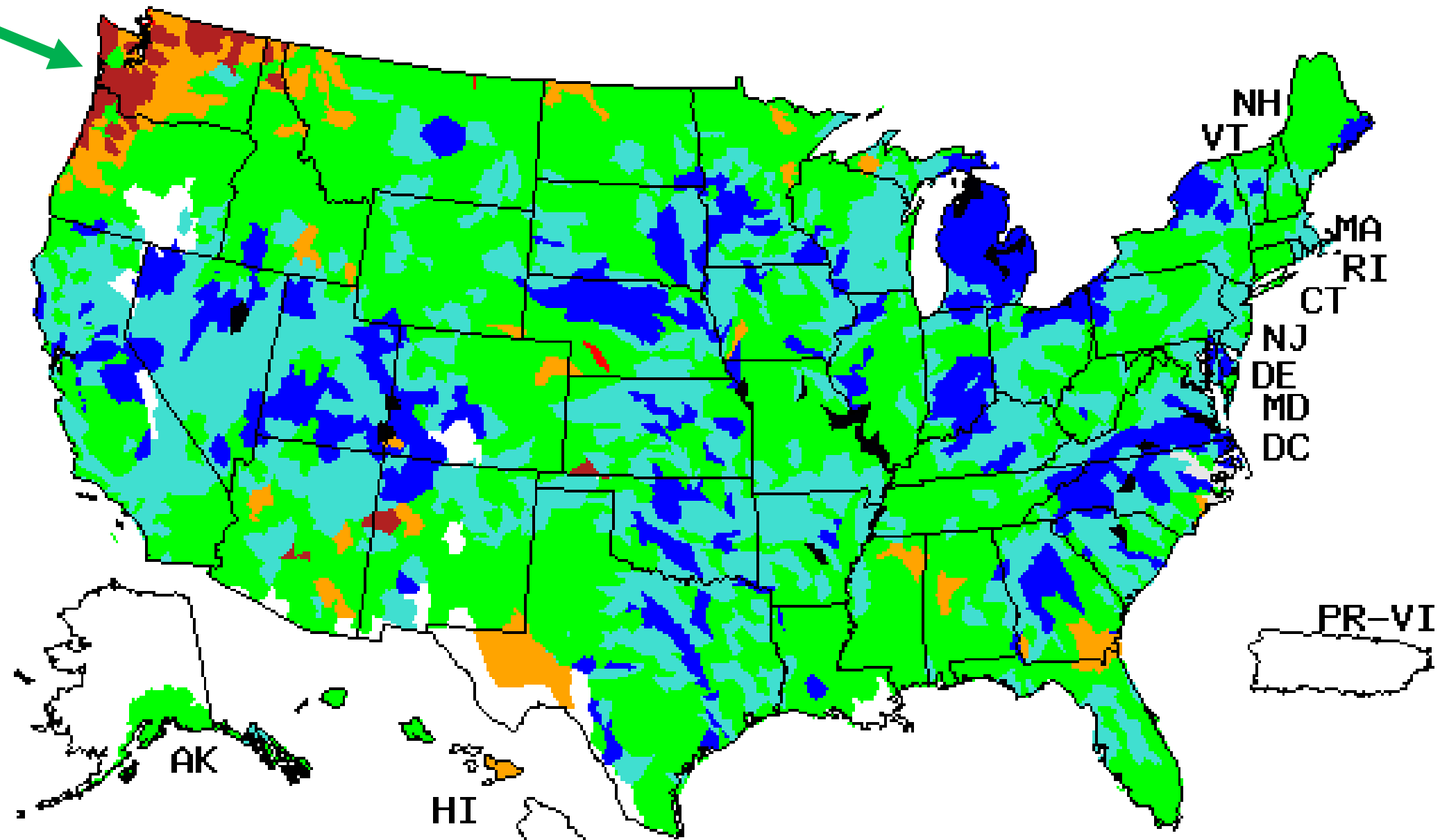
Department of Ecology

June 20, 2019

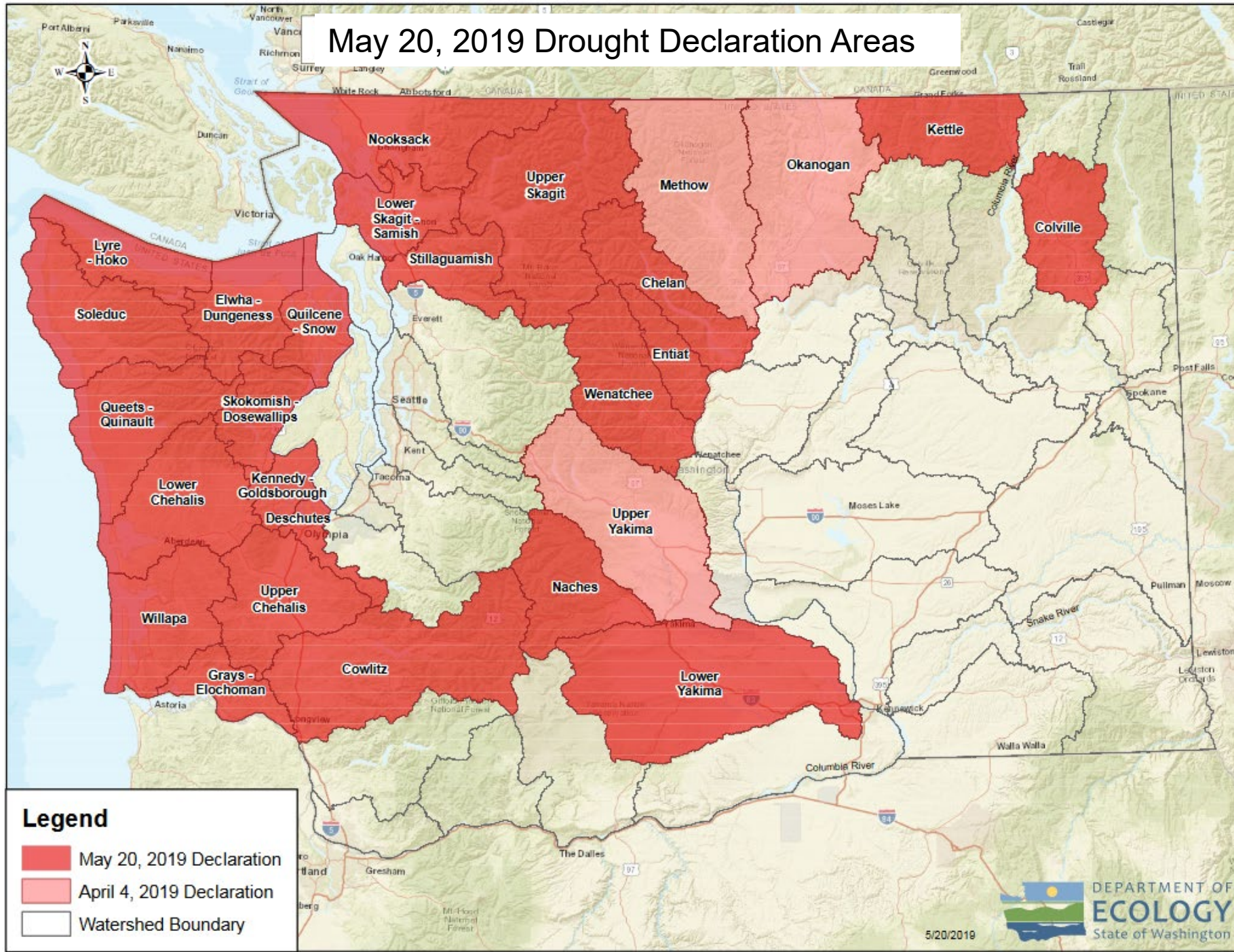
The Evergreen State

Sunday, June 16, 2019


Drought in U.S.



May 20, 2019 Drought Declaration Areas



Washington State's Drought Trigger



Less than
75 Percent
of Normal
Water
Supply



Drought



Hardship

RCW 43.83B.400

Normal Water Supply



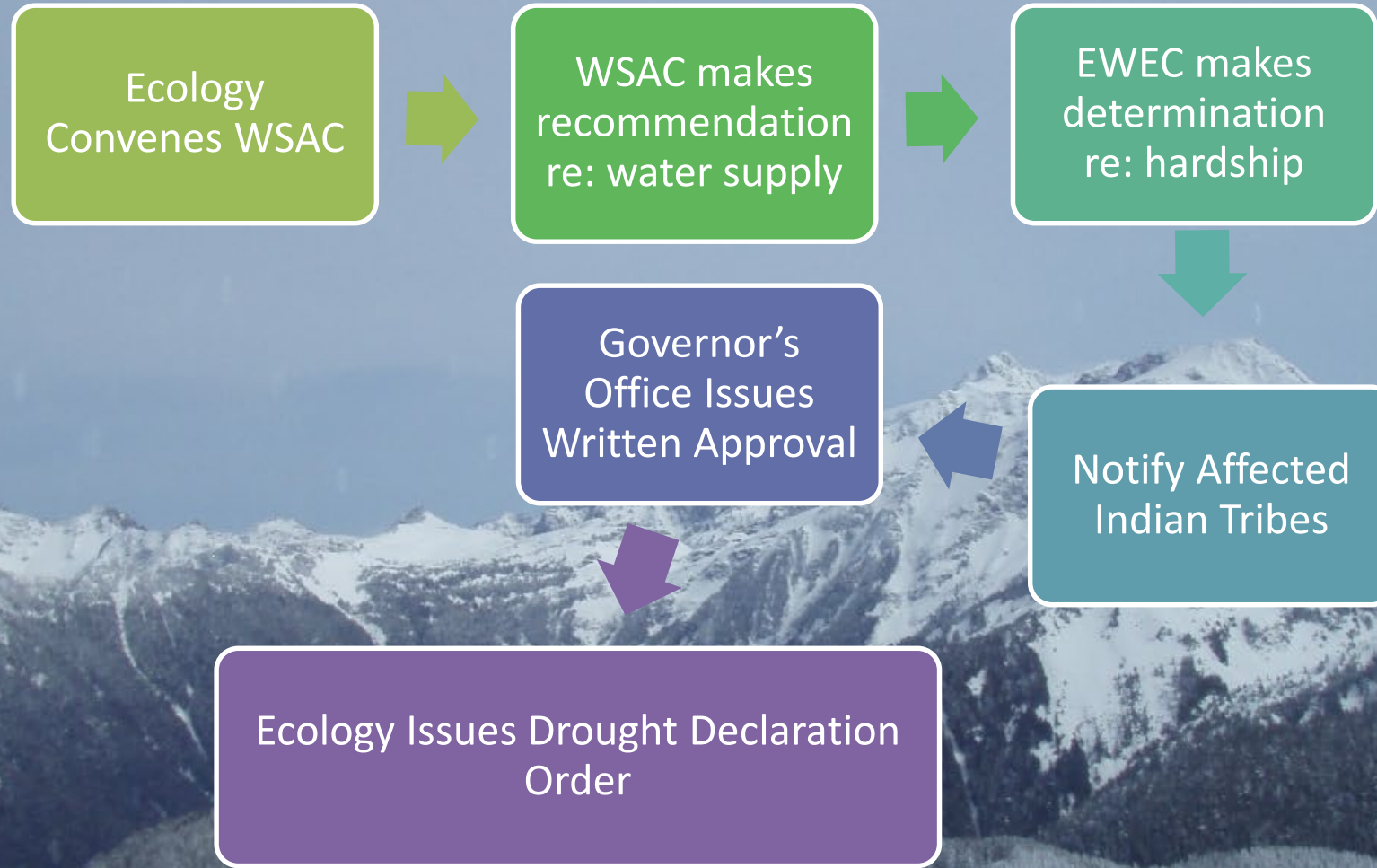
“...the median amount of water available to a geographical area, relative to the most recent thirty-year base period used to define climate normals.”

