

Water Supply Outlook For - Spring-Summer 2020

WSAC December 13 , 2019
Brent Bower NWS Seattle



Climate Prediction Center

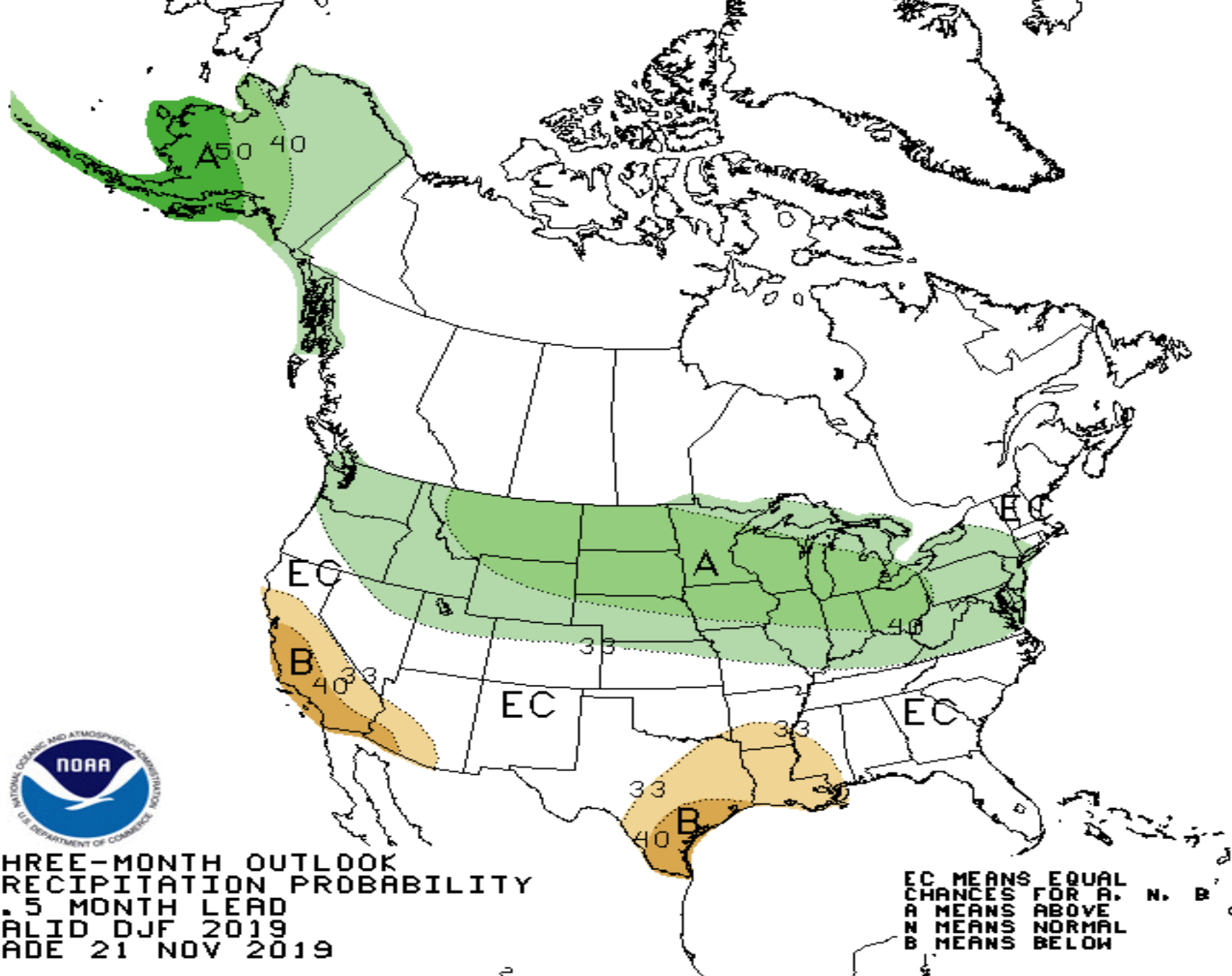
Winter Outlook:

Precipitation: Above Normal Dec – Feb;
Equal Chances for Mar to May

Temperatures: greater odds for warmer than
normal

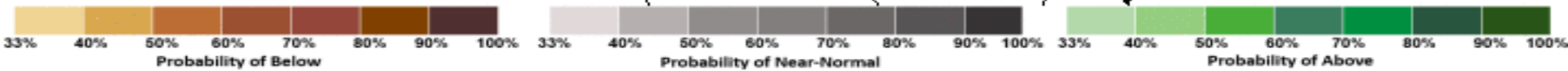
El Nino/La Nina: best odds for neutral into
spring

Warm Northeast Pacific Ocean – ‘marine heat
wave’



