

The February WSF sets BiOp actions as highlighted in the table below.

Other projects are provided for informational purposes only.

In 2017, the official WSF will be computed on the 3rd work day of the month, January through July, using the 5-day QPF 50% exceedance value. FRM will be computed at the same intervals as before, available online at: <http://www.nwd.usace.army.mil/Missions/Water/Columbia/FloodControl>

Forecast Point	Forecast period	Forecast	BiOp Actions to be Determined
Hungry Horse	April – August Provided by Reclamation	January, February, March Final	Sets min. flows at Hungry Horse and Columbia Falls
	May – September Provided by Reclamation	January, February, March Final	Sets VARQ FRM targets
		April Final	Sets VARQ FRM targets and VARQ refill flows
		May, June Final	Sets VARQ refill flows
The Dalles	April – September Provided by NWRFC	March Final	Sets CRWMP adjustments at Grand Coulee
	April – August Provided by NWRFC	April Final	Sets spring flow objective at McNary Dam
		May Final	Sets end of September draft limits at Hungry Horse and Libby
		July Final	Sets end of August draft limit at Grand Coulee
Lower Granite	April – July Provided by NWRFC	April Final	Sets spring flow objective at Lower Granite
		June Final	Sets summer flow objective at Lower Granite
Libby	April – August Provided by Corps Seattle District	December Final	Sets end of December variable draft target
		January, February, March Final	Sets VARQ FRM targets
		April Final	Sets VARQ FRM targets and VARQ refill flows
		May Final	Sets Libby min. sturgeon flow volume and min. bull trout flows for after sturgeon pulse through Sept. Sets VARQ FRM targets and VARQ refill flows
		June Final	VARQ refill flows
Dworshak	April – July Provided by Corps Walla Walla District	January to June Final	Manage for reservoir FRM and refill

February 2, 2017

**Hungry Horse Dam – Official Water Supply Forecast
FEBRUARY 2017**

The volumes for the February final forecast for Hungry Horse inflow are:

Feb-Jul: 1,787 kaf (88%)

Jan-Jul: 1,839 kaf (88%)

Apr-Aug: 1,704 kaf (88%)

May-Sep: 1,493 kaf (88%)

The minimum flows downstream of Hungry Horse based on this forecast are as follows:

Columbia Falls: 3,460 cfs

Hungry Horse: 828 cfs

Mary Mellema

River and Reservoir Operations
U.S. Bureau of Reclamation
PN Regional Office
Boise, ID 83706



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COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2017

Official Forecast

10 days QPF: Ensemble: 2017-02-03 Issued: 2017-02-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	79965	89899	97	103628	92704
APR-JUL	68658	77823	97	88509	79855
APR-AUG	75656	84751	97	97262	87532
JAN-SEP	96100	108252	95	125423	114216
JAN-JUL	84353	95891	95	110759	101368
OCT-SEP	118509	130661	100	147832	130518

5 days QPF: Ensemble: 2017-02-03 Issued: 2017-02-03

APR-SEP	79315	88475	95	101495	92704
APR-JUL	66829	75225	94	87485	79855
APR-AUG	73830	82821	95	95075	87532
JAN-SEP	95594	106095	93	124690	114216
JAN-JUL	83267	93398	92	109322	101368
OCT-SEP	118003	128504	98	147099	130518

