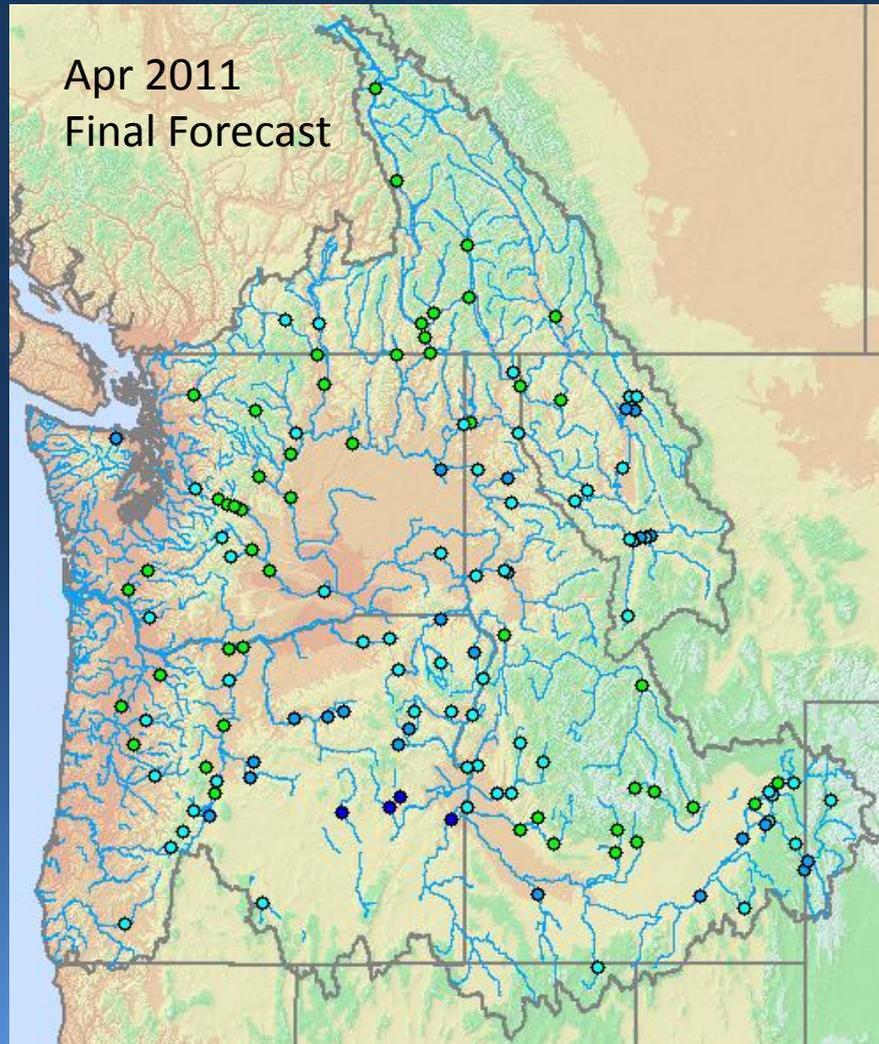




Northwest River Forecast Center Water Supply Briefing



Water Supply Forecast (% Avg)

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

April 1st "Final" Forecast
Legacy Regression Technique

Ensemble Streamflow Procedure (ESP)

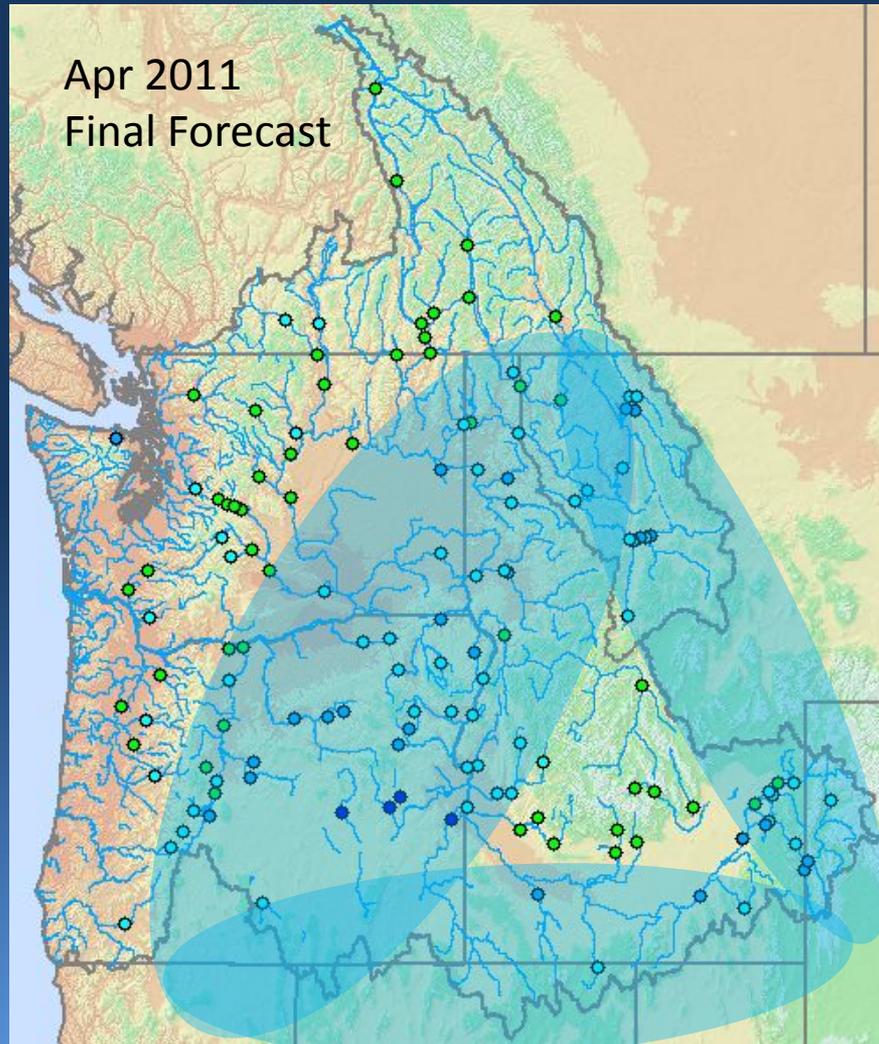
Precipitation Forecast:
110% of Normal for April