forecasts Are in KAF

	90 %	50 %	% Average	10 %	(1980-2010)
SEP	62122	62629	68	63933	9271
2-JUL	53285	53318	67	53358	7985
1-AUG	58186	58585	67	58956	8753
SEP	92483	92993	81	94329	111496
	83777	83810	83	83850	
	111496		85	112000	

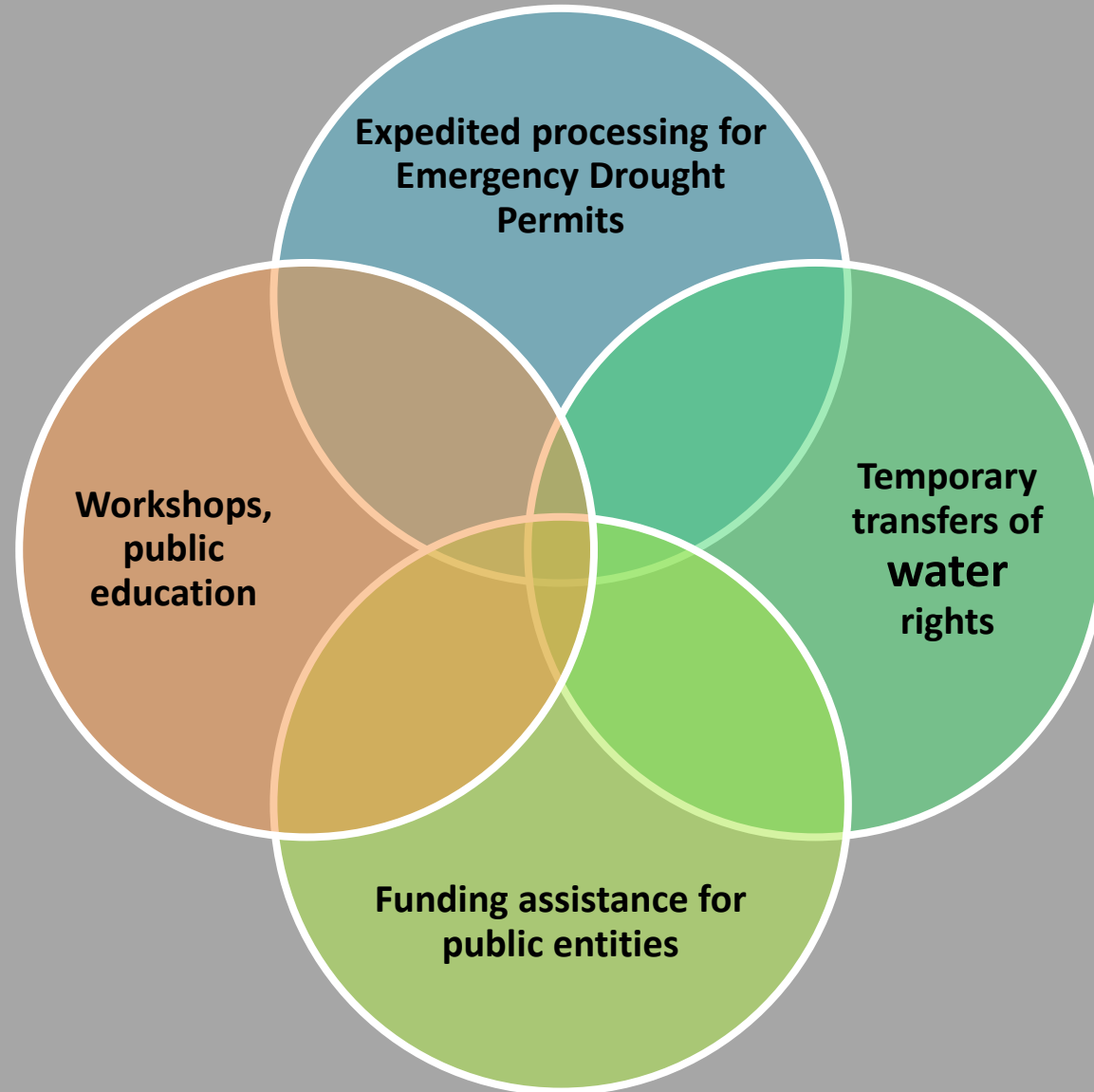
The determination of drought conditions will consider seasonal water supply forecasts, other relevant factors and also may consider extreme departures from normal conditions over sub-seasonal time frames.

Drought
Declaration
Flowchart



WSAC = Water Supply Availability Committee (Technical)
EWEC = Executive Water Emergency Committee (Policy)

Effect of Drought Order



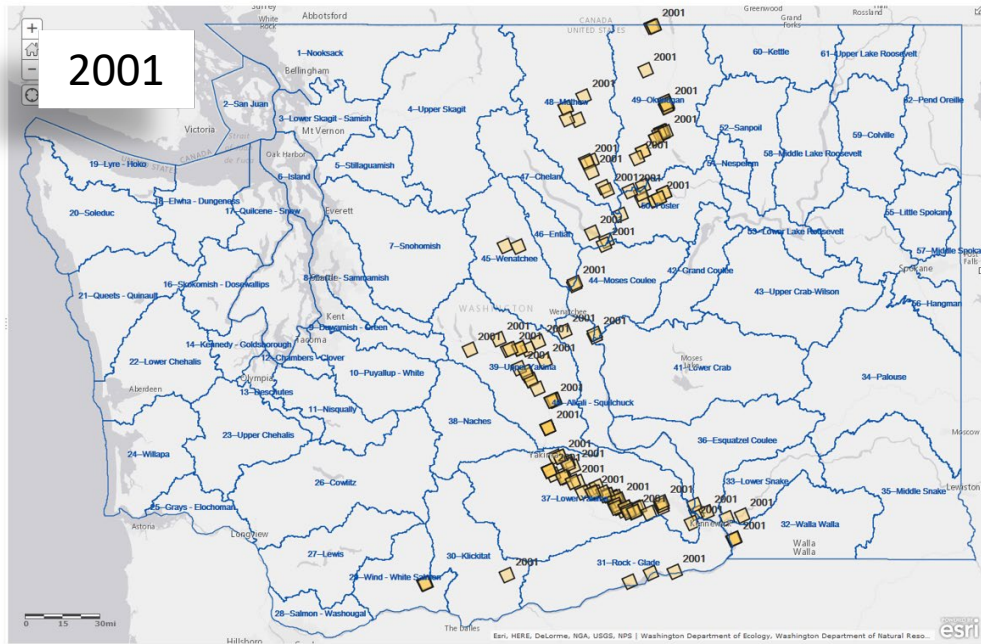
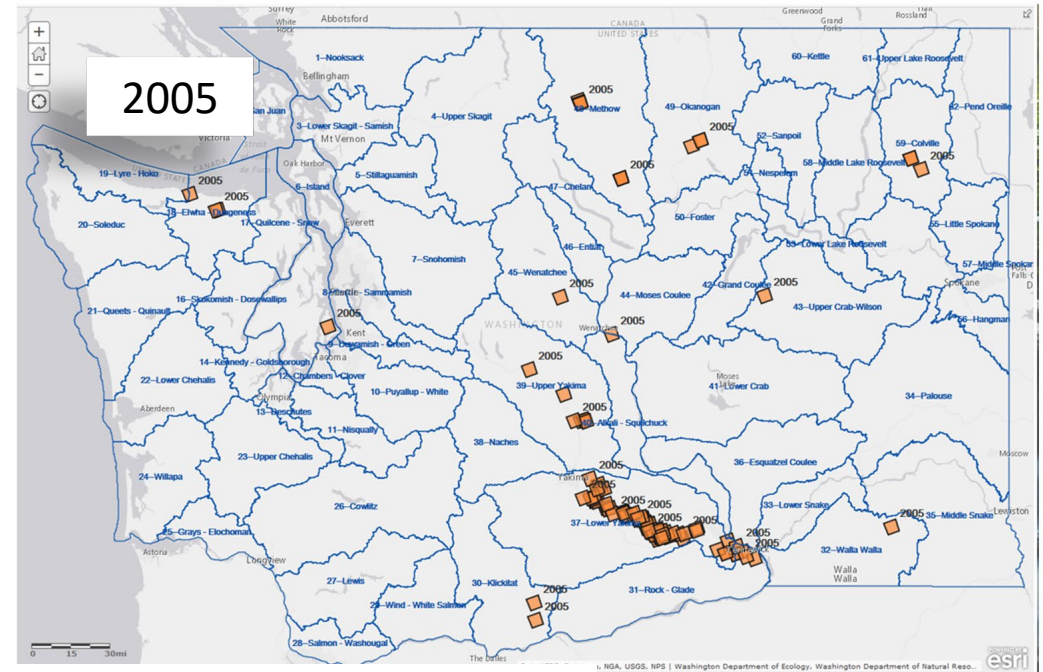


Figure 25 Emergency Drought Permit Authorizations 2001 (169 total)



Count of emergency drought Permits during previous statewide drought years

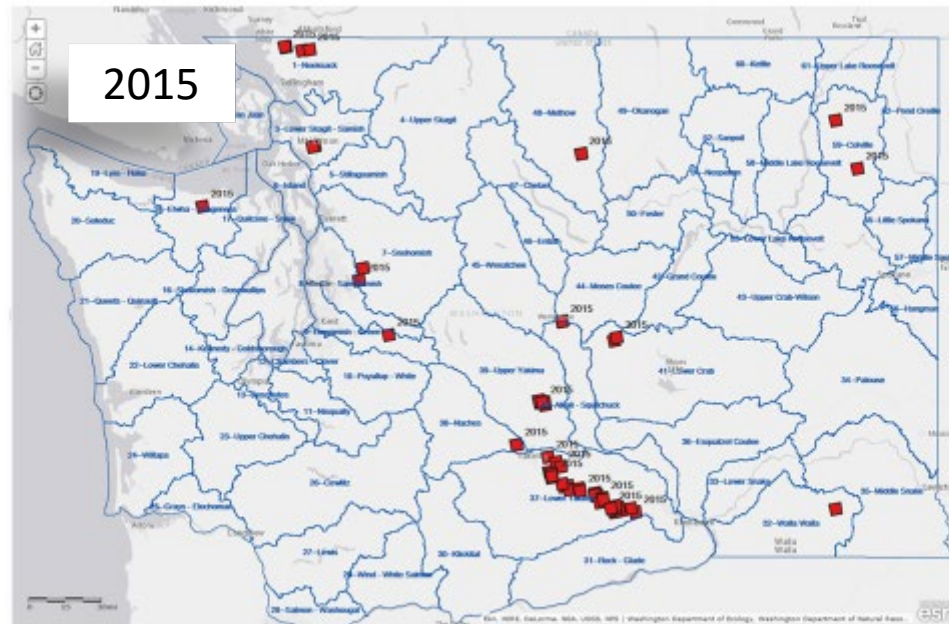
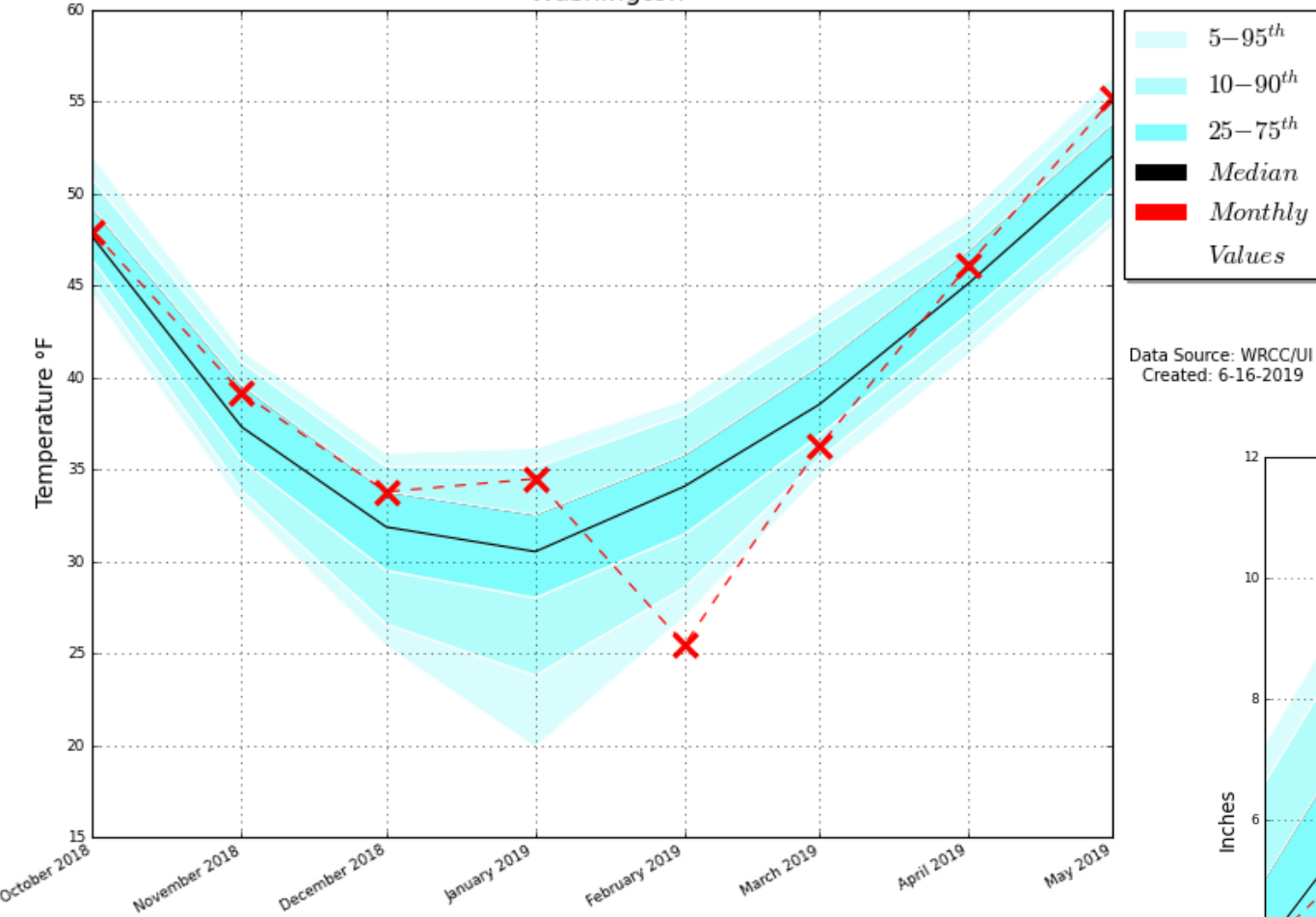


