

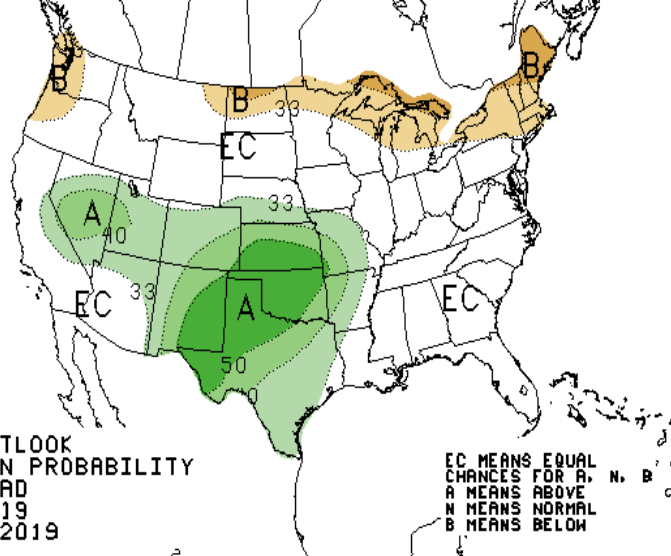
Water Supply Outlook Spring/Summer 2019

WSAC June 7 , 2019
Brent Bower NWS Seattle

Jun



ONE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.0 MONTH LEAD
VALID JUN 2019
MADE 31 MAY 2019



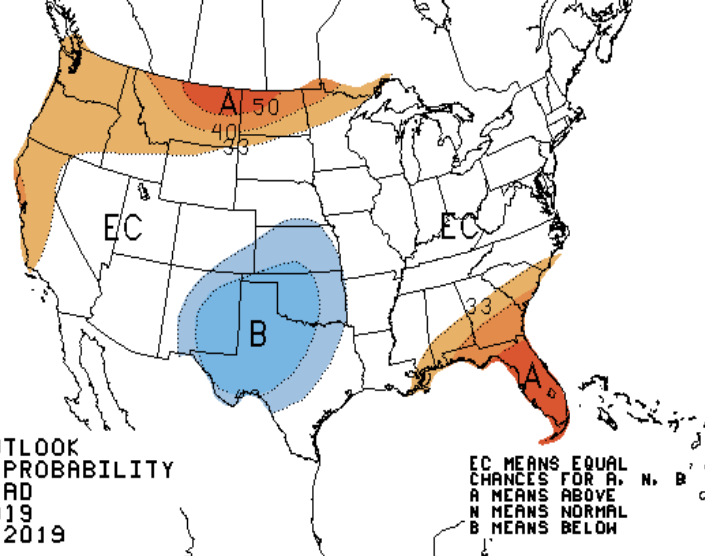
EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW



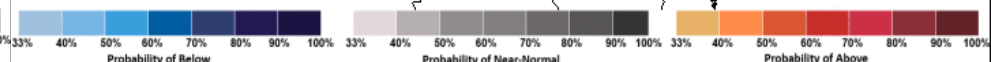
Jul-Sep



ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID JUN 2019
MADE 31 MAY 2019



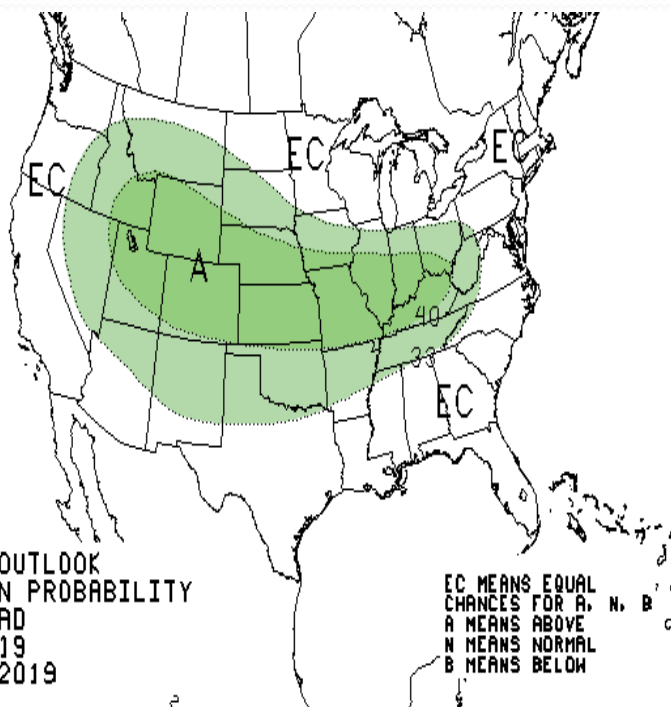
EC MEANS EQUAL
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B MEANS BELOW



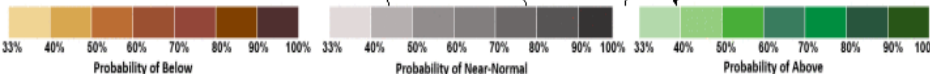
Jul-Sep



THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
1.5 MONTH LEAD
VALID JAS 2019
MADE 16 MAY 2019



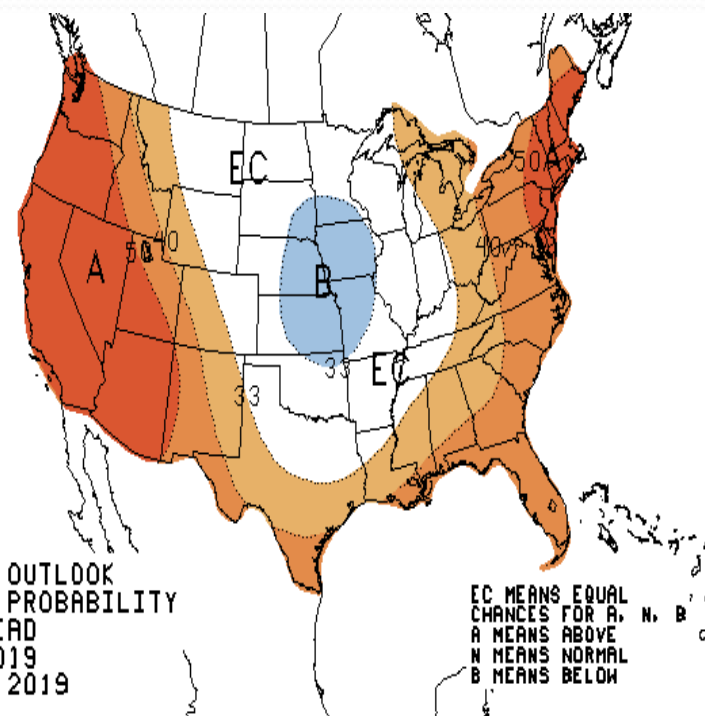
EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW



