

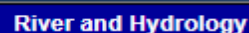
Water Supply Outlook Spring/Summer 2019

WSAC April 12 , 2019

Brent Bower NWS

NWS Water Supply Forecasts

- Major improvements for the south east portion of the state with some deterioration in the north west portion
- Approximately one half of the state have projections of 80% or below of normal water volumes
- Worst of those have percentiles of 3-8% driest and rank in the top 10 driest; top 5 driest west side basins
- Areas with the lowest water volume projections are across the northern in the western two thirds of the state
- Outlook is looking less favorable for water supply
 - Warmer than normal likely spring and summer
 - Precipitation greater chances of below normal later spring and equal chances during the summer



Water Supply

Observations

Weather Forecasts

Climate

NWRFC

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--- Quick Zooms --- ▼

ESP Issued: 2019-04-11

Ensemble Date: 2019-04-11



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

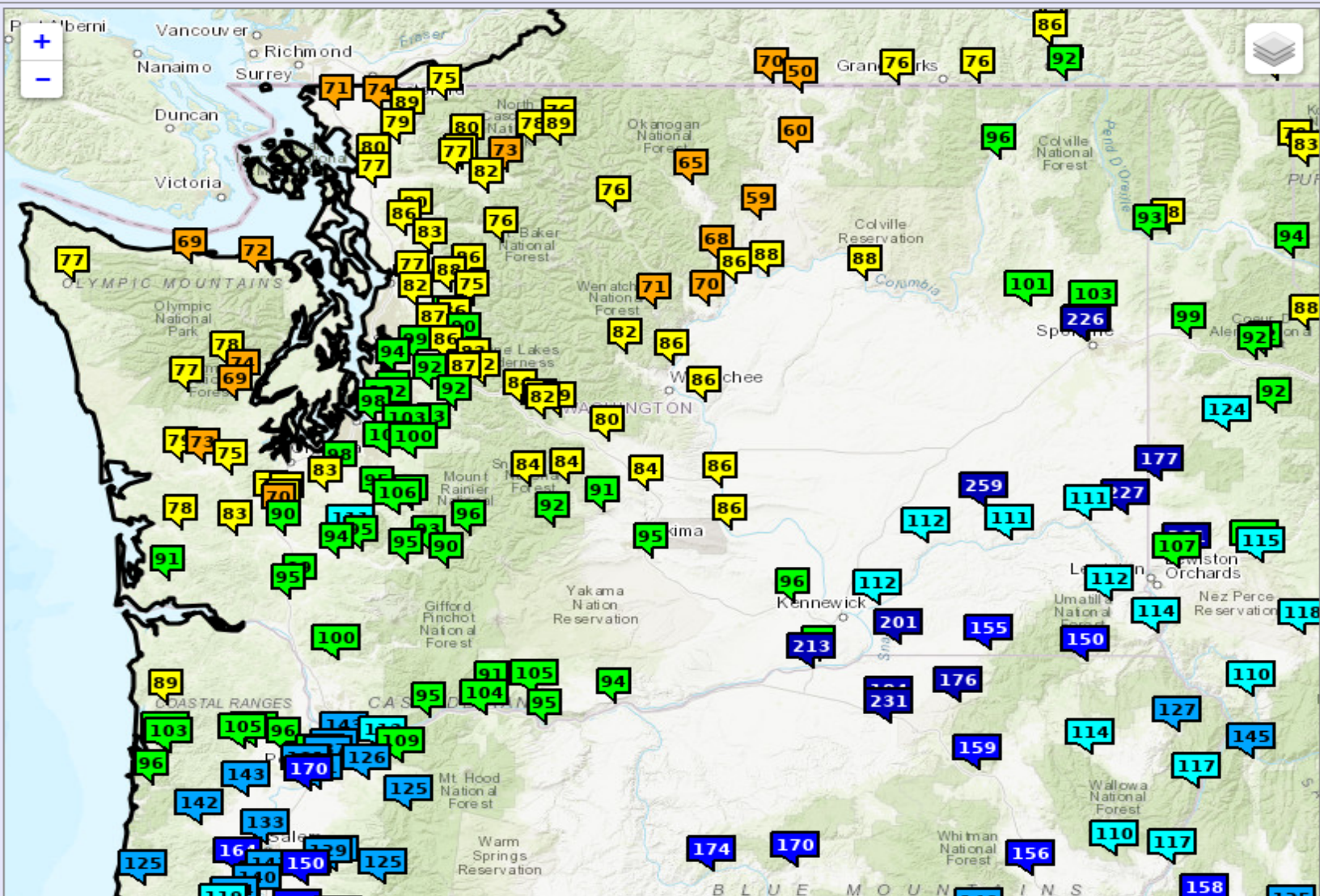
- ☐ Runoff Status
- ☐ Runoff % of Normal

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





Northwest River Forecast Center

ESP Natural Forecast



River and Hydrology

Water Supply

Observations

Weather Forecasts

Climate

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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

