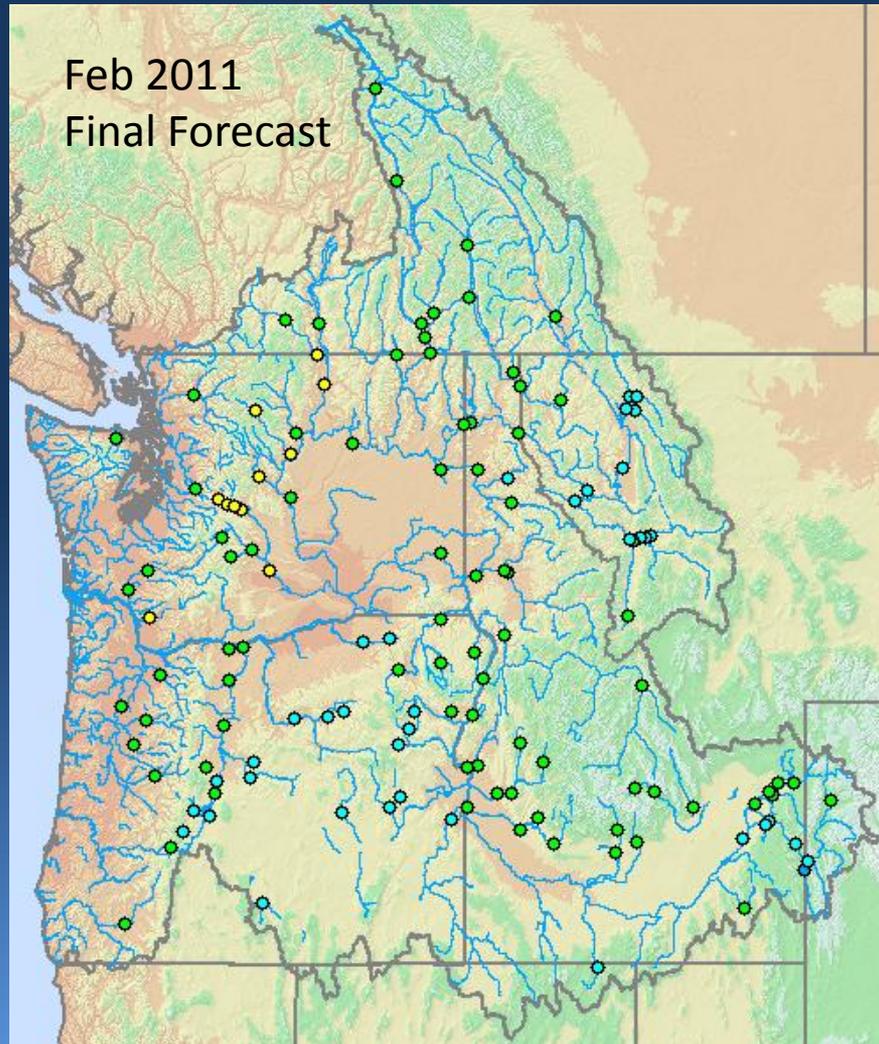




Northwest River Forecast Center Water Supply Briefing



Water Supply Forecast (% Avg)

□	No Average, No data
■	< 25
■	25-50
■	50-75
■	75-90
■	90-110
■	110-125
■	125-150
■	150-175
■	> 175

Feb 1st "Final" Forecast
Legacy Regression Technique

Ensemble Streamflow Procedure (ESP)

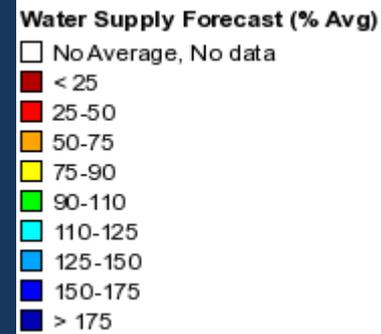
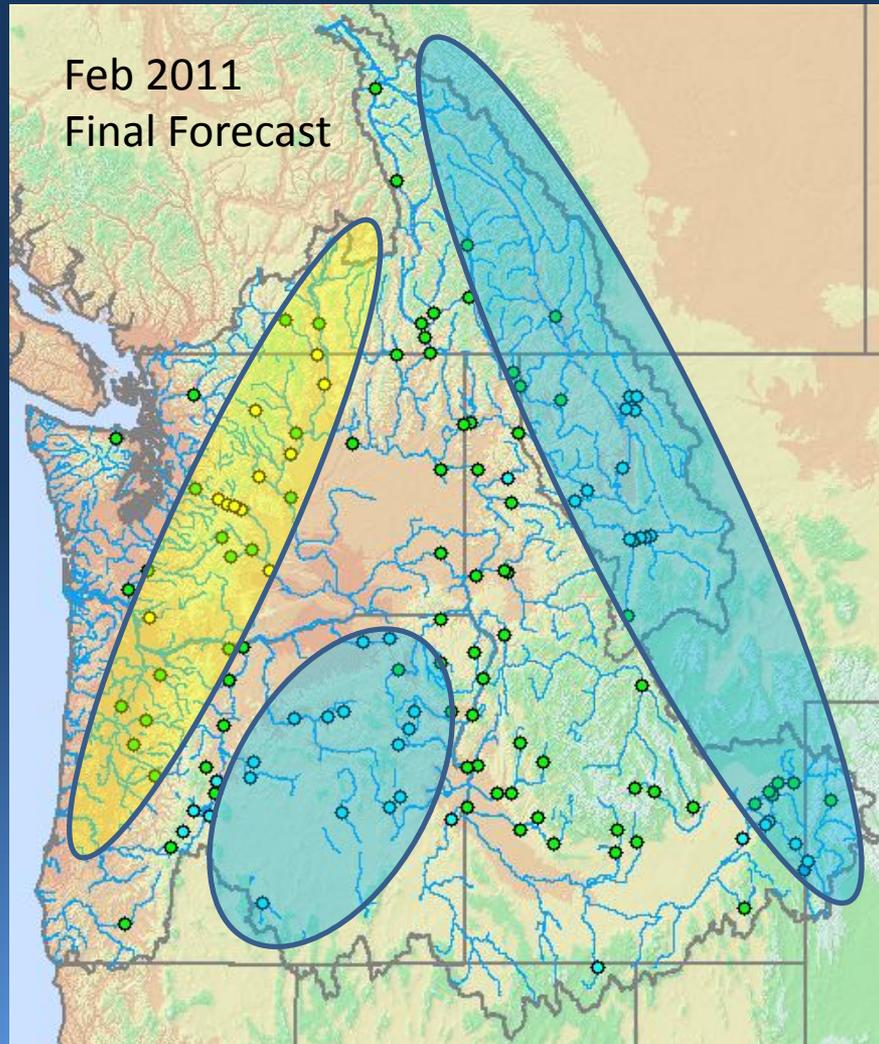
Precipitation Forecast:
105% of Normal for February

Agency Coordinated

BC Hydro input for Canadian Forecasts



Northwest River Forecast Center Water Supply Briefing



General Outlook:

Above Normal Forecasts

Upper Columbia

Western Montana

Upper Snake

Below Normal Forecasts

Central Washington

Western Oregon



Observed Conditions



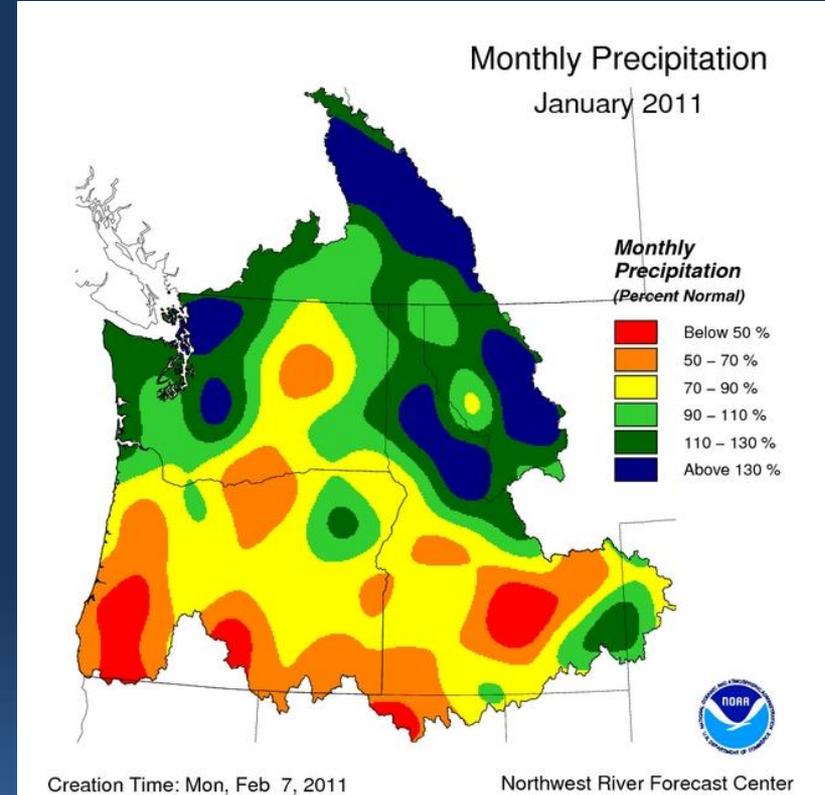
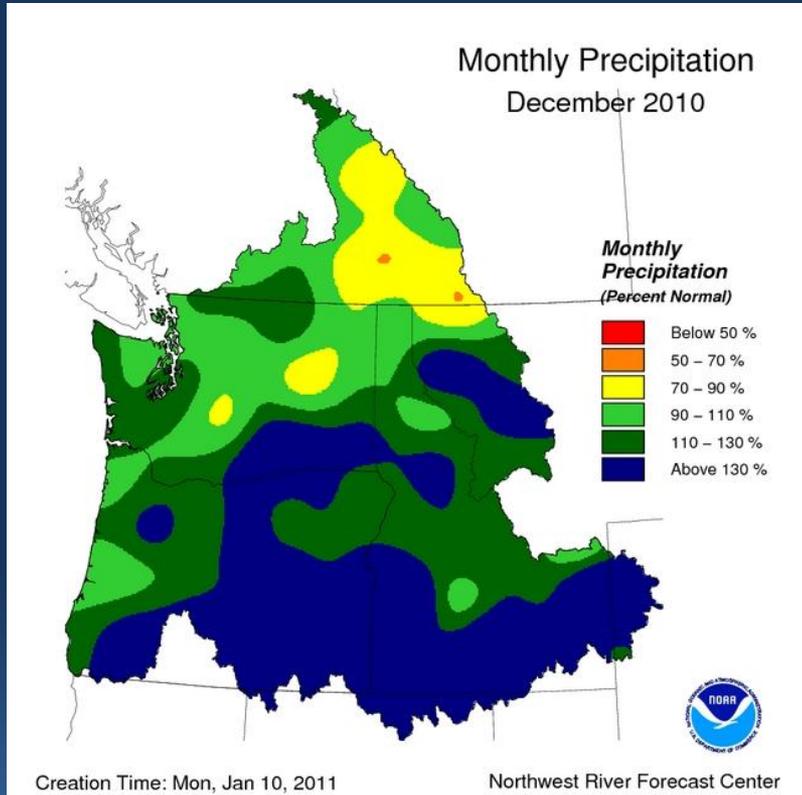
Precipitation