THREE-MONTH OUTLOOK
 PRECIPITATION PROBABILITY
 0.5 MONTH LEAD
 VALID DJF 2019
 MADE 21 NOV 2019

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





Northwest River Forecast Center

Current Station Snow Conditions



River and Hydrology

Water Supply

Observations

Weather Forecasts

Climate

NWRFC

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Zoom Out

--- Quick Zooms ---

Refresh Data

Last Refresh: 2019-12-13 07:41:34 PST

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

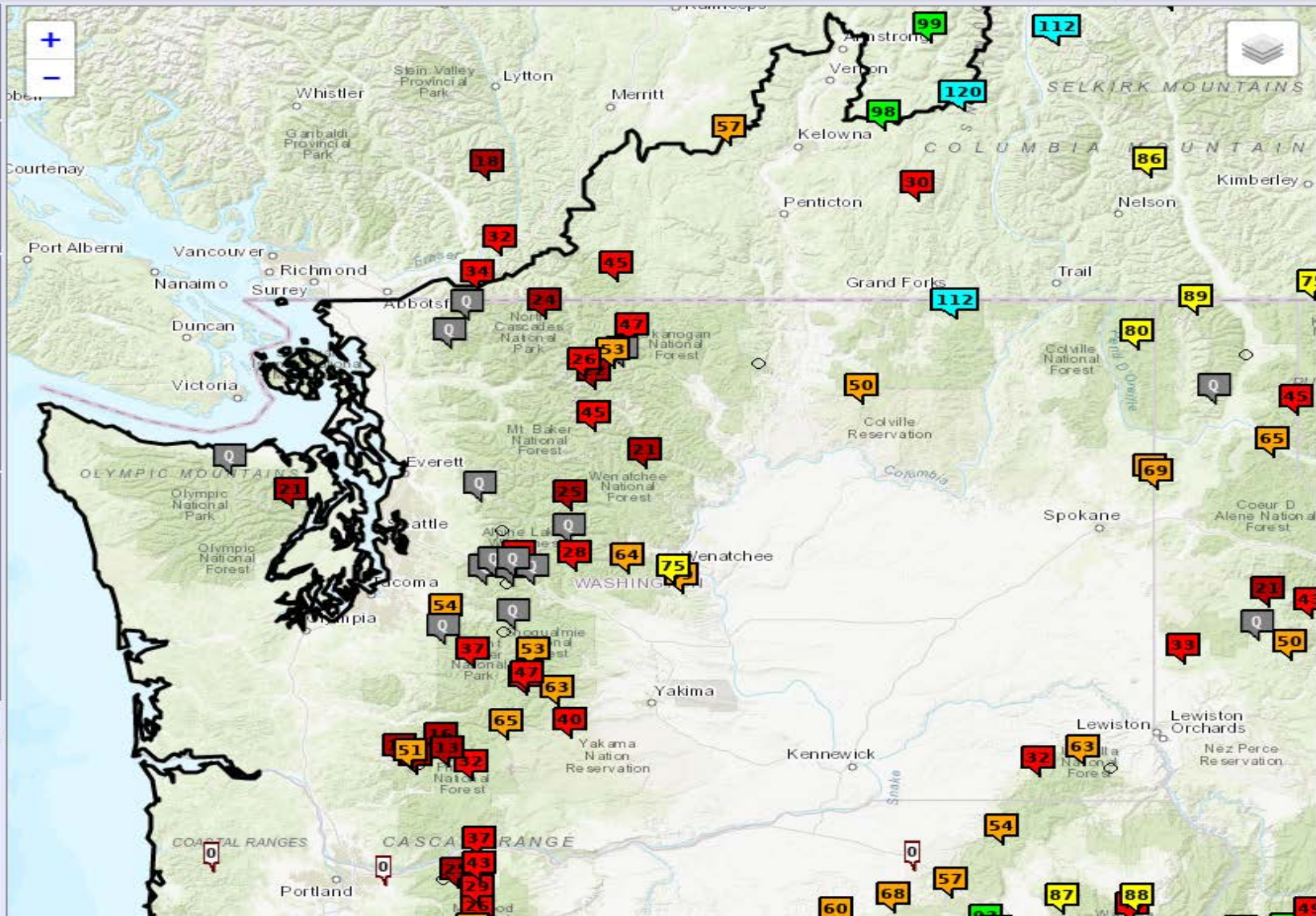
SWE (% Avg)

- ☐ Questionable
- ☐ Not Available
- ☐ Zero
- ☐ < 25
- ☐ 25-50
- ☐ 50-75
- ☐ 75-90
- ☐ 90-110
- ☐ 110-125
- ☐ 125-150
- ☐ 150-175
- ☐ > 175