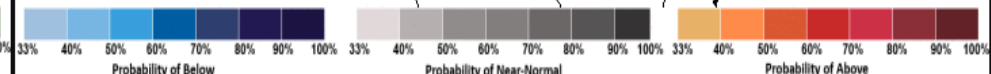
Jul-Sep



THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
1.5 MONTH LEAD
VALID JAS 2019
MADE 16 MAY 2019



EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW





Northwest River Forecast Center

Water Supply Forecasts

[River and Hydrology](#)[Water Supply](#)[Observations](#)[Weather Forecasts](#)[Climate](#)[NWRFC](#)[Home](#)[Zoom Out](#)[--- Quick Zooms ---](#)

ESP Issued: 2019-06-06

Ensemble Date: 2019-06-06

[Permalink](#)

Search

Enter NWS ID:

GO

Map Overlays

- ☒ NWRFC Boundary
- ☐ NWRFC Basins
- ☐ NWS HSAs
- ☒ Counties

ESP WS Volumes

- ☐ WS Status
- ☒ WS % of Normal
- ☐ Rank (ASC)
- ☐ Rank (DESC)
- ☐ Exceedance (%)
- ☐ Percentile (%)

Runoff Volumes

- ☐ Runoff Status
- ☒ Runoff % of Normal

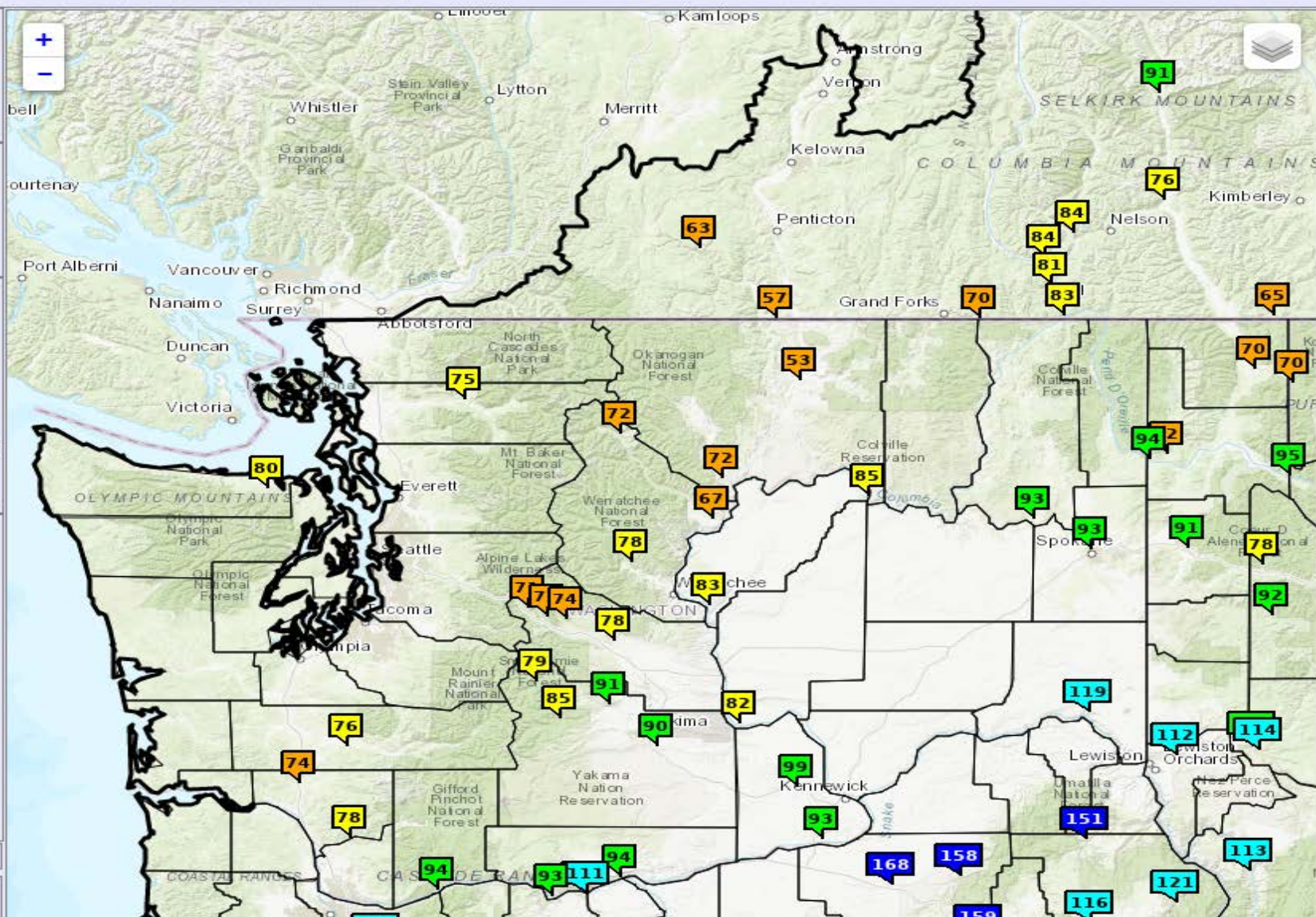
Water Supply Forecast

Period: APR-SEP
(% Normal)

- ☐ No Normal, No data
- ☐ < 25
- ☐ 25-50
- ☐ 50-75
- ☐ 75-90
- ☐ 90-110
- ☐ 110-125
- ☐ 125-150
- ☐ 150-175
- ☐ > 175



Stations Displayed: 63

[Water Supply Links](#)[Forecast Listing](#)



Northwest River Forecast Center

ESP Natural Forecast



River and Hydrology

Water Supply

Observations

Weather Forecasts

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ESP Issued: 2019-06-06

Ensemble Date: 2019-06-06

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Enter NWS ID:

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Map Overlays

- ☒ NWRFC Boundary
- ☐ NWRFC Basins
- ☐ NWS HSAs
- ☒ Counties

ESP Natural Forecast

- ☐ Natural Status
- ☒ Natural % of Normal
- ☐ Rank (ASC)
- ☐ Rank (DESC)
- ☐ Exceedance (%)
- ☐ Percentile (%)