Agency Coordinated

BC Hydro input for Canadian Forecasts



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

General Outlook:

(Well) Above Normal Forecasts

Western Montana

Idaho Panhandle

Upper Snake

Eastern OR/WA

Southern Idaho

Below Normal Forecasts

None



Observed Conditions

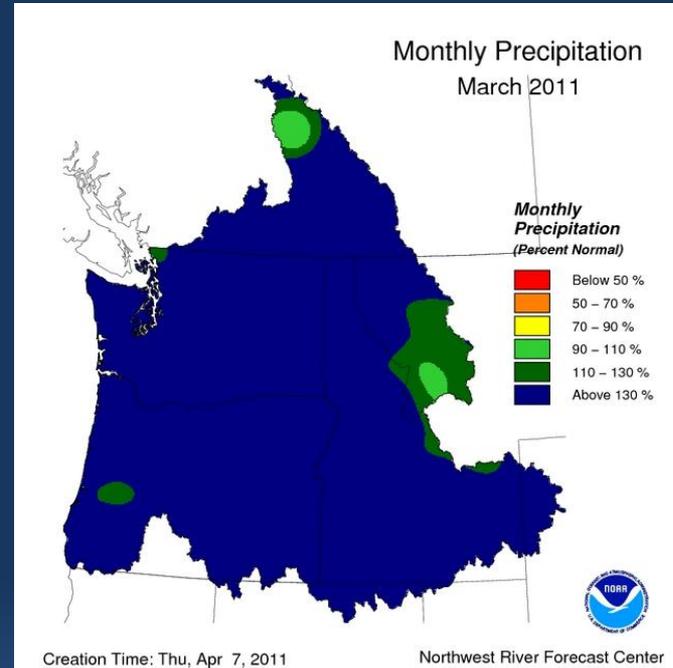
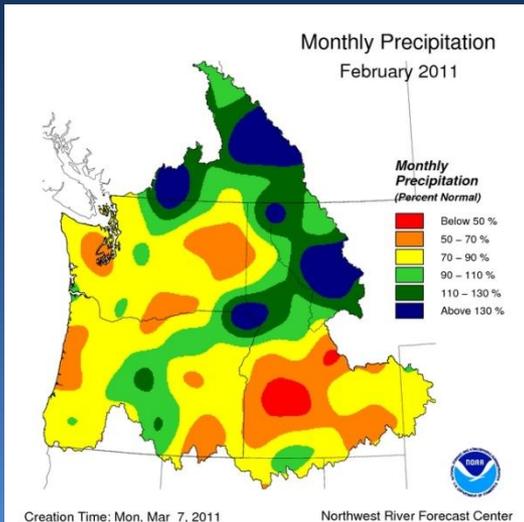
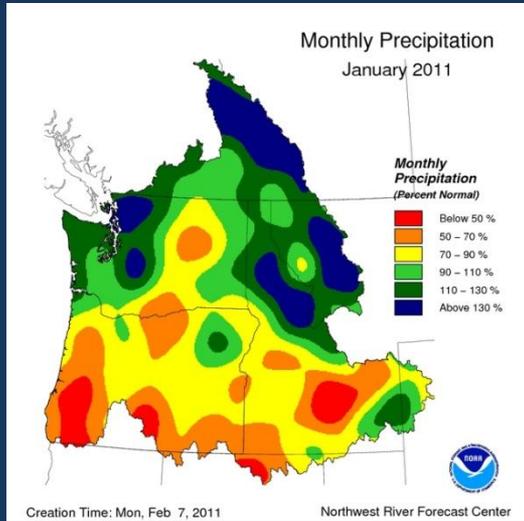