Figure 27 Emergency Drought Authorizations 2015 (71 total)

Mean Temperature, 8-Months Ending in May, 2019
Washington

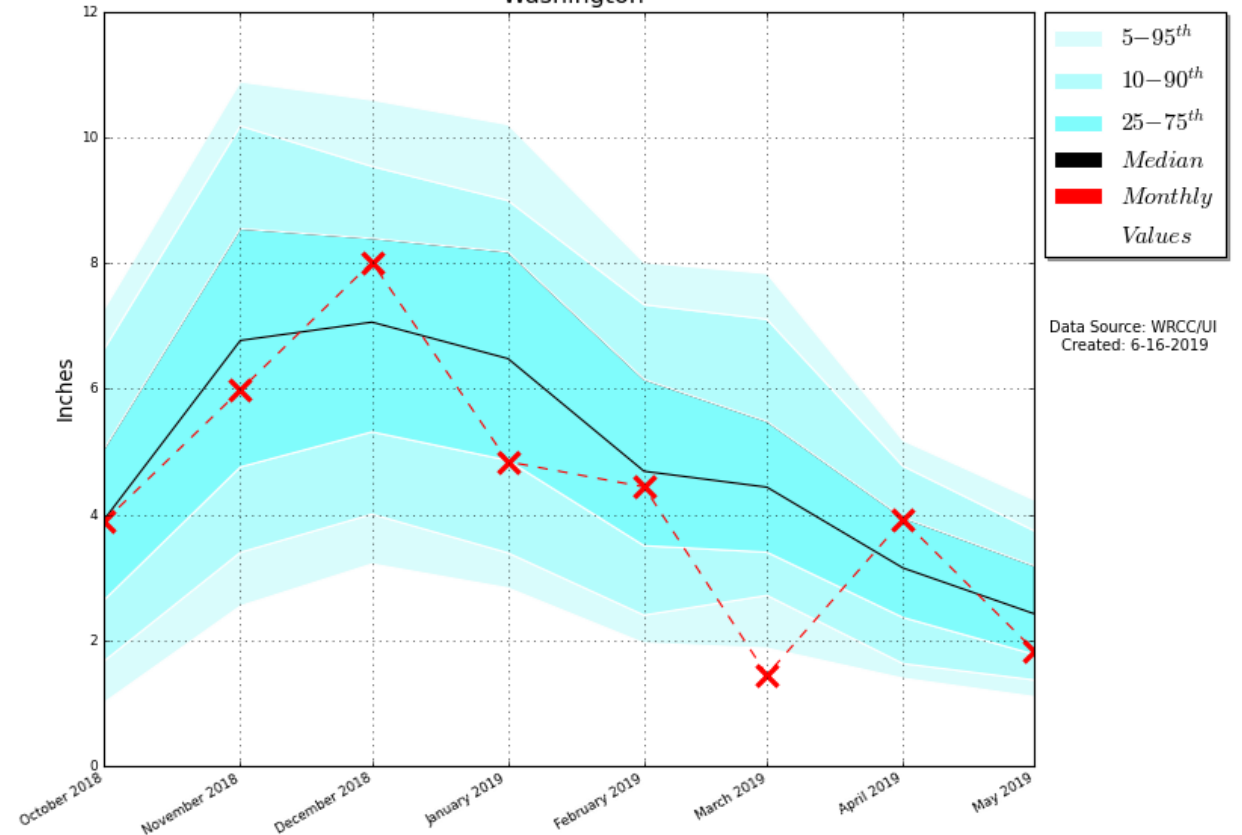


Data Source: WRCC/UI
Created: 6-16-2019

- Oct – May: 38th Warmest
- January: 14th Warmest
- February: 5th Coldest
- May: 9th Warmest

Oct – May: 25th Driest
Jan – May: 13th Driest
March: 4th Driest

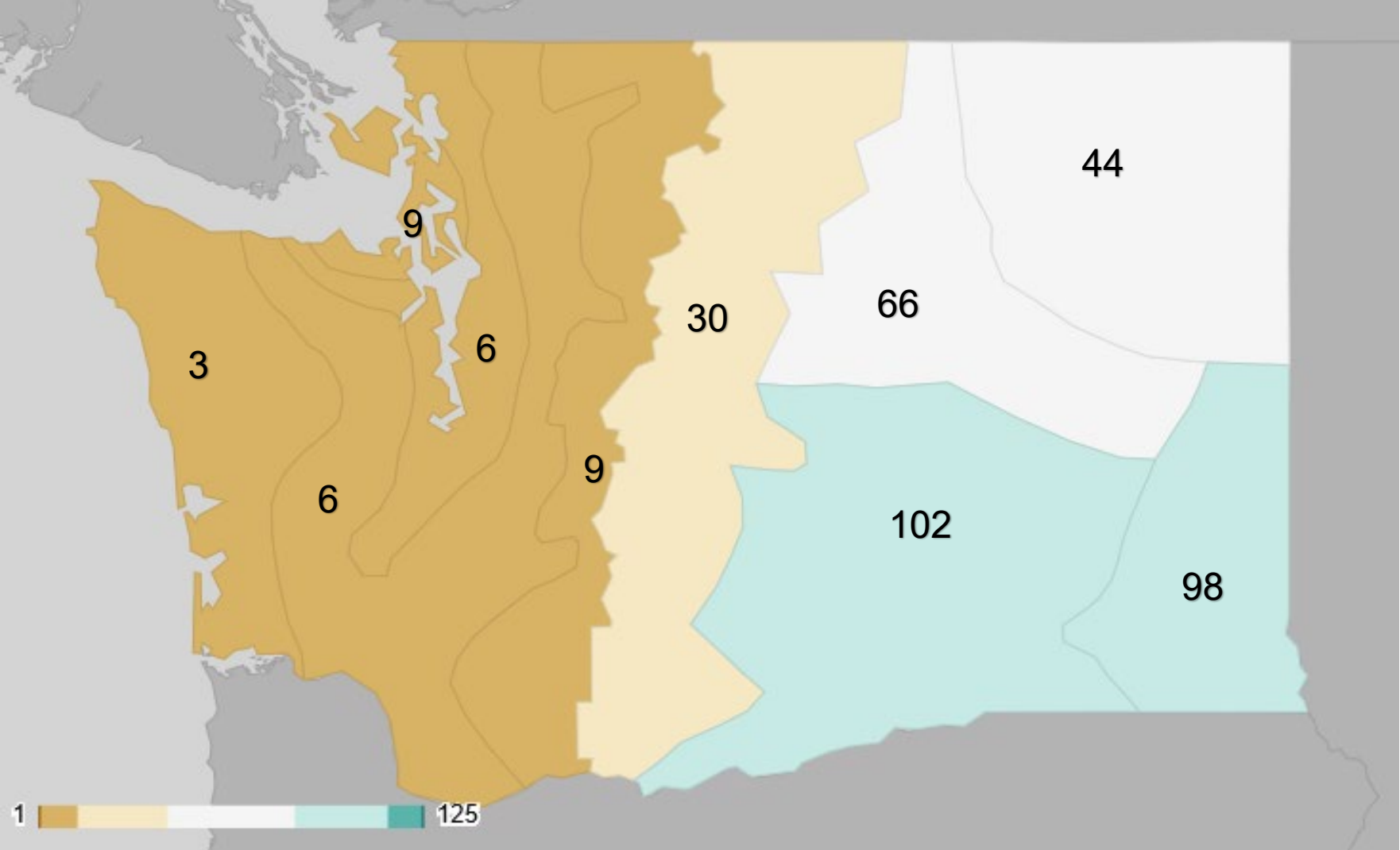
Precipitation, 8-Months Ending in May, 2019
Washington



Data Source: WRCC/UI
Created: 6-16-2019

Driest to Wettest 1895-2019: How does this year compare?