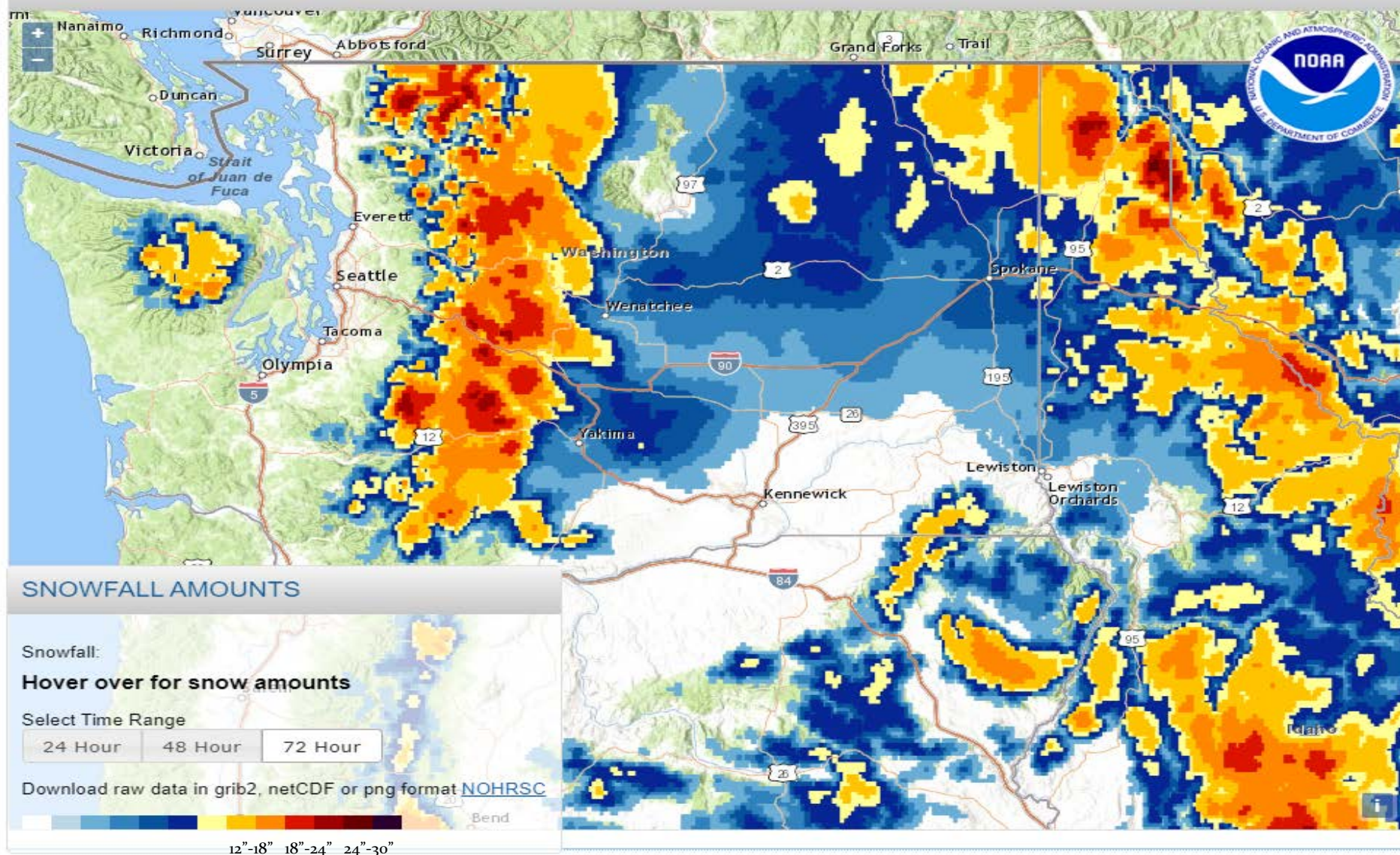
Stations Displayed: 109

Related Links

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



SNOWFALL ANALYSIS FROM THE LAST 72 HOURS ENDING: 6 AM CST FRIDAY DECEMBER 13TH, 2019





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Water Supply Forecasts



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--- Quick Zooms ---

ESP Issued: 2019-12-12

Ensemble Date: 2019-12-12

[Permalink](#)

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Enter NWS ID:

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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)

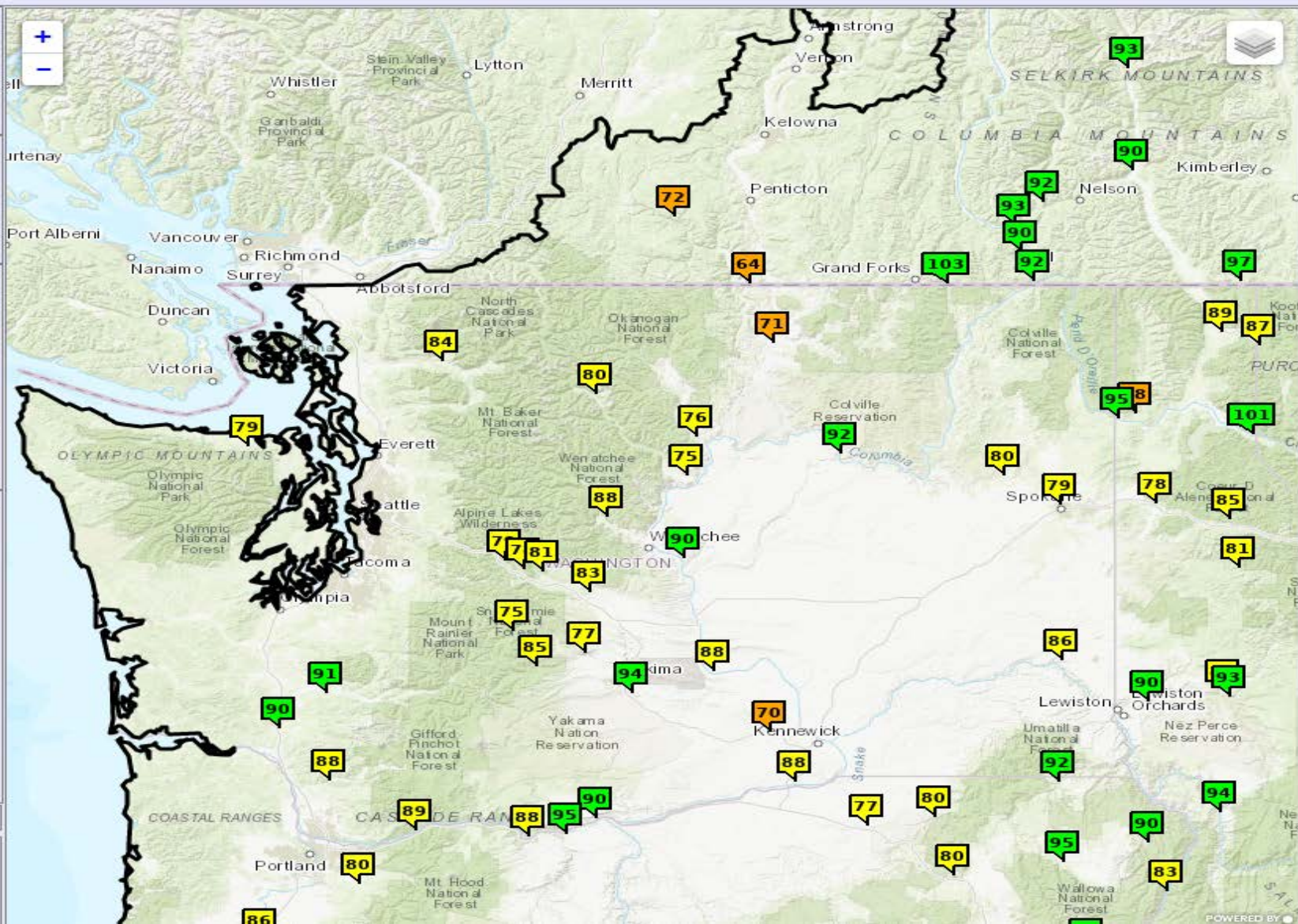
- ☐ No Normal, No data
- ☐ < 25
- ☐ 25-50
- ☐ 50-75
- ☐ 75-90
- ☐ 90-110
- ☐ 110-125
- ☐ 125-150
- ☐ 150-175
- ☐ > 175