Natural Runoff

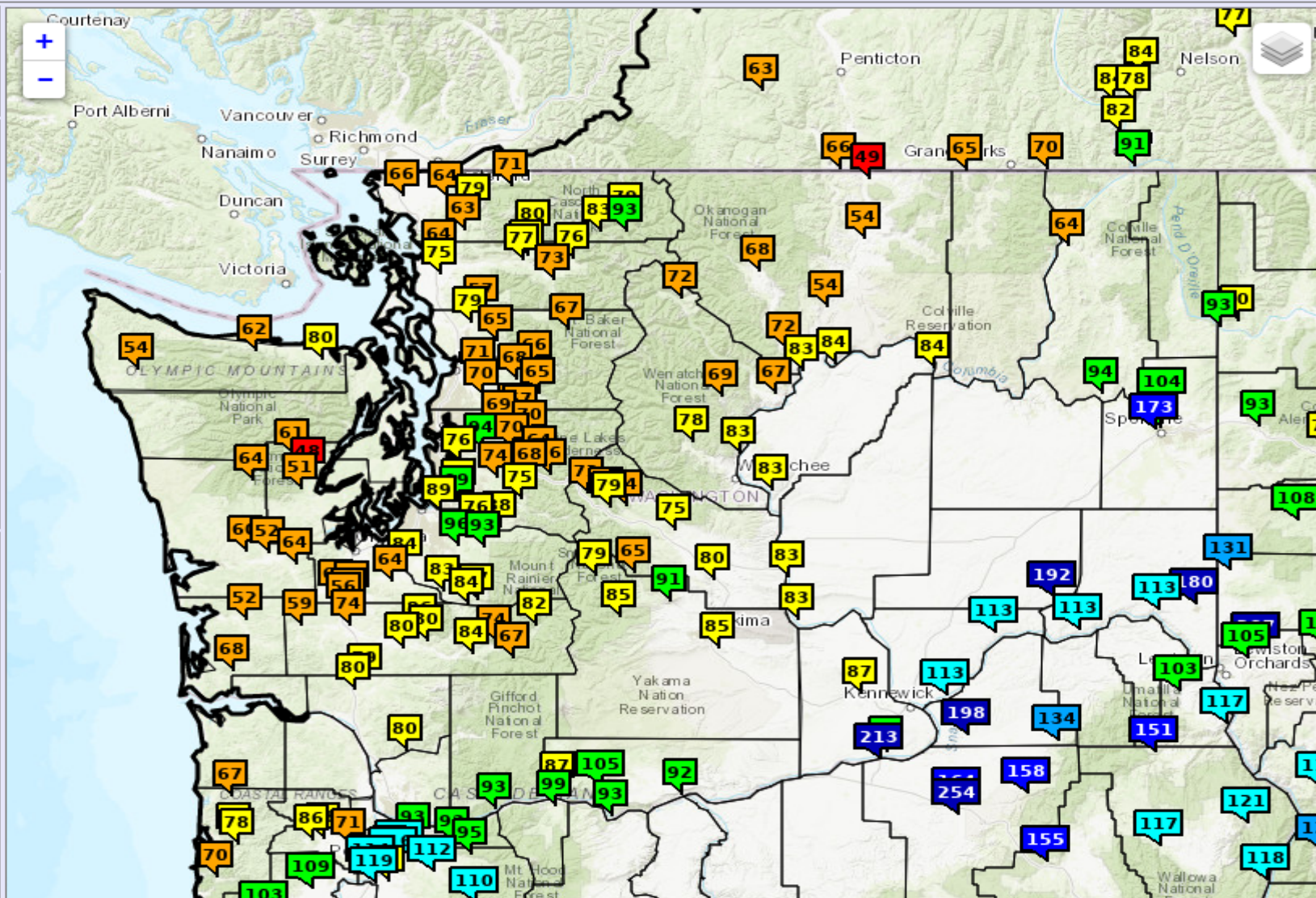
- ☐ Runoff Status
- ☐ Runoff % of Normal

ESP Natural Forecast

Period: APR-SEP

Forecast (% Normal)

- ☐ No Normal, No Data
- ☒ < 25
- ☐ 25-50
- ☐ 50-75
- ☐ 75-90
- ☐ 90-110
- ☐ 110-125
- ☐ 125-150
- ☐ 150-175
- ☐ > 175





Northwest River Forecast Center

Current Station Snow Conditions



River and Hydrology

Water Supply

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[Refresh Data](#)

Last Refresh: 2019-06-07 08:26:09 PDT

Elevation

Filter: ☐

[Permalink](#)

Search by NWS ID:

[GO](#)

Map Overlays

- ☒ NWRFC Boundary
- ☐ NWRFC Basins
- ☐ NWS HSAs
- ☒ Counties

Map Type

- ☐ SWE
- ☐ Snow Status
- ☐ Snow % of Avg
- ☐ Seasonal Peak Status
- ☐ Snow Density
- ☐ Basin Obs Status
- ☐ Basin Sim Status
- ☐ Diff

