

The January 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

January 6, 2017

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

Here are the volumes for the January final forecast for Hungry Horse inflow:

Jan-Jul: 2,266 kaf (108%)

Apr-Aug: 2,091 kaf (108%)

May-Sep: 1,828 kaf (108%)

The minimum flows downstream of Hungry Horse are as follows:

Columbia Falls: 3,500 cfs

Hungry Horse: 900 cfs

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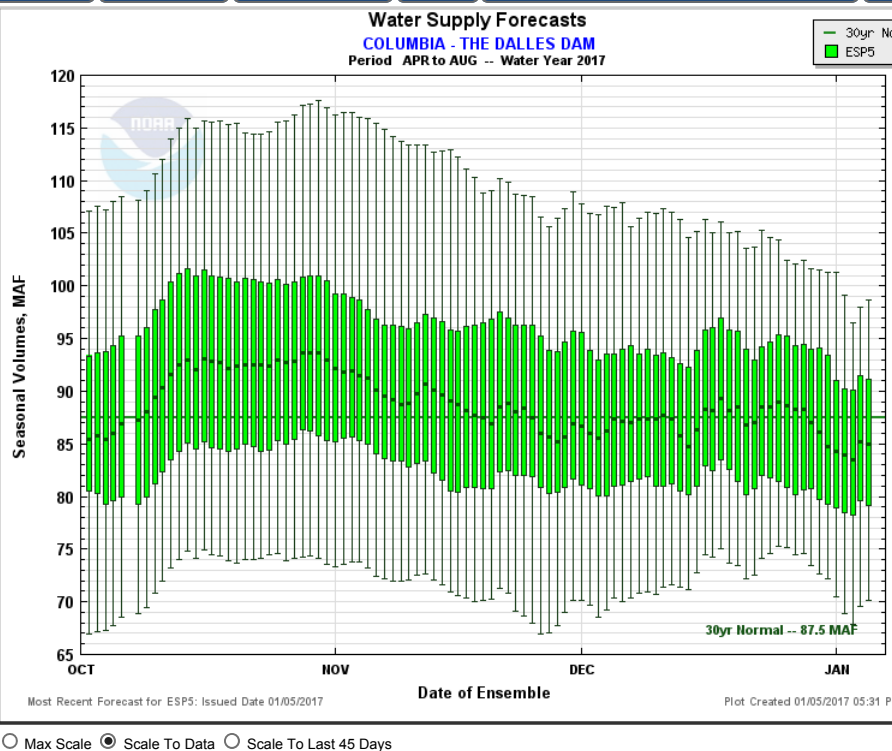


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COLUMBIA - THE DALLES DAM (TDAO3)					
Forecasts for Water Year 2017					
Official Forecast					
10 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05					
Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	76814	91170	98	102417	92704
APR-JUL	65172	77310	97	89143	79855
APR-AUG	71981	86033	98	97281	87532
JAN-SEP	94351	110287	97	126139	114216
JAN-JUL	83907	97604	96	113029	101368
OCT-SEP	116762	132697	102	148550	130518
5 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05					
APR-SEP	74281	90303	97	104616	92704
APR-JUL	63235	76782	96	90178	79855
APR-AUG	70138	84945	97	98628	87532
JAN-SEP	93720	109284	96	125965	114216
JAN-JUL	82881	96575	95	113660	101368
OCT-SEP	116131	131695	101	148376	130518
0 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05					
APR-SEP	76406	90224	97	107290	92704
APR-JUL	65498	76482	96	92120	79855
APR-AUG	71903	84621	97	101219	87532
JAN-SEP	94242	109918	96	129835	114216
JAN-JUL	83611	97015	96	114977	101368
OCT-SEP	116653	132329	101	152246	130518



Overlay

ESP10

ESP5

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SNAKE - LOWER GRANITE DAM (LGDW1)

Forecasts for Water Year 2017

Official Forecast
10 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	17542	23848	107	28714	22279
APR-JUL	15368	21062	106	25790	19848
APR-AUG	16481	22424	106	27400	21091
JAN-SEP	22710	29417	98	36387	29872
JAN-JUL	20494	26573	97	33682	27440
OCT-SEP	27140	33846	98	40816	34667