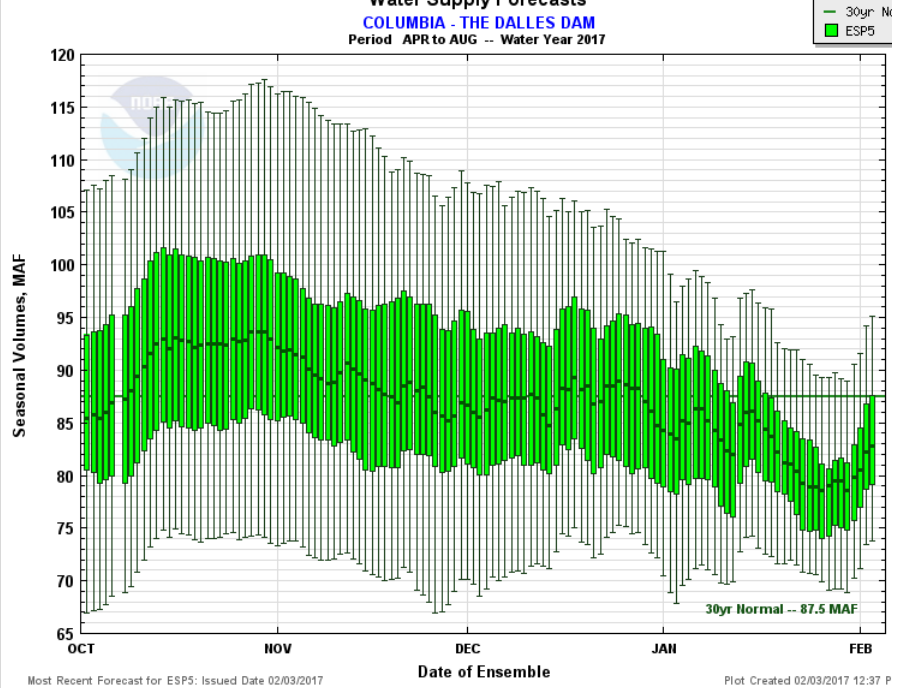
0 days QPF: Ensemble: 2017-02-03 Issued: 2017-02-03

APR-SEP	72938	83503	90	94022	92704
APR-JUL	62016	69954	88	81630	79855
APR-AUG	68261	78481	90	88074	87532
JAN-SEP	90203	100189	88	114775	114216
JAN-JUL	78662	87371	86	101428	101368
OCT-SEP	112612	122598	94	137184	130518

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

Water Supply Forecasts

COLUMBIA - THE DALLES DAM
Period: APR to AUG -- Water Year 2017



☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days

Overlay

ESP10 ESP5 ESP0

Data Files

CSV (ESP5 / APR-AUG)

Forecast Ensemble



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SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2017

Official Forecast

10 days QPF: Ensemble: 2017-02-03 Issued: 2017-02-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	19875	24693	111	28093	22279