Legend

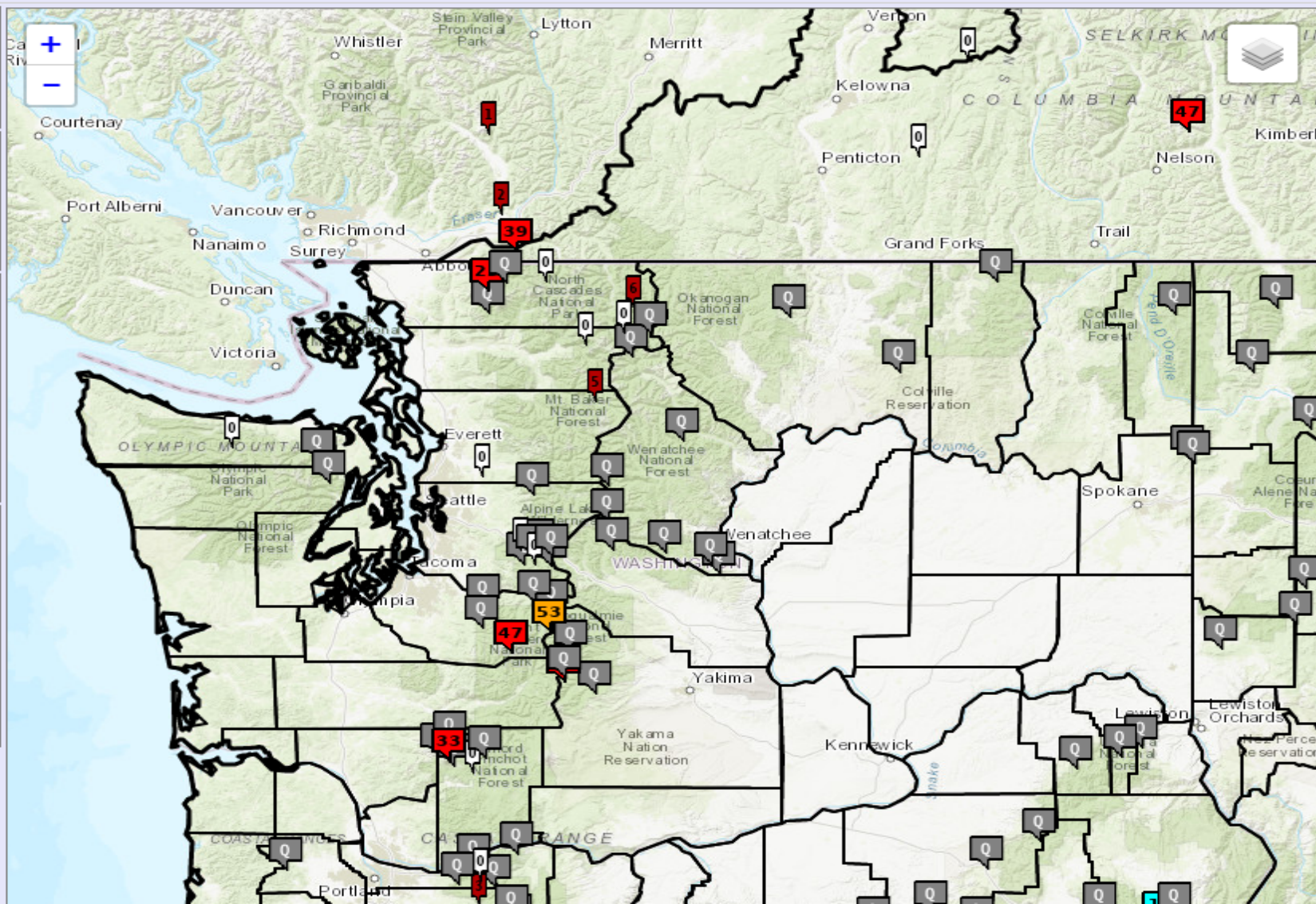
SWE (% Avg)

- ☐ Questionable
- ☐ Zero or No Avg
- ☐ < 25
- ☐ 25-50
- ☐ 50-75
- ☐ 75-90
- ☐ 90-110
- ☐ 110-125
- ☐ 125-150
- ☐ 150-175
- ☐ > 175

Stations Displayed: 104

Related Links

[Station Summary List](#)
[Basin Summary List](#)





Northwest River Forecast Center ESP Natural Forecast



River and Hydrology

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--- Quick Zooms ---

ESP Issued: 2019-06-06

Ensemble Date: 2019-06-06

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Enter NWS ID:

GO

Map Overlays

- ☒ NWRFC Boundary
- ☐ NWRFC Basins
- ☐ NWS HSAs
- ☒ Counties

ESP Natural Forecast

- ☐ Natural Status
- ☐ Natural % of Normal
- ☐ Rank (ASC)
- ☐ Rank (DESC)
- ☐ Exceedance (%)
- ☒ Percentile (%)

Natural Runoff

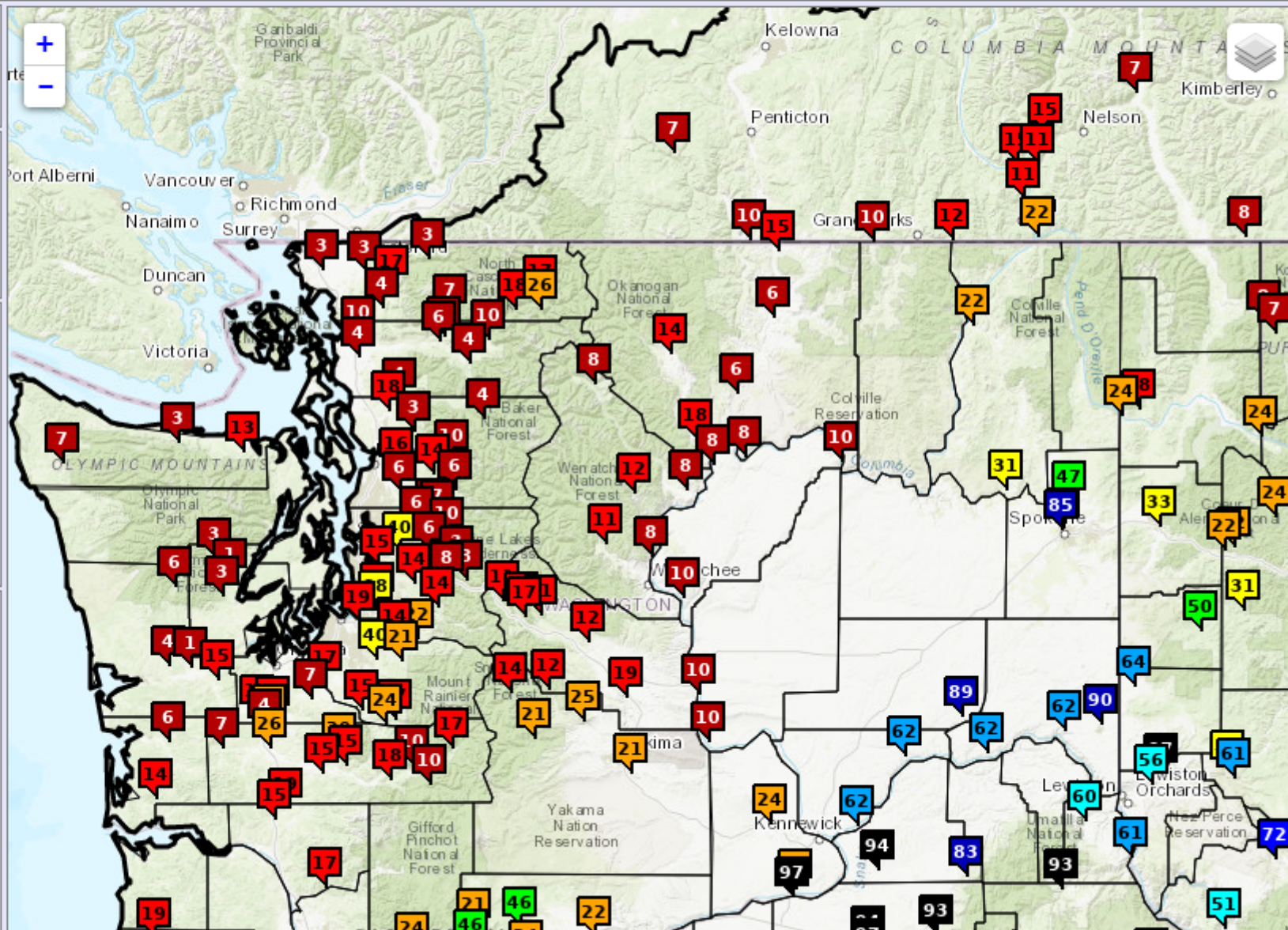
- ☐ Runoff Status
- ☐ Runoff % of Normal