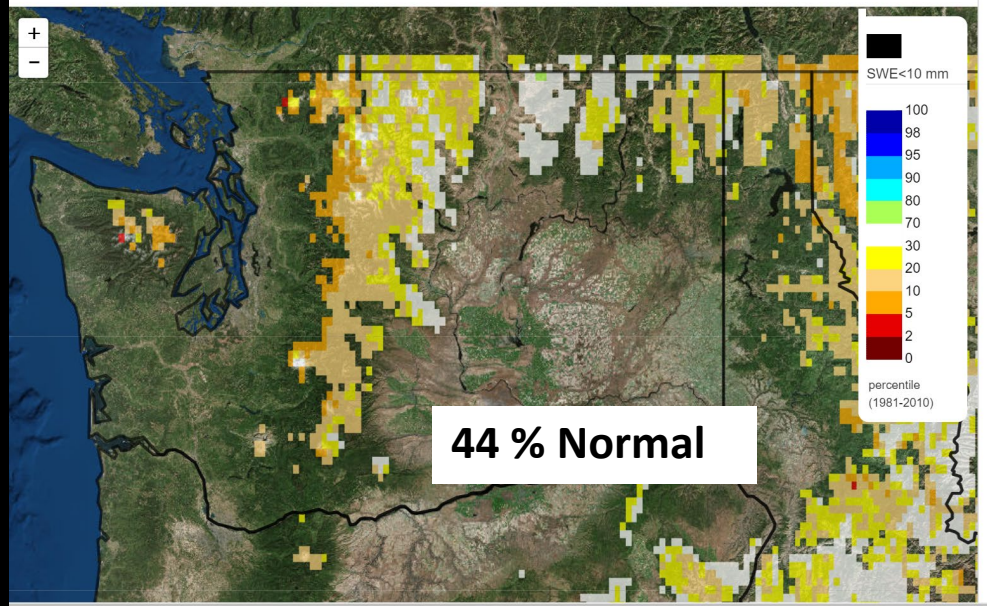
Divisional Precipitation Ranks, January - May



NOAA National Centers for Environmental information, Climate at a Glance: Divisional Mapping, published June 2019, retrieved on June 15, 2019 from <https://www.ncdc.noaa.gov/cag/>