Runoff

Snowpack



Observed Monthly Precipitation



January Final Forecast precipitation assumption
= 100% of Normal

Observed January precipitation

above Ice Harbor = 94%

above Grand Coulee = 144%

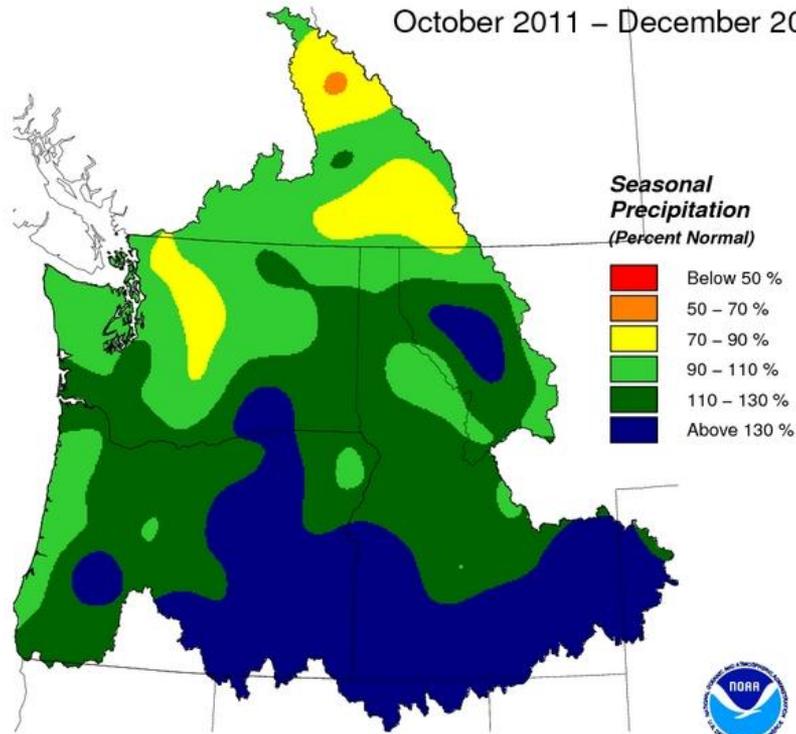
above The Dalles = 120%



Observed Seasonal Precipitation



Seasonal Precipitation
October 2011 – December 2011

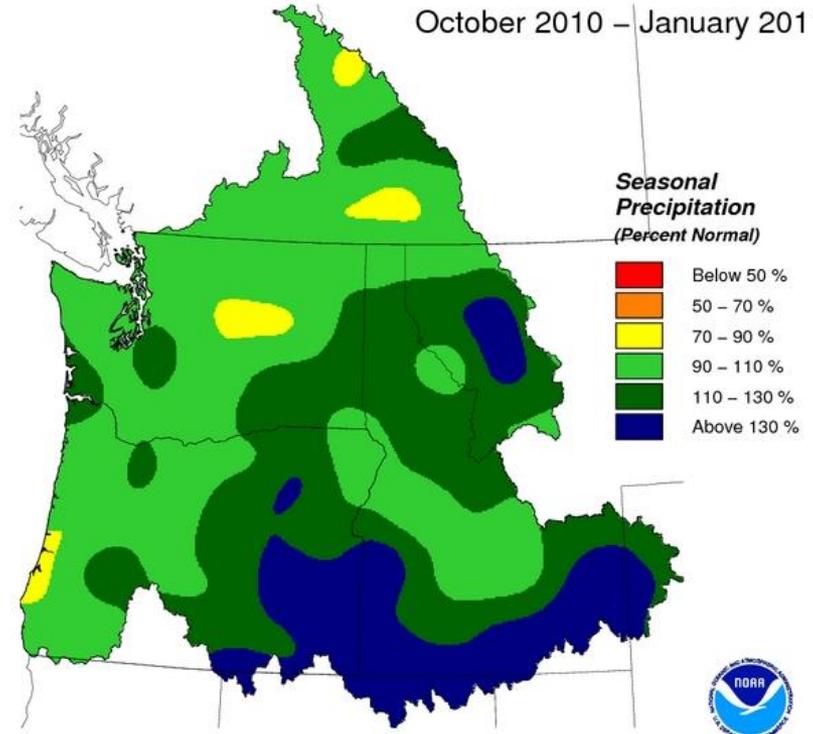


Creation Time: Fri, Jan 7, 2011

Northwest River Forecast Center



Seasonal Precipitation
October 2010 – January 2011



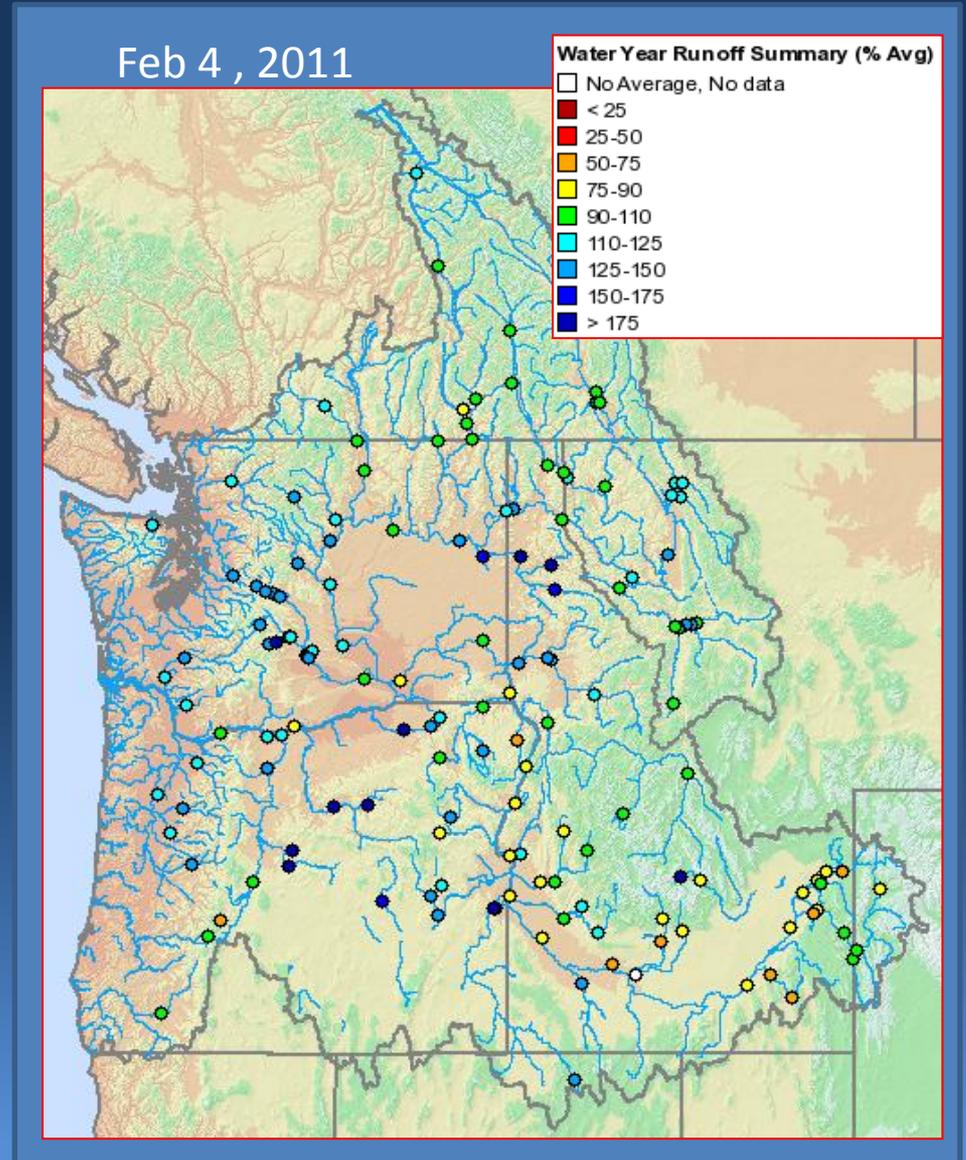
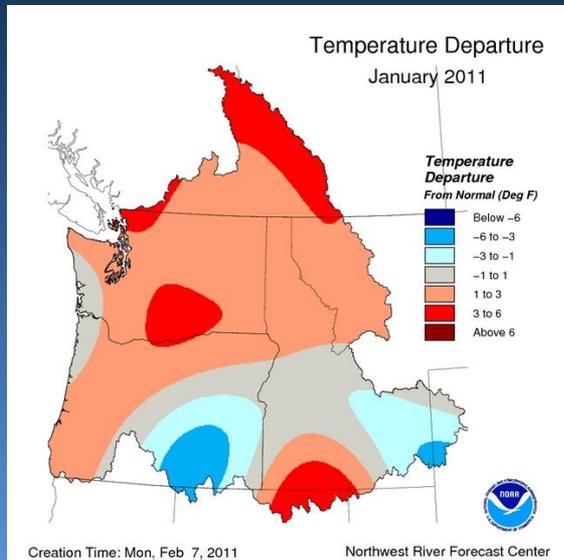
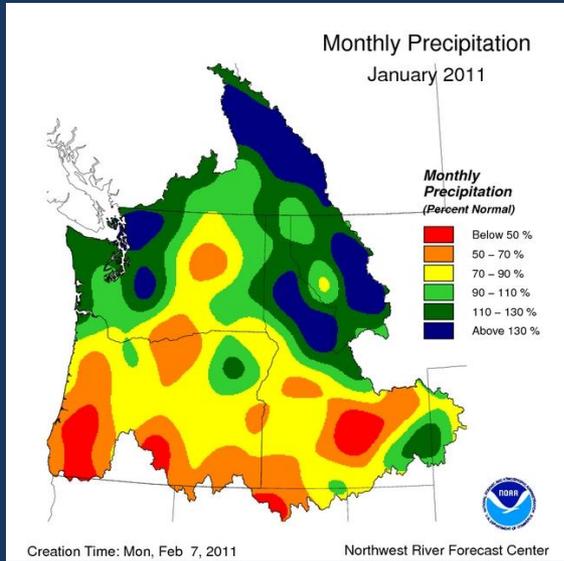
Creation Time: Mon, Feb 7, 2011

