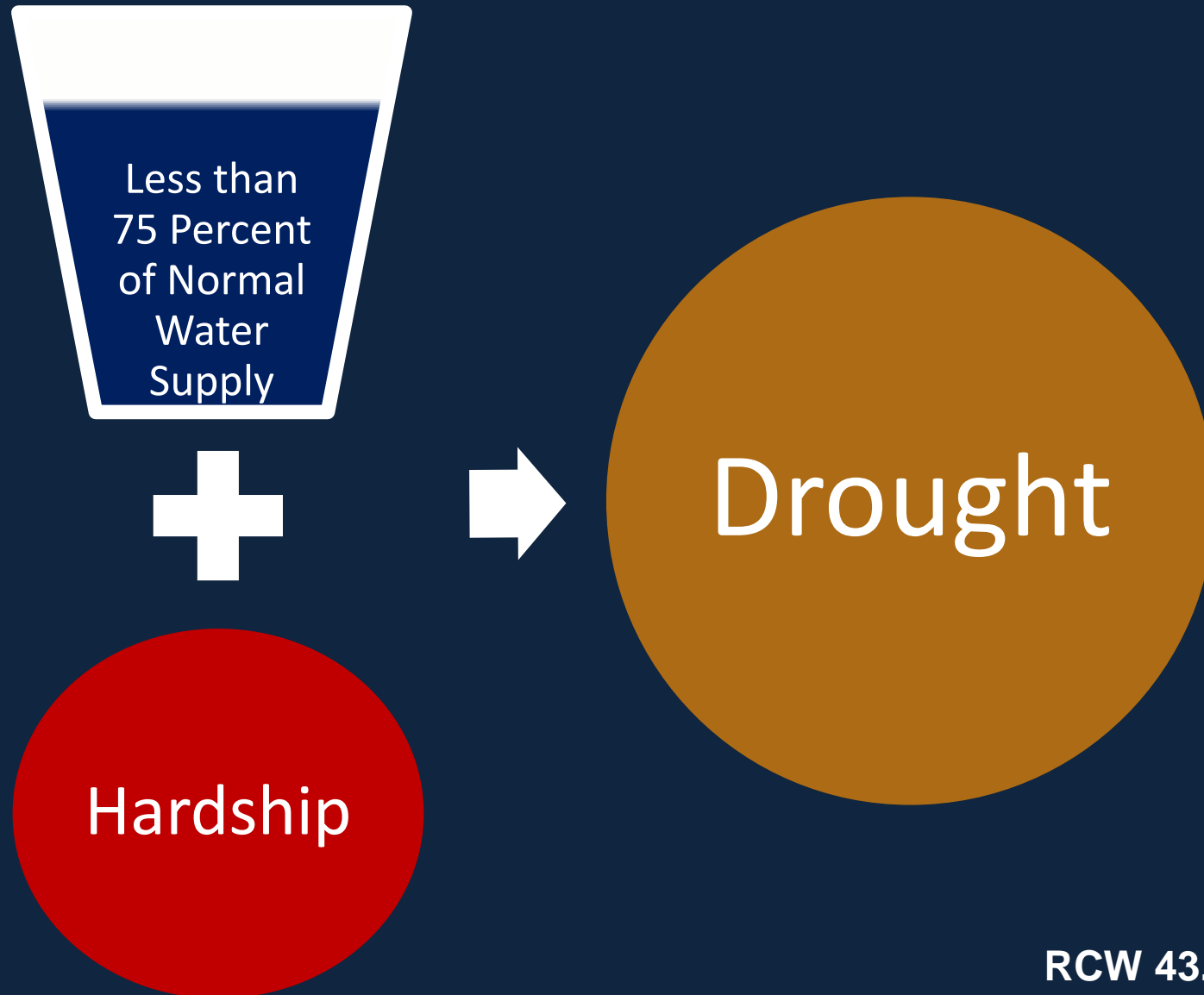


Water Supply Availability Meeting
June 7th, 2019
+1-415-655-0001 US Toll
Meeting number (access code): 803 629 248

Time	Subject	Responsible	Representing
10:00 – 10:15	Welcome State Drought Framework Scope of Existing Declaration Gaging Recon of Campbell Creek near Ryderwood	Jeff Marti	Ecology
10:15 – 10:30	Regional Climate Perspective 1. Recent precipitation and temperature 2. Seasonal forecasts/ENSO	Karin Bumbaco and Nick Bond	Office of Washington State Climatologist
10:30 – 10:40	Streamflow Observations	Mark Mastin	USGS
10:40-10:50	Snowpack/Soil Moisture	Scott Pattee	NRCS
10:50-11:05	NOAA River Forecasts	Brent Bower	NWS
11:05-11:20	Input from Water Managers	All	
11:20-11:30	Recommendations for further Action	All	
	Key Upcoming Dates EWEC June 18th WSAC – PROPOSE FRIDAY, AUGUST 8th		

Washington State's Drought Trigger



RCW 43.83B.400

173-166-030

Definitions.