Precipitation

Snowpack



Observed Monthly Precipitation



Observed March precipitation
above Grand Coulee = 159%
above Ice Harbor = 170%
above The Dalles = 173%

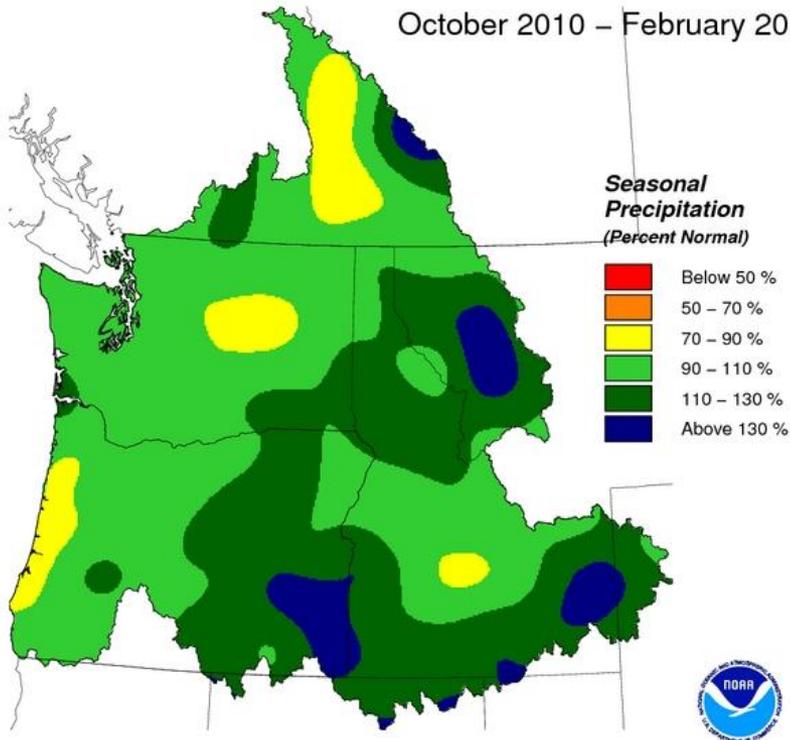
March 'Final' Forecast precipitation assumption
= 110% of Normal



Observed Seasonal Precipitation



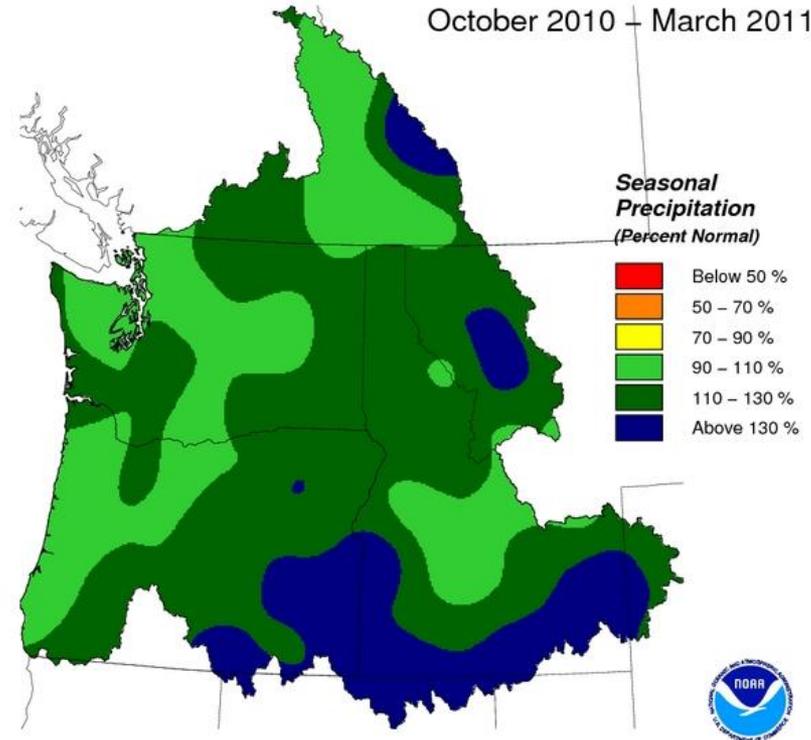
Seasonal Precipitation
October 2010 – February 2011