5 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05

APR-SEP	16172	22160	99	27460	22279
APR-JUL	14047	19575	99	24554	19848
APR-AUG	15139	20908	99	26085	21091
JAN-SEP	21237	27795	93	34571	29872
JAN-JUL	19142	25181	92	31924	27440
OCT-SEP	25666	32224	93	39000	34667

0 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05

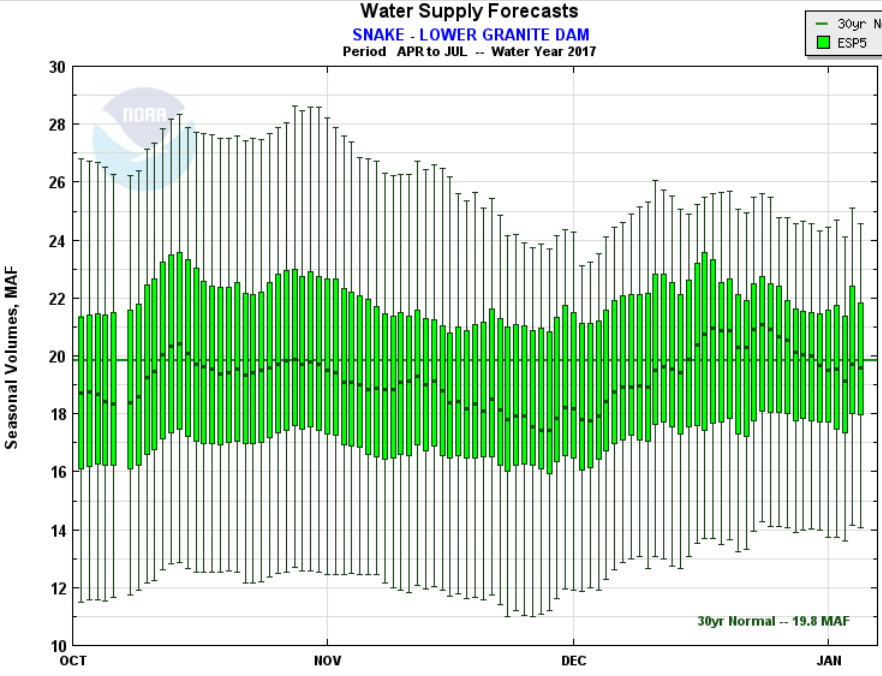
APR-SEP	15810	21900	98	26990	22279
APR-JUL	13766	19367	98	24022	19848
APR-AUG	14805	20669	98	25760	21091
JAN-SEP	20718	27517	92	33532	29872
JAN-JUL	18769	24835	91	30677	27440
OCT-SEP	25148	31946	92	37961	34667

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



Seasonal Volumes, MAF

Date of Ensemble

Most Recent Forecast for ESP5: Issued Date 01/05/2017

Plot Created 01/05/2017 05:36 P

☐ Max Scale
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Overlay

ESP10
ESP5
ESP0

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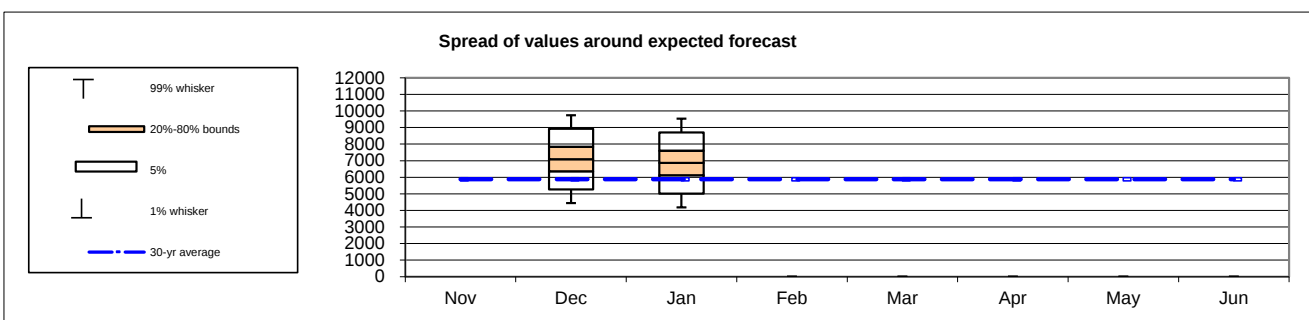
Libby : January Runoff Forecast & Flood Risk Management Calculation