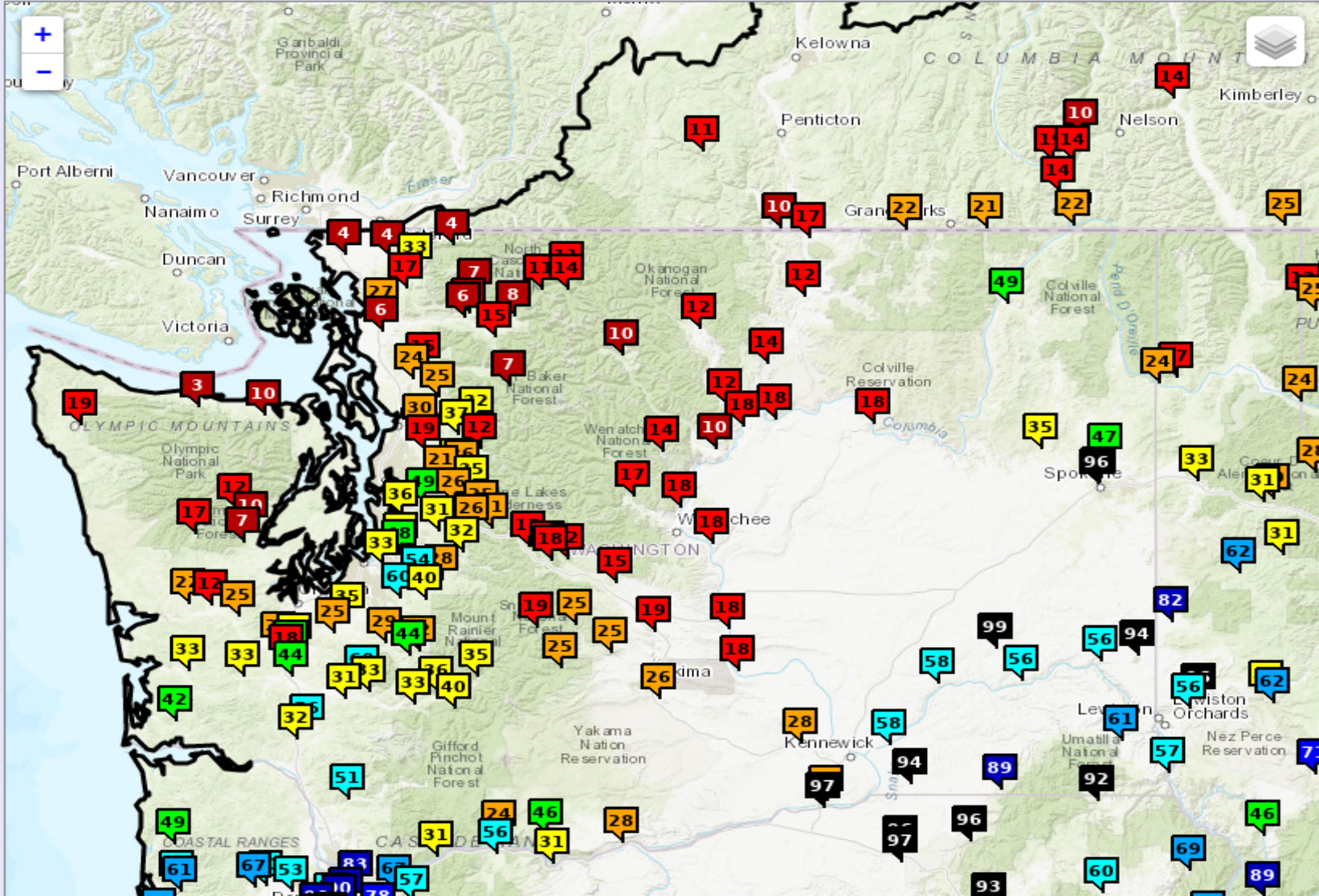
- ☐ Runoff Status
- ☐ Runoff % of Normal

ESP Natural Forecast

Period: APR-SEP

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 Natural Forecast



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--- Quick Zooms ---

ESP Issued: 2019-04-11

Ensemble Date: 2019-04-11

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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

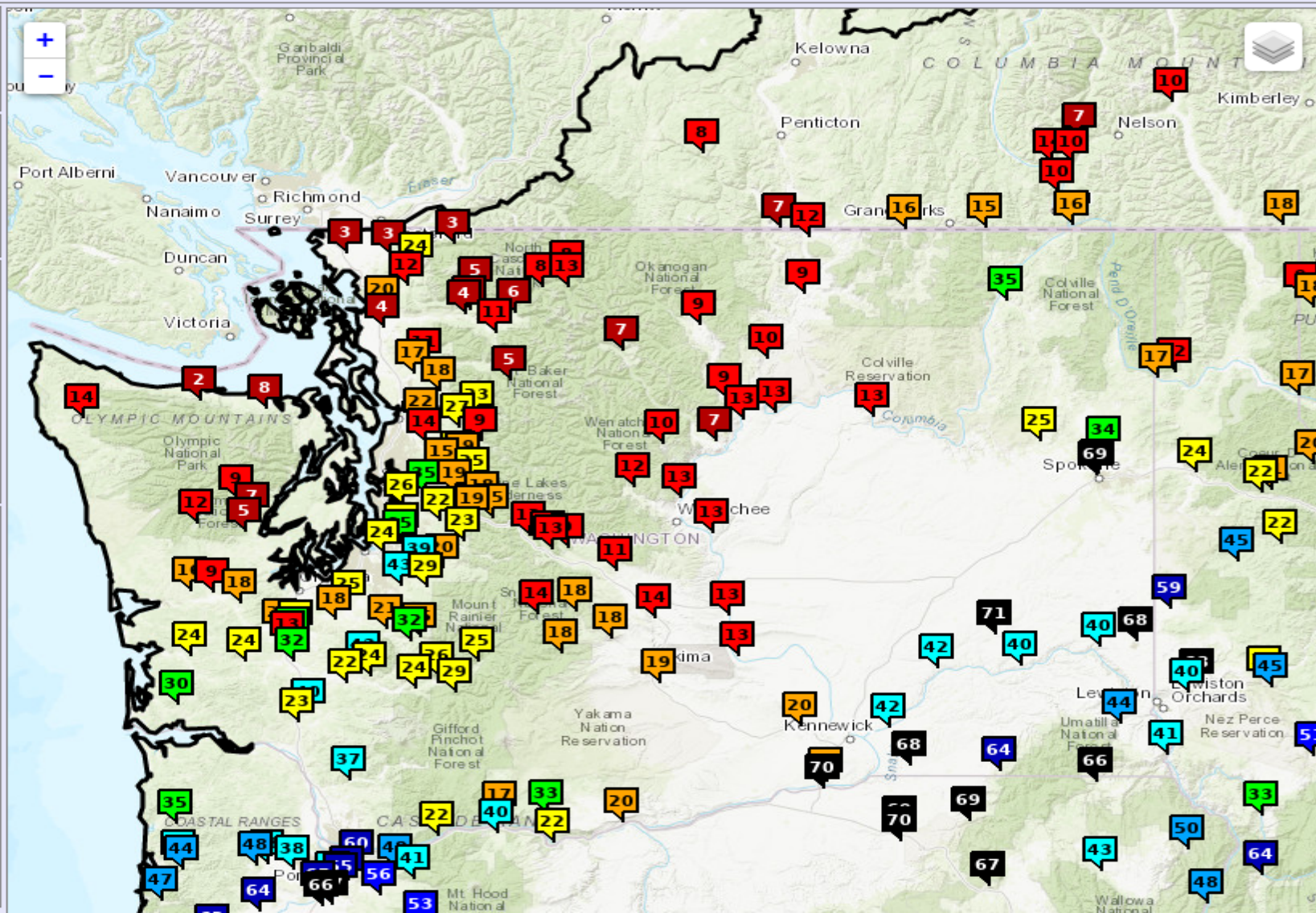
ESP Natural Forecast

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





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ESP Natural Forecasts

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OKANOGAN - NEAR TONASKET (TONW1) Forecasts for Water Year 2019