ESP Natural Forecast

Period: APR-SEP

Percentile Probability(%)

- ☐ No Data
- ☒ 0-10
- ☐ 10-20
- ☐ 20-30
- ☐ 30-40
- ☐ 40-50
- ☐ 50-60
- ☐ 60-70
- ☐ 70-80
- ☐ 80-90
- ☐ 90-100





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ESP Issued: 2019-06-06

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Search

Enter NWS ID:

GO

Map Overlays

- ☒ NWRFC Boundary
- ☐ NWRFC Basins
- ☐ NWS HSAs
- ☒ Counties

ESP Natural Forecast

- ☐ Natural Status
- ☐ Natural % of Normal
- ☐ Rank (ASC)
- ☒ Rank (DESC)
- ☐ Exceedance (%)
- ☐ Percentile (%)

Natural Runoff

- ☐ Runoff Status
- ☐ Runoff % of Normal

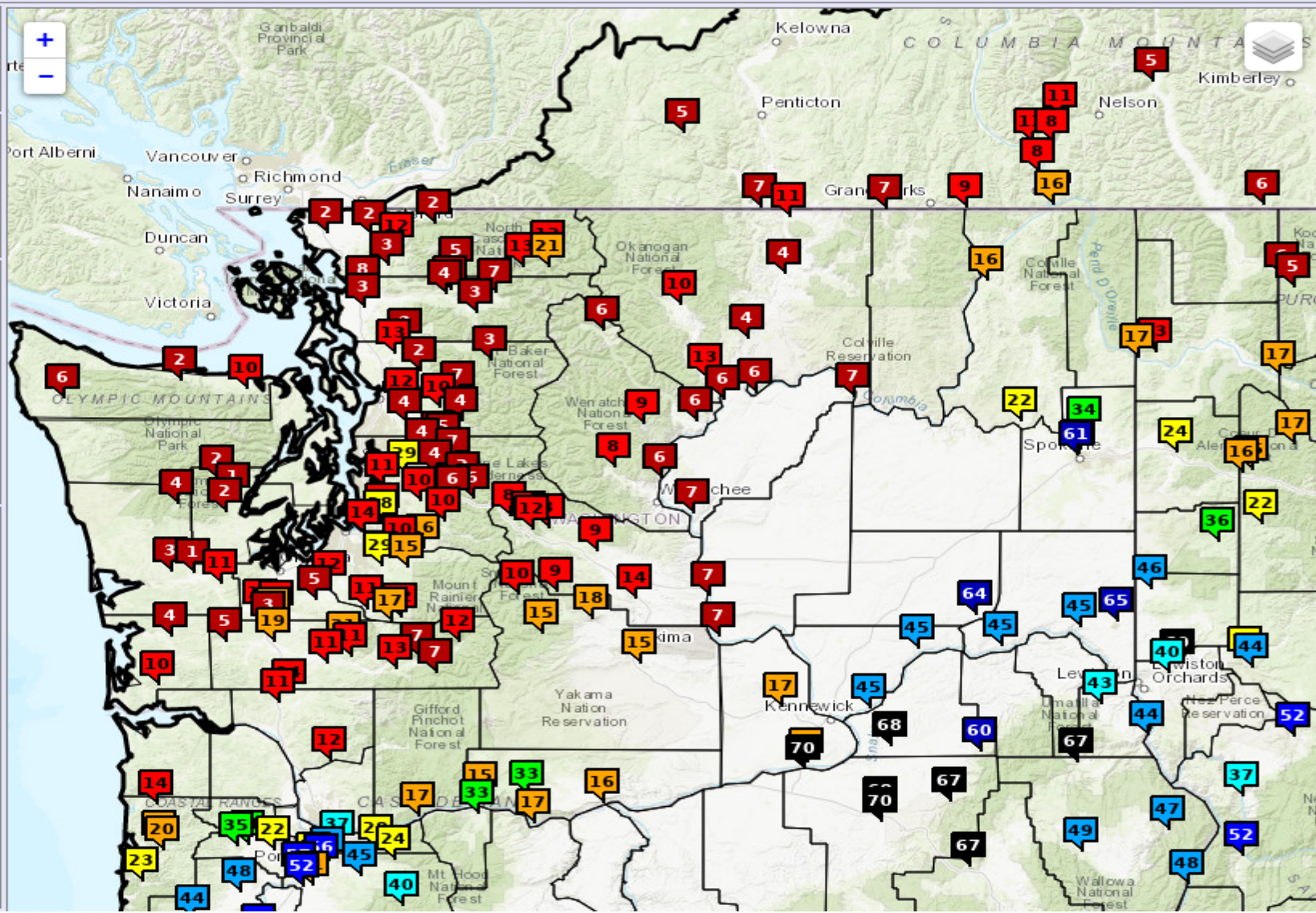
ESP Natural Forecast

Period: APR-SEP

Rank (Descending)

Marker Color Shows
Percentile (%)

- No Data
- 0-10
- 10-20
- 20-30
- 30-40
- 40-50
- 50-60
- 60-70
- 70-80
- 80-90
- 90-100





NWRFC

 [Permalink](#)

GO

☒ Counties

Forecast Status:

- Minimum Flow


Minimum Flow

Legend

Minimum Flow Forecast
for 06/06/19 thru 10/01/19
as a % of the Min Obs
for the same period