Stations Displayed: 66

Water Supply Links

- [Forecast Listing](#)
- [Forecast Report](#)
- [Forecast Report CSV](#)





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ESP Natural Forecast



River and Hydrology

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--- Quick Zooms ---

ESP Issued: 2019-12-12

Ensemble Date: 2019-12-12

[Permalink](#)

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

Forecast (% Normal)

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

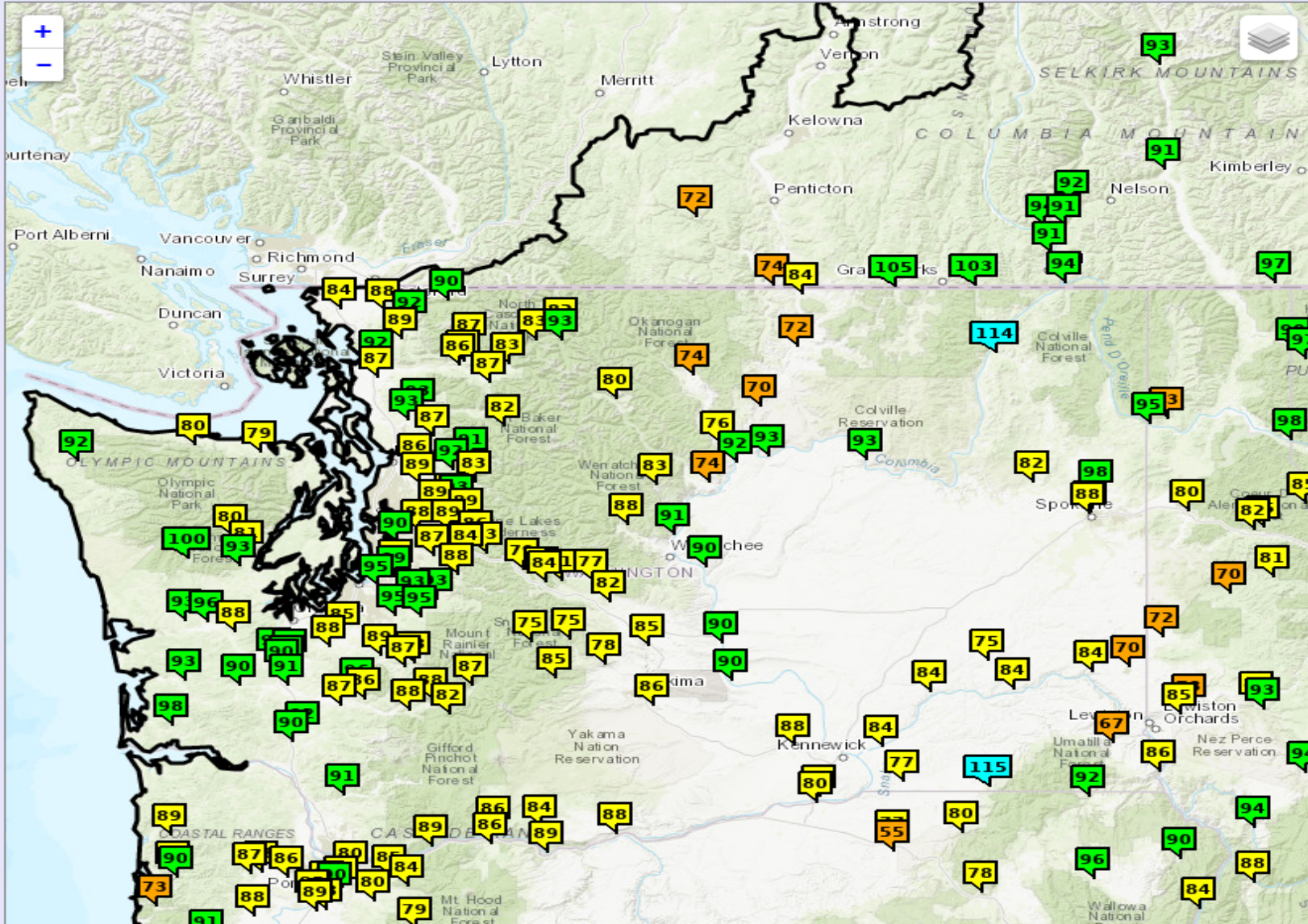


Stations Displayed:

200

Natural Links

- [Forecast Listing](#)
- [Forecast Report](#)
- [Forecast Report CSV](#)





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COLUMBIA - THE DALLES DAM (TDAO3)

Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2019-12-12 Issued: 2019-12-12