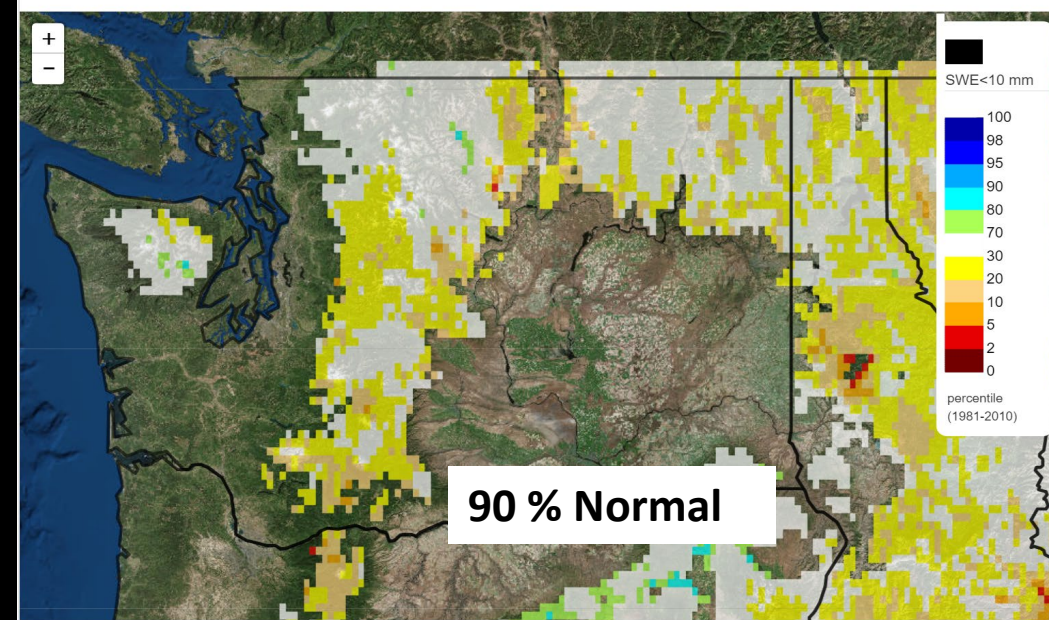
Snow Water Equivalent Percentile

2018/12/01



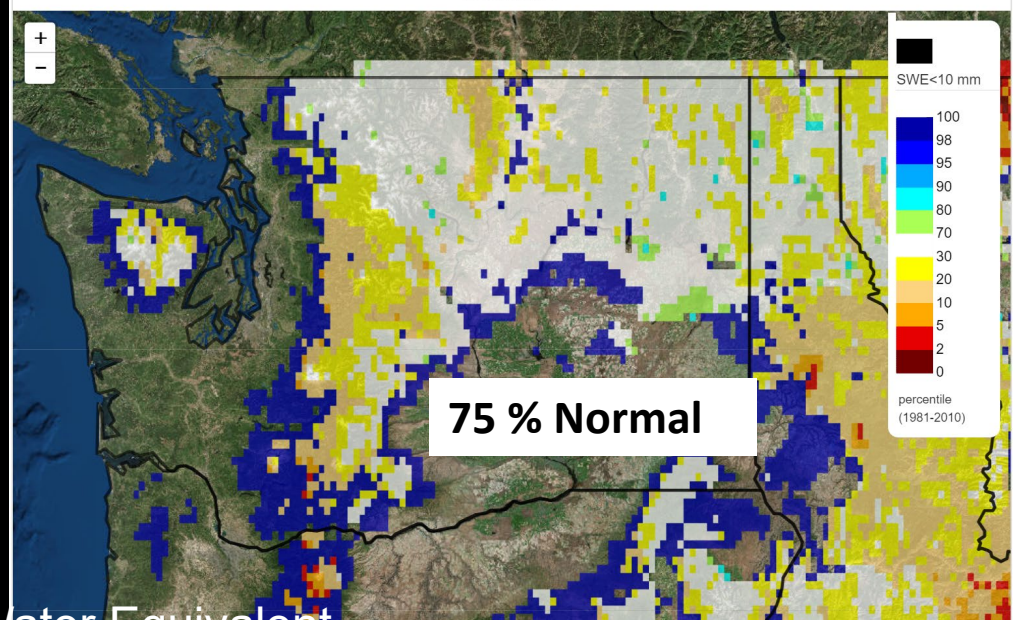
Snow Water Equivalent Percentile

2019/01/01



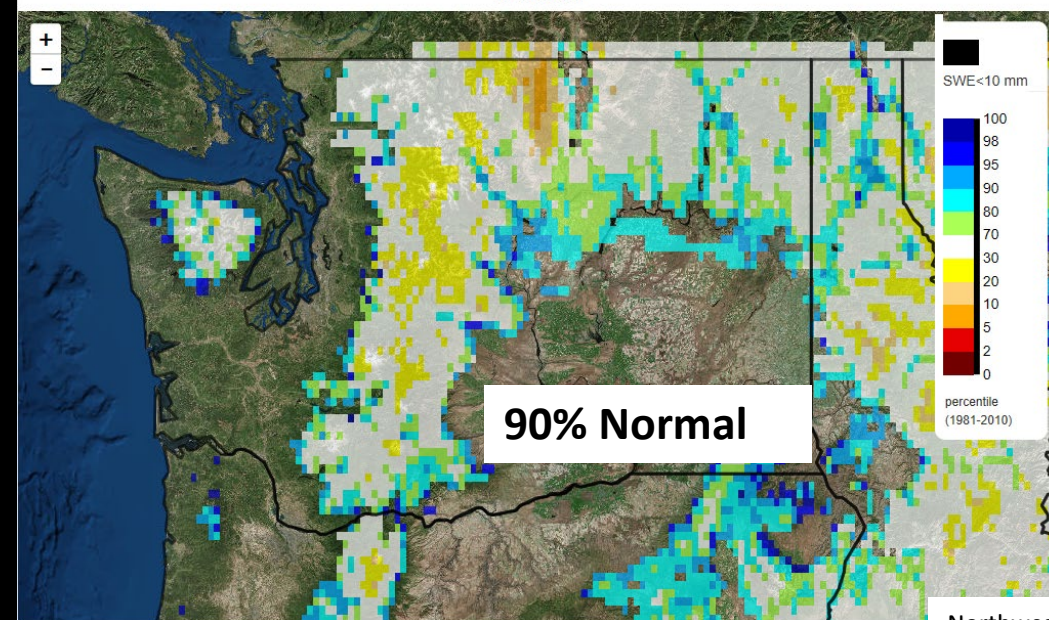
Snow Water Equivalent Percentile

2019/02/01



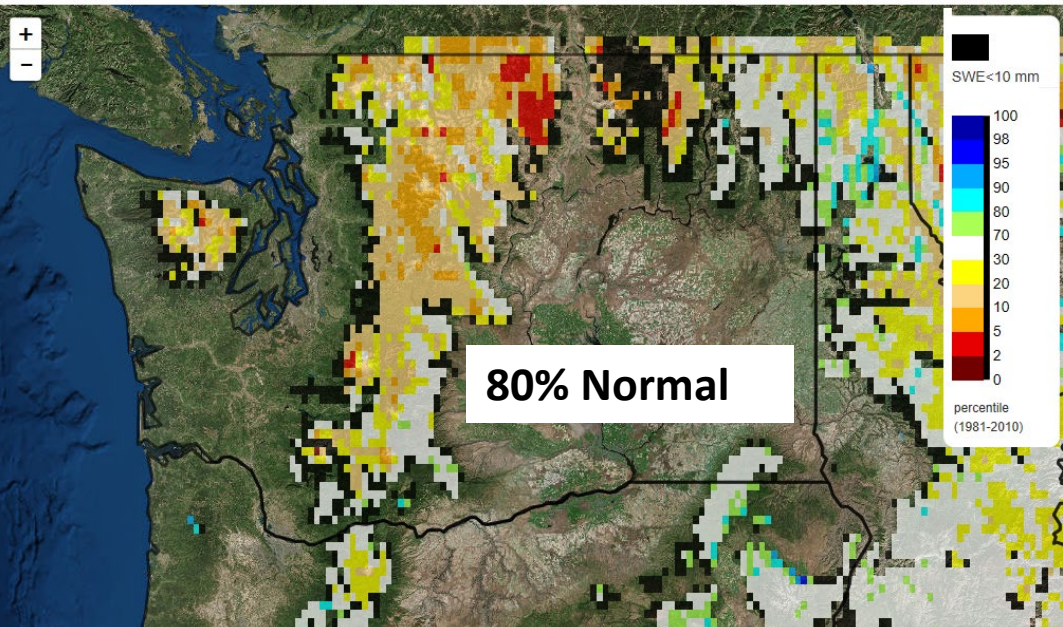
Snow Water Equivalent Percentile

2019/03/01



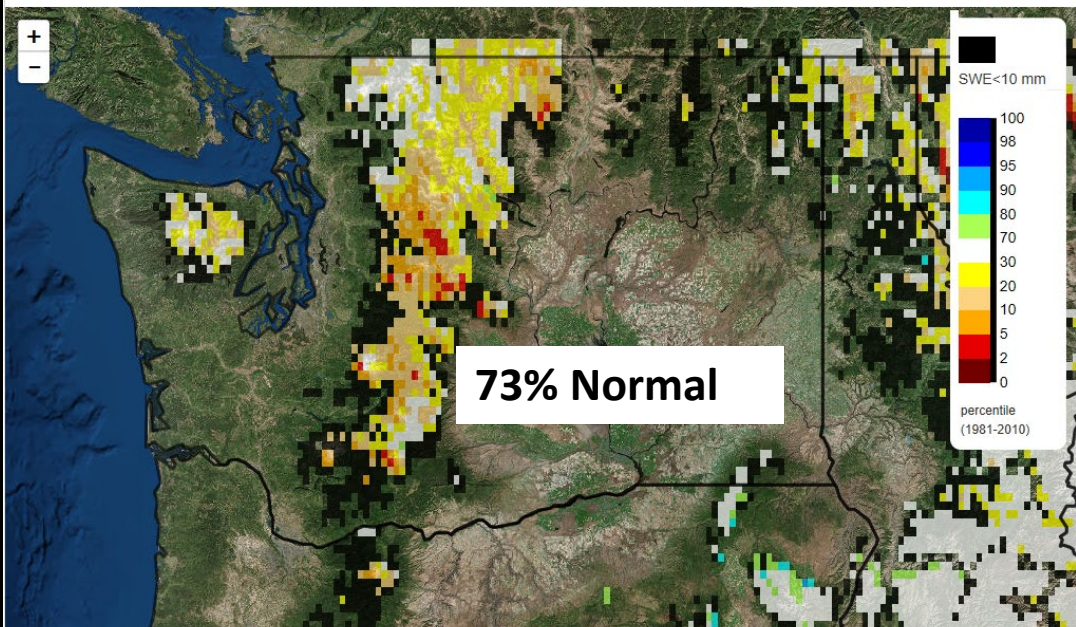
Snow Water Equivalent Percentile

2019/04/01



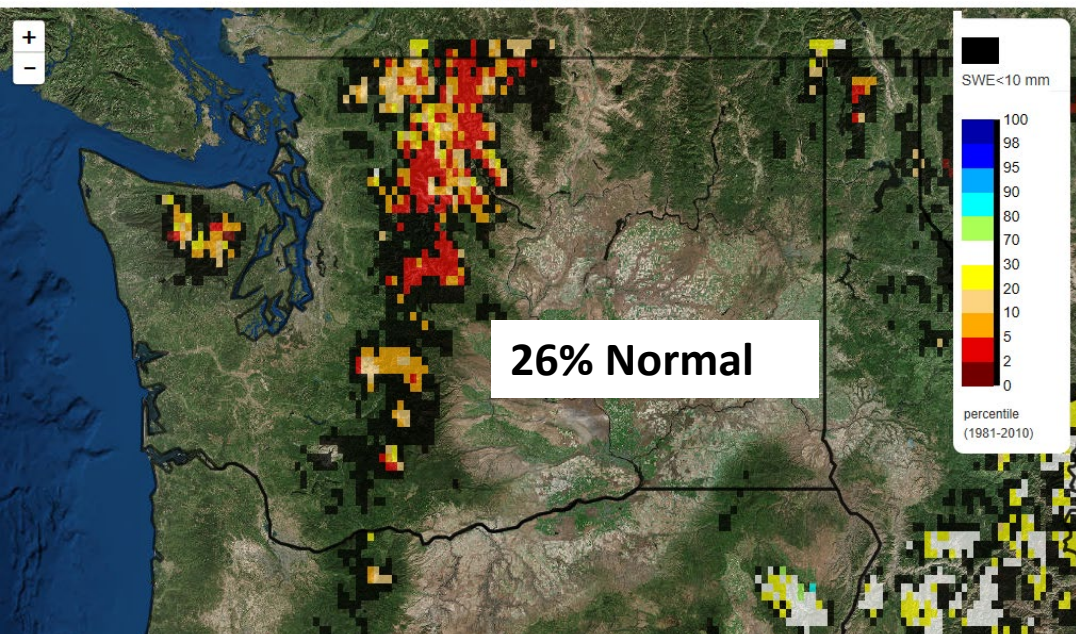
Snow Water Equivalent Percentile

2019/05/01

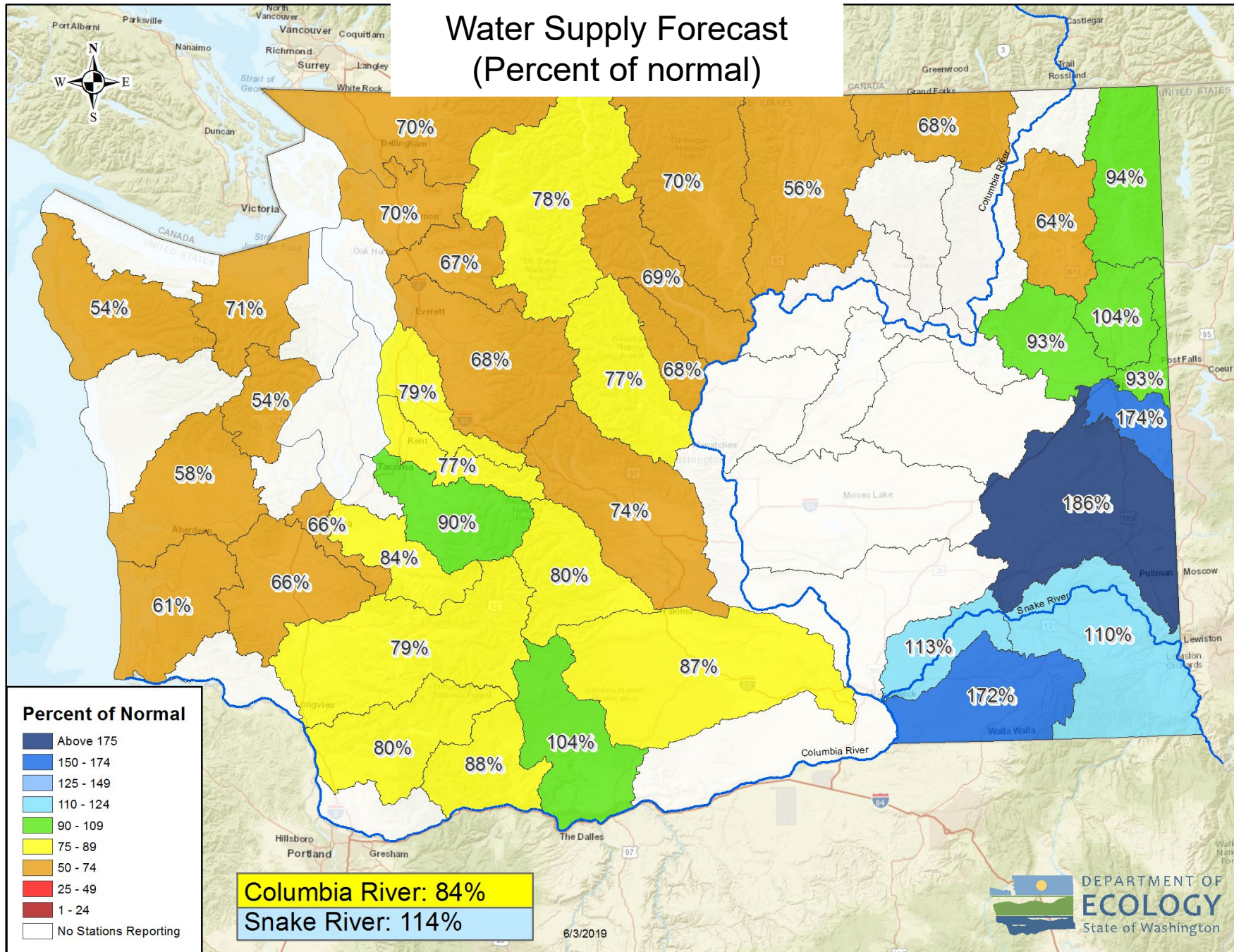


Snow Water Equivalent Percentile

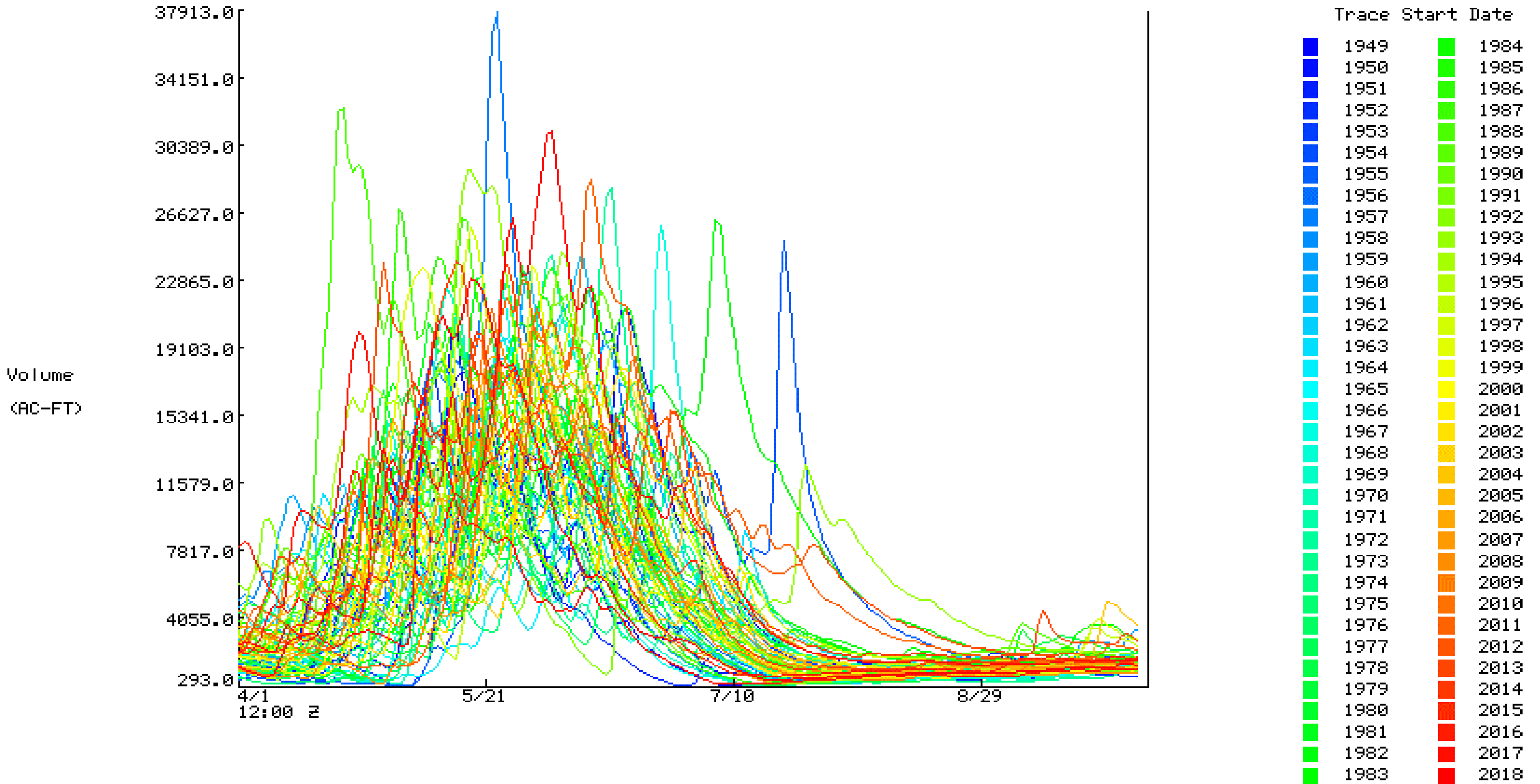
2019/06/01



Water Supply Forecast (Percent of normal)

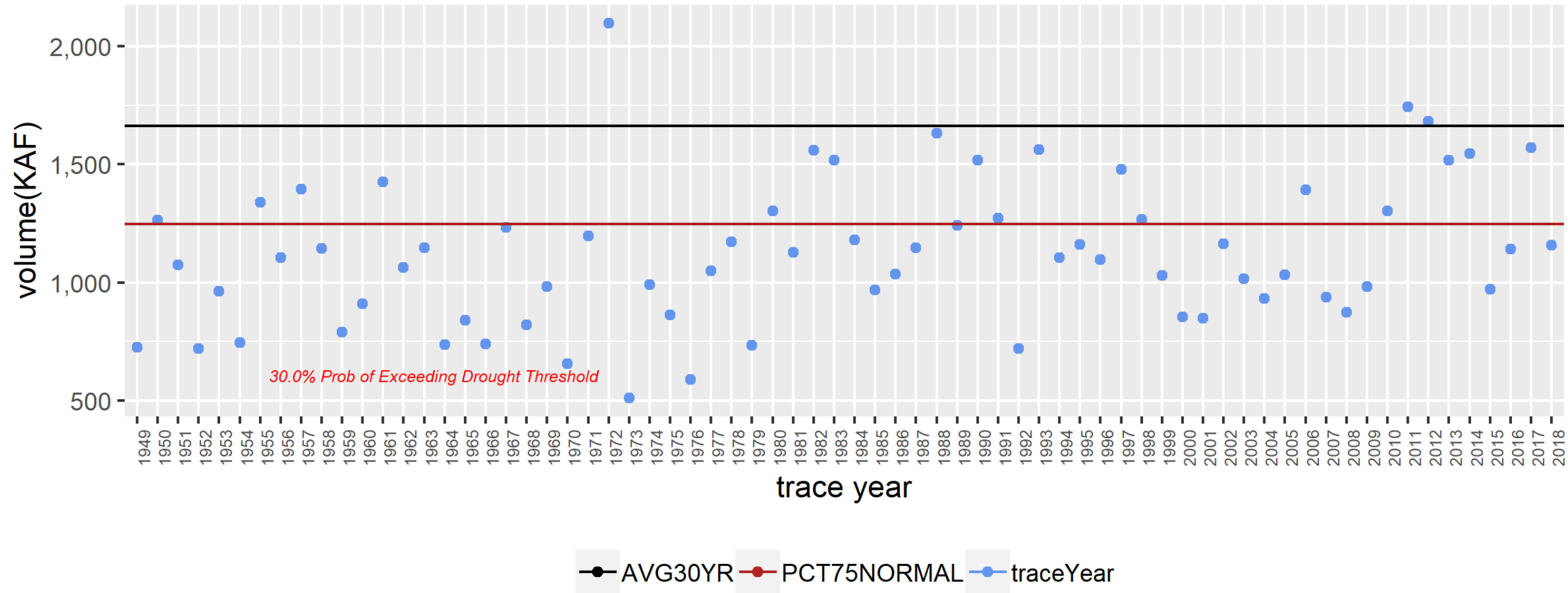


ESP Trace Ensemble of DKANOGAN RIVER at AT MARLOTT, WA
Latitude: 48.3 Longitude: -119.7
Forecast for the period 4/1/2019 12h - 9/30/2019 12h
This is a conditional simulation based on the current conditions as of 3/1/2019