APR-JUL	17471	21979	111	25321	19848
APR-AUG	18682	23353	111	26717	21091
JAN-SEP	25820	30605	102	35811	29872
JAN-JUL	23032	27809	101	33033	27440
OCT-SEP	30250	35035	101	40241	34667

5 days QPF: Ensemble: 2017-02-03 Issued: 2017-02-03

APR-SEP	18705	23726	106	26962	22279
APR-JUL	16387	21020	106	24270	19848
APR-AUG	17579	22474	107	25618	21091
JAN-SEP	24304	29406	98	34514	29872
JAN-JUL	21958	26766	98	31754	27440
OCT-SEP	28733	33835	98	38943	34667

0 days QPF: Ensemble: 2017-02-03 Issued: 2017-02-03

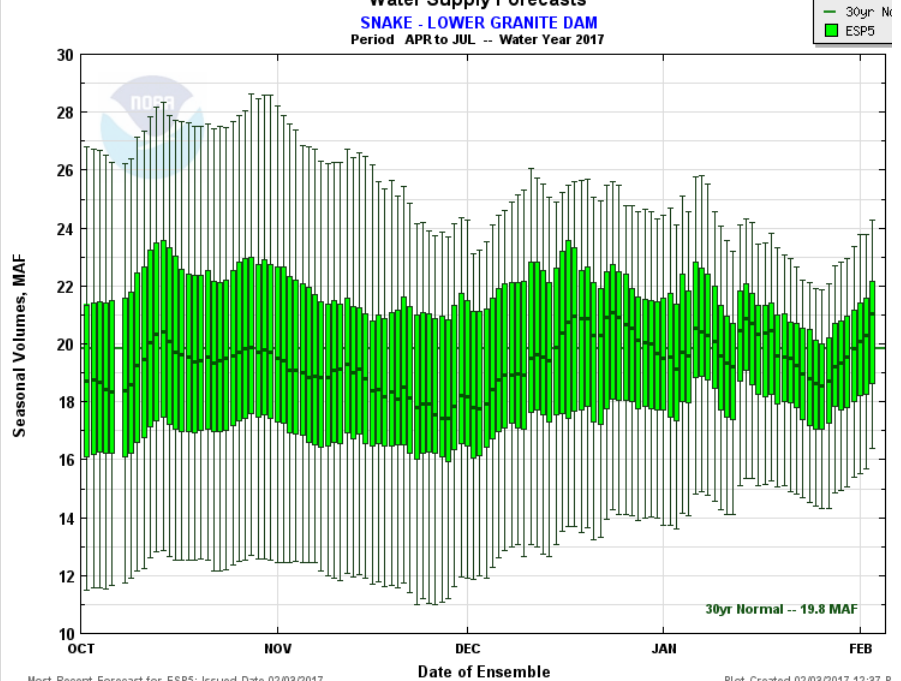
APR-SEP	16502	21287	96	24733	22279
APR-JUL	14341	18689	94	22130	19848
APR-AUG	15451	20051	95	23492	21091
JAN-SEP	22034	26504	89	31012	29872
JAN-JUL	19816	23922	87	28390	27440
OCT-SEP	26464	30933	89	35442	34667