Creation Time: Mon, Mar 7, 2011

Northwest River Forecast Center

Seasonal Precipitation
October 2010 – March 2011



Creation Time: Thu, Apr 7, 2011

Northwest River Forecast Center

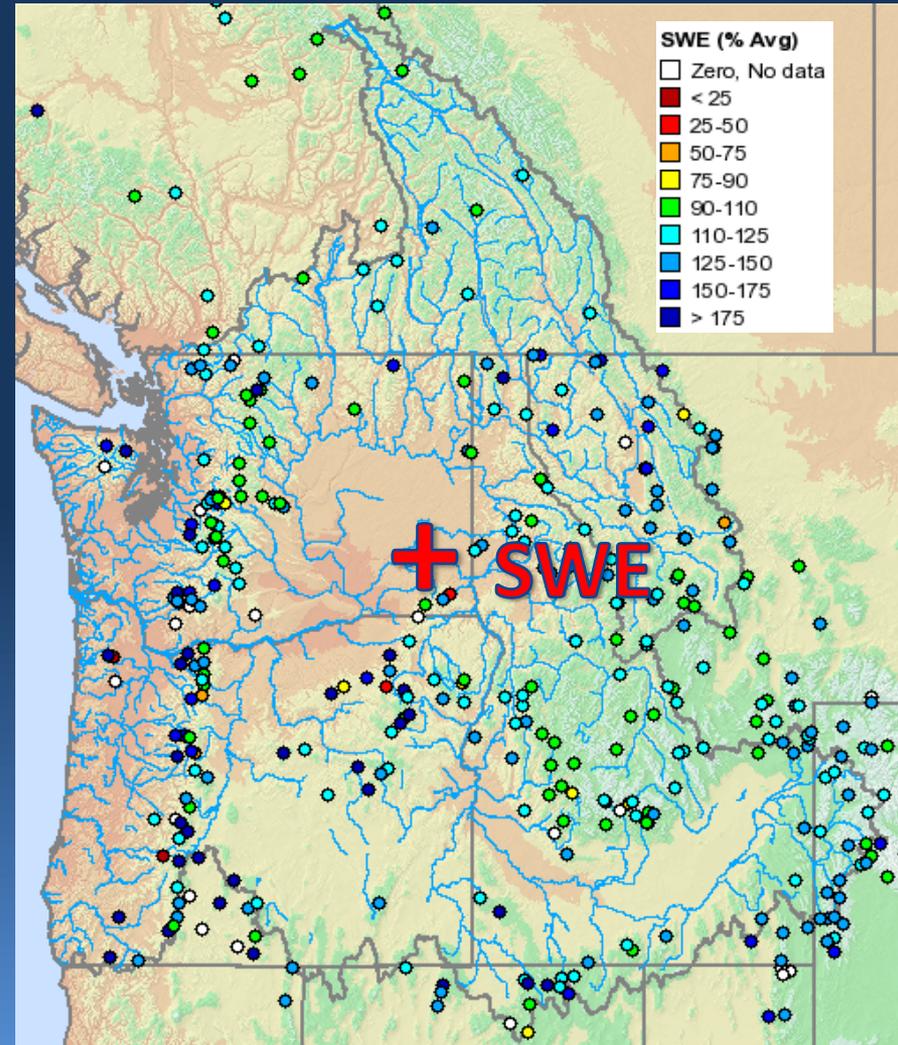
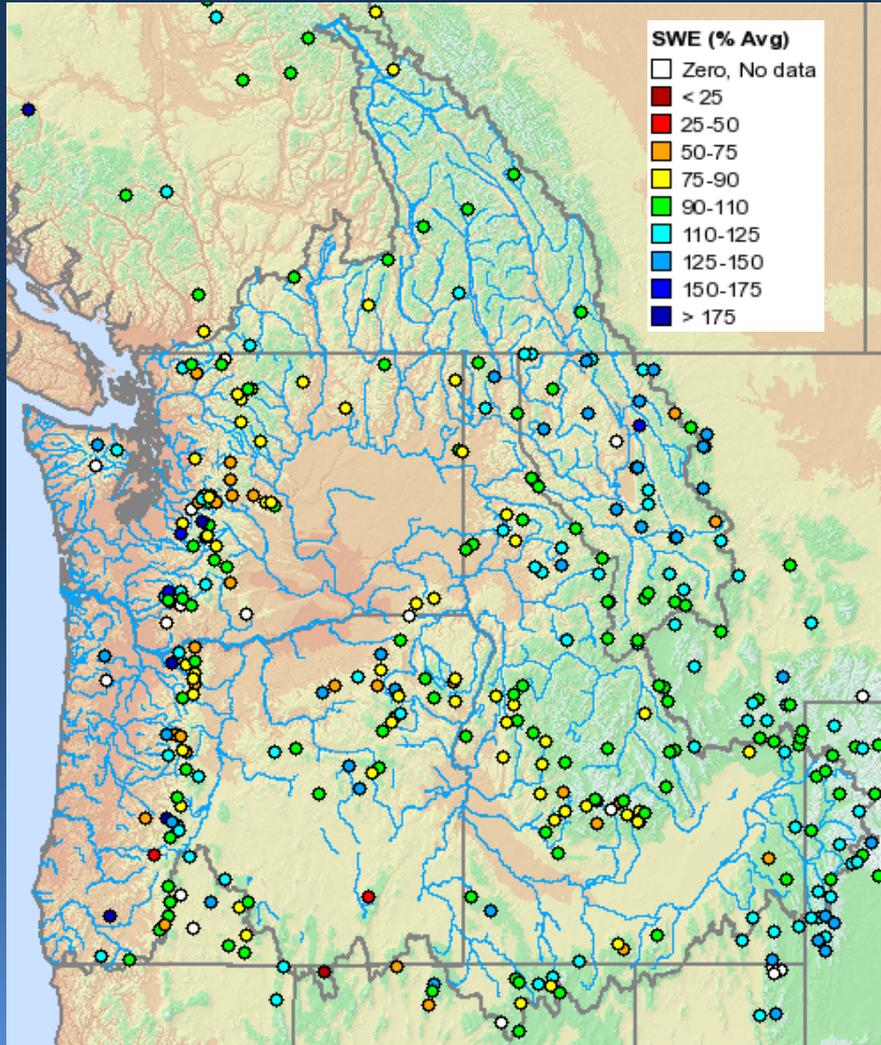