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	63716	81957	88	107423	92704
APR-JUL	53190	69541	87	89708	79855
APR-AUG	58868	76886	88	100025	87532
JAN-SEP	77007	98751	86	128542	114216
JAN-JUL	67642	87663	86	112859	101368
OCT-SEP	89451	111080	85	140840	130518

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2019-12-12 Issued: 2019-12-12

APR-SEP	66793	85534	92	111972	92704
APR-JUL	55964	72756	91	94329	79855
APR-AUG	61473	80585	92	104842	87532
JAN-SEP	81806	103059	90	129660	114216
JAN-JUL	70966	91462	90	114908	101368
OCT-SEP	94777	115746	89	142120	130518

Reference

ESP with 0 Days QPF Ensemble: 2019-12-12 Issued: 2019-12-12

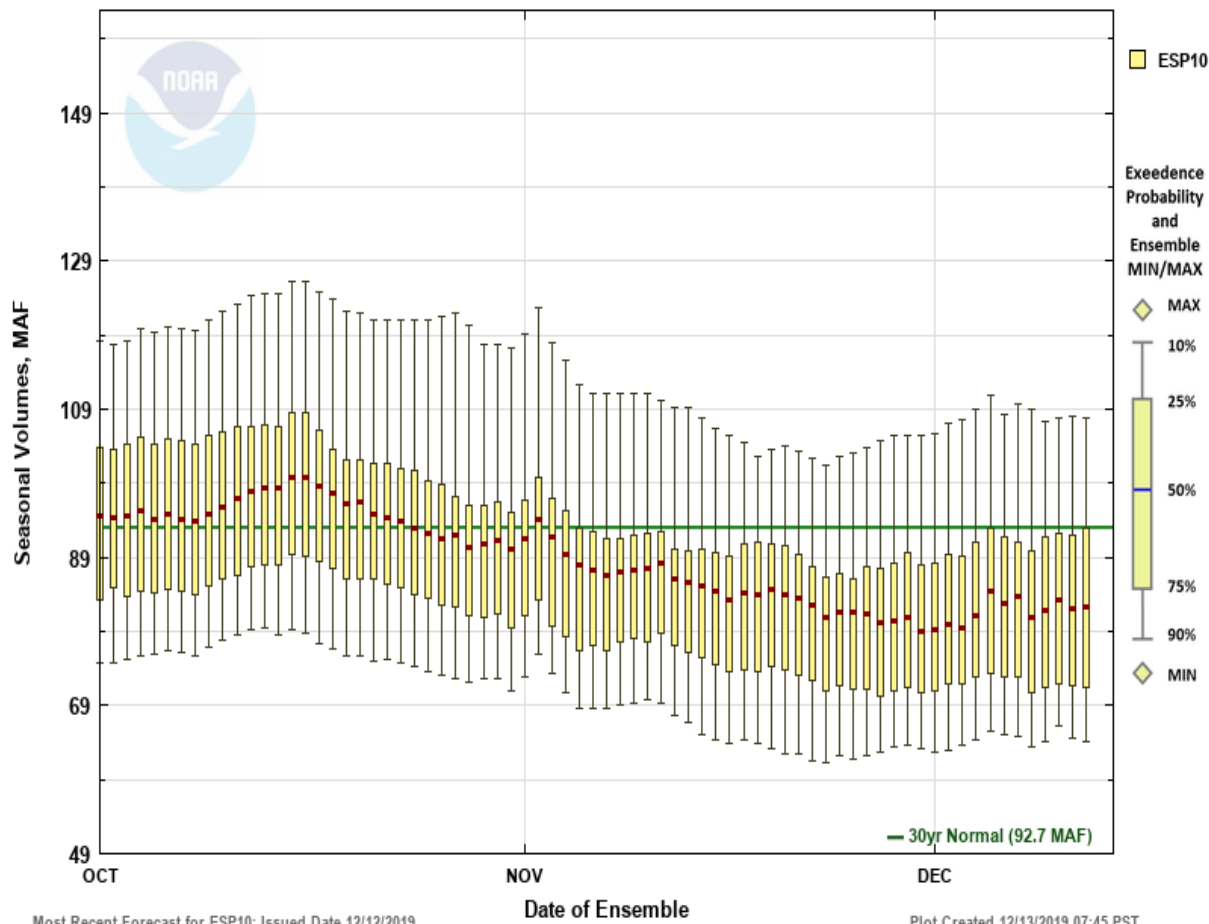
APR-SEP	66292	83290	90	110278	92704
APR-JUL	55496	71681	90	93791	79855
APR-AUG	61227	78725	90	104268	87532
JAN-SEP	80472	101138	89	127866	114216
JAN-JUL	69776	89632	88	113241	101368
OCT-SEP	93327	113366	87	140308	130518