WY 2017

Runoff Forecast and Flood Risk Management			
Most Probable Runoff Volume:	Apr-Aug	6861	KAF
	Apr-Jul	6228	KAF
	May-Jul	5620	KAF
31-Jan Flood Risk Management Space		2503	KAF
31-Jan Flood Risk Management Elevation		2396.2	ft

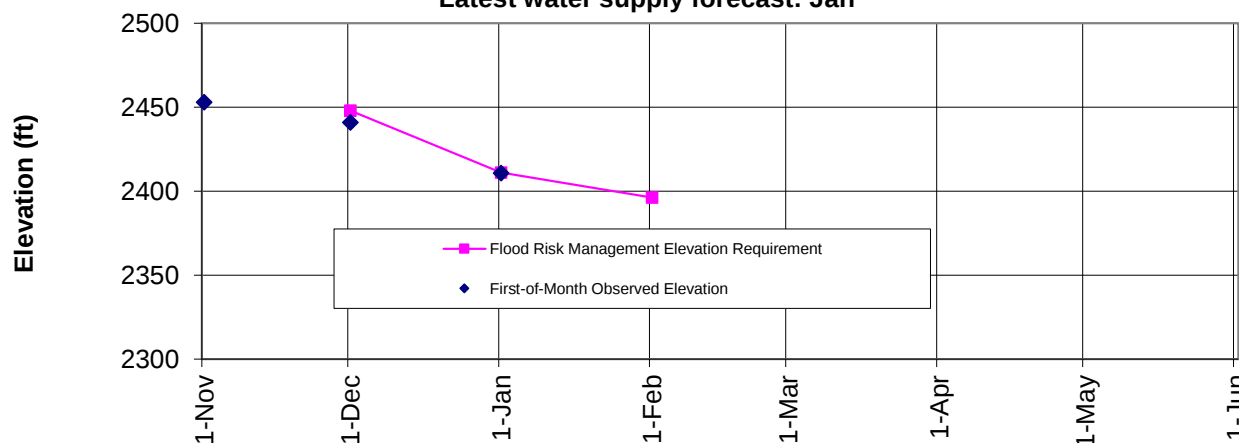
1981-2010 Average	Percent of Average	1929-2008 Average	Percent of Average
5885	117%	6282	109%
5342	117%	5720	109%
4821	117%	5199	108%

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					
First-of-Month Elev	2452.9	2440.9	2410.8					
Date >>	30-Nov	31-Dec	31-Jan	28-Feb	15-Mar	31-Mar	15-Apr	30-Apr
Flood Risk Management Space	500	2000	2503					
Flood Risk Management Elevation	2448.0	2411.0	2396.2					



Libby Flood Risk Management Elevations - 2017

Latest water supply forecast: Jan

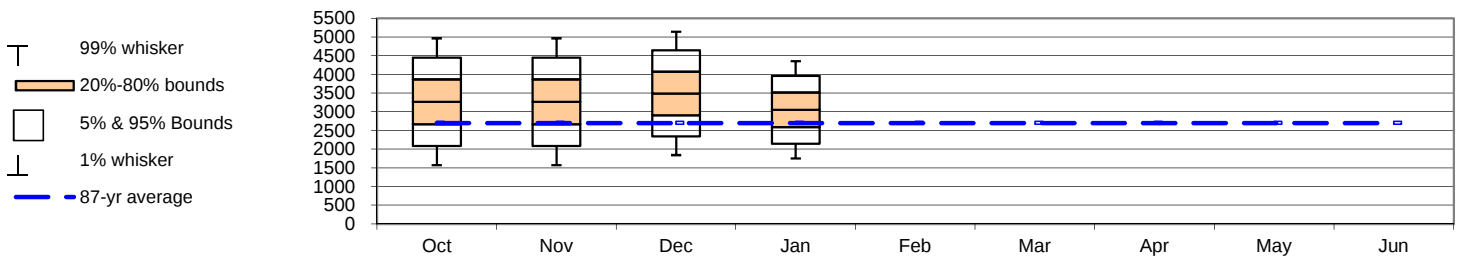


Notes:

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, 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 Median plus 2 standard deviations. A memo to NWD summarizes the methodology used.