Okanogan at Malott

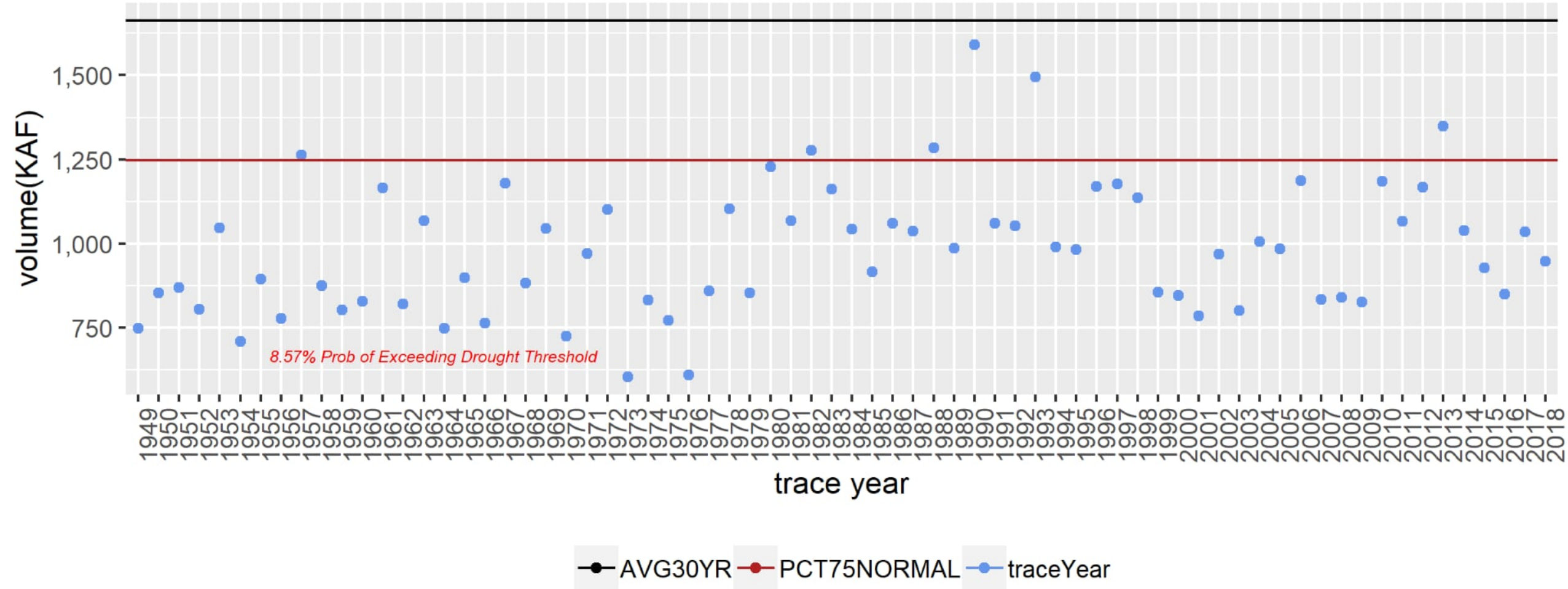
Ensemble Traces vs Drought Threshold, April through September



based on NWRFC data
ISSUED:2019-02-17_20:34_GMT

Okanogan at Malott

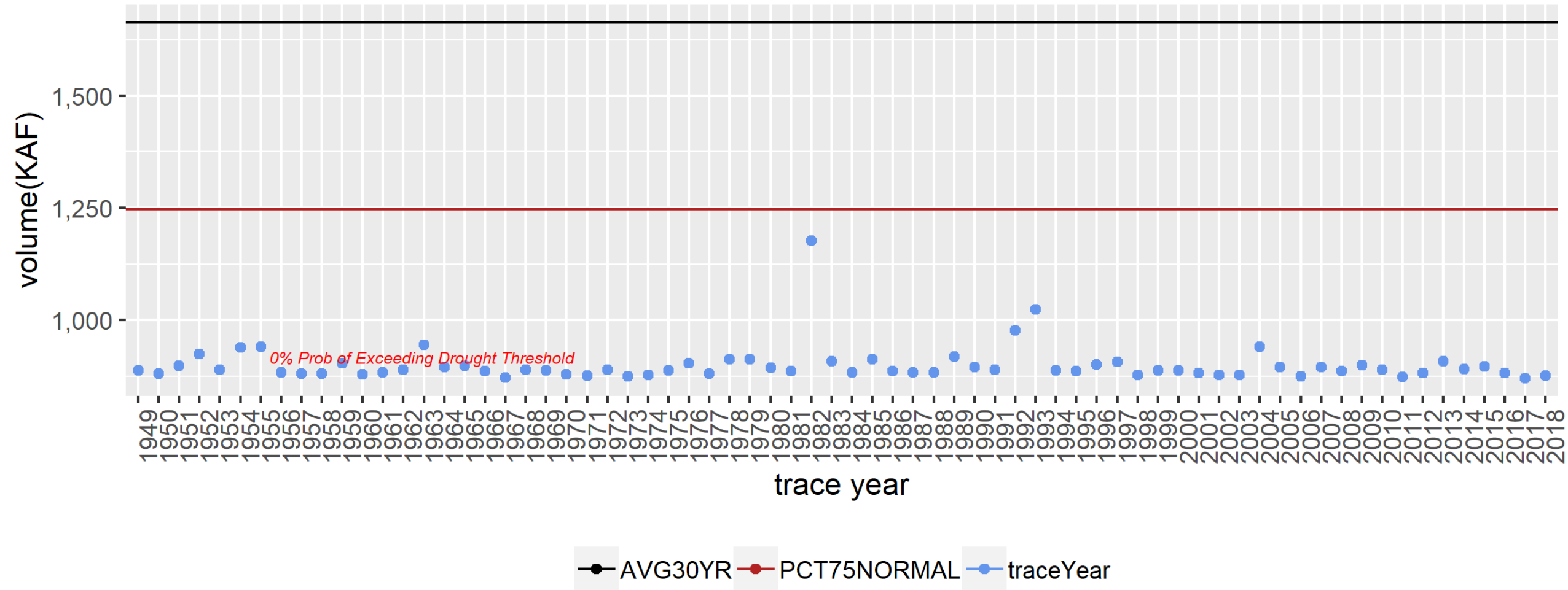
Ensemble Traces vs Drought Threshold, April through September