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

Water Supply Forecasts

COLUMBIA - THE DALLES DAM

Period APR to SEP -- Water Year 2020



☐ Max Scale
 ☒ Scale To Data
 ☐ Scale To Last 45 Days
 ☐ Show Min/Max Ensemble Volume
 ☐ Show Tooltips Help



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Water Supply Forecasts

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COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2019-12-12 Issued: 2019-12-12

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Reference

ESP with 0 Days QPF Ensemble: 2019-12-12 Issued: 2019-12-12

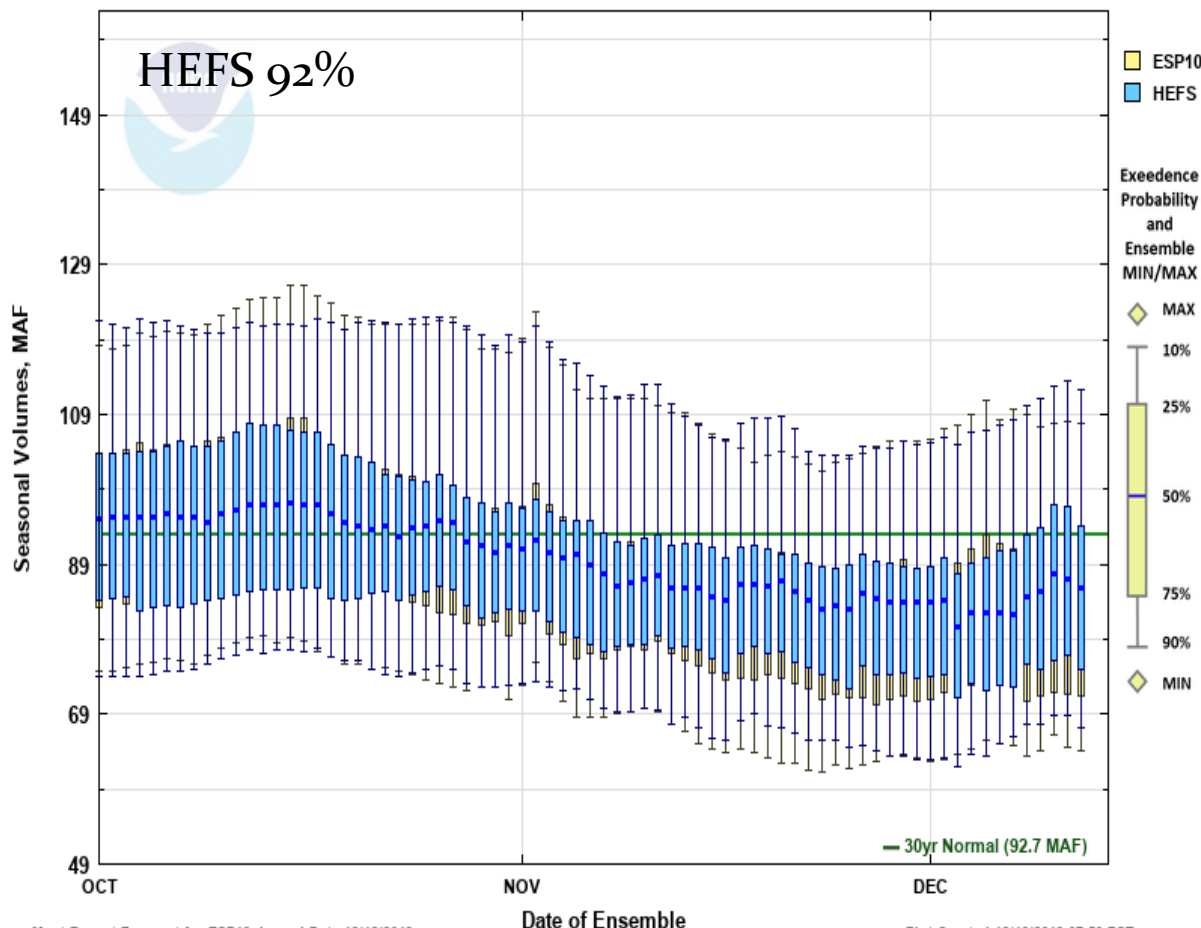
APR-SEP	66292	83290	90	110278	92704
APR-JUL	55496	71681	90	93791	79855
APR-AUG	61227	78725	90	104268	87532
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Move the mouse over the desired "Forecast Period" to display a graph.