Northwest River Forecast Center





Current Runoff Conditions



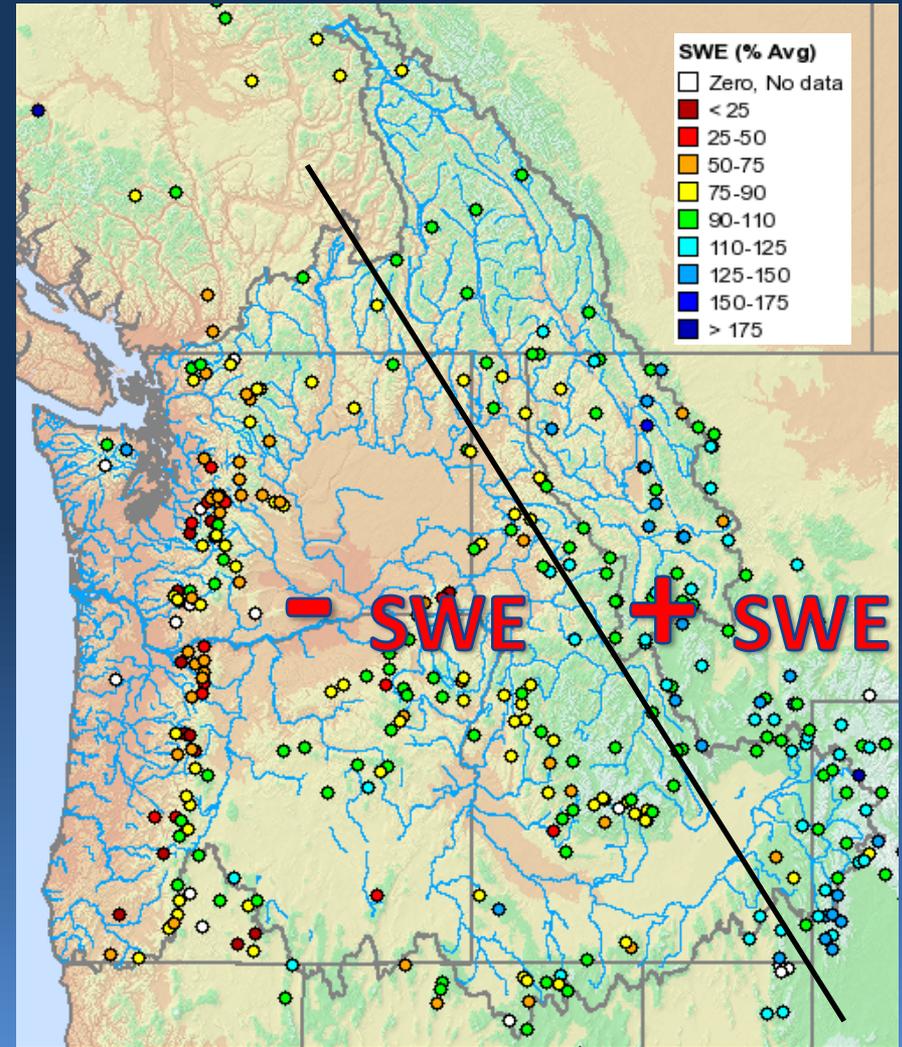
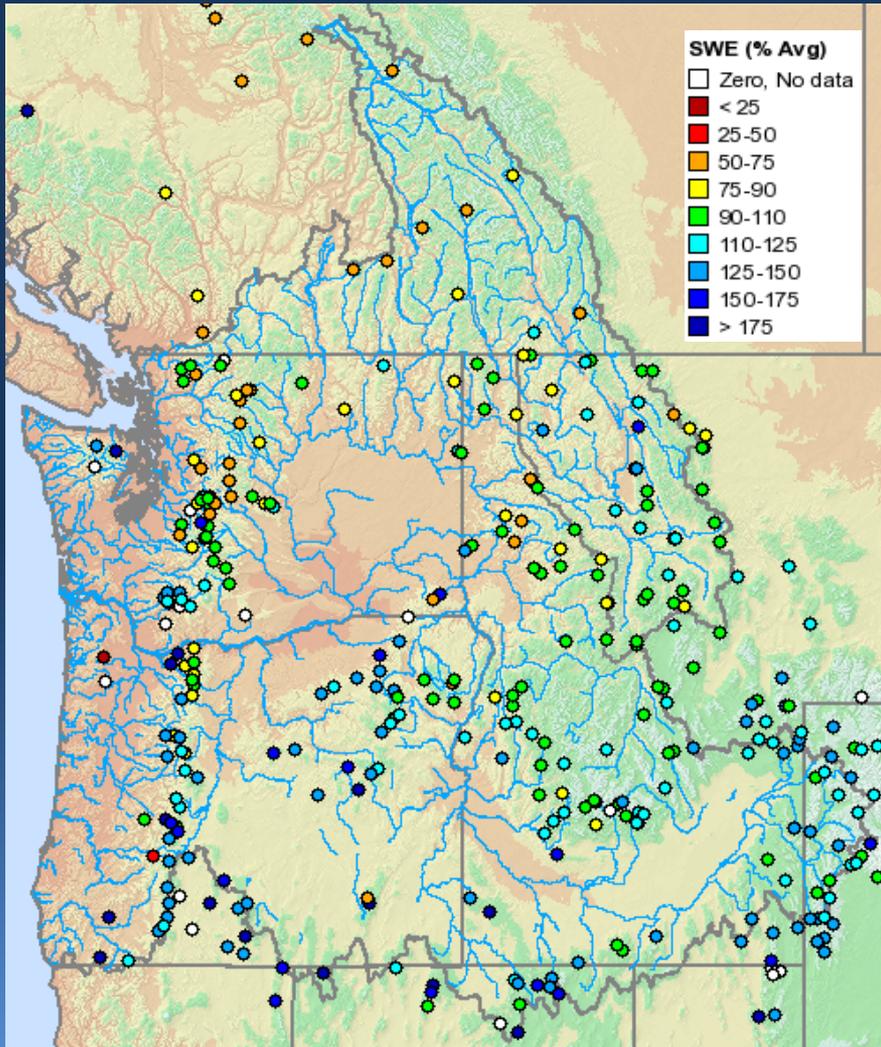


Current Snow Conditions



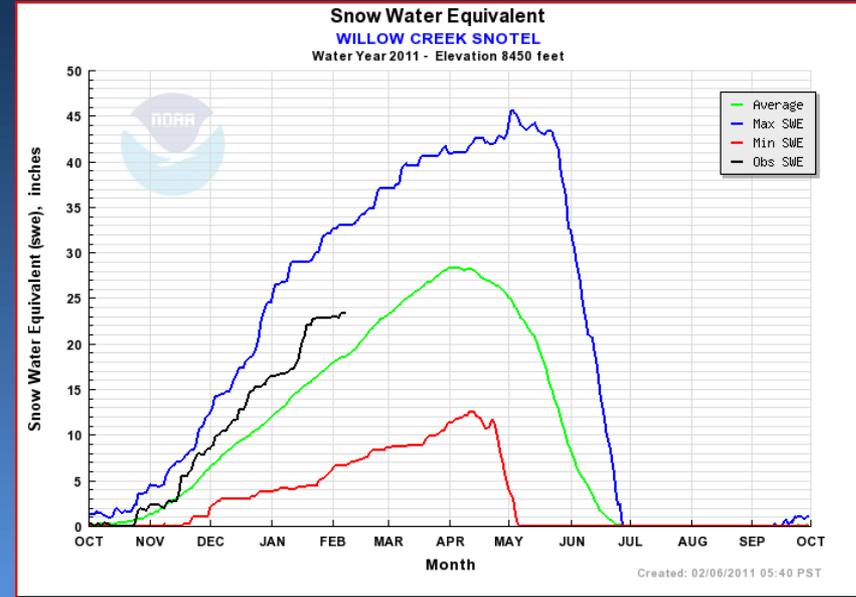
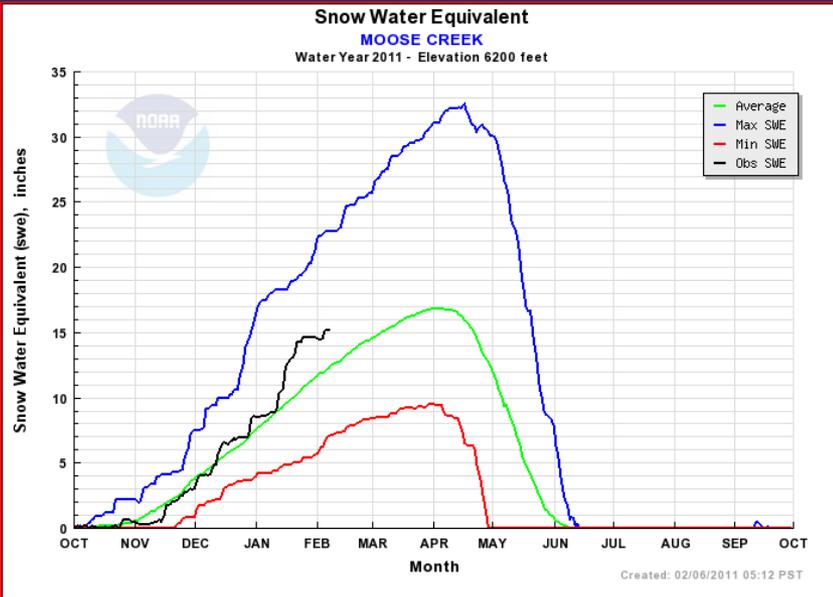
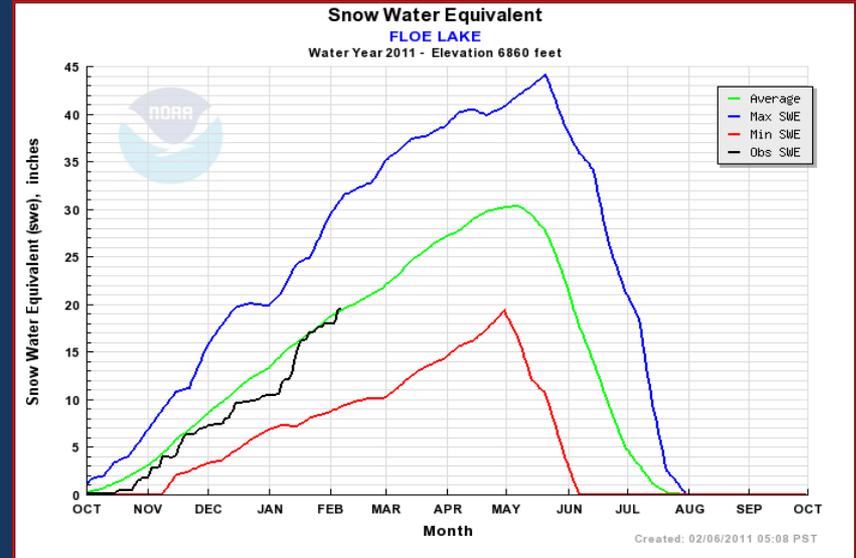
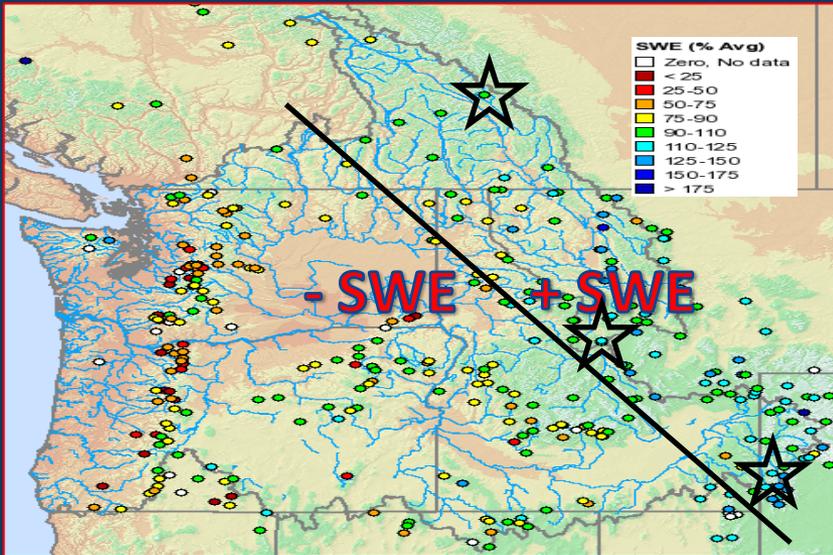
Jan 7, 2010