based on NWRFC data
ISSUED:2019-03-30_17:59_GMT

Okanogan at Malott

Ensemble Traces vs Drought Threshold, April through September

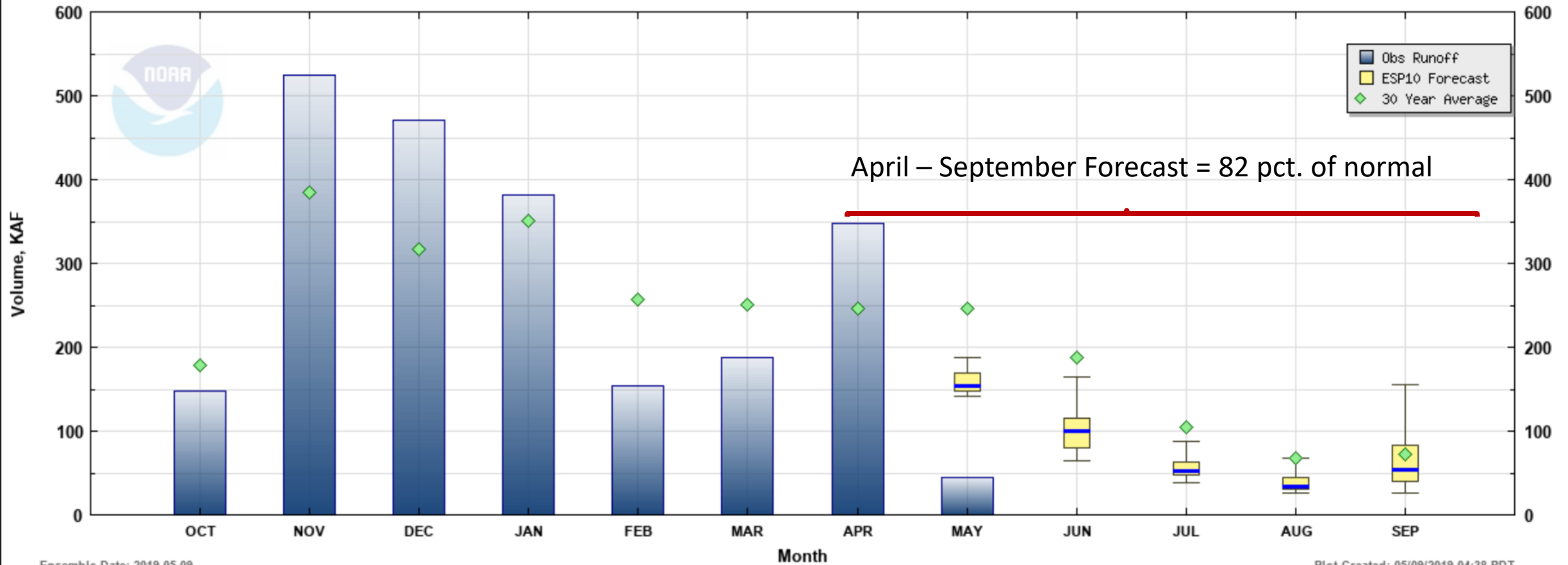


based on NWRFC data
ISSUED:2019-06-15_20:07_GMT

Sub-seasonal Considerations in Water Supply Forecasting

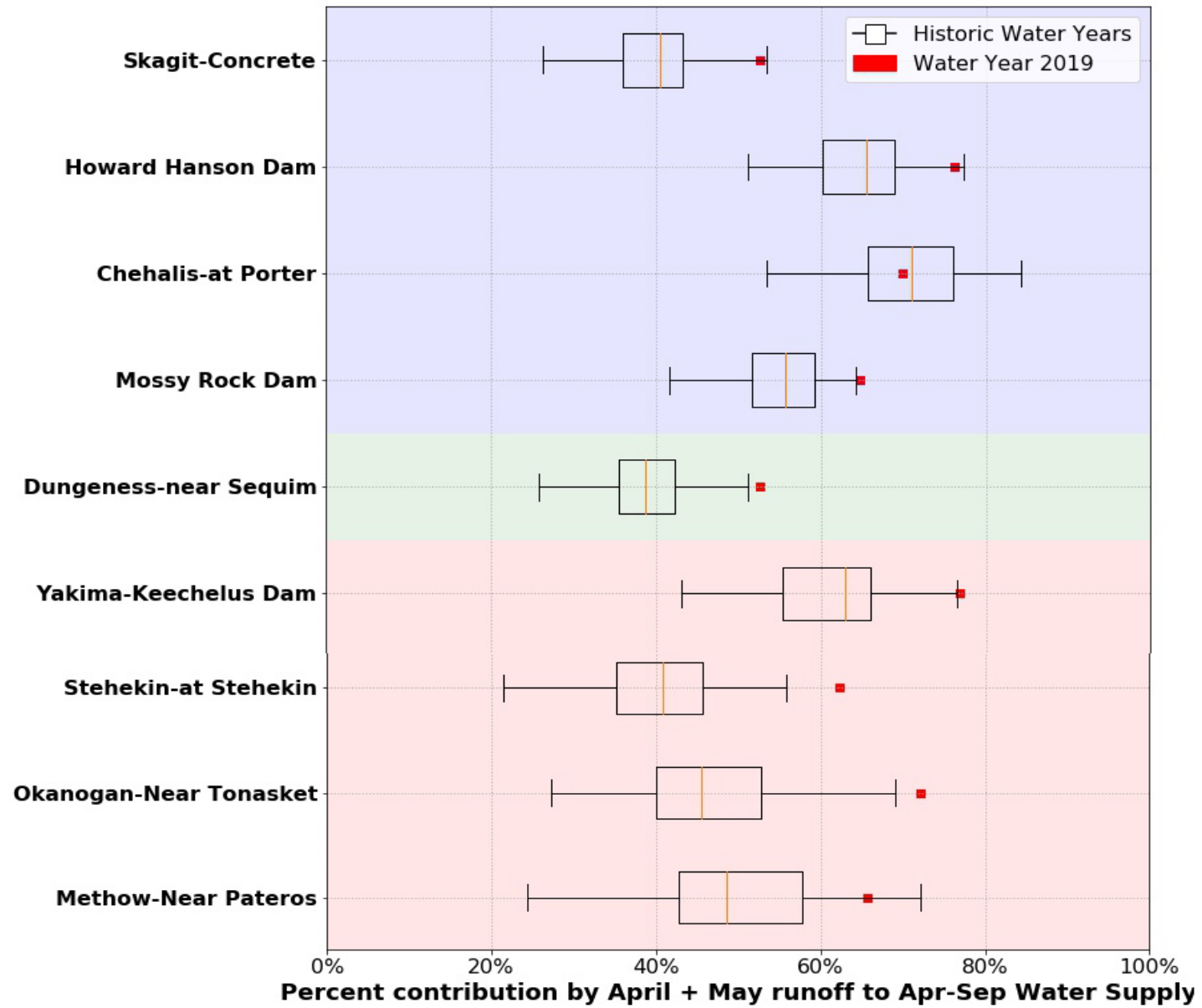
Example of Stillaguamish nr Arlington

Natural Volume Monthly Forecasts (ESP10) for Water Year 2019
(ARLW1) STILLAGUAMISH - NEAR ARLINGTON

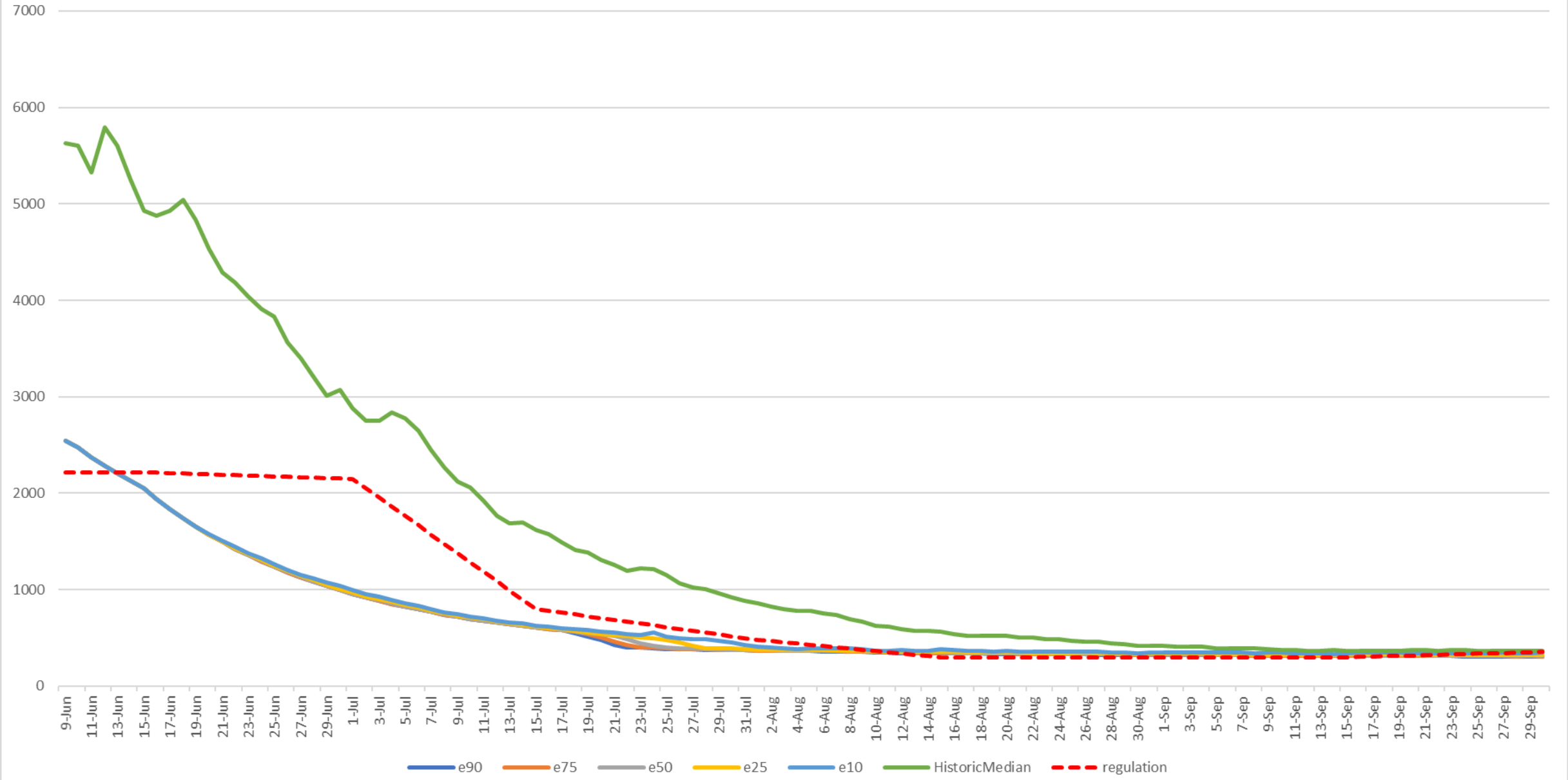


WRIA_ID	WRIA_NM	Name	APR	MAY	JUN	JUL	AUG	SEP
1	Nooksack	MF NOOKSACK - NEAR DEMING	130%	68%	61%	70%	85%	94%
1	Nooksack	NF NOOKSACK - NEAR GLACIER	84%	77%	69%	76%	71%	78%
1	Nooksack	NOOKSACK - AT CEDARVILLE	94%	67%	60%	70%	74%	79%
1	Nooksack	NOOKSACK - AT FERNDALE	97%	69%	58%	67%	73%	79%
1	Nooksack	SF NOOKSACK - AT SAXON BRIDGE	97%	62%	52%	56%	69%	78%
3	Lower Skagit - Samish	SAMISH - NEAR BURLINGTON	88%	45%	54%	67%	81%	73%
3	Lower Skagit - Samish	SKAGIT - NEAR MT VERNON	105%	84%	64%	59%	78%	86%
4	Upper Skagit	BAKER - LAKE SHANNON	96%	79%	68%	62%	78%	88%
4	Upper Skagit	BAKER - UPPER BAKER LAKE	107%	85%	70%	62%	78%	89%
4	Upper Skagit	SAUK - ABOVE WHITE CHUCK	116%	79%	58%	45%	50%	57%
4	Upper Skagit	SAUK - NEAR SAUK	100%	93%	65%	59%	82%	85%
4	Upper Skagit	SKAGIT - AT MARBLEMOUNT	106%	80%	59%	56%	79%	87%
4	Upper Skagit	SKAGIT - AT NEWHALEM	116%	82%	62%	63%	88%	101%
4	Upper Skagit	SKAGIT - NEAR CONCRETE	110%	87%	64%	58%	78%	86%
4	Upper Skagit	SKAGIT - ROSS RESERVOIR	106%	79%	60%	59%	89%	101%
4	Upper Skagit	THUNDER CREEK - NEAR NEWHALEM	148%	107%	76%	78%	90%	106%
5	Stillaguamish	NF STILLAGUAMISH - NEAR ARLINGTON						
5	Stillaguamish	SE STILLAGUAMISH - NEAR GRANITE FALLS						
5	Stillaguamish	STILLAGUAMISH - NEAR ARLINGTON	141%	64%	54%	51%	51%	74%
7	Snohomish	MF SNOQUALMIE - NEAR TANNER	116%	93%	57%	27%	50%	56%
7	Snohomish	NF SNOQUALMIE - NEAR SNOQUALMIE FALLS	119%	77%	56%	59%	78%	70%
7	Snohomish	PILCHUCK - NEAR SNOHOMISH	103%	50%	51%	62%	71%	65%
7	Snohomish	SF SNOQUALMIE - NEAR GARCIA	117%	73%	44%	53%	58%	43%
7	Snohomish	SF TOLT - TOLT RESERVOIR	133%	49%	56%	52%	59%	72%
7	Snohomish	SKYKOMISH - NEAR GOLD BAR	104%	83%	51%	49%	62%	66%
7	Snohomish	SNOHOMISH - NEAR MONROE	113%	78%	54%	53%	69%	70%
7	Snohomish	SNOQUALMIE - NEAR CARNATION	120%	77%	59%	50%	66%	69%
7	Snohomish	SNOQUALMIE - NEAR SNOQUALMIE	121%	84%	57%	45%	61%	66%
7	Snohomish	SULTAN - NEAR SULTAN	109%	61%	52%	59%	68%	69%
7	Snohomish	SULTAN - SPADA LAKE	106%	56%	56%	55%	47%	67%
7	Snohomish	TOLT - NEAR CARNATION	127%	59%	59%	59%	71%	73%
8	Cedar - Sammamish	CEDAR - AT RENTON	130%	57%	51%	60%	67%	70%
8	Cedar - Sammamish	CEDAR - CHESTER MORSE LAKE	129%	54%	44%	51%	59%	60%
8	Cedar - Sammamish	CEDAR - NEAR LANDSBURG	130%	58%	51%	59%	70%	67%

April – September Forecast = 82 pct. of normal



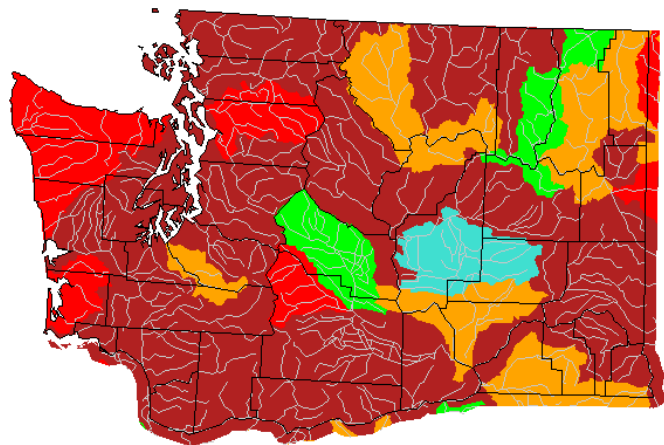
Forecasted Flows vs Historic Median and IRPP Flow
Methow nr Pateros
(June 8 data)