ESP Natural Forecast

10 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	798	974	60	1263	1633
APR-JUL	728	895	61	1159	1464
JAN-SEP	1006	1182	63	1471	1870
JAN-JUL	936	1103	65	1367	1702
OCT-SEP	1263	1439	69	1728	2097

5 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

APR-SEP	794	971	59	1259	1633
APR-JUL	735	896	61	1179	1464
JAN-SEP	1002	1179	63	1467	1870
JAN-JUL	943	1104	65	1387	1702
OCT-SEP	1259	1436	68	1724	2097

0 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

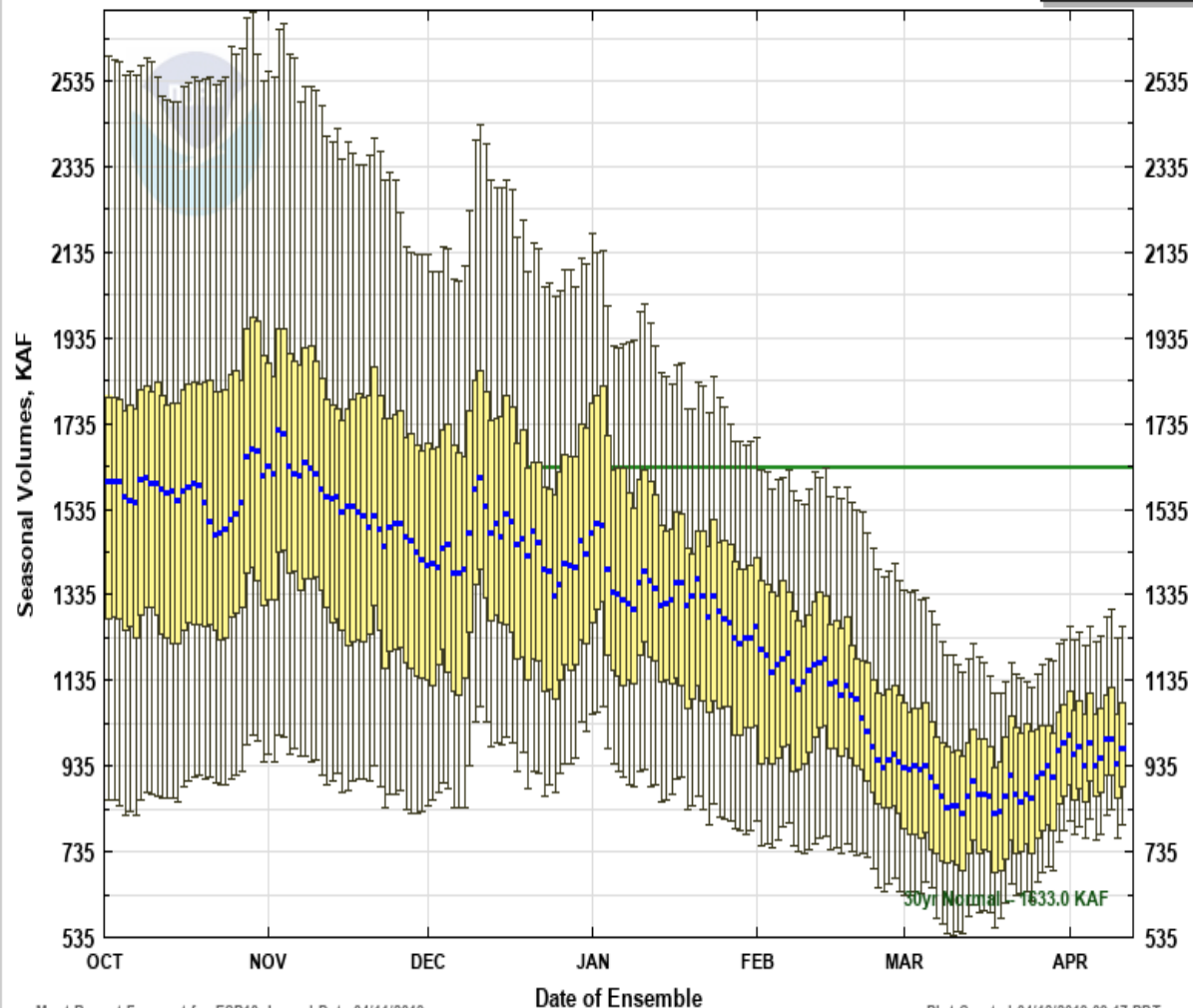
APR-SEP	808	1002	61	1268	1633
APR-JUL	742	931	64	1159	1464
JAN-SEP	1016	1210	65	1476	1870
JAN-JUL	950	1139	67	1367	1702
OCT-SEP	1273	1467	70	1732	2097