(2) "**Drought conditions**" are water supply conditions where a geographical area or a significant part of a geographical area is receiving, or is projected to receive, less than seventy-five percent of normal water supply as the result of natural conditions and the deficiency causes, or is expected to cause, undue hardship to water users within that area.

(5) "**Geographical area**" is an area within the state of Washington which can be described either by natural or political boundaries and which can be specifically identified in an order declaring a drought emergency. Examples of specific geographical areas include, but are not limited to:

- (a) The state of Washington.
- (b) Counties.
- (c) Water resource inventory areas (WRIAs) as defined in chapter [173-500](#) WAC.
- (d) Individual watersheds which constitute only a portion of a WRIA but whose boundaries can be topographically described.
- (e) Groundwater management areas and subareas as defined in chapter [173-100](#) WAC.
- (f) Designated sole source aquifers.
- (g) Combinations of the above areas.

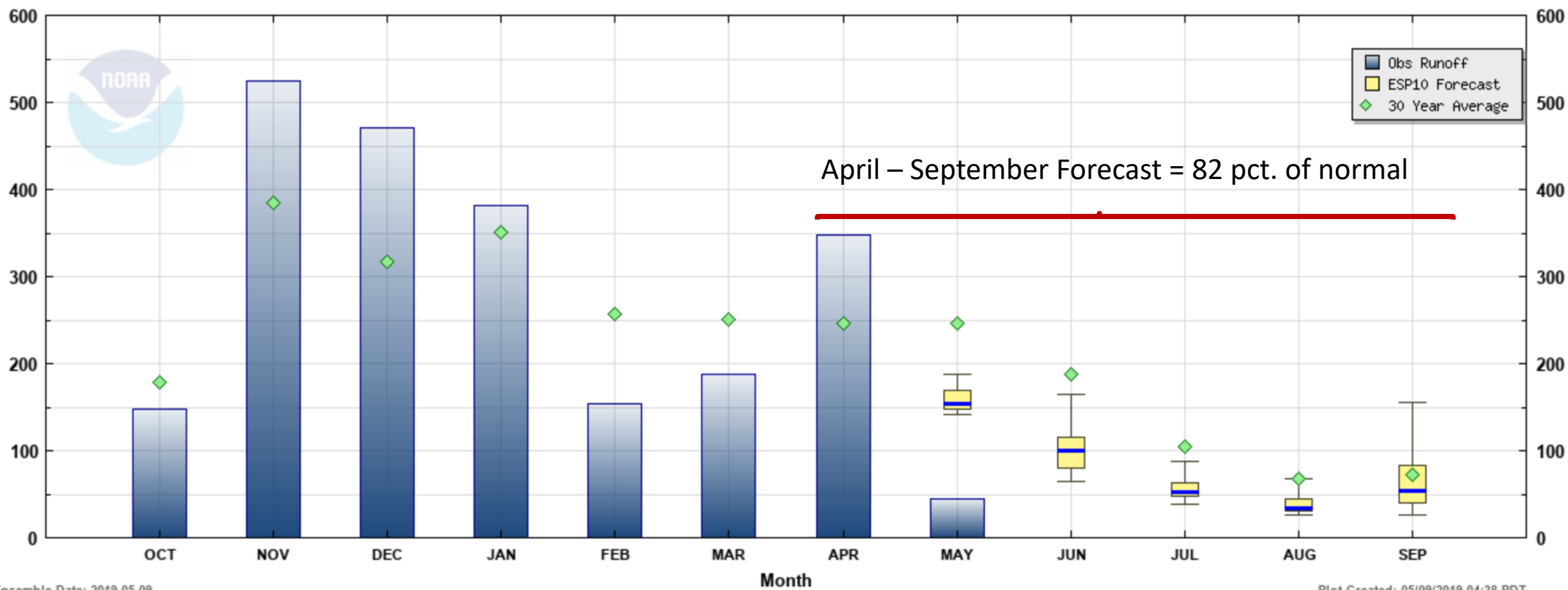
(6) "**Normal water supply**" is for the purpose of determining drought conditions, the median amount of water available to a geographical area, relative to the most recent thirty-year base period used to define climate normals. The determination of drought conditions will consider seasonal water supply forecasts, other relevant hydro-meteorological factors (e.g., precipitation, snowpack, soil moisture, streamflow, and aquifer levels) **and also may consider extreme departures from normal conditions over subseasonal time frames. (emphasis added)**