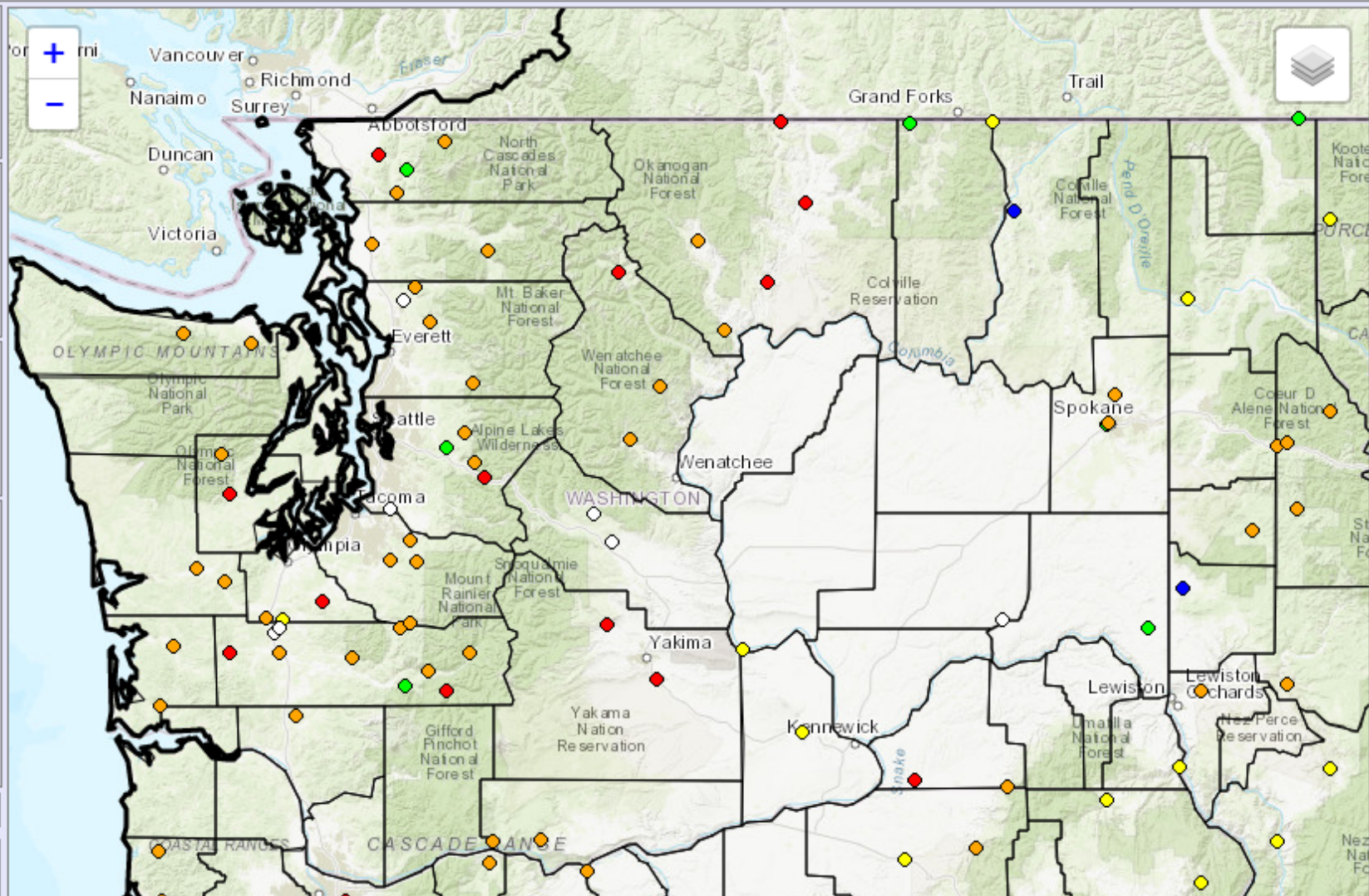
- > 400
- 300 to ≤ 400

300 to ≤ 400
200 to ≤ 300

 100 to \leq 200
 \leq 100

● ≤ 100
○ Obs Data Missing

Stations Displayed: 117



Nooksack R at Cedarville Minimum Flow

NOOKSACK--AT CEDARVILLE

State: Washington County: WHATCOM

Latitude: 48 50' 30" North Longitude: 122 17' 35" West

Elevation: 0 feet

Supporting WFO: Seattle

Action Stage: 144.8' Flood Stage: 146.5' Moderate Flood Stage: 148'

Major Flood Stage: 150'

Historical Minimum Flow Statistics For Period Jun 6 thru Oct 1

POR: 2006 - 2016

Minimum Daily Observed Flow: 713 cfs

Date of Observation: Sep 17, 2006

Average of Minimum Daily Flows for Period: 1306 cfs

This is a seasonal forecast. It is best used during periods of potential low flows impacts.