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

Water Supply Forecasts

SNAKE - LOWER GRANITE DAM

Period APR to JUL -- Water Year 2017



Most Recent Forecast for ESP5: Issued Date 02/03/2017

Date of Ensemble

Plot Created 02/03/2017 12:37 P

☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days

Overlay

ESP10

ESP5

ESP0

Data Files

CSV (ESP5 / APR-JUL)

Forecast Ensemble



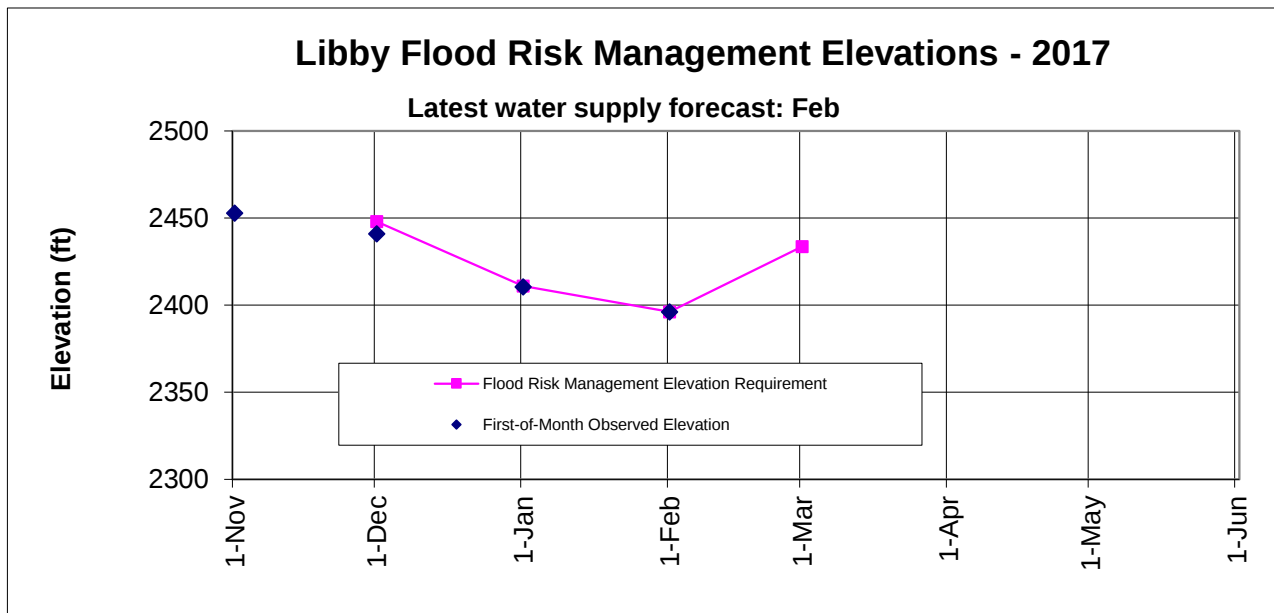
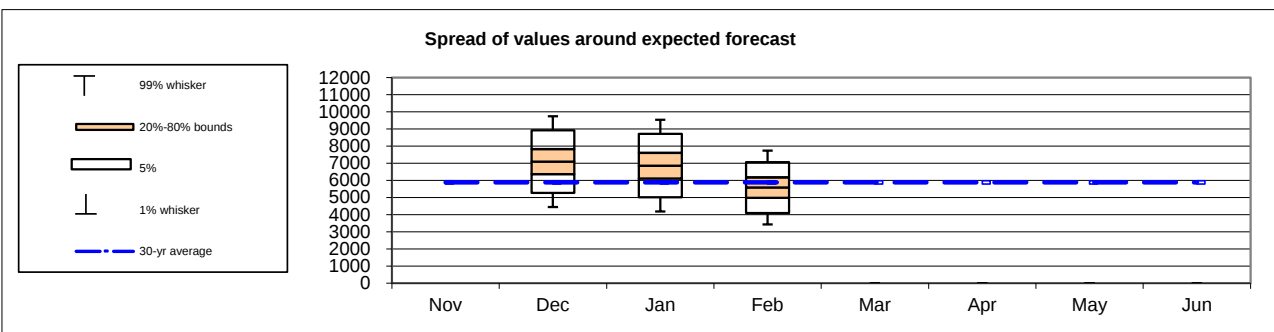
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Libby : February Runoff Forecast & Flood Risk Management Calcul