Sub-seasonal Considerations in Water Supply Forecasting

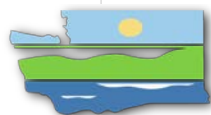
Example of Stillaguamish nr Arlington

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	85%	46%	50%	48%	56%	76%
5	Stillaguamish	SE STILLAGUAMISH - NEAR GRANITE FALLS	121%	59%	56%	53%	58%	77%
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%



DEPARTMENT OF
ECOLOGY
State of Washington

Water Supply Forecast: May - September
Percent of Normal (Months < 75%)






Percent of Normal


- 150 - 174
- 125 - 149
- 90 - 109
- 75 - 89
- 50 - 74
- No Stations Reporting
- Drought Declared
- Assumed Drought Conditions

Columbia River: 90%
Snake River: 106%

5/9/2019

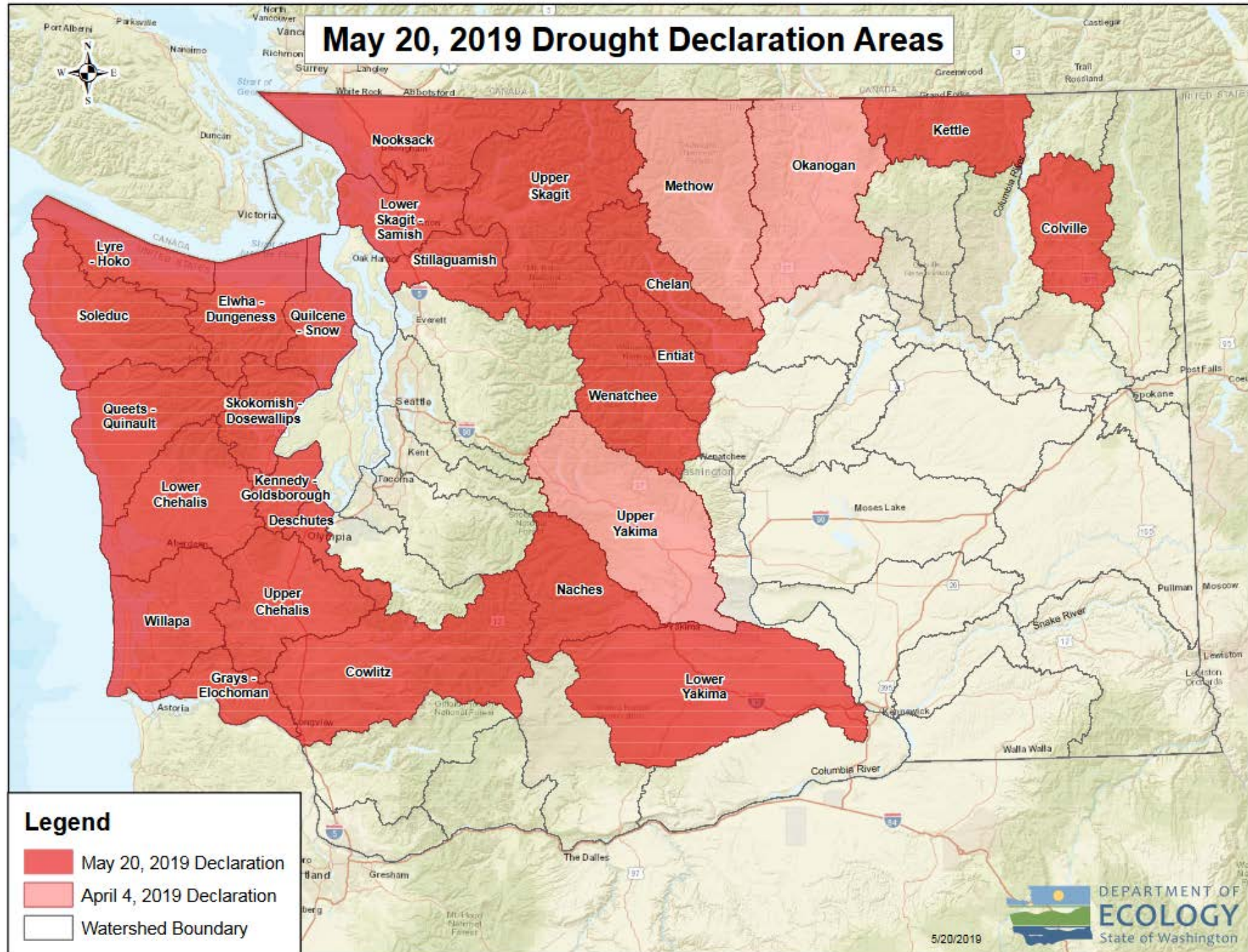
DEPARTMENT OF
ECOLOGY
State of Washington