Current Snow Conditions



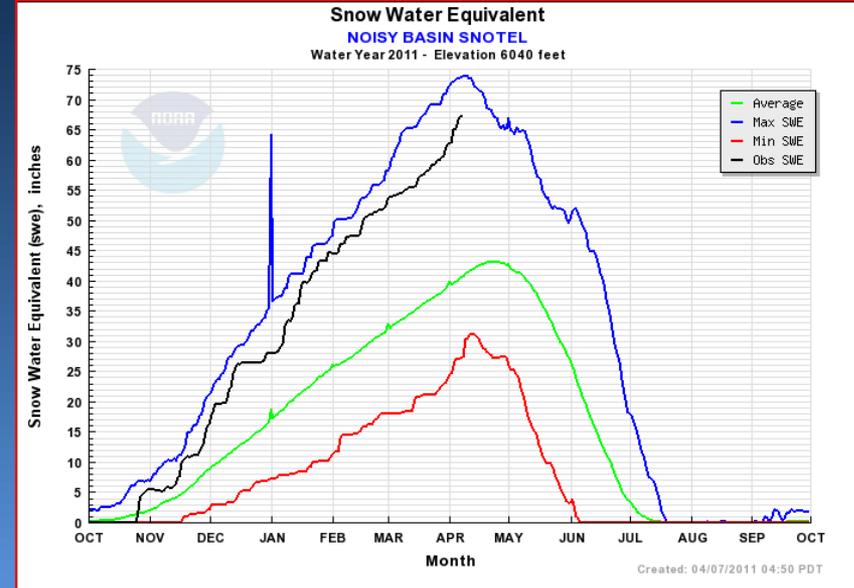
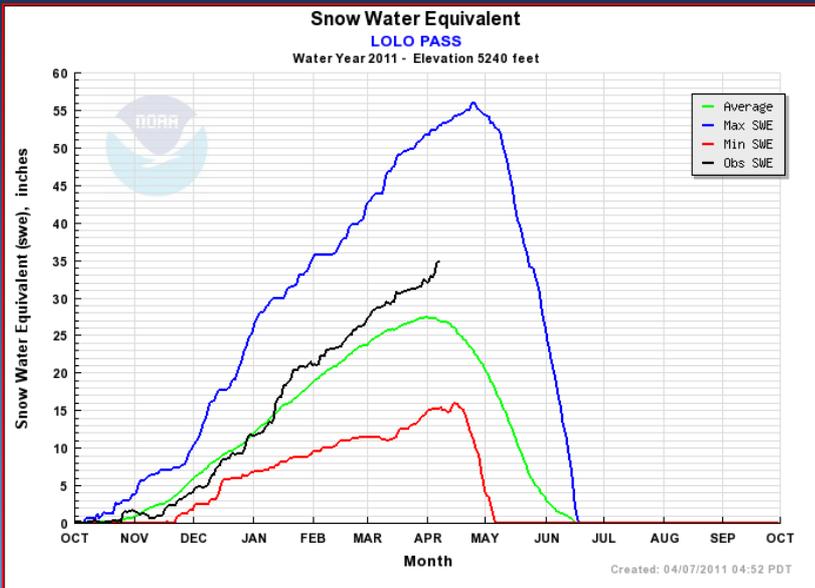
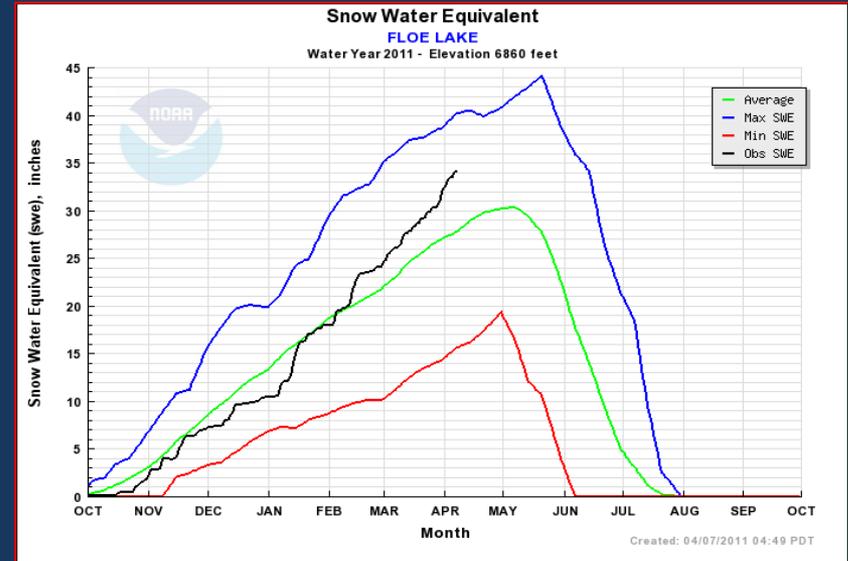
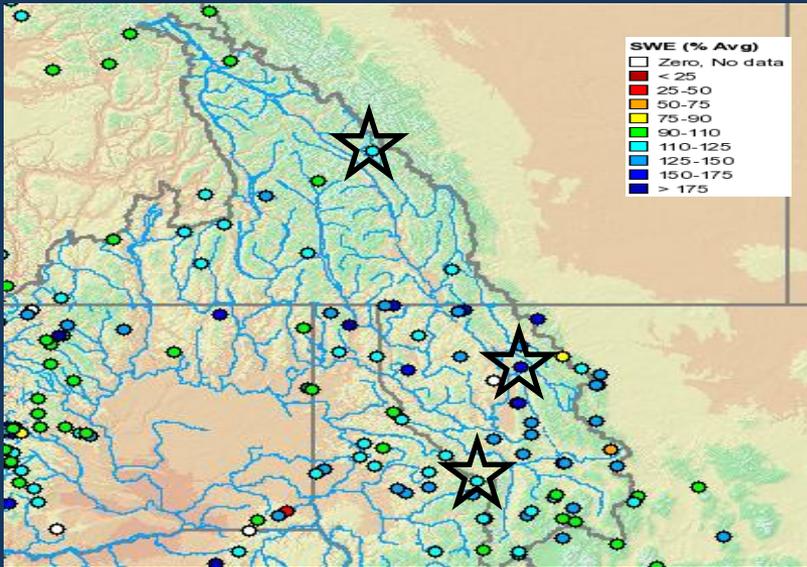
Mar 7, 2011