WY 2017

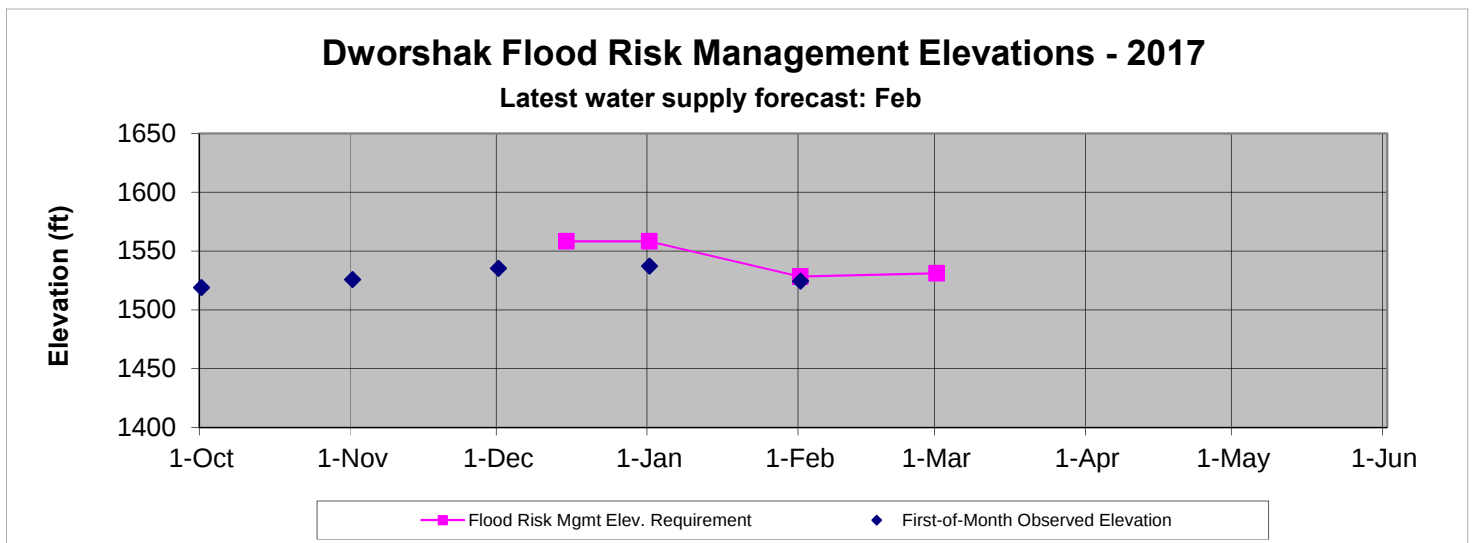
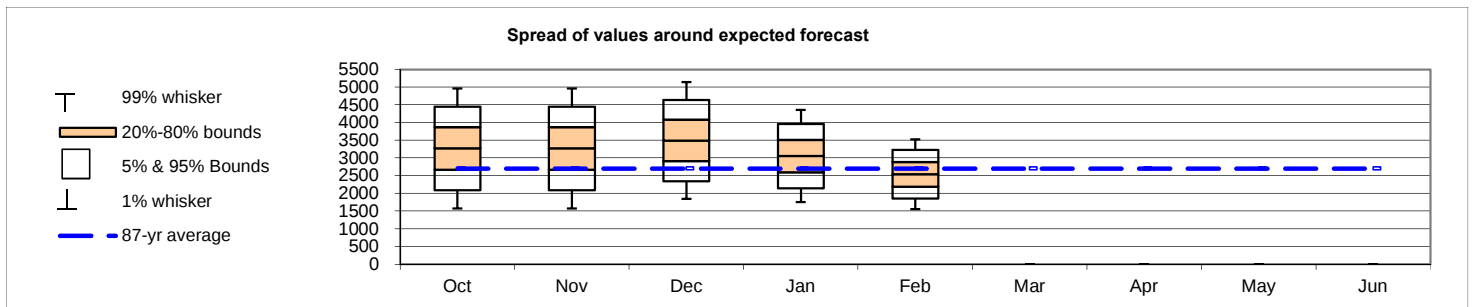
Runoff Forecast and Flood Risk Management						1981-2010 Average	Percent of Average	1929-2008 Average	Percent of Average
Most Probable Runoff Volume:		Apr-Aug	5583	KAF		5885	95%	6282	89%
		Apr-Jul	5068	KAF		5342	95%	5720	89%
		May-Jul	4573	KAF		4821	95%	5199	89%
28 Feb Flood Risk Management Space				1116	KAF				
28 Feb Flood Risk Management Elevation				2433.7	ft				
Seasonal Flood Risk Management		VARQ Flood Risk Management Implemented							
Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Apr-Aug Runoff Forecast		7093	6861	5583					
First-of-Month Elev	2452.9	2440.9	2410.5	2396.2					
Date >>	30-Nov	31-Dec	31-Jan	28-Feb	15-Mar	31-Mar	15-Apr	30-Apr	
Flood Risk Management Space	500	2000	2083	1116					
Flood Risk Management Elevation	2448.0	2411.0	2396.2	2433.7					