Water Supply Forecasts

COLUMBIA - THE DALLES DAM

Period APR to SEP -- Water Year 2020





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OKANOGAN - NEAR TONASKET (TONW1) Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2019-12-12 Issued: 2019-12-12

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	630	1127	71	1862	1583
APR-JUL	578	959	68	1659	1419
JAN-SEP	837	1314	72	2122	1832
JAN-JUL	773	1239	74	1877	1668
OCT-SEP	1093	1570	76	2378	2070

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2019-12-12 Issued: 2019-12-12

APR-SEP	539	1123	71	1854	1583
APR-JUL	491	984	69	1639	1419
JAN-SEP	766	1318	72	2096	1832
JAN-JUL	699	1220	73	1869	1668
OCT-SEP	1025	1574	76	2356	2070

Reference

ESP with 0 Days QPF Ensemble: 2019-12-12 Issued: 2019-12-12

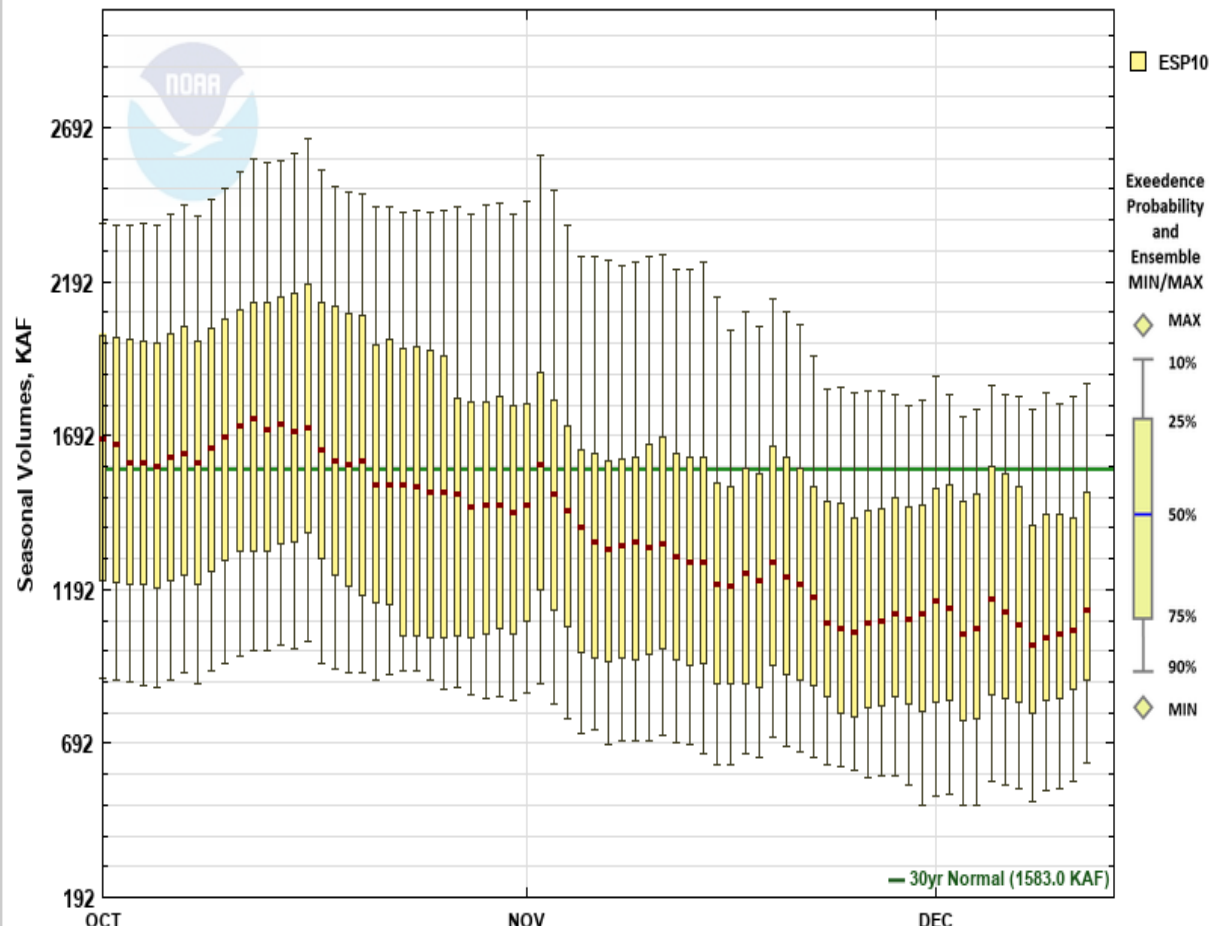
APR-SEP	496	1087	69	1772	1583
APR-JUL	450	987	70	1586	1419
JAN-SEP	717	1326	72	2016	1832
JAN-JUL	671	1206	72	1816	1668
OCT-SEP	973	1585	77	2282	2070

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

Water Supply Forecasts

OKANOGAN - NEAR TONASKET

Period APR to SEP -- Water Year 2020



Most Recent Forecast for ESP10: Issued Date 12/12/2019

Plot Created 12/13/2019 07:53 PST

☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max Ensemble Volume ☐ Show Tooltips Help



Northwest River Forecast Center

Water Supply Forecasts

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DUNGNESS - NEAR SEQUIM (DRSW1) Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2019-12-12 Issued: 2019-12-12