Feb 6, 2011



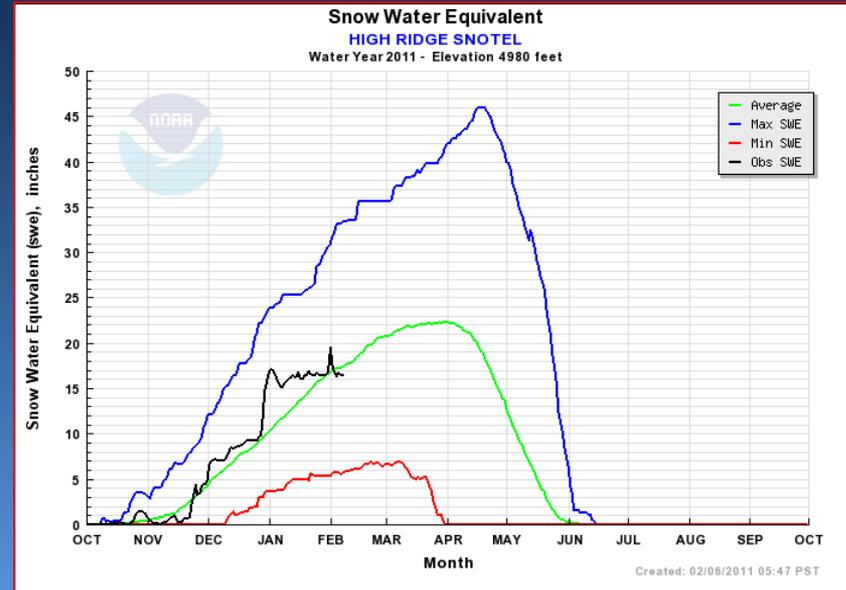
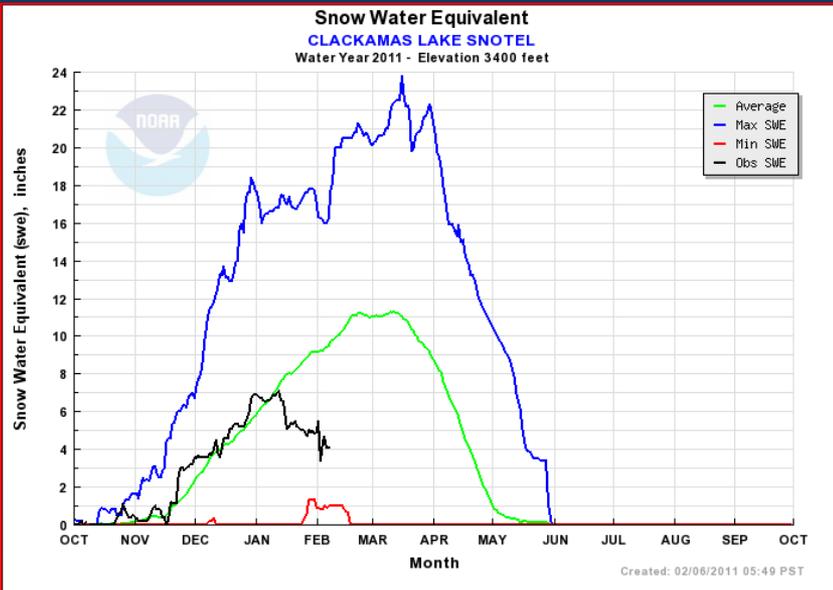
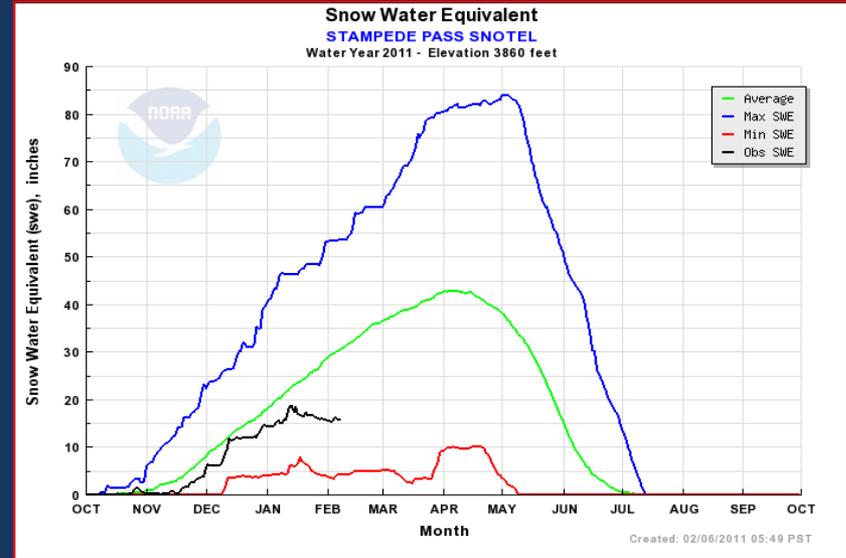
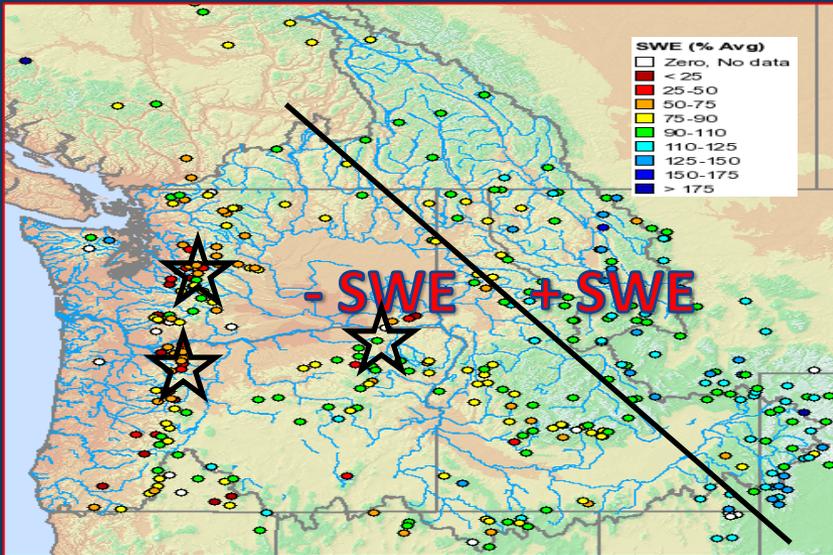


Current Snow Conditions





Current Snow Conditions





Future Conditions



Climate Outlooks

Precipitation Assumptions

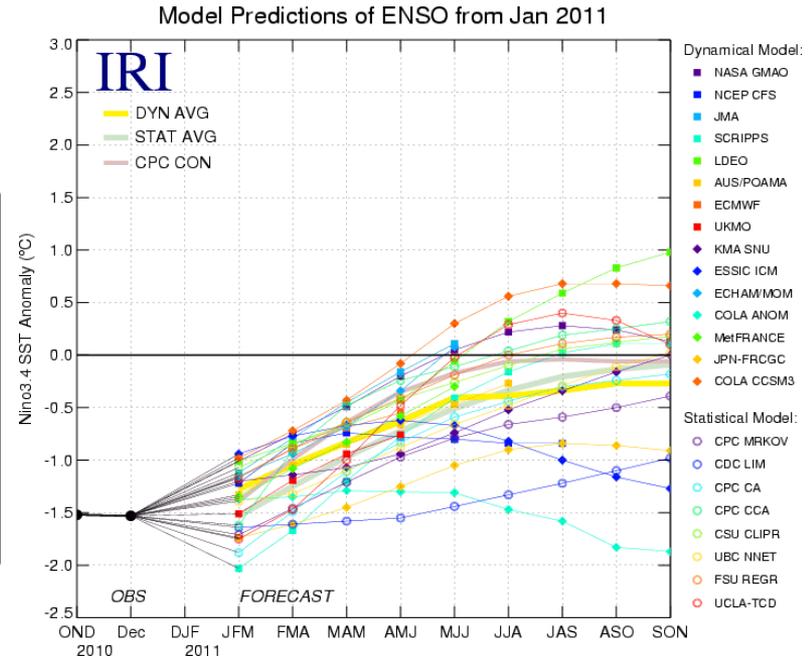
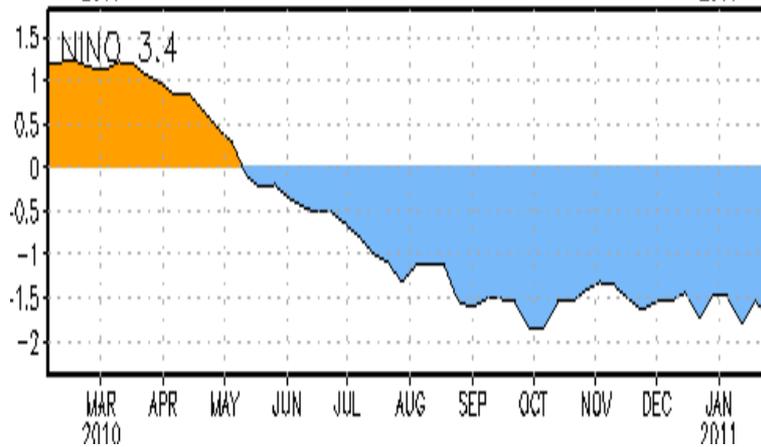
Water Supply Forecasts



Enso: Observed and Forecast SST Anomaly (Deg C)



Observed: SST 3.4 ~ 1.0 Deg C



CPC Synopsis: La Niña is expected to continue through spring of 2010.

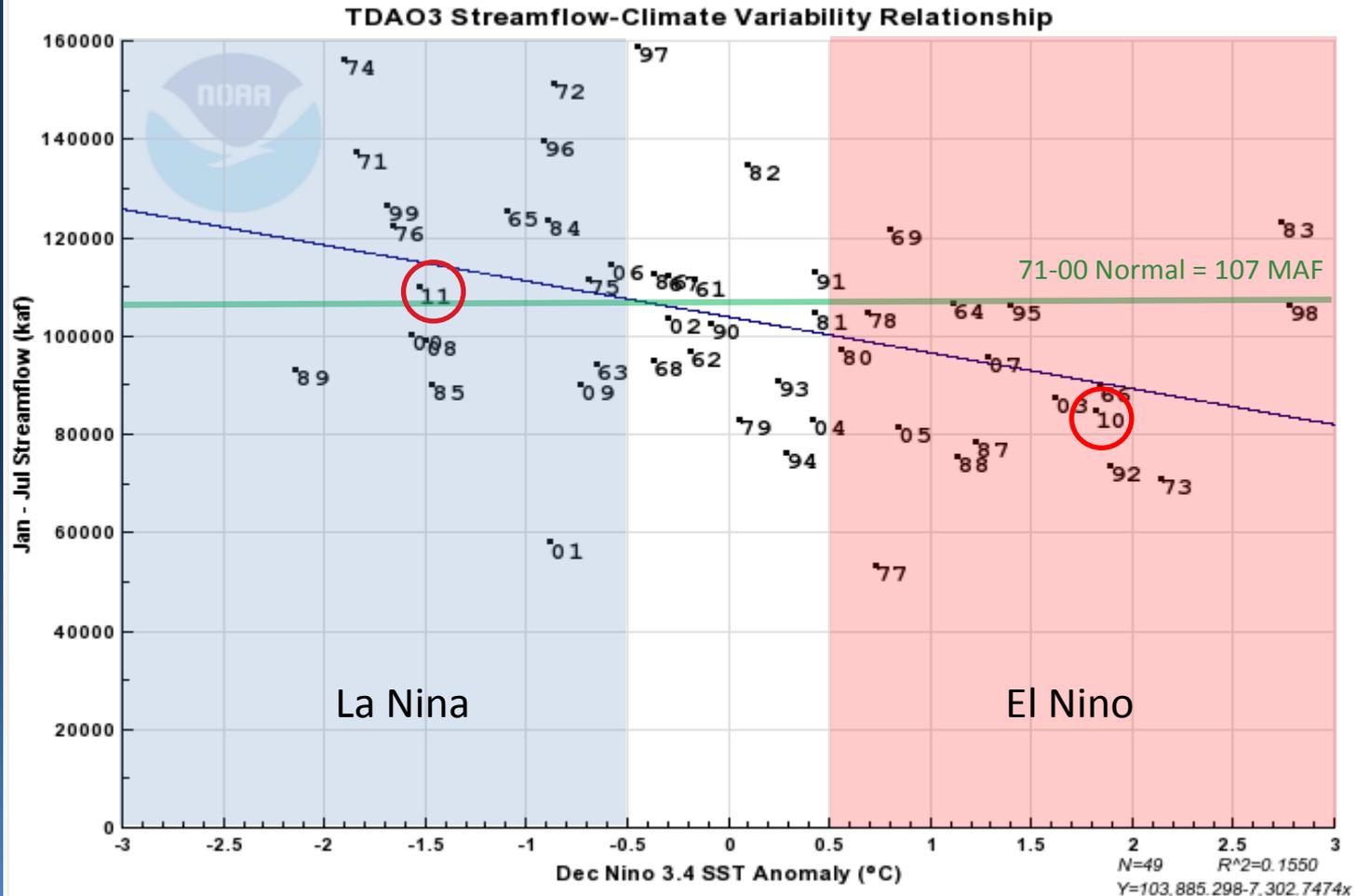
Source: Climate Prediction Center Weekly ENSO Update