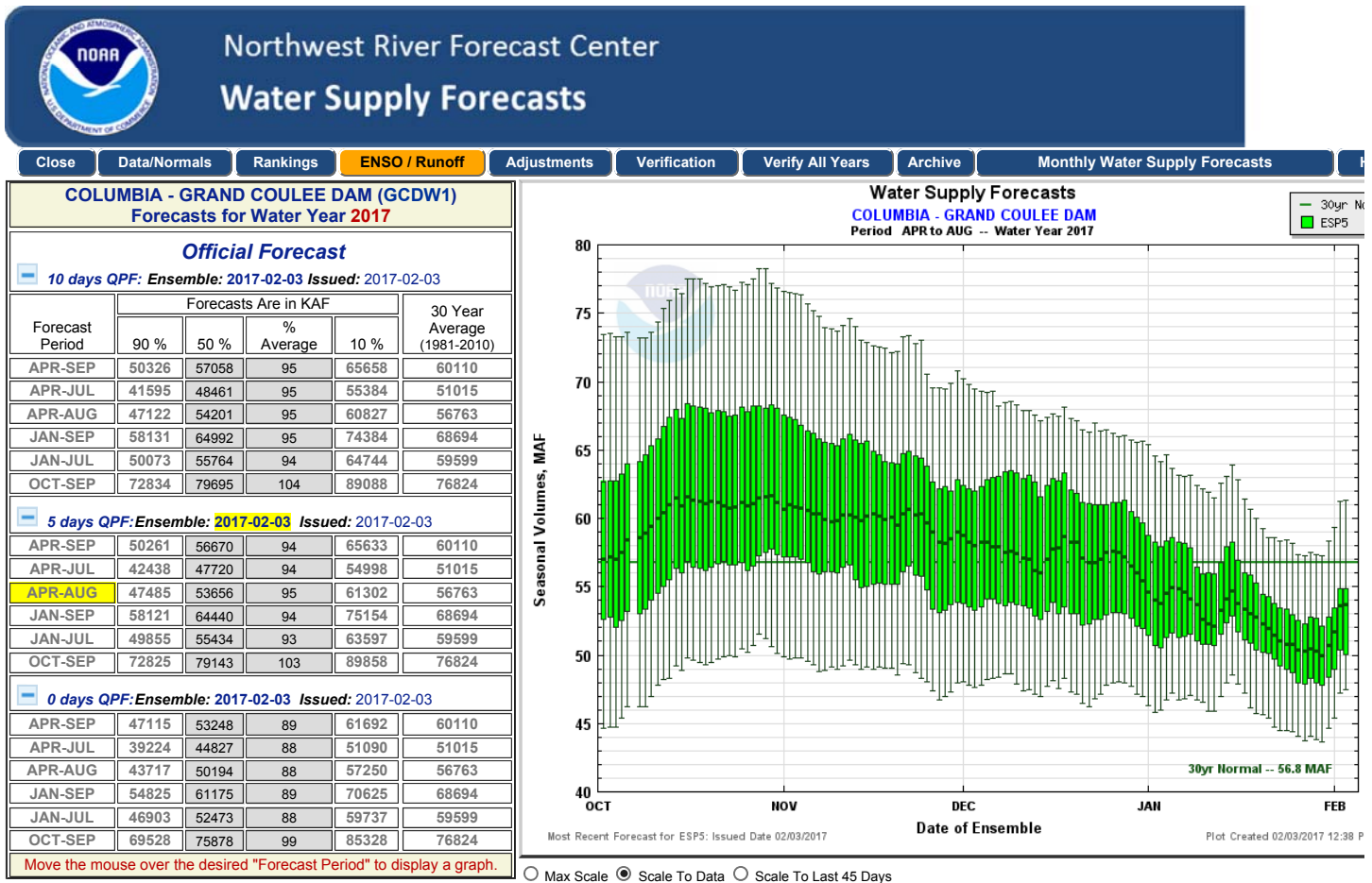
Notes:

1. The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Joel Fenolio (206) 764-6683, Kristy Riley (206) 316-3947, Kevin Shaffer (206) 764-3660, Logan Osgood-Jacobs (206) 764-6928, or Kristian Mickelson (206) 764-6927.
2. If a prior month's forecast as published in this document is different than what was originally published in the issue month, then the earlier forecast has been adjusted to reflect updated values for precipitation or streamflow.
3. October Precip capped at Mean plus 2 standard deviations. A memo to NWD summarizes the methodology used.
4. Due to missing data, South Racehorse Creek SWE was estimated using a principal components regression with surrounding gages that

Runoff Forecast and Flood Risk Management (FRM)						1981-2010 Average	Percent of 30yr Average	1929-2008 Average	Percent of Average
Most Probable Runoff Volume		Apr-Jul	2541	KAF		2438	104%	2696	94%
		May-Jul	1858	KAF		1784	104%	1972	94%
28/29-Feb Flood Risk Management Space			1082	KAF					
28/29-Feb Flood Risk Management Elevation			1531.1	ft					
Seasonal Flood Risk Management (assumes no shift of flood risk management space to Grand Coulee)									
Forecast Date>>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Jul Runoff Forecast	3271	3271	3493	3055	2541				
First-of-Month Elev	1519.1	1525.9	1535.4	1537.3	1524.5				
Date >>	15-Dec		31-Dec	31-Jan	28-Feb	31-Mar	15-Apr	30-Apr	31-May
FRM Space	--	700	700	1120	1082				
FRM Elevation	--	1558.2	1558.2	1528.3	1531.1				