Forecasts Are in KAF

Forecast Period	90 %	50 %	% Average	10 %	30 Year Average (1981-2010)
APR-SEP	87	114	79	168	145
APR-JUL	74	99	82	145	120
JAN-SEP	124	180	83	256	216
JAN-JUL	111	161	84	233	192
OCT-SEP	155	211	75	288	281

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2019-12-12 Issued: 2019-12-12

APR-SEP	86	109	75	170	145
APR-JUL	74	96	80	145	120
JAN-SEP	132	177	82	268	216
JAN-JUL	113	159	83	232	192
OCT-SEP	161	212	75	315	281

Reference

ESP with 0 Days QPF Ensemble: 2019-12-12 Issued: 2019-12-12

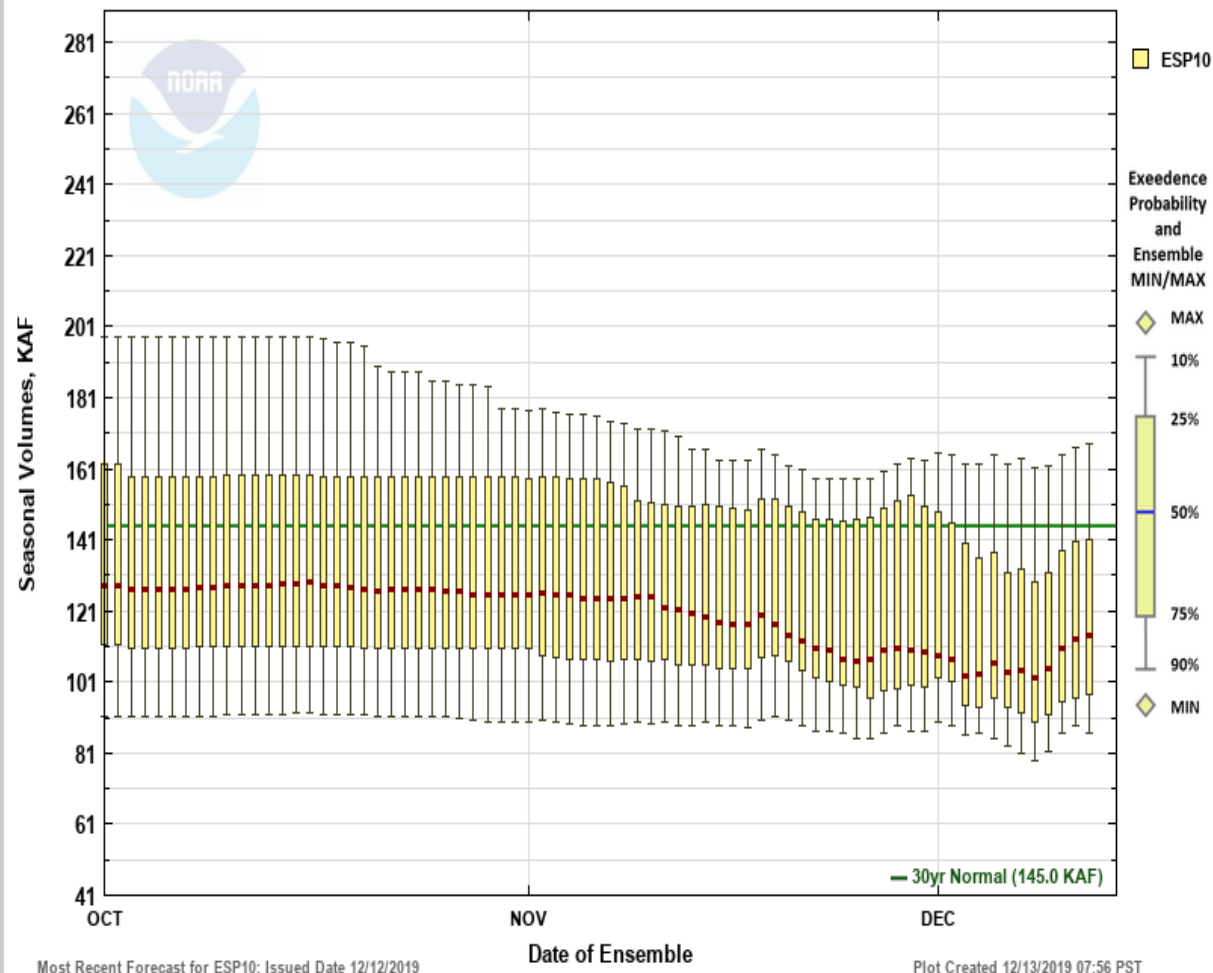
APR-SEP	85	103	71	161	145
APR-JUL	72	90	75	143	120
JAN-SEP	128	170	79	262	216
JAN-JUL	113	153	80	233	192
OCT-SEP	160	204	73	315	281

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

Water Supply Forecasts

DUNGNESS - NEAR SEQUIM

Period APR to SEP -- Water Year 2020





NWS Water Supply Forecasts

- Still early in the water year
 - alot can change fast
 - Still heavily dependent on climatology
 - Snow pack is dismal so far
(but snowing 😊)
- Predominantly below normal Volumes, especially eastern WA, but a fair amount of variability
- HEFS with 15-day weather forecast ensemble (GEFS + MEFP)
 - many are lower than ESP but others are same or higher