NOOKSACK--AT CEDARVILLE NRKW1

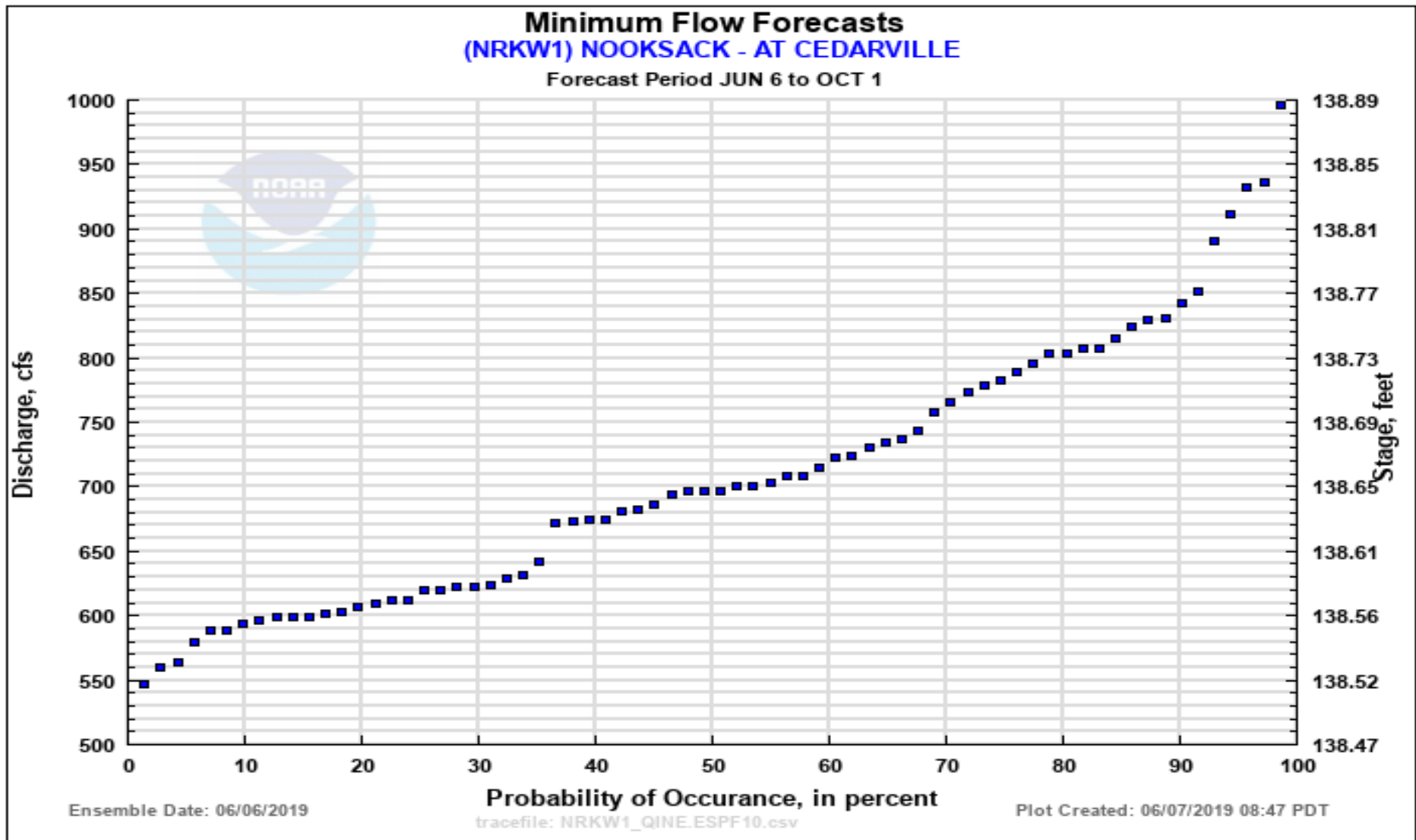
Forecasts for Water Year 2019


Forecast Issued: 2019-06-06

Forecast Period: June 6 to October 1

Probability of Occurrence	Stage feet	Discharge CFS
95 %	138.83	920
90 %	138.77	842
70 %	138.70	763
50 %	138.65	696
30 %	138.58	623
10 %	138.56	594
05 %	138.54	572

Nooksack R at Cedarville Minimum Flow



[Click to download runoff traces used in forecast.](#) [Click for comma delimited data used in plot.](#) 



Northwest River Forecast Center

ESP Natural Forecasts

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NOOKSACK - AT CEDARVILLE (NRKW1)

Forecasts for Water Year **2019**

ESP Natural Forecast

10 days QPF: Ensemble: 2019-06-06 Issued: 2019-06-06

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	706	744	64	819	1159
APR-JUL	588	607	65	645	941
JAN-SEP	1104	1143	63	1218	1810
JAN-JUL	986	1006	63	1044	1592
OCT-SEP	1805	1843	73	1918	2531

5 days QPF: Ensemble: 2019-06-06 Issued: 2019-06-06

APR-SEP	713	751	65	824	1159
APR-JUL	586	610	65	646	941
JAN-SEP	1112	1149	63	1223	1810
JAN-JUL	985	1008	63	1045	1592
OCT-SEP	1812	1850	73	1923	2531

0 days QPF: Ensemble: 2019-06-06 Issued: 2019-06-06

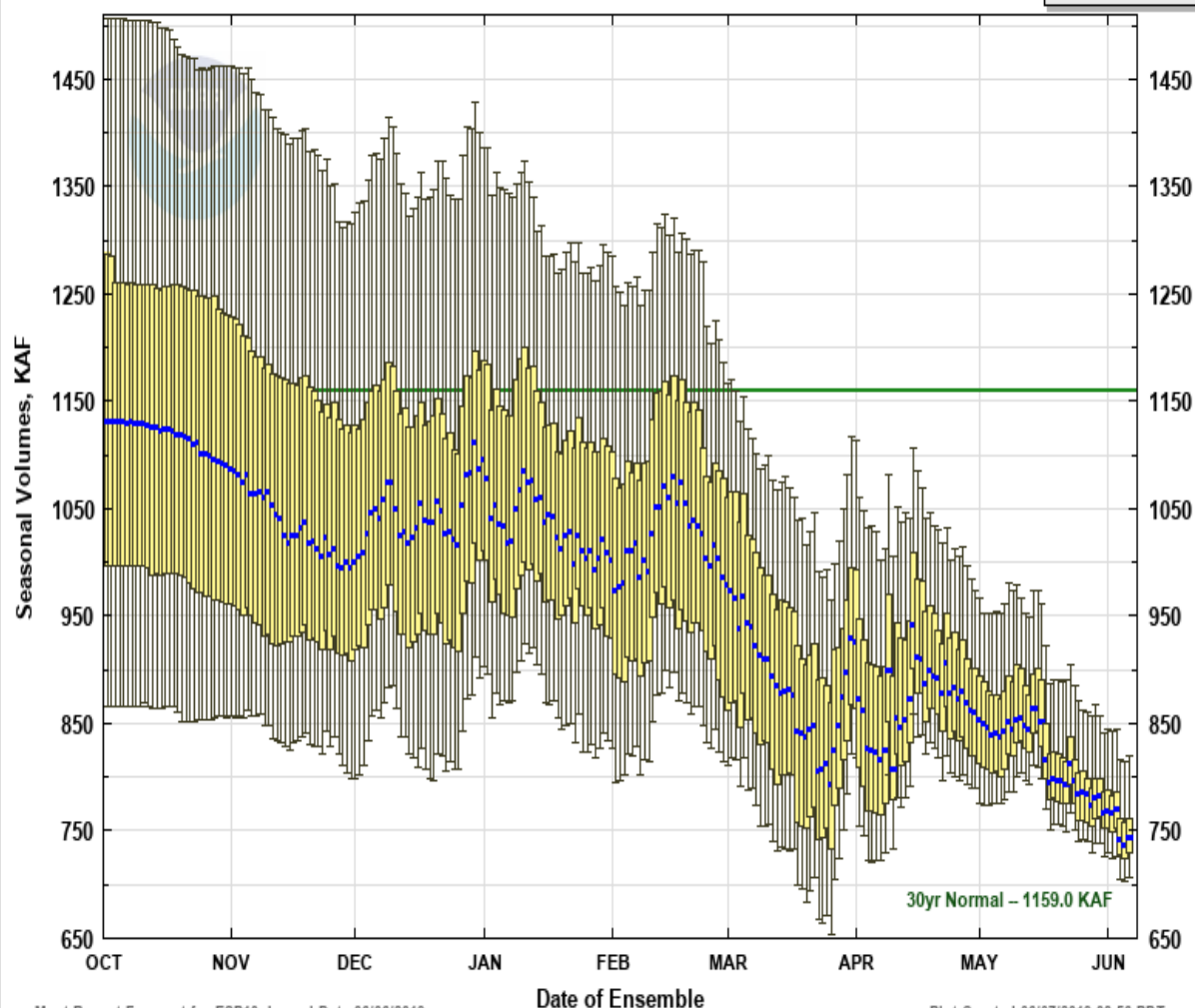
APR-SEP	718	761	66	836	1159
APR-JUL	591	611	65	666	941
JAN-SEP	1117	1160	64	1235	1810
JAN-JUL	990	1010	63	1065	1592
OCT-SEP	1817	1860	73	1936	2531