Grand Coulee Dam forecasts are not used for implementation of BiOp actions.
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Overlay

ESP10 **ESP5** ESP0

Data Files

CSV (ESP5 / APR-AUG)

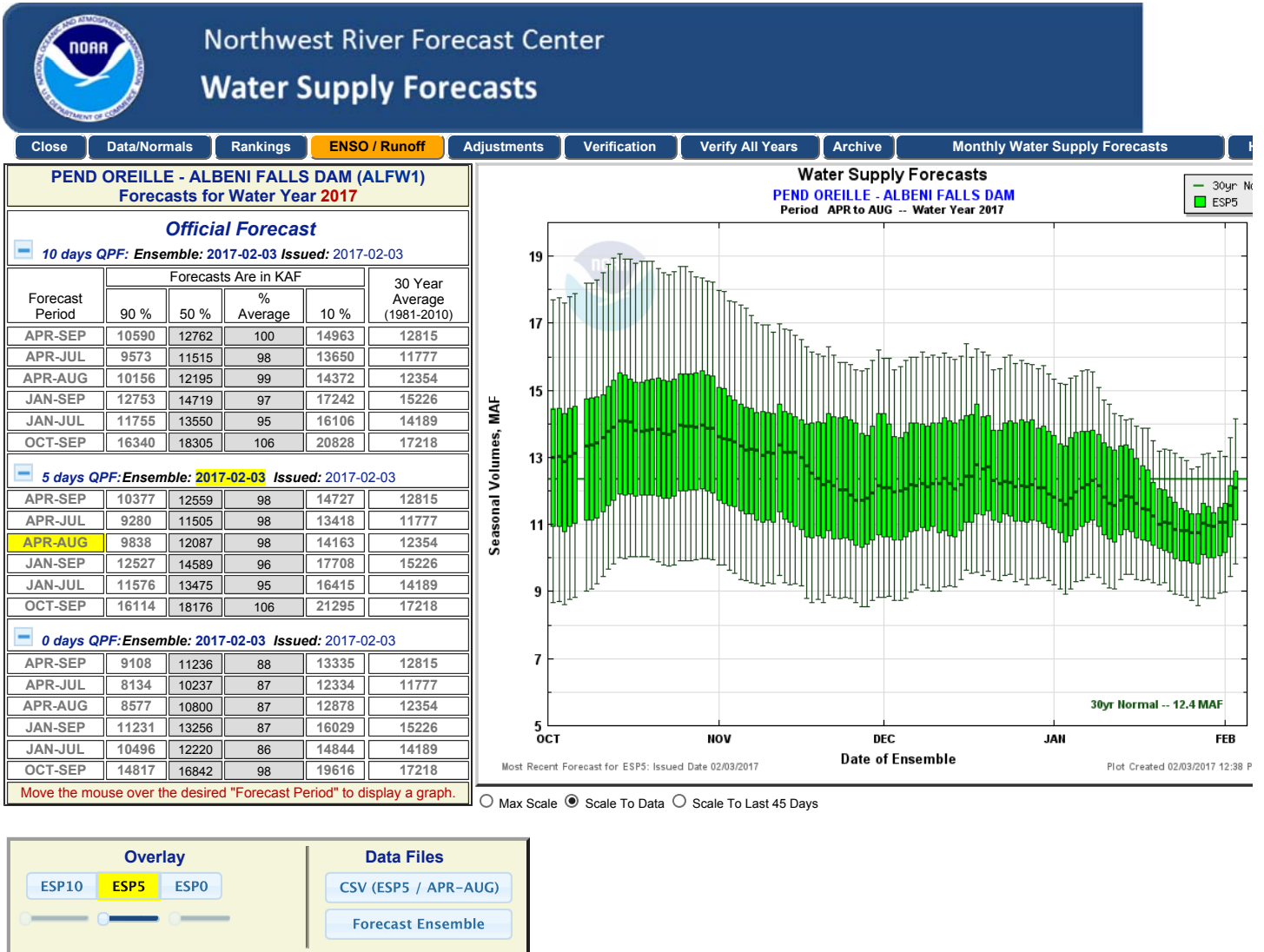
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