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

Natural Volume Forecasts

OKANOGAN - NEAR TONASKET

Period APR to SEP - Water Year 2019



Most Recent Forecast for ESP10: Issued Date 04/11/2019

Plot Created 04/12/2019 09:17 PDT



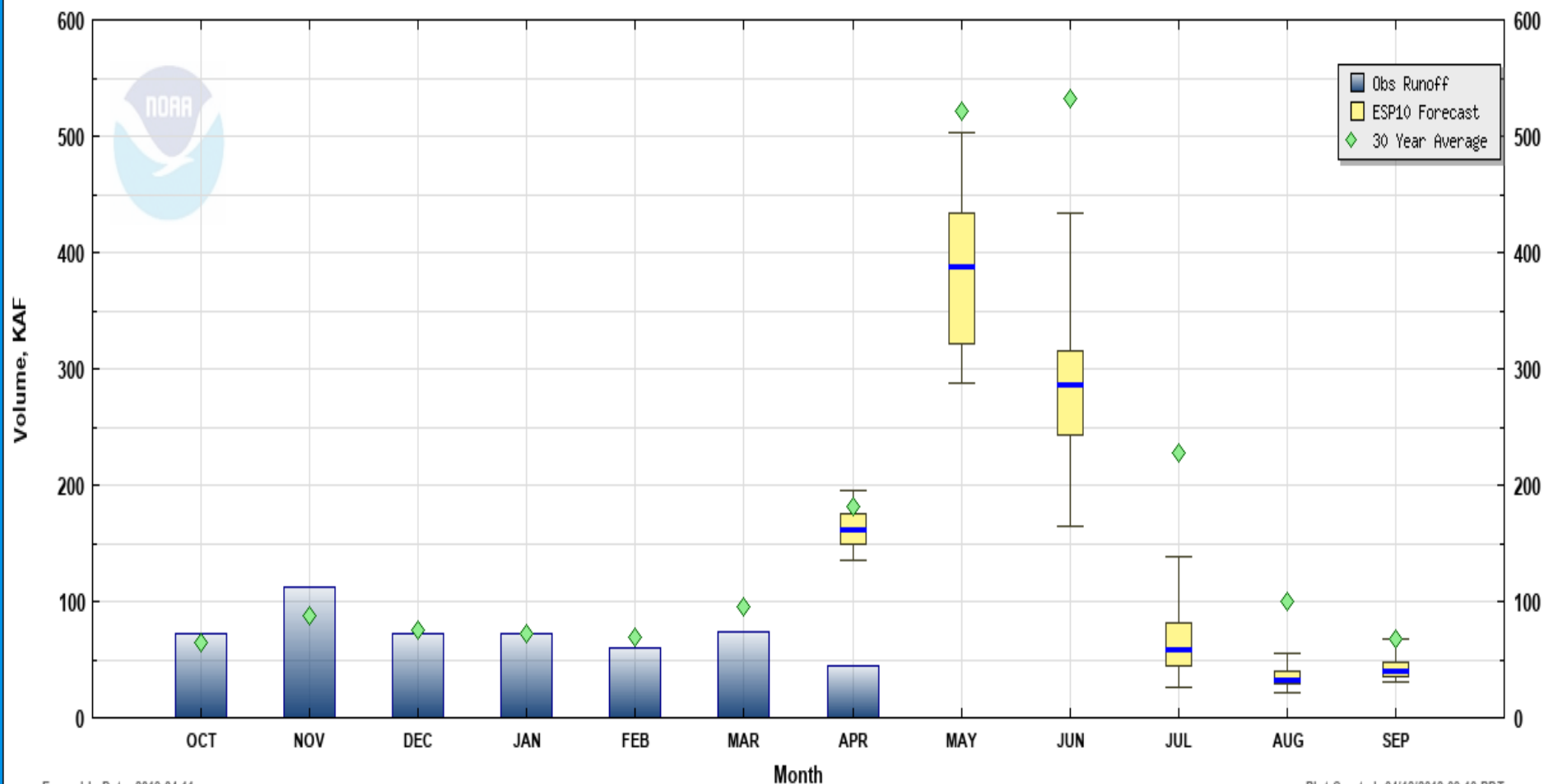
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ESP Monthly Natural Volumes

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

Natural Volume Monthly Forecasts (ESP10) for Water Year 2019

(TONW1) OKANOGAN - NEAR TONASKET



Ensemble Date: 2019-04-11

Plot Created: 04/12/2019 09:18 PDT



Northwest River Forecast Center

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METHOW - NEAR PATEROS (PATW1)

Forecasts for Water Year 2019

ESP Natural Forecast

10 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	529	609	68	712	895
APR-JUL	482	561	67	669	833
JAN-SEP	597	677	69	780	985
JAN-JUL	549	628	68	736	923
OCT-SEP	672	752	70	855	1075

5 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

APR-SEP	525	625	70	728	895
APR-JUL	479	579	70	681	833
JAN-SEP	593	693	70	796	985
JAN-JUL	547	647	70	748	923
OCT-SEP	668	768	71	871	1075

0 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

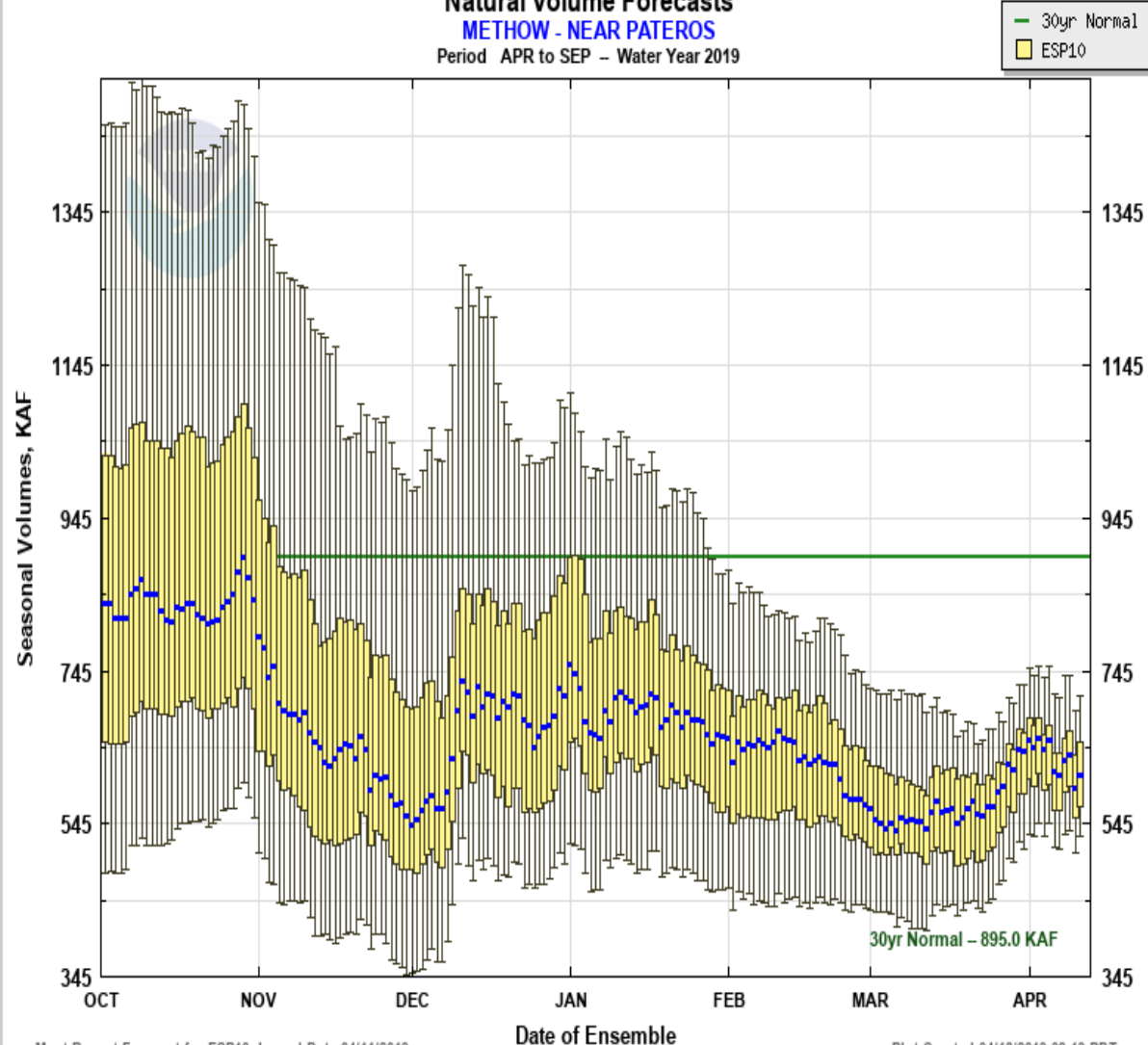
APR-SEP	517	640	72	729	895
APR-JUL	474	587	70	678	833
JAN-SEP	584	708	72	796	985
JAN-JUL	541	655	71	746	923
OCT-SEP	659	783	73	871	1075