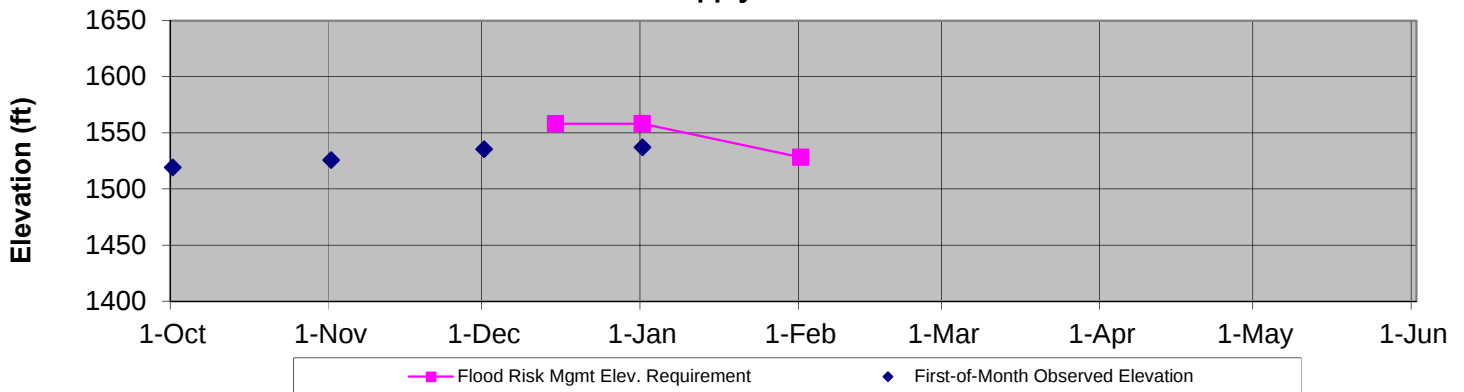
Runoff Forecast and Flood Risk Management (FRM)				1981-2010 Average	Percent of 30yr Average	1929-2008 Average	Percent of Average		
Most Probable Runoff Volume	Apr-Jul	3055	KAF	2438	125%	2696	113%		
	May-Jul	2146	KAF	1784	120%	1972	109%		
31-Jan Flood Risk Management Space		1120	KAF						
31-Jan Flood Risk Management Elevation		1528.3	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					
First-of-Month Elev	1519.1	1525.9	1535.4	1537.3					
Date >>	15-Dec		31-Dec	31-Jan	28-Feb	31-Mar	15-Apr	30-Apr	31-May
FRM Space	--	700	700	1120					
FRM Elevation	--	1558.2	1558.2	1528.3					