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf



SST Anomaly vs Streamflow

Columbia River near The Dalles

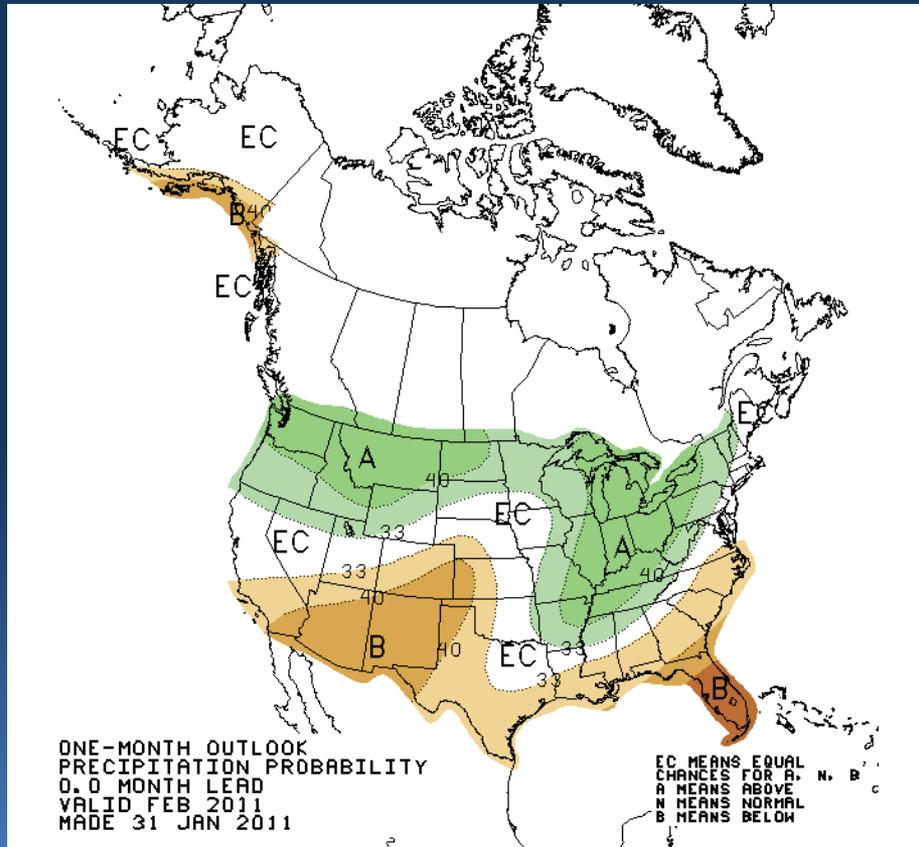




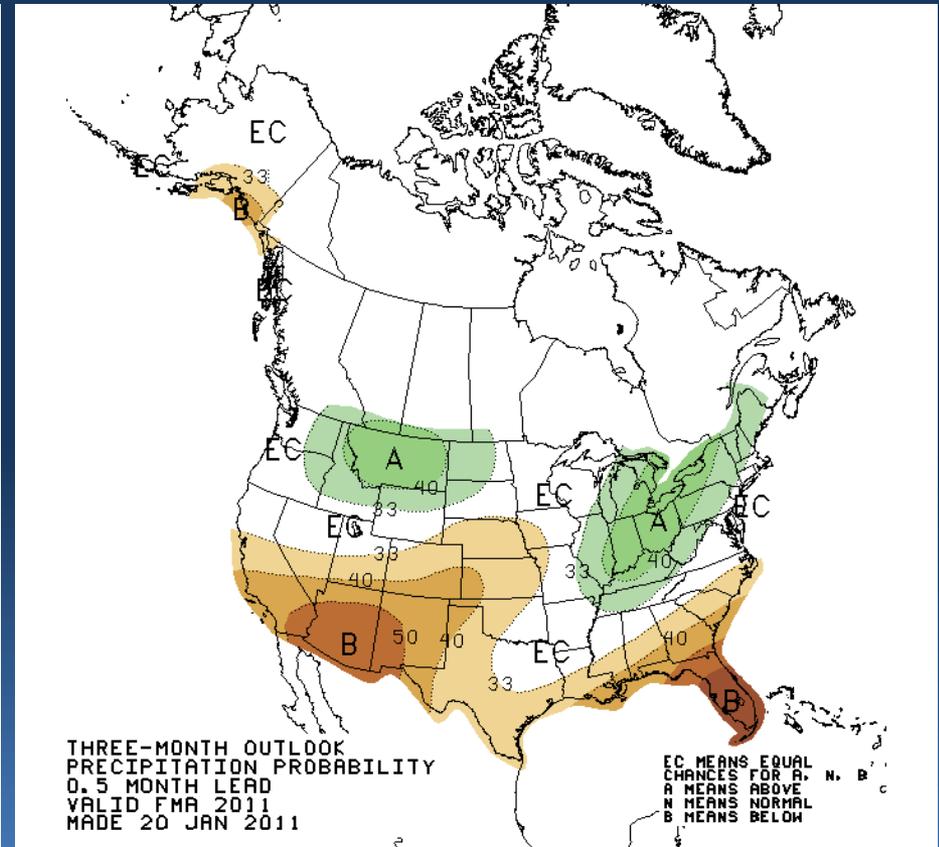
Climate Outlook: Precipitation



Current Month Outlook



Three Month Outlook

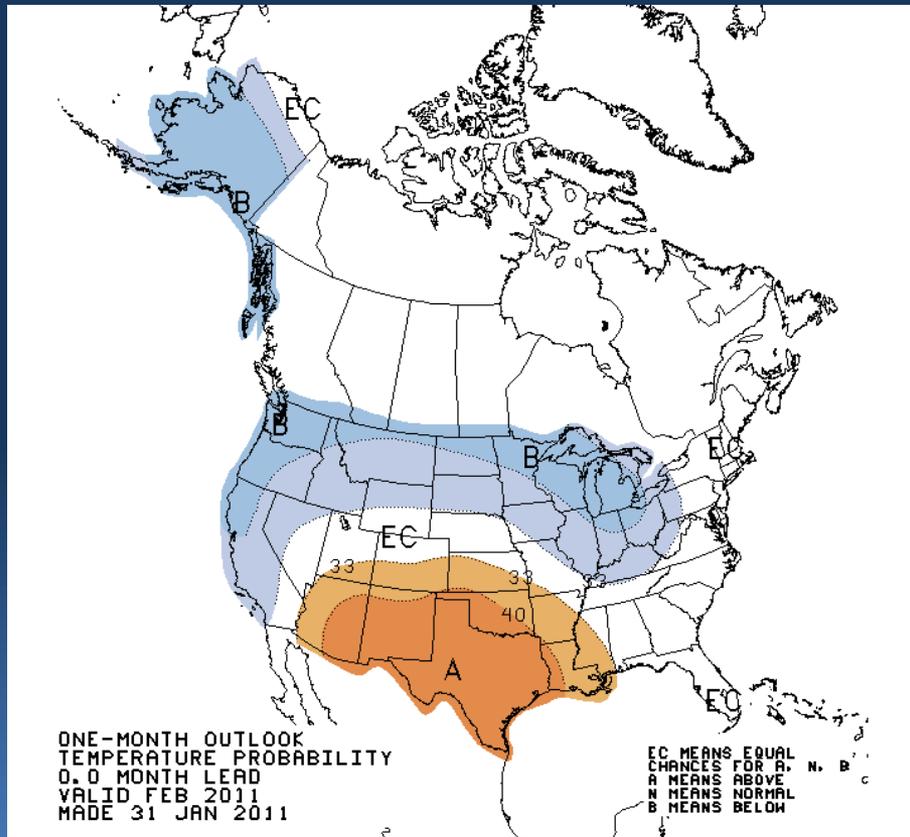




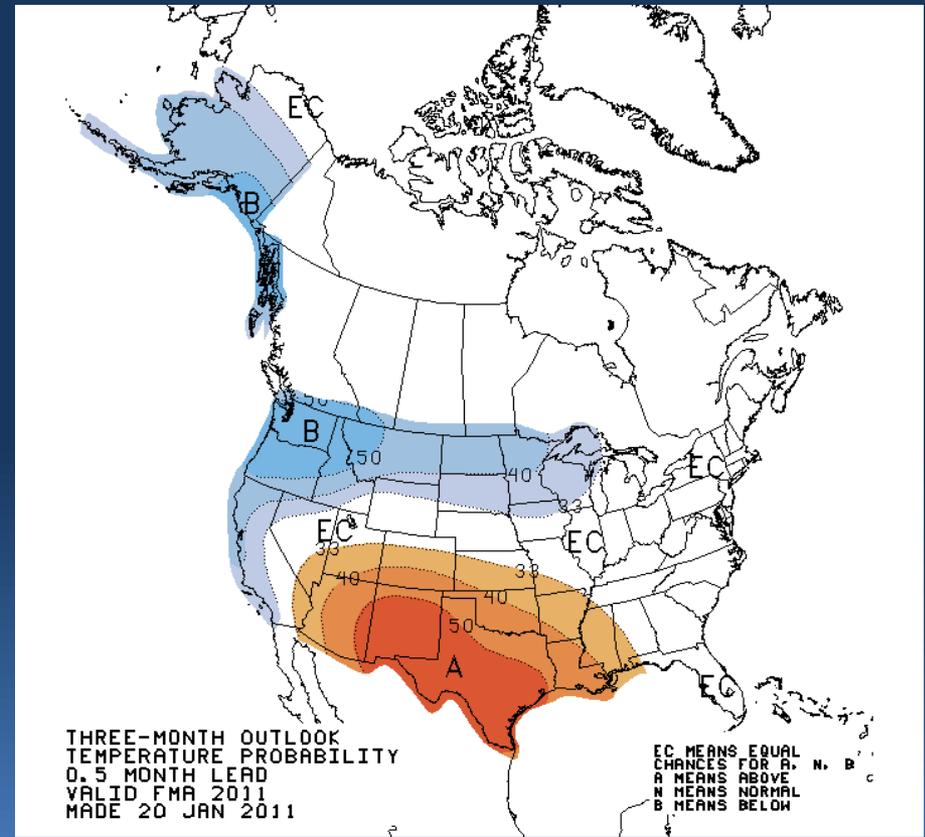
Climate Outlook: Temperature



Current Month Outlook



Three Month Outlook





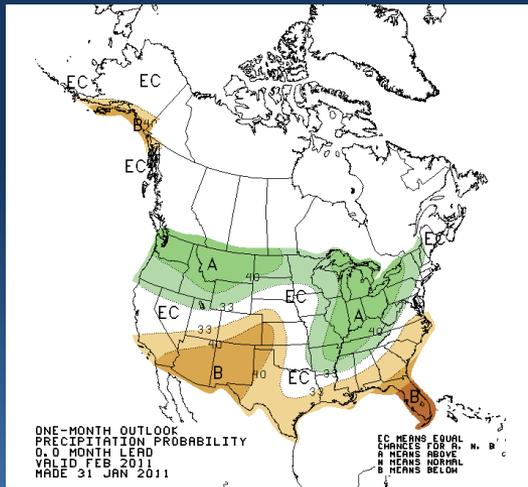
Model Precipitation Assumptions

Feb Final Water Supply Forecast:

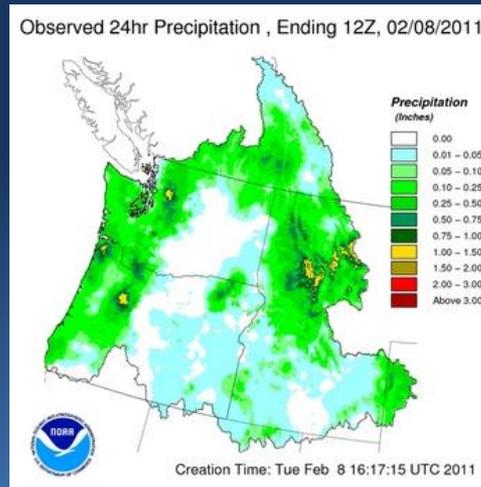
Feb Precipitation 105% of Normal

Mar – Jul Precipitation 100% of Normal

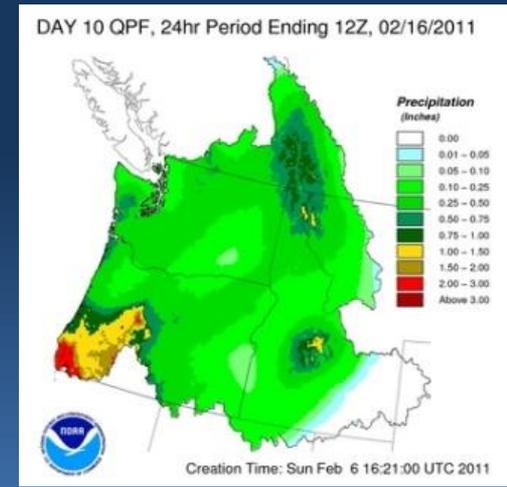
CPC Monthly Outlook



Observed Precip Days 1-5

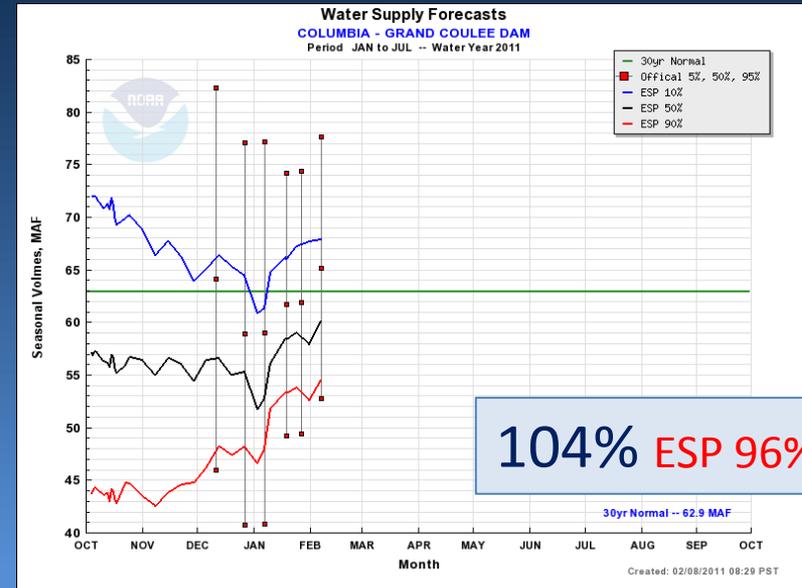
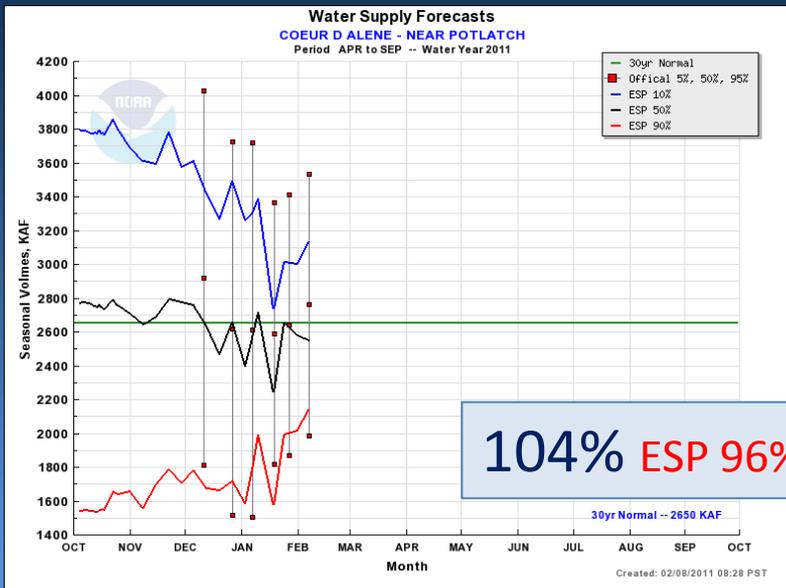
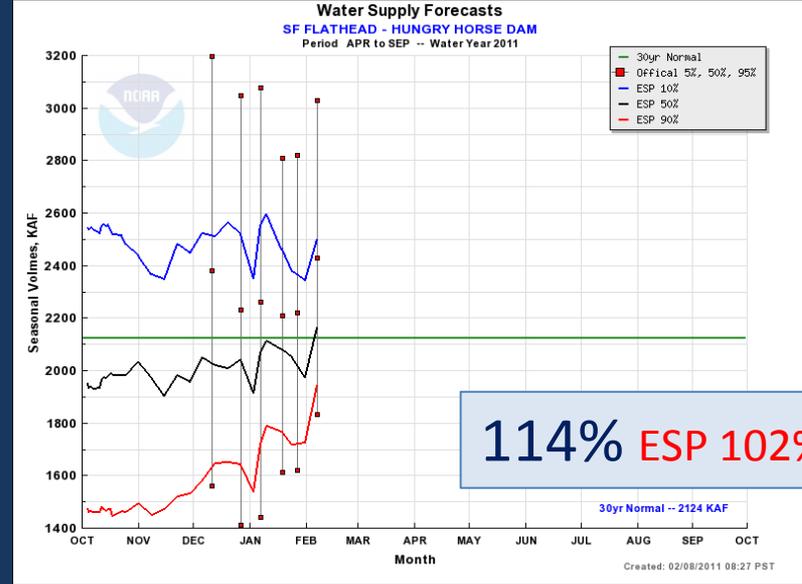
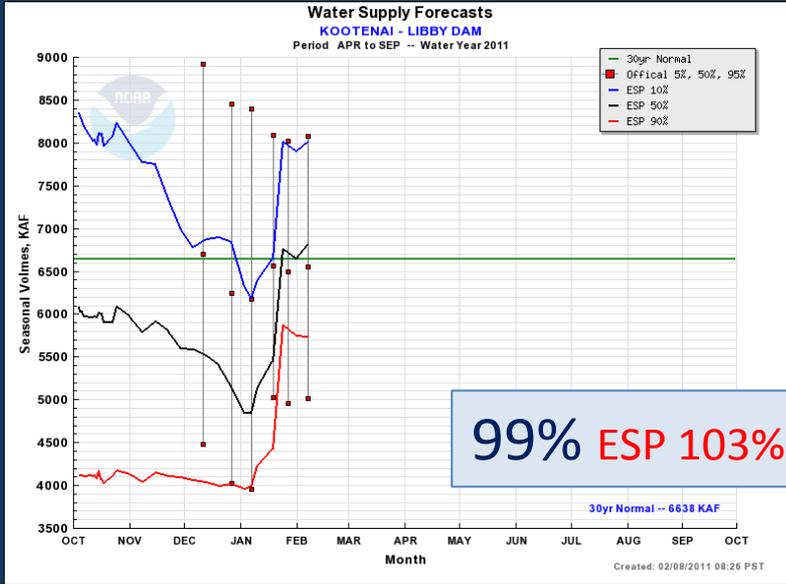


Forecast Precip Days 6-15



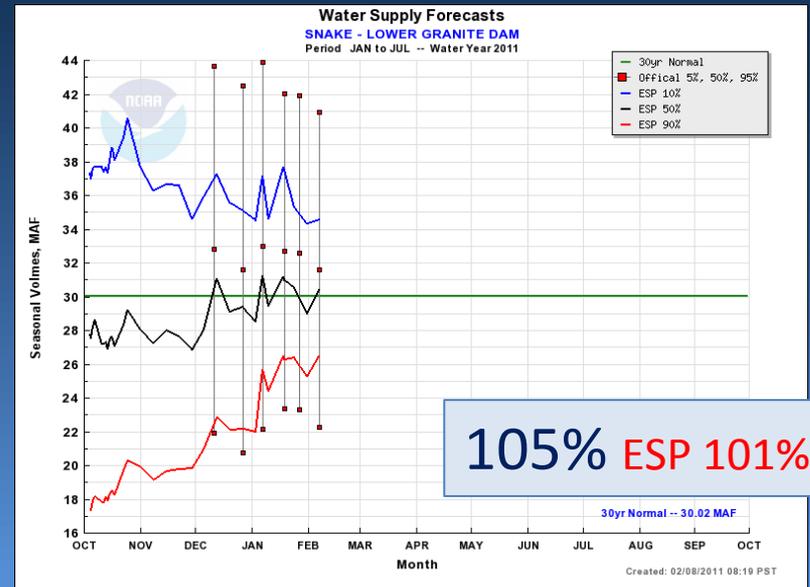
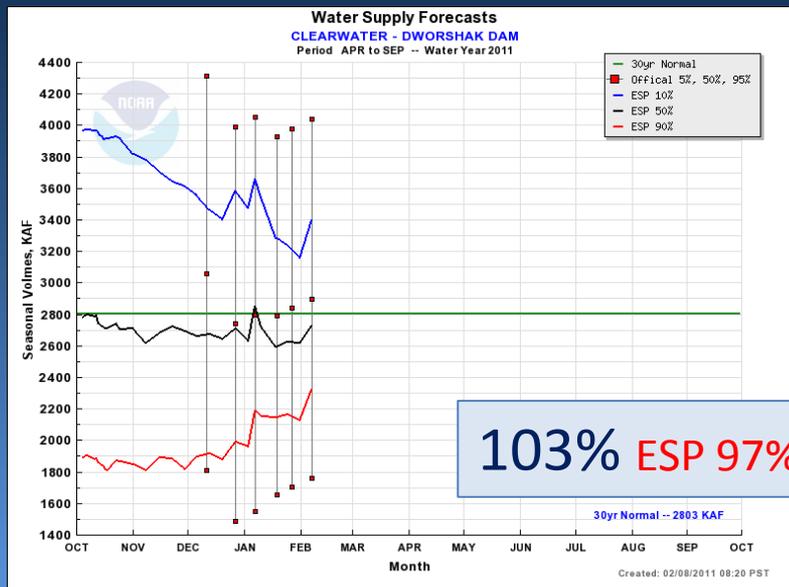
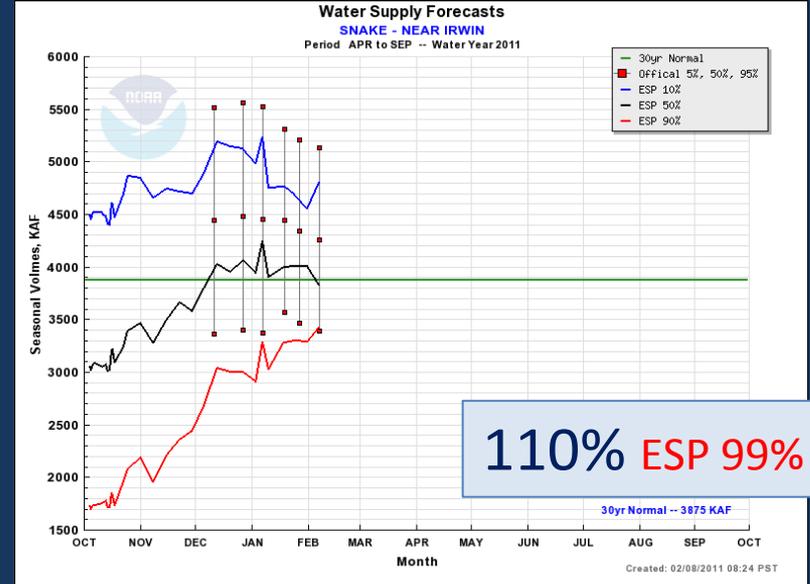
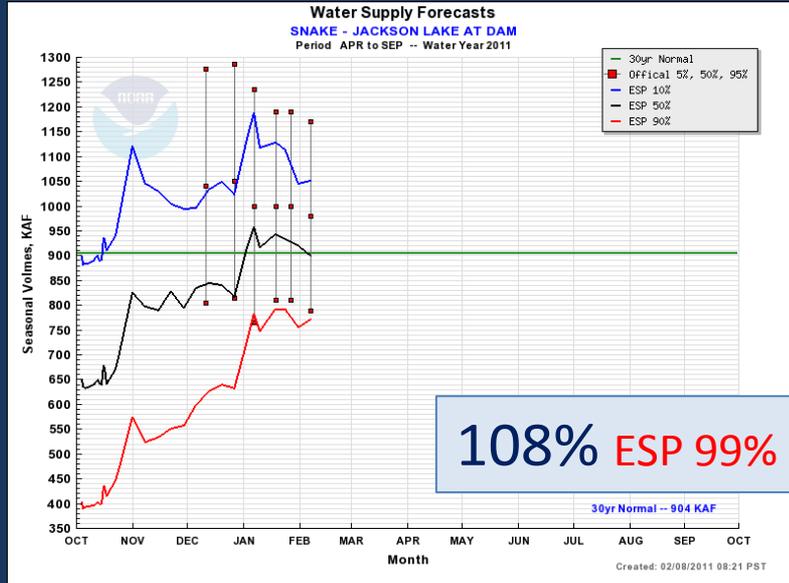