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

Natural Volume Forecasts

METHOW - NEAR PATEROS

Period APR to SEP - Water Year 2019



Most Recent Forecast for ESP10: Issued Date 04/11/2019

Plot Created 04/12/2019 09:19 PDT



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ENTIAT - NEAR ARDENVOIR (ARDW1) Forecasts for Water Year 2019

ESP Natural Forecast

10 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	138	155	71	171	218
APR-JUL	125	142	71	159	200
JAN-SEP	152	169	70	186	241
JAN-JUL	139	157	70	173	223
OCT-SEP	167	184	70	201	263

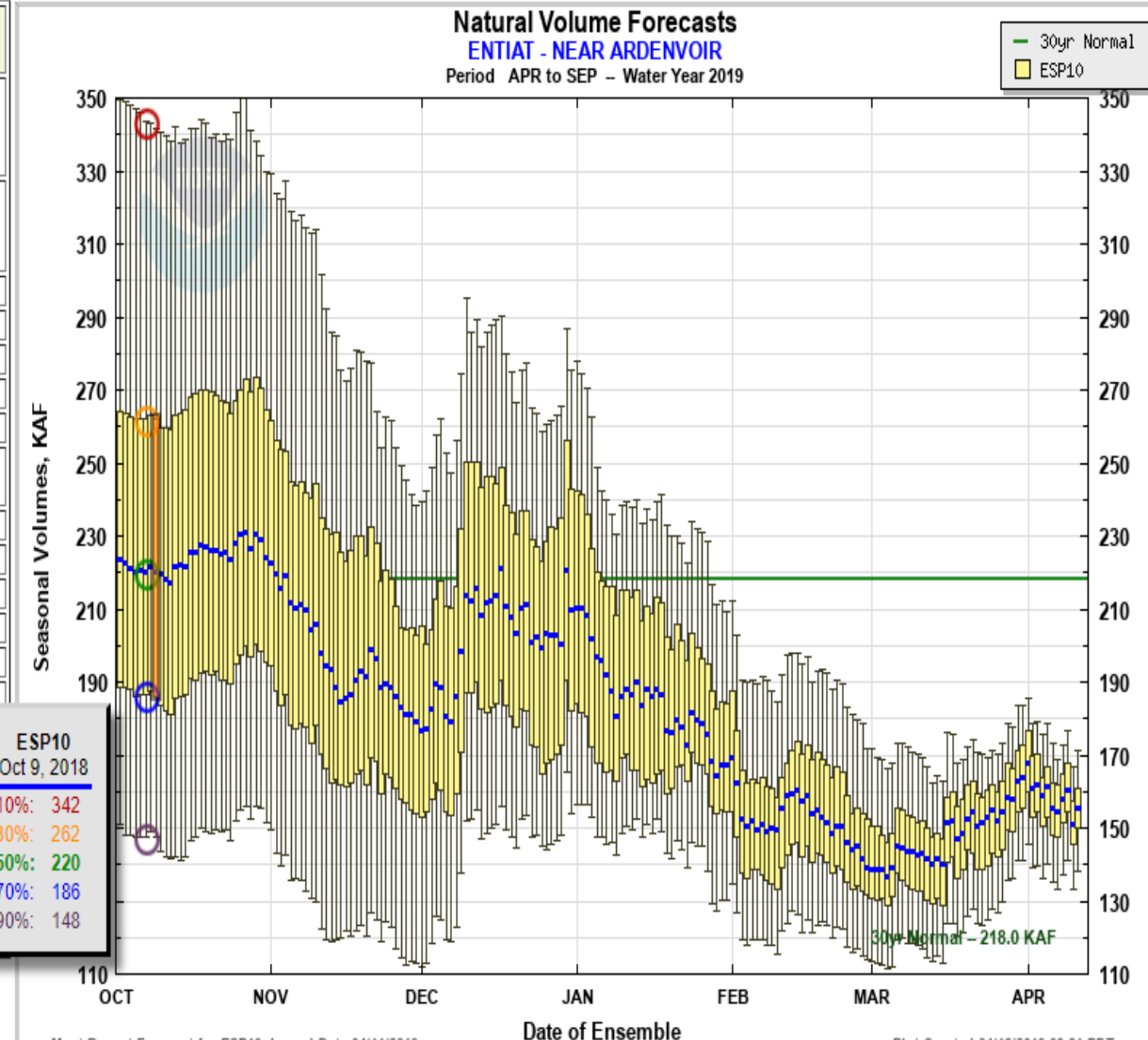
5 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

APR-SEP	134	155	71	174	218
APR-JUL	121	143	71	163	200
JAN-SEP	148	169	70	188	241
JAN-JUL	135	157	70	178	223
OCT-SEP	163	184	70	203	263

0 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

APR-SEP	132	155	71	173	218
APR-JUL	120	143	72	161	200
JAN-SEP	147	169	70	187	241
JAN-JUL	135	157	71	175	223
OCT-SEP	162	184	70	202	263

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



Most Recent Forecast for ESP10: Issued Date 04/11/2019

Plot Created 04/12/2019 09:21 PDT



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CHELAN - LAKE CHELAN DAM (CHDW1) Forecasts for Water Year 2019

ESP Natural Forecast

10 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	699	788	70	893	1127
APR-JUL	616	722	72	835	1002
JAN-SEP	810	899	69	1004	1310
JAN-JUL	727	833	70	946	1186
OCT-SEP	956	1045	69	1150	1514

5 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

APR-SEP	676	783	69	927	1127
APR-JUL	590	716	71	852	1002
JAN-SEP	787	894	68	1038	1310
JAN-JUL	701	827	70	963	1186
OCT-SEP	932	1040	69	1184	1514