April 7, 2011



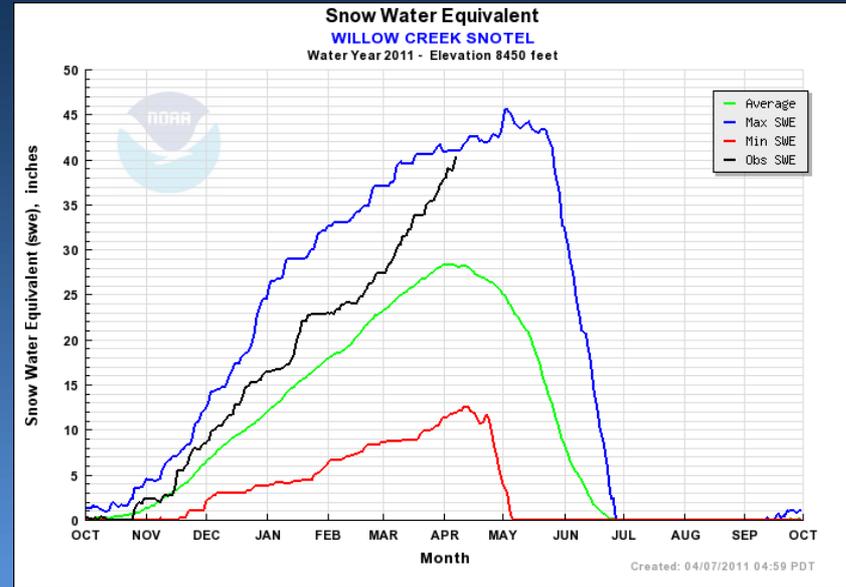
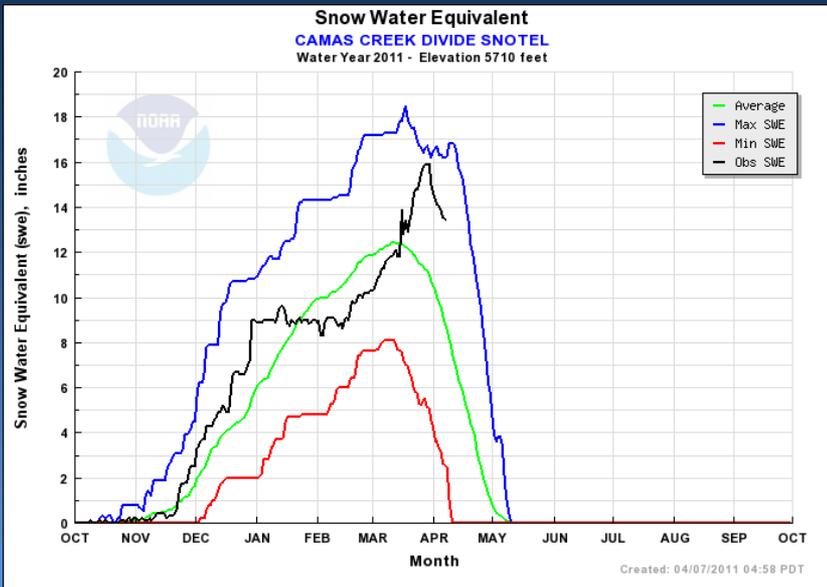
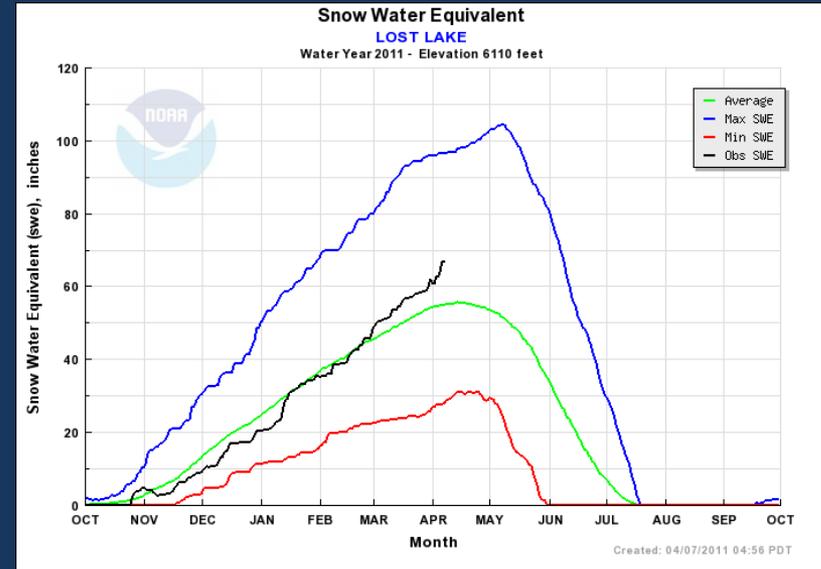
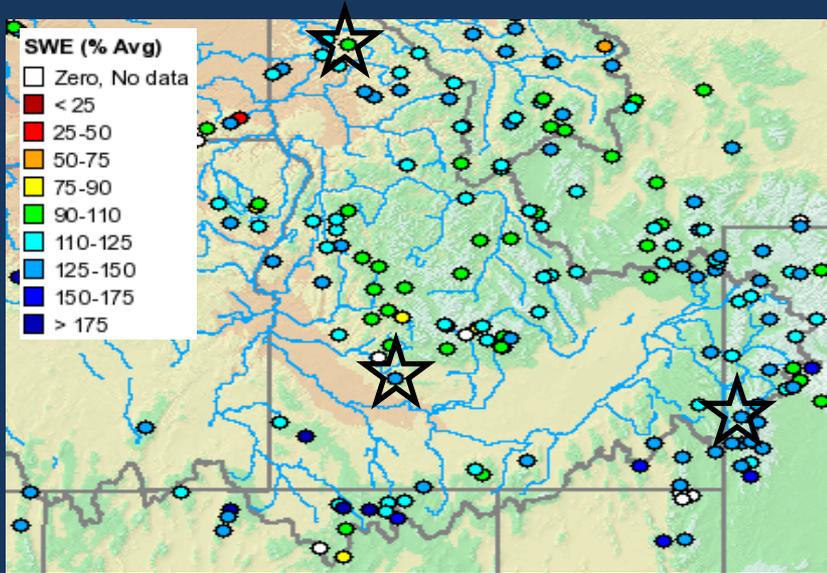