Water Supply Forecast: Upper Columbia



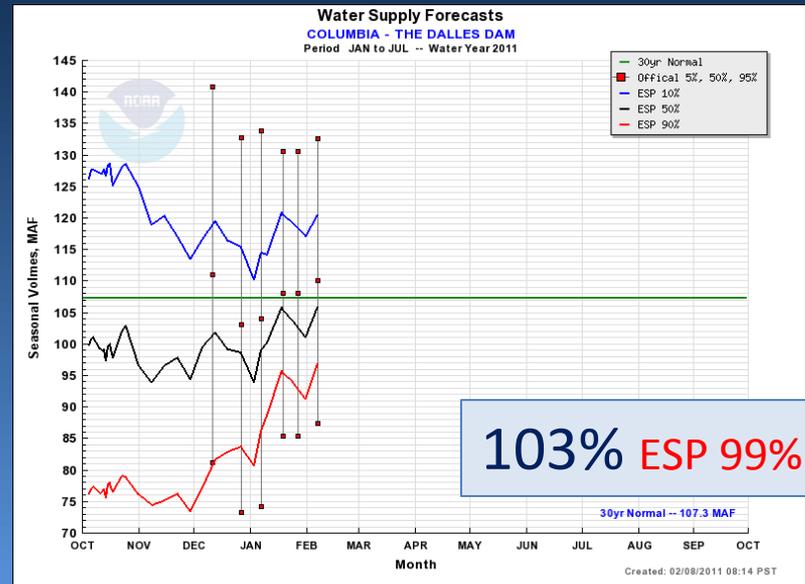
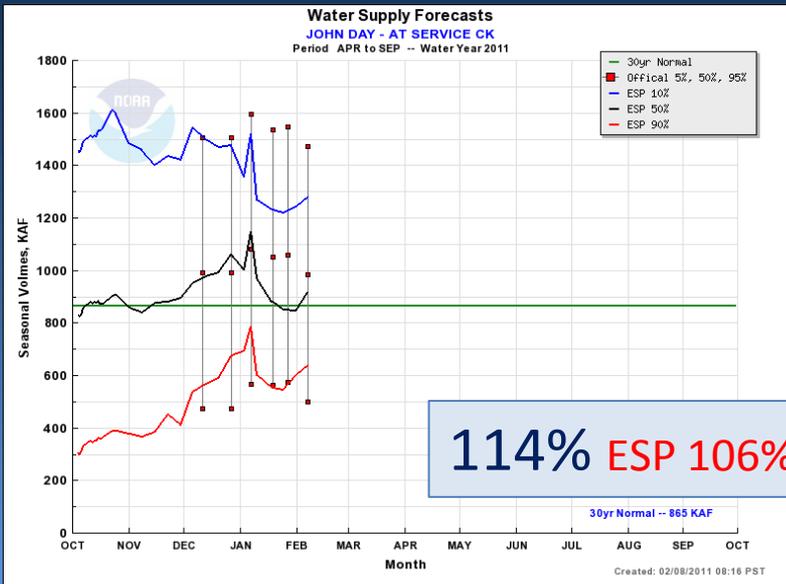
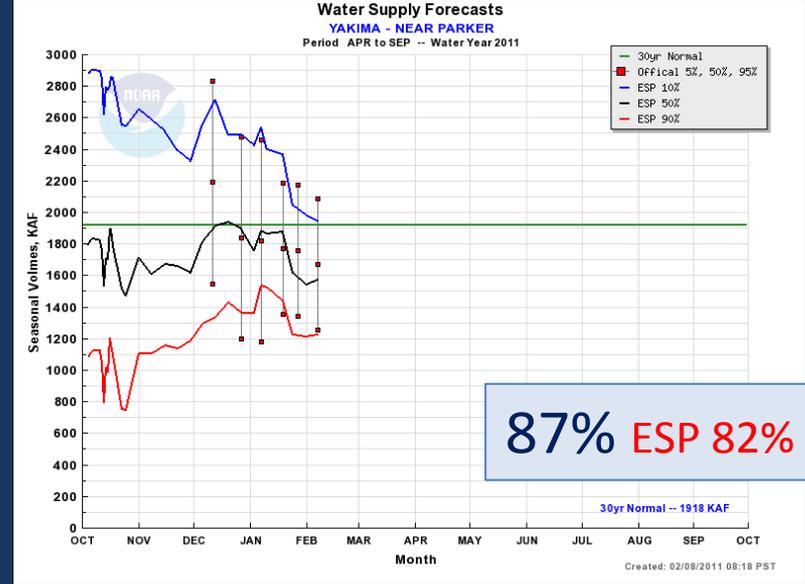
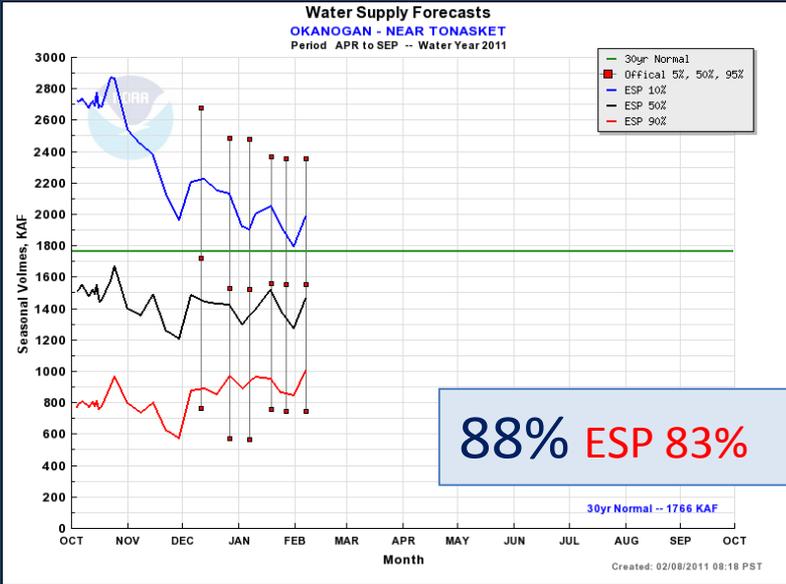


Water Supply Forecast: Snake





Water Supply Forecast: Lower Columbia





Water Supply Forecast: ESP Comparison



SNAKE - LOWER GRANITE DAM (LGDW1)

Forecasts for Water Year 2011

Official Water Supply Forecast <i>Issued: 2011-02-07</i>					ESP Water Supply Forecast <i>Issued: 2011-02-07</i>				
Forecast Period	Forecasts Are in KAF				Forecasts Are in KAF				30 Year Normal
	95 %	50 %	% Normal	05 %	90 %	50 %	% Normal	10 %	
APR-SEP	15586	24900	103	34214	19807	23707	98	27335	24140
APR-JUL	12886	22200	103	31514	17403	21028	98	24541	21550
APR-AUG	14286	23600	103	32914	18718	22486	98	26043	22870
JAN-JUL	22286	31600	105	40914	26495	30438	101	34545	30020

COLUMBIA - GRAND COULEE DAM (GCDW1)

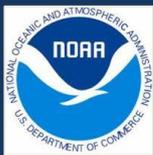
Forecasts for Water Year 2011

Official Water Supply Forecast <i>Issued: 2011-02-07</i>					ESP Water Supply Forecast <i>Issued: 2011-02-07</i>				
Forecast Period	Forecasts Are in KAF				Forecasts Are in KAF				30 Year Normal
	95 %	50 %	% Normal	05 %	90 %	50 %	% Normal	10 %	
APR-SEP	52833	65300	102	77767	55524	62606	98	67780	63990
APR-JUL	42333	54800	102	67267	45712	51453	96	57750	53850
APR-AUG	48933	61400	102	73867	52156	58810	98	63557	60290
JAN-JUL	52733	65200	104	77667	54493	60081	96	67858	62900

COLUMBIA - THE DALLES DAM (TDAO3)

Forecasts for Water Year 2011

Official Water Supply Forecast <i>Issued: 2011-02-07</i>					ESP Water Supply Forecast <i>Issued: 2011-02-07</i>				
Forecast Period	Forecasts Are in KAF				Forecasts Are in KAF				30 Year Normal
	95 %	50 %	% Normal	05 %	90 %	50 %	% Normal	10 %	
APR-SEP	75412	98000	99	120588	85263	96803	98	106558	98650
APR-JUL	61512	84100	99	106688	72522	81397	96	91440	84650
APR-AUG	69912	92500	99	115088	80129	90555	97	100709	93090
JAN-JUL	87412	110000	103	132588	96929	105851	99	120518	107300



NWRFC Water Supply Webpage

www.nwrfc.noaa.gov



Water Supply Forecast Release Schedule for 2011 WY

Type of Forecast	Month							
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
<i>Early Bird (Prelim Forecast)</i>	30	27	24	31	28		2,30	
<i>Official Forecast (Final)</i>		7	7	7	7	6	7	8
<i>Peak Flow Forecast</i>		10	8	8	8	9	8	11
<i>Mid-month Update</i>	16	20	17	17	21	19	16	
<i>Live Call</i>		10	8	8	8	9		

Normal Release Time is in the Afternoon on Days Listed



Northwest River Forecast Center Water Supply Period Rankings



[Home](#) | [Previous Page](#)

Select Period:

JAN-JUL

COLUMBIA - THE DALLES DAM (TDAO3) Period Rankings - 1970 to 2011 JAN-JUL Normal -- 107300 (KAF)

Rank	Year	Period Volume (KAF)	Percent of Normal	Exceedance Probability*
1	1997	158865.92	148	2.381 %
2	1974	156294.51	146	4.762 %
3	1972	151370.51	141	7.143 %
4	1996	139645.26	130	9.524 %
5	1971	137346.04	128	11.905 %
6	1982	134820.51	126	14.286 %
7	1999	126730.05	118	16.667 %
8	1984	123595.61	115	19.048 %
9	1983	123376.79	115	21.429 %
10	1976	122449.32	114	23.810 %
11	2006	114672.00	107	26.190 %
12	1991	112959.91	105	28.571 %
13	1986	112488.48	105	30.952 %
14	1975	111495.75	104	33.333 %
15	2011	110000.00	103	35.714 %
16	1998	106175.05	99	38.095 %
17	1995	106155.22	99	40.476 %
18	1978	104825.78	98	42.857 %
19	1981	104791.23	98	45.238 %
20	2002	103753.00	97	47.619 %
21	1990	102371.51	95	50.000 %
22	2000	100346.00	94	52.381 %
23	2008	99209.00	92	54.762 %
24	1980	97366.22	91	57.143 %
25	2007	95738.00	89	59.524 %
26	1989	93021.28	87	61.905 %
27	1993	90818.70	85	64.286 %
28	1985	90324.80	84	66.667 %
29	2009	90244.00	84	69.048 %
30	2003	87688.00	82	71.429 %
31	2010	84718.00	79	73.810 %
32	1979	83024.92	77	76.190 %
33	2004	82954.00	77	78.571 %
34	2005	81349.00	76	80.952 %
35	1987	78634.71	73	83.333 %
36	1994	76398.88	71	85.714 %
37	1988	75538.46	70	88.095 %
38	1992	73544.84	69	90.476 %
39	1973	70991.94	66	92.857 %
40	2001	58187.00	54	95.238 %
41	1977	53293.33	50	97.619 %

Ranking tool places current
'official' forecast in historical context

Feb forecast volume for The Dalles:
103% of Normal (Jan-Jul)
Rank of 15 out of 40 years

*Exceedance Probability: The probability that a specific seasonal volume will be exceeded.