0 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

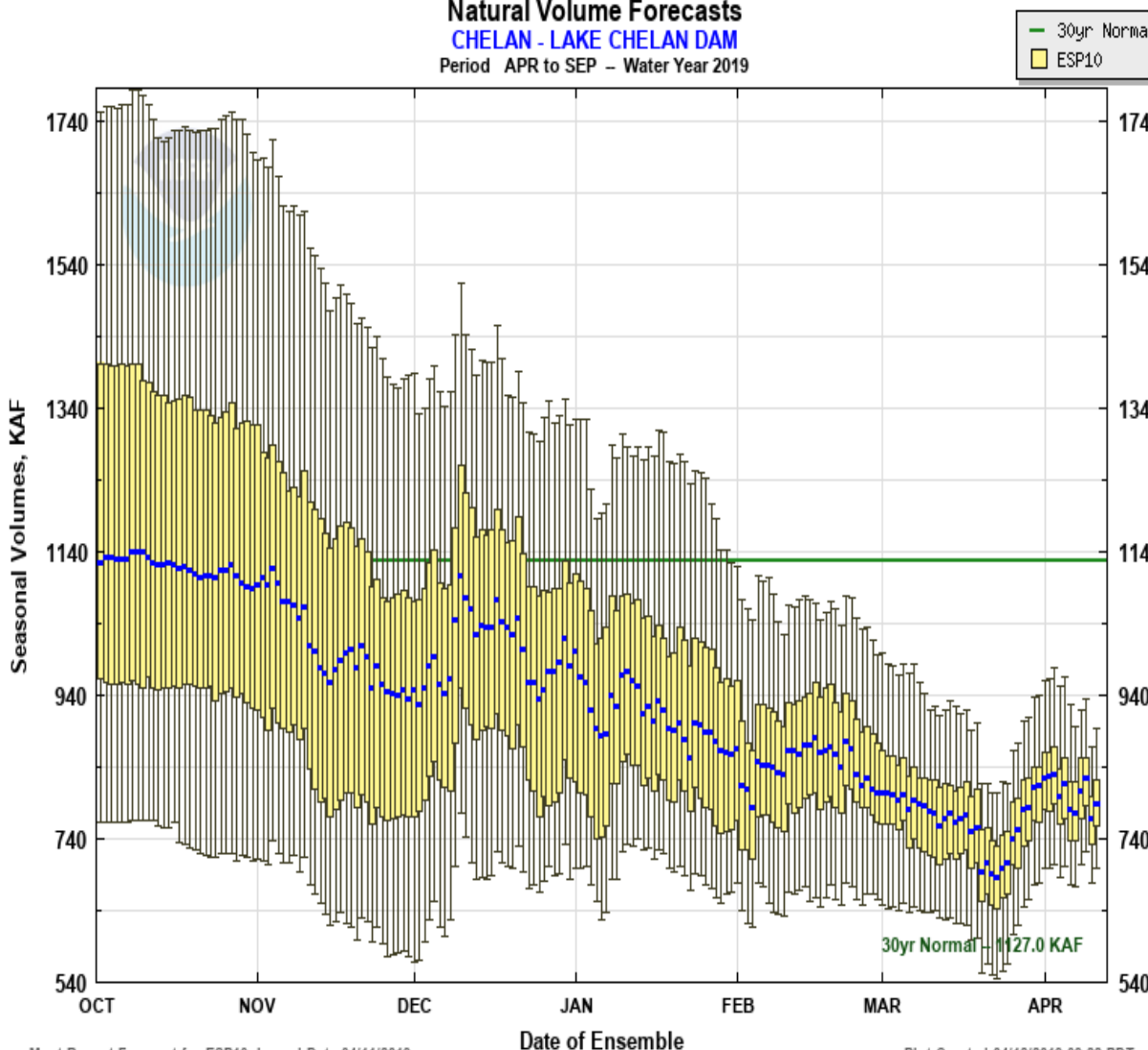
APR-SEP	666	791	70	928	1127
APR-JUL	587	725	72	860	1002
JAN-SEP	778	903	69	1039	1310
JAN-JUL	698	836	70	972	1186
OCT-SEP	923	1048	69	1185	1514

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

Natural Volume Forecasts

CHELAN - LAKE CHELAN DAM

Period APR to SEP - Water Year 2019



Most Recent Forecast for ESP10: Issued Date 04/11/2019

Plot Created 04/12/2019 09:22 PDT



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ELWHA - AT MCDONALD BRIDGE NEAR PORT ANGELES (ELWW1) Forecasts for Water Year 2019

ESP Natural Forecast

10 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

Forecasts Are in KAF

Forecast Period	90 %	50 %	% Average	10 %	30 Year Average (1981-2010)
APR-SEP	286	324	69	385	472
APR-JUL	243	270	68	321	398
JAN-SEP	528	566	71	627	792
JAN-JUL	485	512	71	563	719
OCT-SEP	834	872	80	933	1093