Multi-year snapshots, 7-day average flow as of June 15

2015

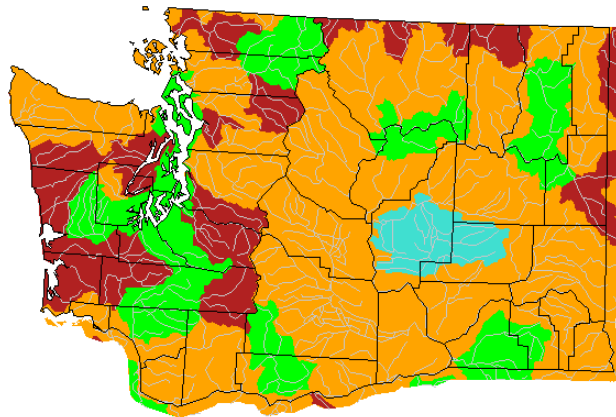
Monday, June 15, 2015



USGS

2016

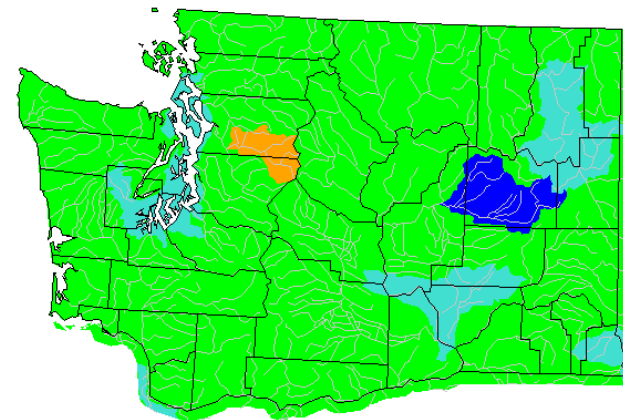
Wednesday, June 15, 2016



USGS

2017

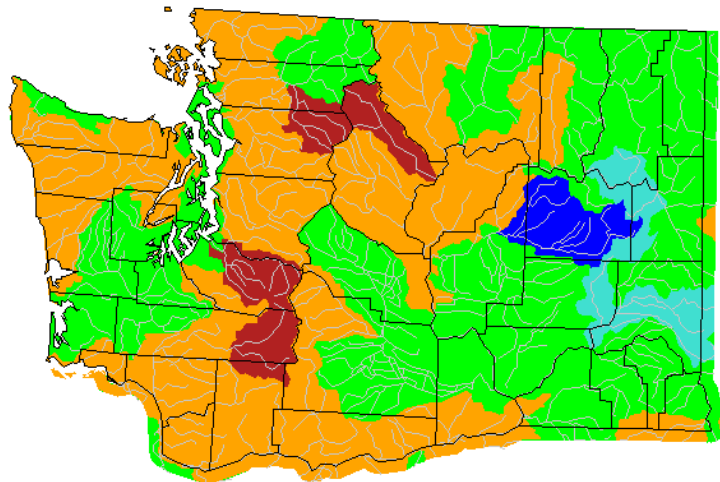
Thursday, June 15, 2017



USGS

2018

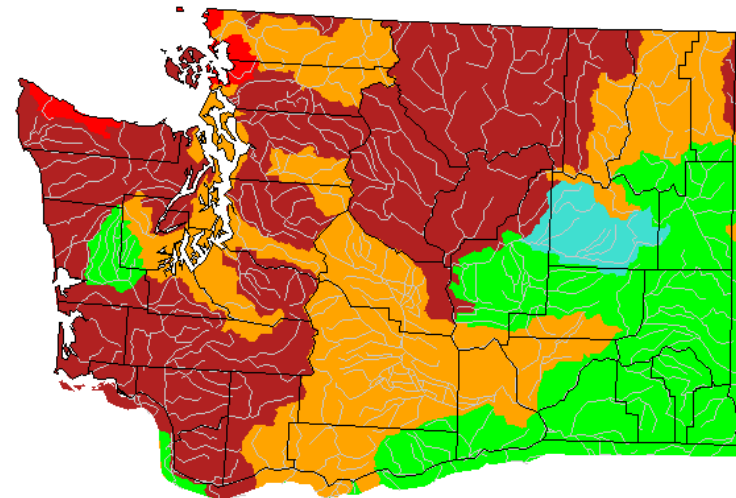
Friday, June 15, 2018



USGS

2019

Saturday, June 15, 2019



USGS

WAC 173-167

Emergency Drought Funding

- A total of \$2 Million is available to public entities to implement projects and measures that alleviate undue hardship caused by drought conditions negatively affecting:
 - The delivery of safe and reliable drinking water supplies.
 - The survival of fish and wildlife.
 - The viability of agricultural activities and livestock operations.



Funding Cycle

- **Non-competitive**
- **Amount of funding available: \$2 million**
- **Grant award limit: \$350,000**
- **Amount of matching funds required: 50% of the total cost of the project**
- **If a Low Income Community:**
 - There is no cost share.
 - The award cap is raised to \$700,000
- **Our goal: a three-week turnaround on funding decisions**
- **Rule expires October 2, 2019**

* Low Income = a population of less than twenty-five thousand individuals with a mean household income of eighty percent or less of the state average.



- Overview
- Crop Production
- Livestock Production
- Water Supply
- Habitat
- Recreation/Tourism
- Business/Industry
- Public Health
- Fire
- Photos

Legend

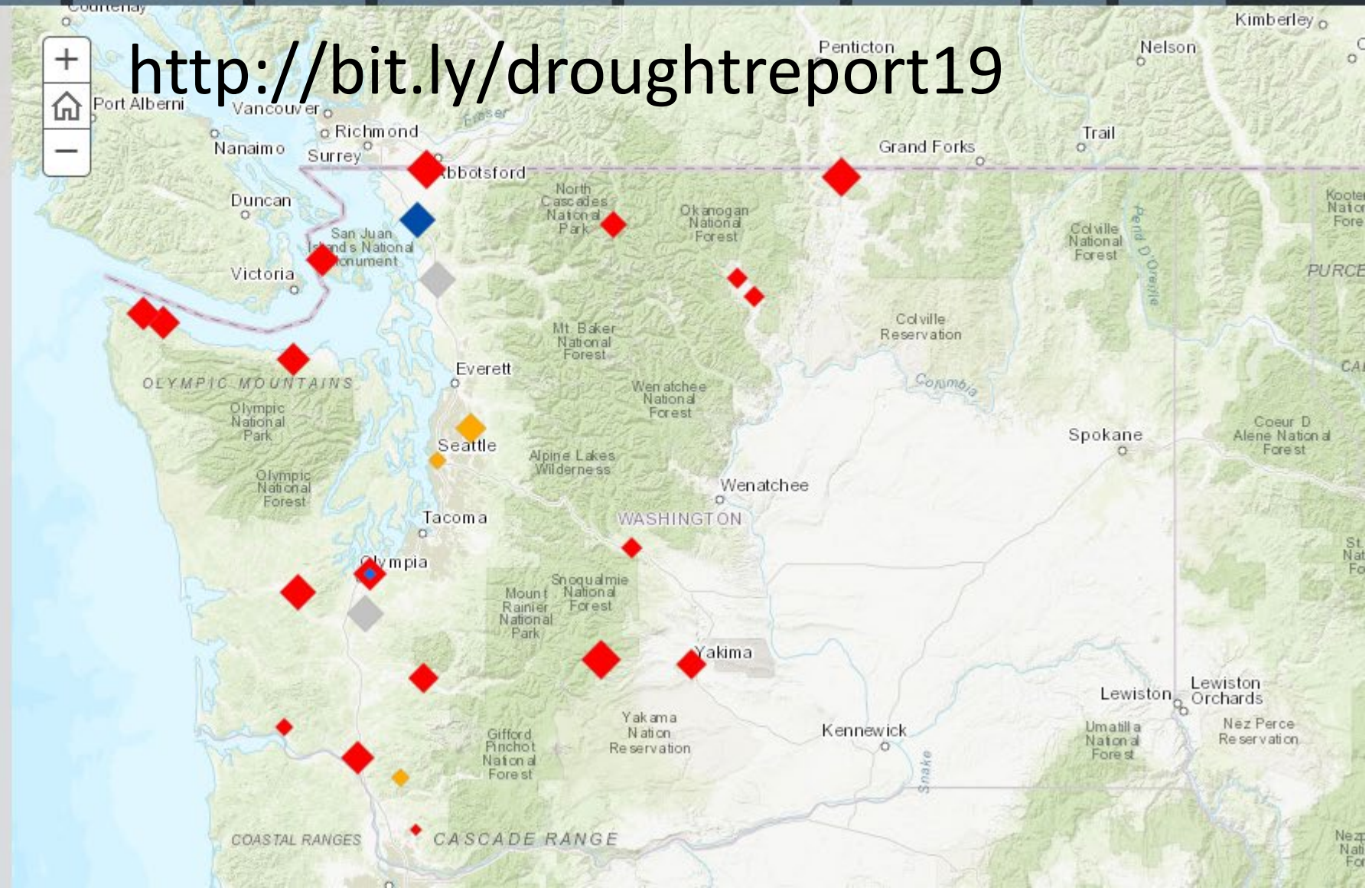
How dry or wet is it?

- Severely Dry
- Moderately Dry
- Mildly Dry
- Near Normal
- Mildly Wet
- Moderately Wet
- Severely Wet

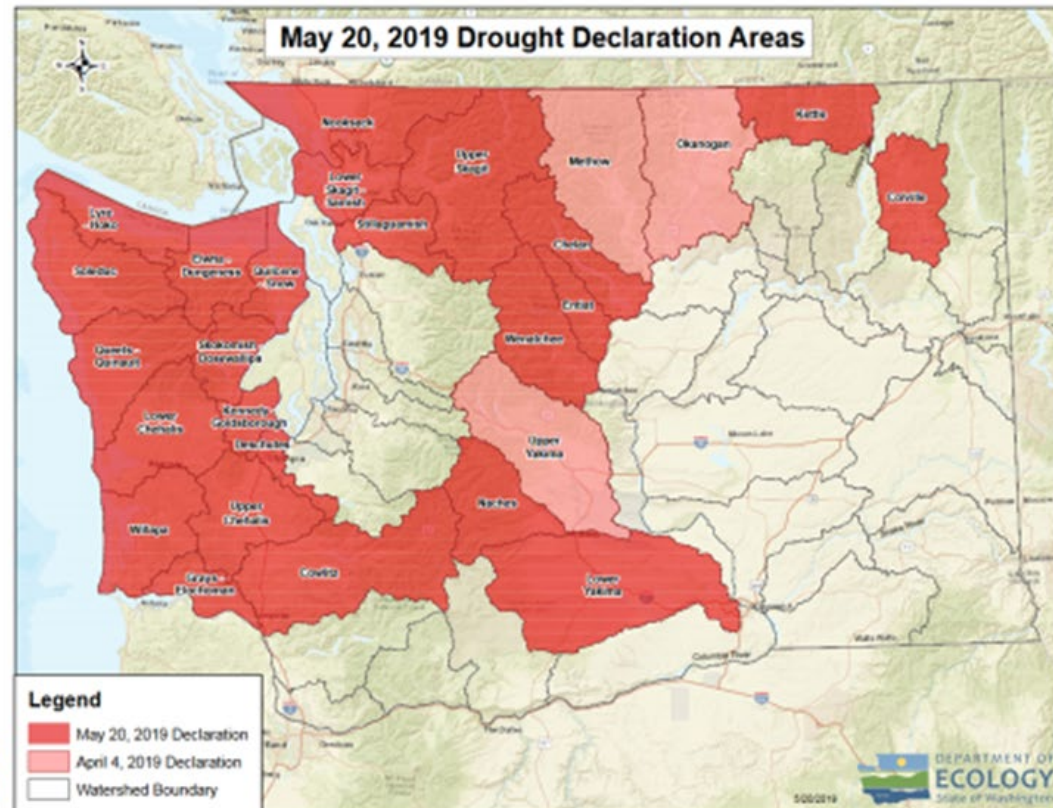
What is the date?

- > 10/30/2019
- 8/30/2019
- 6/30/2019
- 4/30/2019
- < 2/27/2019

<http://bit.ly/droughtreport19>



Thank you



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