	150 - 174
	125 - 149
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	75 - 89
	50 - 74

 Drought Declared
 Assumed Drought Conditions

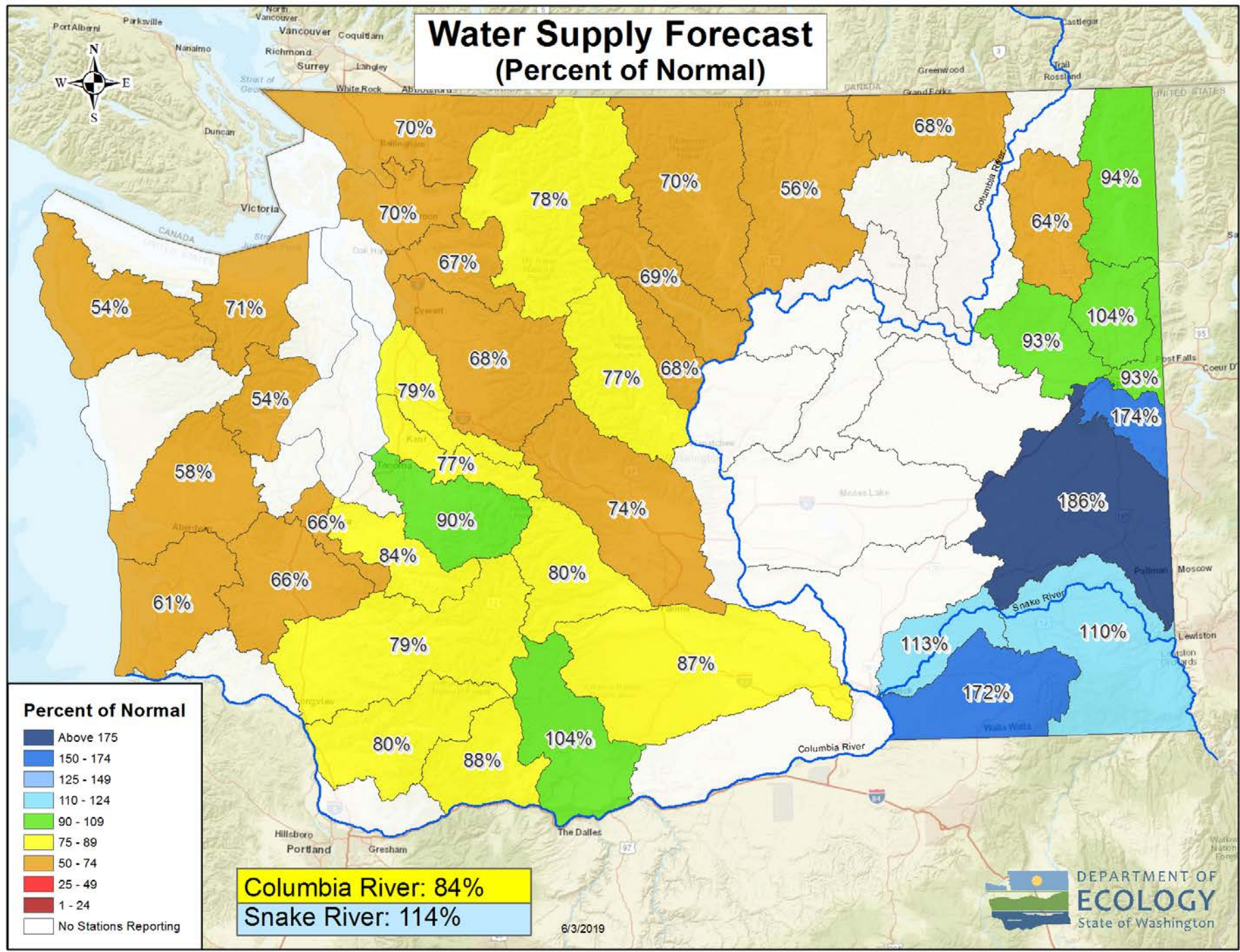
5/9/2019

May 20, 2019 Drought Declaration Areas



5/20/2019

Water Supply Forecast (Percent of Normal)