5 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

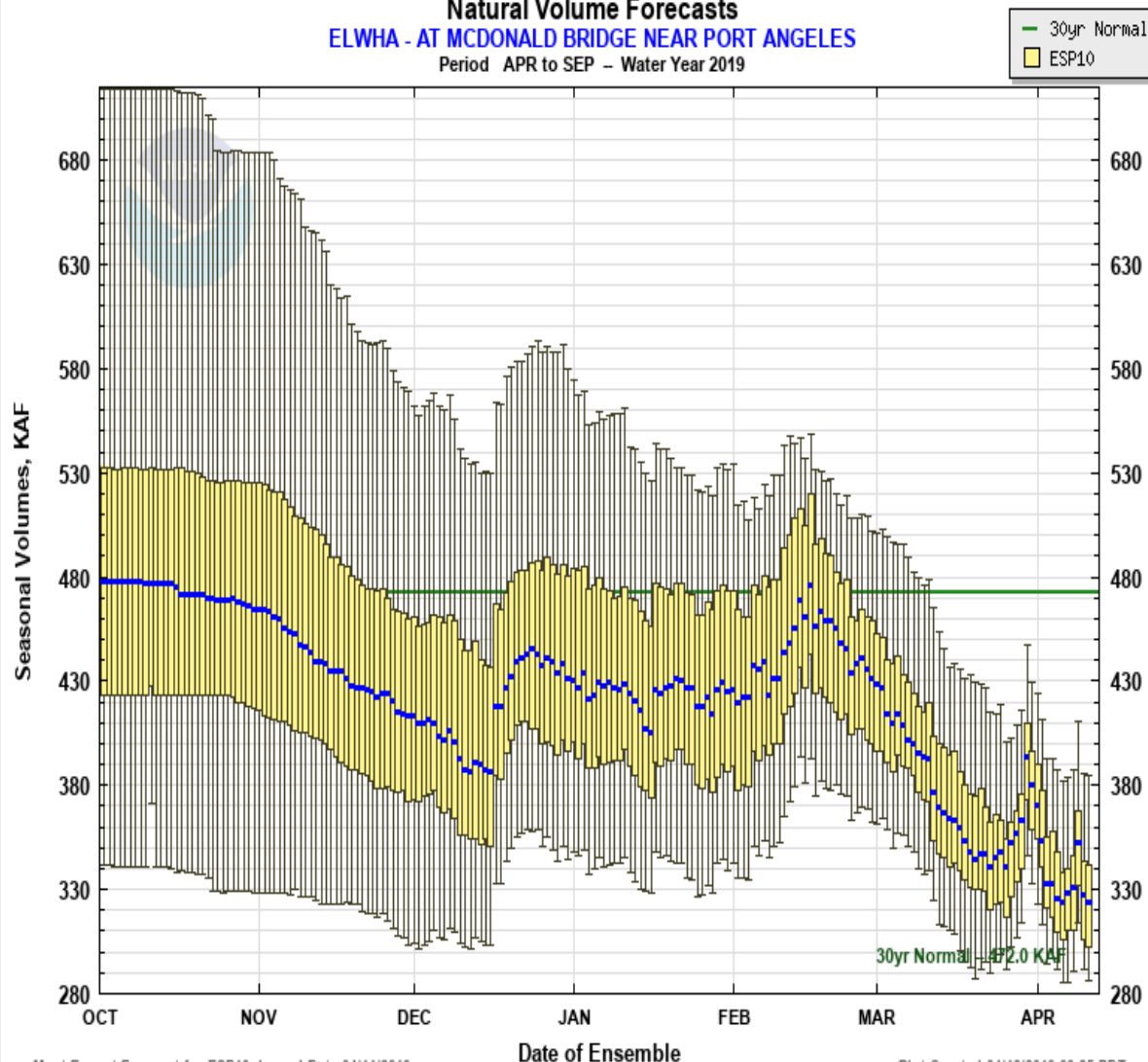
APR-SEP	285	324	69	382	472
APR-JUL	240	269	68	323	398
JAN-SEP	527	566	71	624	792
JAN-JUL	482	511	71	565	719
OCT-SEP	833	872	80	931	1093

0 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

APR-SEP	277	326	69	382	472
APR-JUL	229	271	68	322	398
JAN-SEP	520	568	72	624	792
JAN-JUL	471	513	71	564	719
OCT-SEP	826	874	80	930	1093

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

Natural Volume Forecasts ELWHA - AT MCDONALD BRIDGE NEAR PORT ANGELES Period APR to SEP - Water Year 2019





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NOOKSACK - AT FERNDALE (NKSU1) Forecasts for Water Year 2019

ESP Natural Forecast

10 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	784	859	71	1057	1215
APR-JUL	621	675	68	834	994
JAN-SEP	1242	1317	66	1515	1990
JAN-JUL	1079	1133	64	1292	1769
OCT-SEP	1992	2066	74	2265	2785

5 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

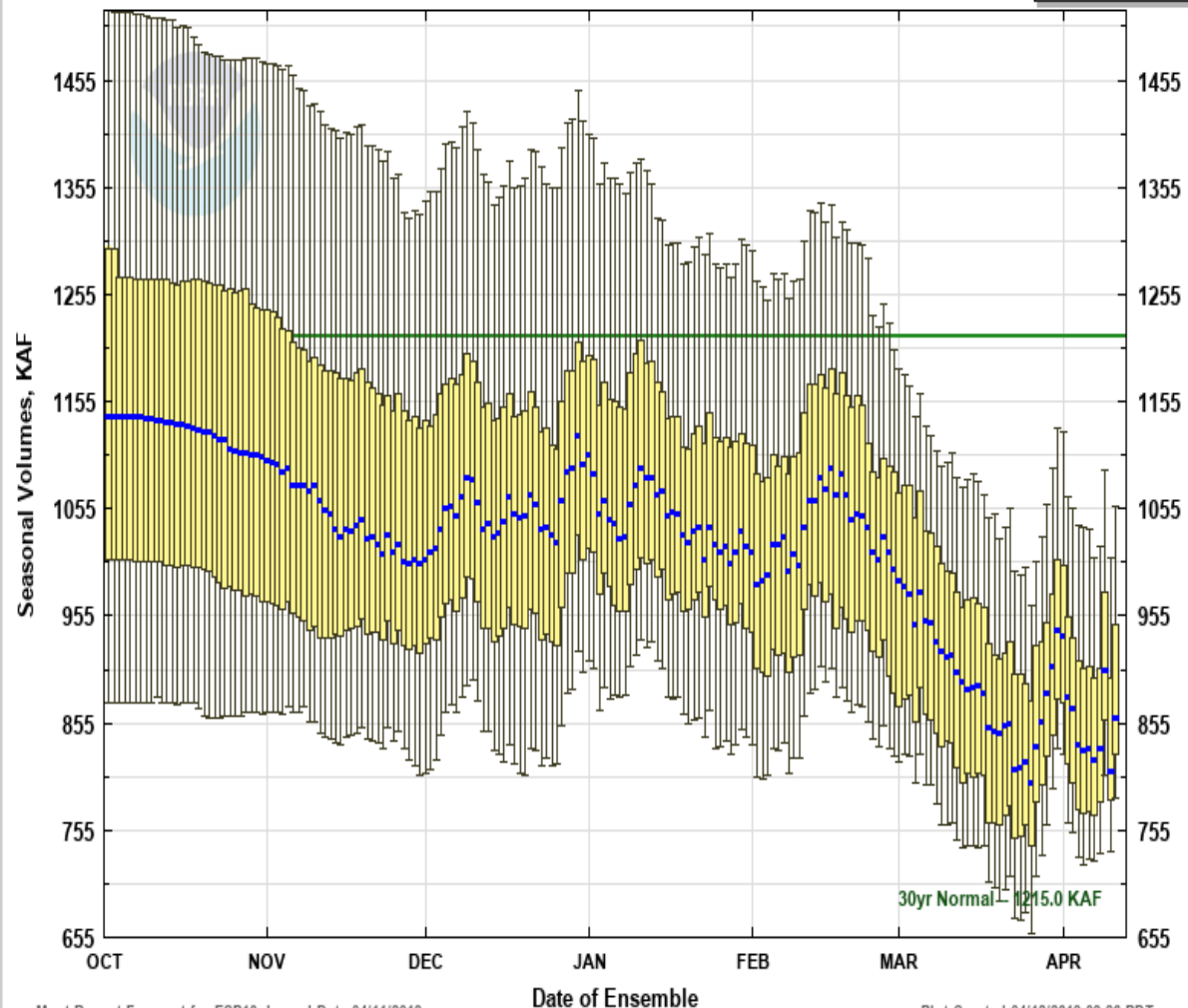
APR-SEP	745	847	70	1052	1215
APR-JUL	584	649	65	807	994
JAN-SEP	1203	1305	66	1510	1990
JAN-JUL	1042	1107	63	1265	1769
OCT-SEP	1952	2054	74	2259	2785