Northwest River Forecast Center Water Supply Forecasts



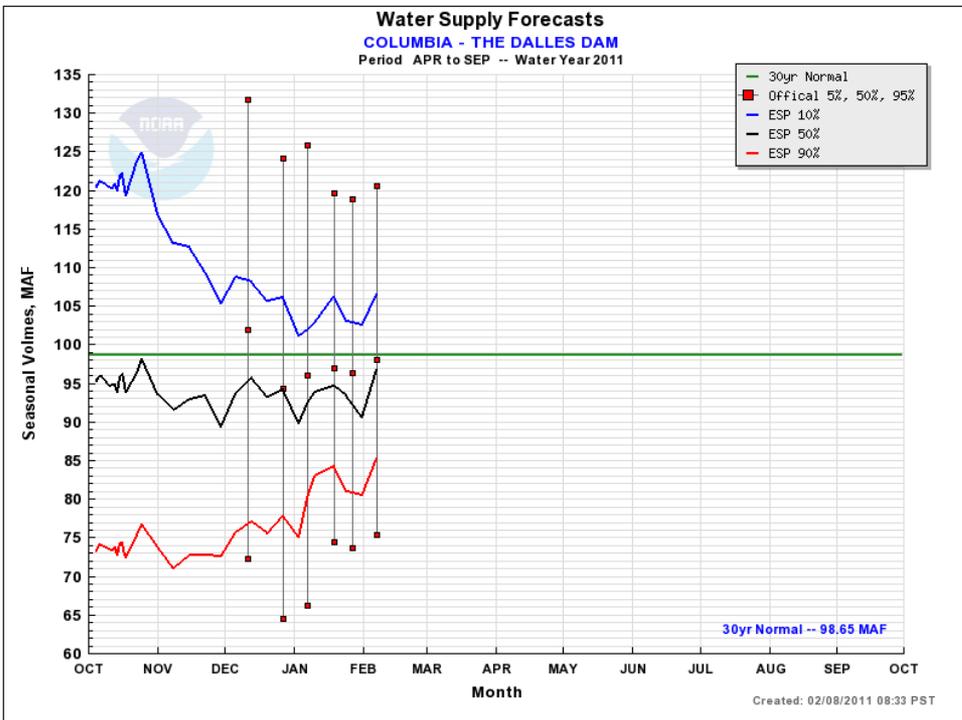
Home Previous Page Archive Data/Normals Rankings Adjustments Verification Help

COLUMBIA - THE DALLES DAM (TDA03) Forecasts for Water Year 2011

Official Water Supply Forecast *Issued: 2011-02-07* ESP Water Supply Forecast *Issued: 2011-02-07*

Forecast Period	Forecasts Are in KAF				Forecasts Are in KAF				30 Year Normal
	95 %	50 %	% Normal	05 %	90 %	50 %	% Normal	10 %	
APR-SEP	75412	98000	99	120588	85263	96803	98	106558	98650
APR-JUL	61512	84100	99	106688	72522	81397	96	91440	84650
APR-AUG	69912	92500	99	115088	80129	90555	97	100709	93090
JAN-JUL	87412	110000	103	132588	96929	105851	99	120518	107300

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



Added Functionality:

Mouse over on Forecast Period date to create graphic for that period



Northwest River Forecast Center
Monthly Runoff Information



Home Previous Page

COLUMBIA - THE DALLES DAM (TDA03) Seasonal Volume Normals in KAF				
	Apr-Sep	Apr-Jul	Apr-Aug	Jan-Jul
30-Year Normal 1971-2000	98649.17	84649.44	93085.93	107302.05
Estimated* 30-Year Normal 1981-2010	92401.55	79619.50	87274.85	100970.51

* Partial Monthly Total
** Provisional data beyond WY 2000

COLUMBIA - THE DALLES DAM (TDA03) Month Volumes in KAF												
Calendar Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1970										4735.71	4817.81	5172.55
1971	8151.20	9772.71	8382.59	15270.33	30075.68	37333.06	19360.46	10116.14	5635.70	5987.12	5290.24	5068.43
1972	6532.97	7669.03	19204.57	15067.25	34723.96	46582.49	21590.24	10924.00	5955.18	5791.63	4771.55	5567.18
1973	5834.75	4187.02	6313.92	7190.81	18247.75	18268.33	10949.36	6400.68	4343.79	4290.28	6840.88	8745.47
1974	13257.27	8428.42	10845.37	20183.37	29779.03	49489.36	24312.69	10432.12	5482.62	4436.17	4239.42	4417.64
1975	5294.25	4095.86	7482.53	10002.62	26457.48	36434.48	21128.53	8706.94	6038.42	6144.35	7112.99	11241.89
1976	8128.80	6653.97	7693.11	16528.25	35997.85	26808.49	20738.86	14099.12	8721.26	5178.17	4235.49	3658.99
1977	3542.07	3241.50	3597.18	7124.25	13603.18	14829.65	7355.50	6568.99	4599.68	3968.50	4270.82	8516.48
1978	5654.19	5372.53	9251.06	15253.09	24145.86	27886.48	17262.56	8041.19	7712.63	5315.99	4747.53	3495.50
1979	3755.31	5156.34	8007.63	10032.99	25501.77	19747.92	10822.96	6448.10	4706.68	3963.83	3050.38	4509.95
1980	4622.15	5000.05	6810.00	14702.59	30928.50	23476.00	11826.92	6398.41	5697.01	5109.19	5299.78	8707.22
1981	7654.15	7929.15	7443.73	10944.24	25653.99	27120.16	18045.81	9748.93	5512.07	5451.10	5241.38	6154.76
1982	5646.55	11675.07	12101.98	13946.87	29978.80	39089.04	22382.20	9945.11	7397.32	6441.95	5172.55	5068.43
1983	7984.77	8607.80	15451.84	15220.02	28635.22	28790.11	18687.04	9925.05	5995.88	3972.23	4235.49	3658.99
1984	9374.39	7230.88	11956.59	16662.64	23937.55	35712.98	18821.69	9120.19	6384.83	5643.83	4235.49	3658.99
1985	4831.75	4751.21	6374.11	15358.04	26900.37	21925.44	10183.87	6182.87	5061.64	6222.14	4235.49	3658.99
1986	5289.81	9660.21	16871.10	16010.76	24990.53	27755.13	12330.94	7527.40	5136.92	5537.05	4235.49	3658.99
1987	4338.94	4491.34	8969.59	12114.85	23558.88	15492.24	9668.86	5888.17	4191.99	3393.99	4235.49	3658.99
1988	3594.05	3701.55	5258.60	13118.24	20264.24	19432.48	10169.30	6004.76	4011.87	4784.76	4235.49	3658.99
1989	4249.38	3651.01	9191.91	16425.08	24535.96	23680.80	11287.43	7700.05	5244.18	4654.65	4235.49	3658.99
1990	6045.66	4902.60	7085.07	16191.92	20872.45	30167.16	17206.66	9006.92	4986.81	5172.55	4235.49	3658.99
1991	6146.71	7956.72	7749.11	13025.50	27682.42	29501.97	20897.48	10418.44	5353.49	3941.00	4235.49	3658.99
1992	4719.01	5845.90	7781.82	11056.67	19180.60	15509.00	9451.83	5581.10	3933.74	4597.94	4235.49	3658.99
1993	4084.97	3527.92	8635.74	12732.84	28447.01	20663.98	12726.26	8397.28	5224.37	4456.24	4235.49	3658.99
1994	4389.64	3429.81	6124.55	13839.49	21109.43	16673.22	10952.73	5712.41	3657.86	3458.82	4235.49	3658.99
1995	5642.40	9717.55	11258.63	10964.08	24926.09	28682.62	15063.86	8096.28	5393.20	6429.50	4235.49	3658.99
1996	9126.38	15982.16	12349.74	20488.89	27186.22	34415.17	20096.71	8916.99	5467.74	5340.75	4235.49	3658.99
1997	11523.41	9511.19	14485.23	19814.38	41895.93	41378.62	20257.15	9651.01	7912.93	9230.14	4235.49	3658.99
1998	6189.88	6308.15	9280.20	13266.64	33370.80	23823.73	13935.64	7293.82	5128.37	4316.12	5181.56	6406.75
1999	7939.33	7076.79	12231.12	15364.32	26301.64	35910.92	21905.93	12501.57	5726.78	5233.68	8493.39	7489.40
2000	5895.57	6851.89	9103.83	17435.67	23280.28	22880.73	14897.02	7360.96	5392.26	4843.00	3718.00	3522.00
2001	3302.00	2086.00	4684.00	6614.00	17678.00	13696.00	9227.00	5575.00	3463.00	3422.00	4612.00	4206.00
2002	5372.00	4658.00	6191.00	13657.00	23100.00	33489.00	17286.00	6273.00	4290.00	3304.00	3372.00	3536.00
2003	4797.00	5663.00	9102.00	13066.00	20527.00	24603.00	9930.00	5642.00	3670.00	5878.00	4638.00	4366.00
2004	4435.00	4980.00	7977.00	13765.00	20814.00	19909.00	11074.00	7401.00	7109.00	5902.00	5409.00	6564.00
2005	7120.00	5594.00	6049.00	10565.00	21608.00	18798.00	11615.00	5866.00	4280.00	6167.00	4967.00	5052.00
2006	8938.00	5784.00	8013.00	18358.00	34168.00	27714.00	11697.00	5689.00	4031.00	3594.00	7765.00	5513.00
2007	5209.00	5357.00	12068.00	12777.00	23816.00	22826.00	13685.00	5835.00	3872.00	4704.00	4460.00	4842.00
2008	4042.00	4078.00	5924.00	7129.00	31292.00	30884.00	15860.00	8033.00	4715.00	4635.00	5794.00	4300.00
2009	6310.00	4116.00	6413.00	12601.00	23943.00	25281.00	11580.00	7366.00	4780.00	4229.00	4664.00	3838.00
2010	4869.00	4134.00	5325.00	9739.00	17687.00	29041.00	13923.00	7021.00	5677.00	6247.00	7323.00	8384.00
2011	12387.00											
30-Year Normal 1971-2000	6313.36	6762.88	9576.38	14174.55	26688.98	27978.68	15807.22	8436.50	5563.24	5086.62	5617.43	6051.67
Estimated* 30-Year Normal 1981-2010	5967.39	6335.30	9048.32	13738.40	25231.38	26158.21	14491.51	7655.34	5126.71	5002.16	5618.15	5556.50

Update to the Runoff Data/Normals page:

- Filled in missing data for WY 2001
- Added normals for forecast periods
- Added *estimated* '81-'10 normal