Upper Columbia Snow Conditions

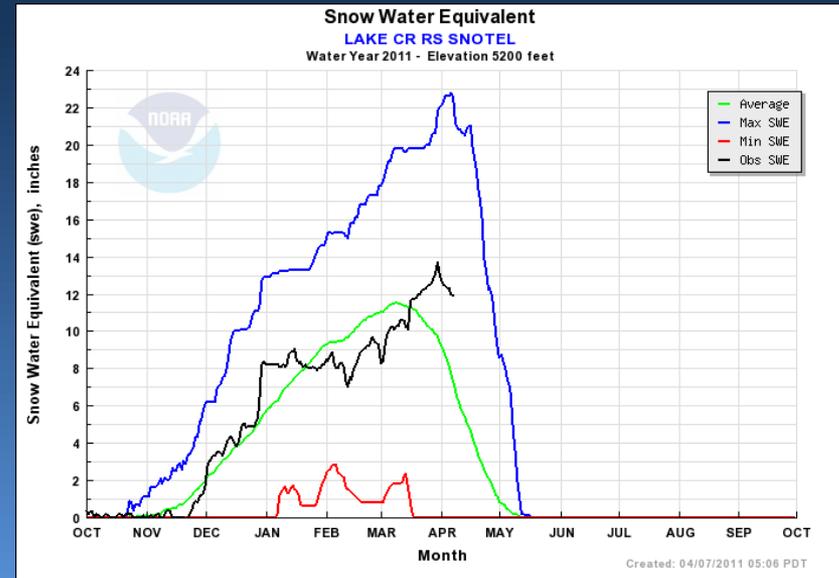
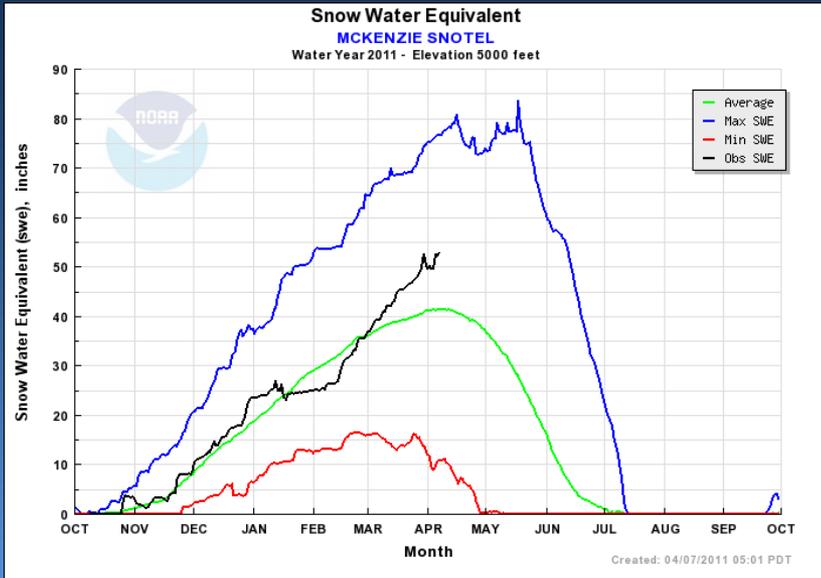
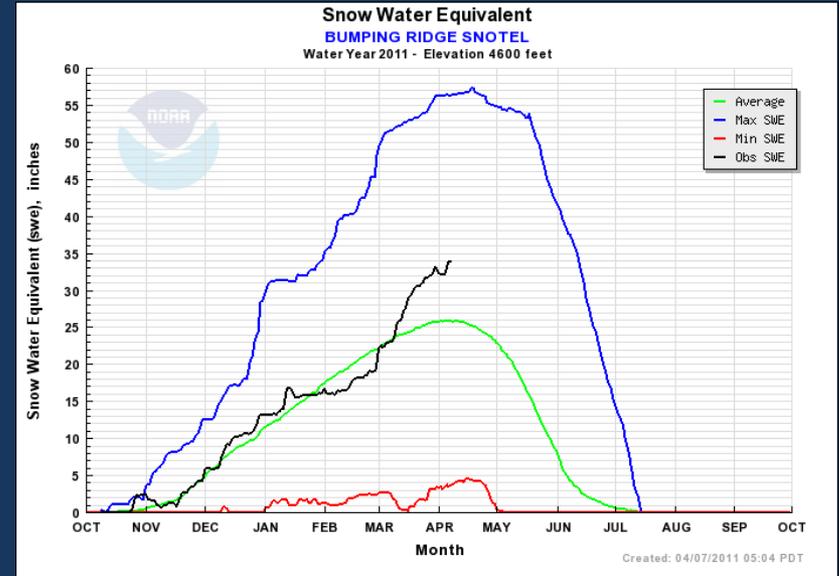