0 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

APR-SEP	721	832	68	1019	1215
APR-JUL	555	634	64	775	994
JAN-SEP	1179	1290	65	1477	1990
JAN-JUL	1013	1092	62	1233	1769
OCT-SEP	1928	2039	73	2226	2785

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

Natural Volume Forecasts NOOKSACK - AT FERNDALE Period APR to SEP - Water Year 2019



Most Recent Forecast for ESP10: Issued Date 04/11/2019

Plot Created 04/12/2019 09:26 PDT



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NF SKOKOMISH - CUSHMAN DAM (CSHW1)

Forecasts for Water Year 2019

ESP Natural Forecast

10 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

Forecasts Are in KAF

Forecast Period	90 %	50 %	% Average	10 %	30 Year Average (1981-2010)
APR-SEP	113	141	74	173	191
APR-JUL	102	124	74	152	167
JAN-SEP	259	287	73	318	394
JAN-JUL	248	269	73	298	371
OCT-SEP	466	493	83	525	592

5 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

APR-SEP	114	144	75	176	191
APR-JUL	103	127	76	157	167
JAN-SEP	260	289	73	322	394
JAN-JUL	249	272	73	302	371
OCT-SEP	467	496	84	529	592

0 days QPF: Ensemble: 2019-04-11 Issued: 2019-04-11

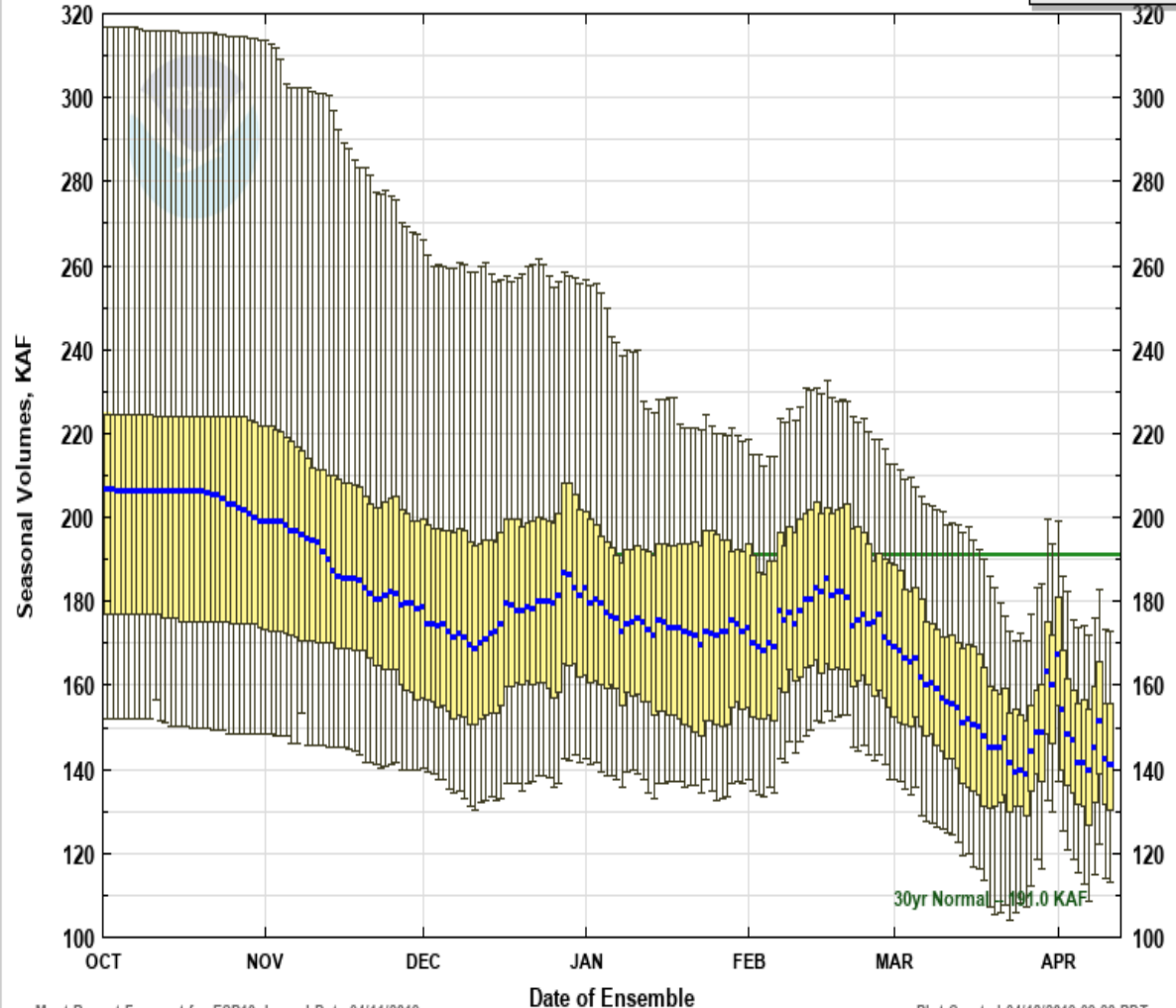
APR-SEP	115	145	76	176	191
APR-JUL	103	127	76	156	167
JAN-SEP	261	290	74	322	394
JAN-JUL	248	273	74	302	371
OCT-SEP	467	497	84	529	592

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

Natural Volume Forecasts

NF SKOKOMISH - CUSHMAN DAM

Period APR to SEP - Water Year 2019



Most Recent Forecast for ESP10: Issued Date 04/11/2019

Plot Created 04/12/2019 09:28 PDT