Move the mouse over the desired "Forecast Period" to display a graph.

Natural Volume Forecasts

NOOKSACK - AT CEDARVILLE

Period APR to SEP - Water Year 2019



Most Recent Forecast for ESP10: Issued Date 06/06/2019

Plot Created 06/07/2019 08:56 PDT

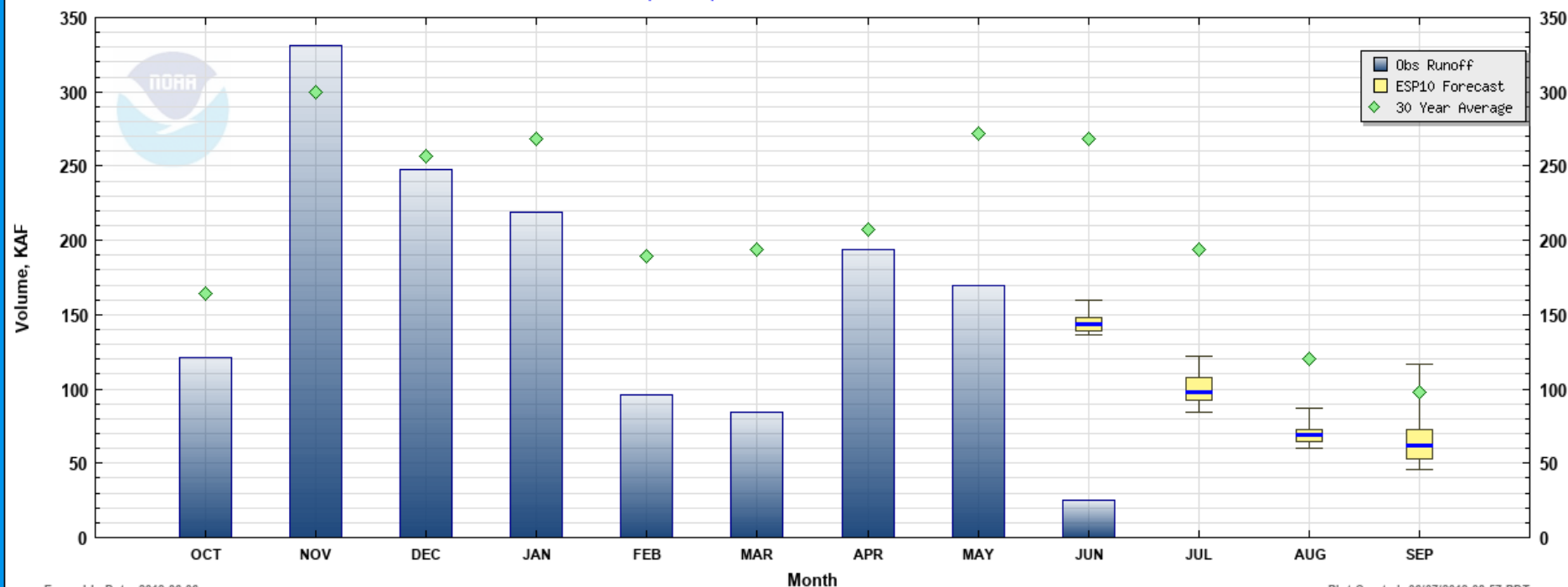


Northwest River Forecast Center

ESP Monthly Natural Volumes

[Home](#) [Close](#) [Previous Page](#) [Seasonal Forecasts](#) Choose Date: [Next Water Year](#)

Natural Volume Monthly Forecasts (ESP10) for Water Year 2019
(NRKW1) NOOKSACK - AT CEDARVILLE



NOOKSACK - AT CEDARVILLE Forecasts For Water Year 2019

ESP Natural Forecast

10 days QPF: Ensemble: 2019-06-06 Issued: 2019-06-06

Forecast Period	Forecasts Are in KAF				Obs Runoff (2019-06-06)	30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %		
OCT					121	164
NOV					331	300
DEC					248	257
JAN					219	268
FEB					96	189

NOOKSACK - AT CEDARVILLE Forecasts For Water Year 2019

ESP Natural Forecast

5 days QPF: Ensemble: 2019-06-06 Issued: 2019-06-06

Forecast Period	Forecasts Are in KAF				Obs Runoff (2019-06-06)	30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %		
OCT					121	164
NOV					331	300
DEC					248	257
JAN					219	268
FEB					96	189

NOOKSACK - AT CEDARVILLE Forecasts For Water Year 2019

ESP Natural Forecast

0 days QPF: Ensemble: 2019-06-06 Issued: 2019-06-06

Forecast Period	Forecasts Are in KAF				Obs Runoff (2019-06-06)	30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %		
OCT					121	164
NOV					331	300
DEC					248	257
JAN					219	268
FEB					96	189

NWS Water Supply Forecasts

- Water supply forecast continue to deteriorate across the state, both sides of the Cascades, but with a distinct geographical differences
- More than two thirds of the state have projections of 80% or less of normal water volumes with many below 70%.
- Worst of those have percentiles in the driest 1-3% range and many rank in the top 5 driest
- The area with the lowest water volume projections is everything north and west of a line from Kennewick to Spokane – the SE corner of WA
- Outlook is not favorable for water supply
 - Warmer than normal likely spring and summer and beyond
 - Precipitation greater chances of below normal spring, shifting to equal chances during summer and early fall during the driest period of the year