Spread of values around expected forecast

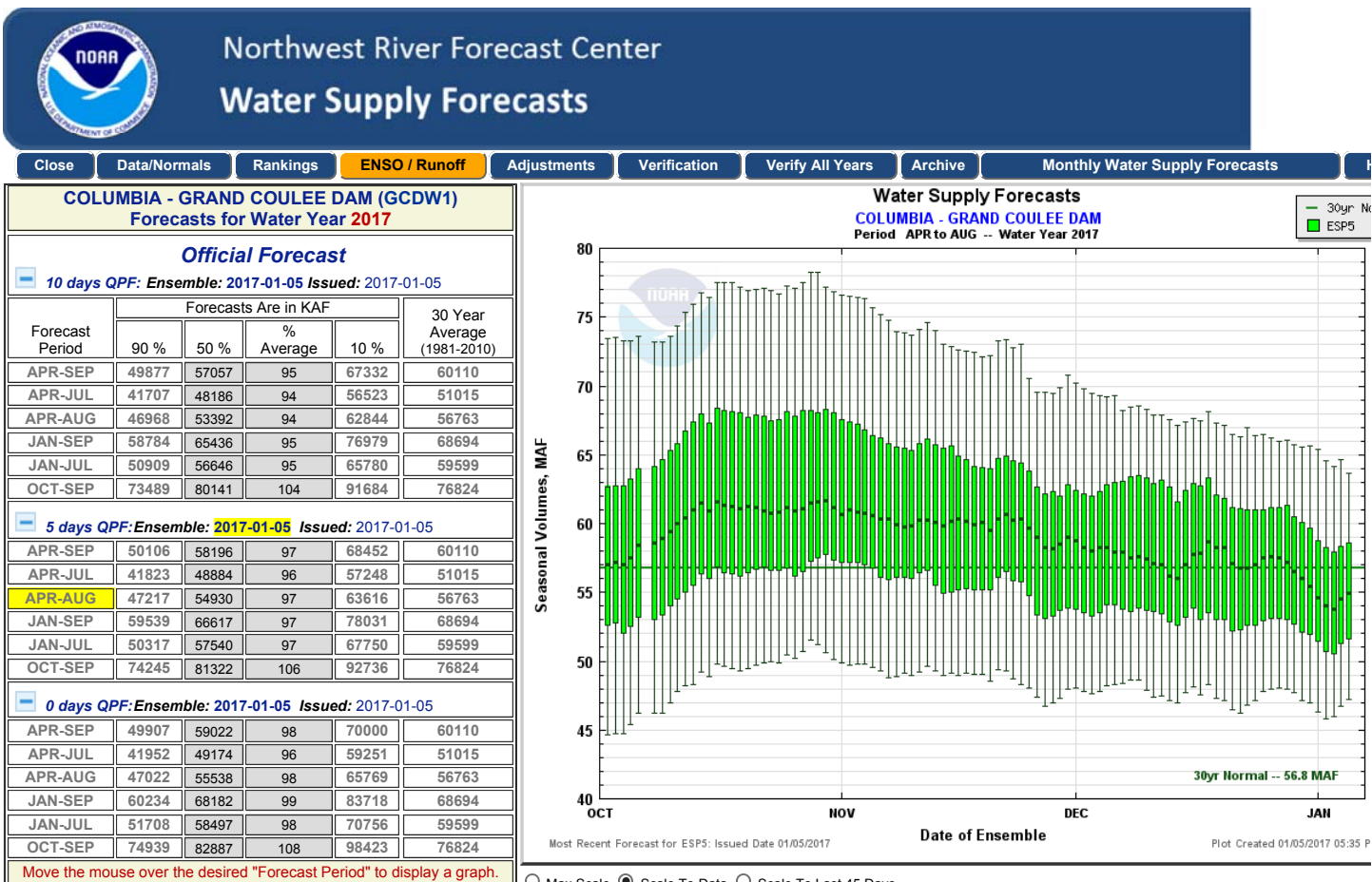


Dworshak Flood Risk Management Elevations - 2017

Latest water supply forecast: Jan



Grand Coulee Dam forecasts are not used for implementation of BiOp actions.
This forecast from NWRFC is provided for informational purposes only.



Overlay

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ESP0

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Albeni Falls Dam forecasts are not used for implementation of BiOp actions.
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PEND OREILLE - ALBENI FALLS DAM (ALFW1)
Forecasts for Water Year 2017

Official Forecast

10 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	9864	12637	99	15675	12815
APR-JUL	9050	11489	98	14312	11777
APR-AUG	9502	12142	98	15099	12354
JAN-SEP	12118	15039	99	18289	15226
JAN-JUL	11419	13931	98	17123	14189
OCT-SEP	15704	18625	108	21876	17218

5 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05

APR-SEP	9781	12483	97	15967	12815
APR-JUL	8807	11413	97	14681	11777
APR-AUG	9303	11980	97	15424	12354
JAN-SEP	11916	14933	98	19183	15226
JAN-JUL	11099	13806	97	17995	14189
OCT-SEP	15503	18519	108	22770	17218

0 days QPF: Ensemble: 2017-01-05 Issued: 2017-01-05

APR-SEP	9697	12377	97	15972	12815
APR-JUL	8812	11304	96	14696	11777
APR-AUG	9299	11863	96	15425	12354
JAN-SEP	11844	15046	99	19413	15226
JAN-JUL	11156	14012	99	18059	14189
OCT-SEP	15431	18633	108	22999	17218

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

Water Supply Forecasts
PEND OREILLE - ALBENI FALLS DAM
 Period APR to AUG -- Water Year 2017

Most Recent Forecast for ESP5: Issued Date 01/05/2017
Plot Created 01/05/2017 05:35 P

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 ☒ Scale To Data
 ☐ Scale To Last 45 Days

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