Exploration Tools



Ryderwood, Cowlitz County

Zoom Level: 10
Map Scale: 1:577,790
Lat: 46.7766, Lon: -123.1458

10 km
5 mi



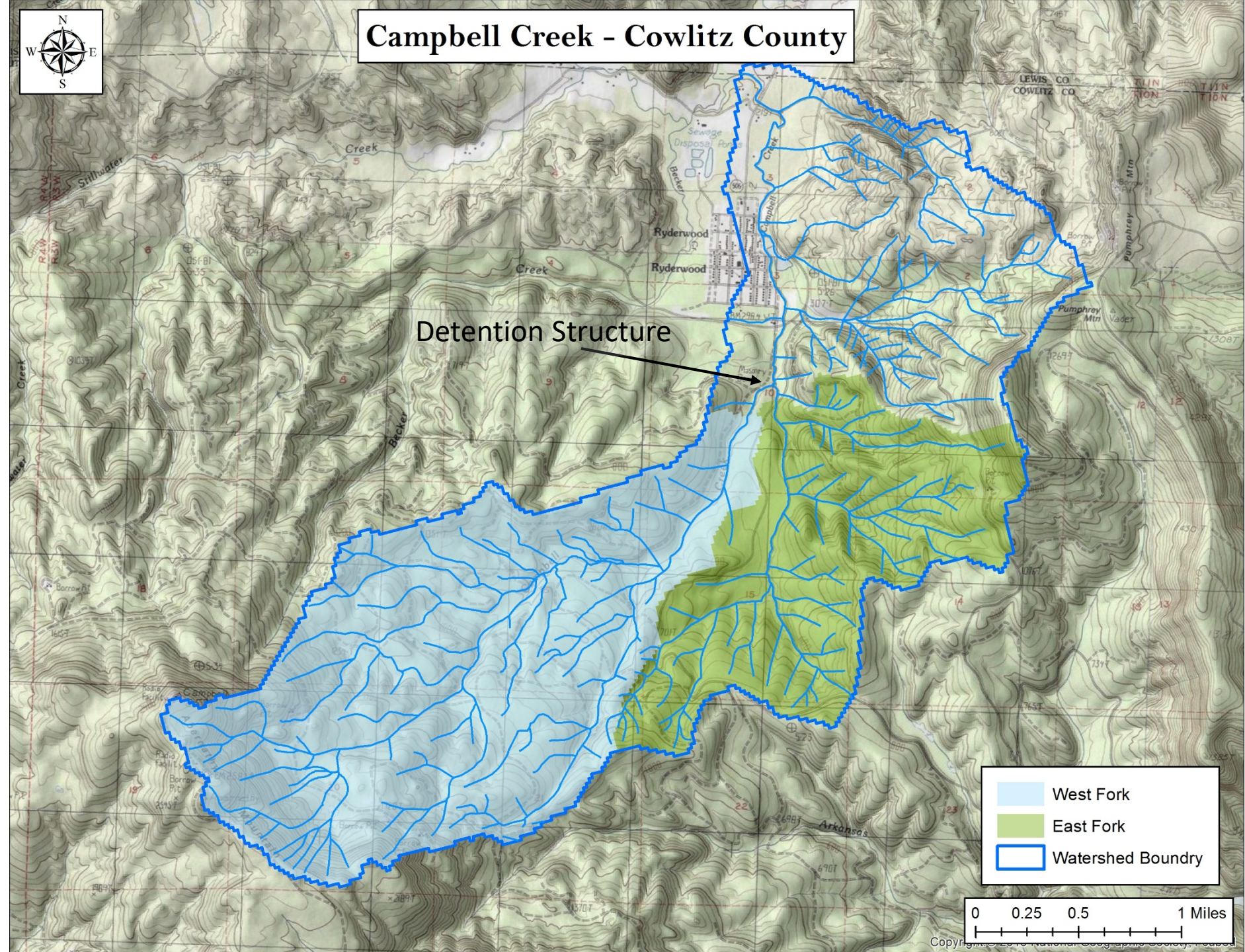
Campbell Creek
Aug. 17, 2018
Dry creekbed



Campbell Creek
Sept. 12, 2018
After rainfall



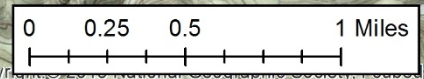
Campbell Creek - Cowlitz County



West Fork

East Fork

Watershed Boundry



Campbell Creek – West Fork Gage Location



Campbell Creek – East Fork



Campbell Creek – Detention Pond



Campbell Creek – Detention Dam & Spillway Pool



Campbell Creek – Where to Gage?

Spillway Pool?

Detention Pond?

Some Combination?

- Detention + West Fork
- Spillway + West Fork
- West Fork + East Fork

West Fork?