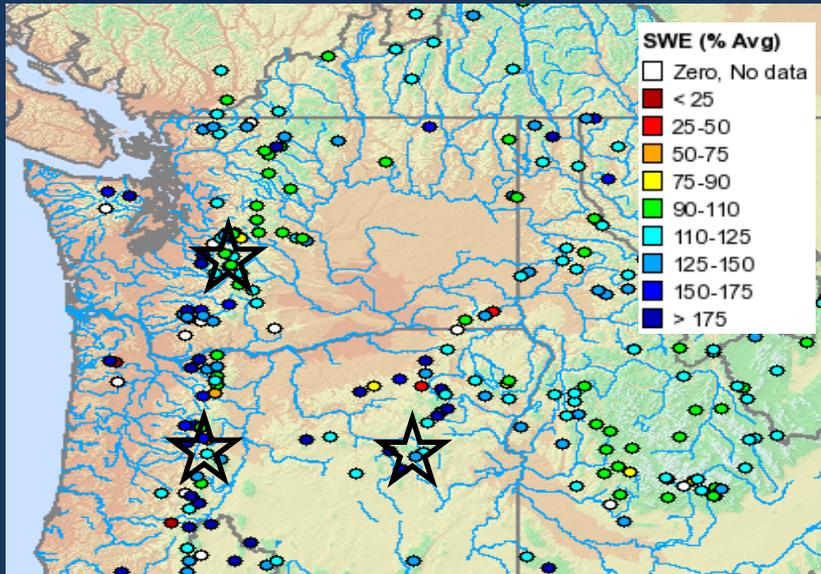




Snake River Snow Conditions



Lower Columbia Snow Conditions





Future Conditions



Climate Outlooks

Precipitation Assumptions

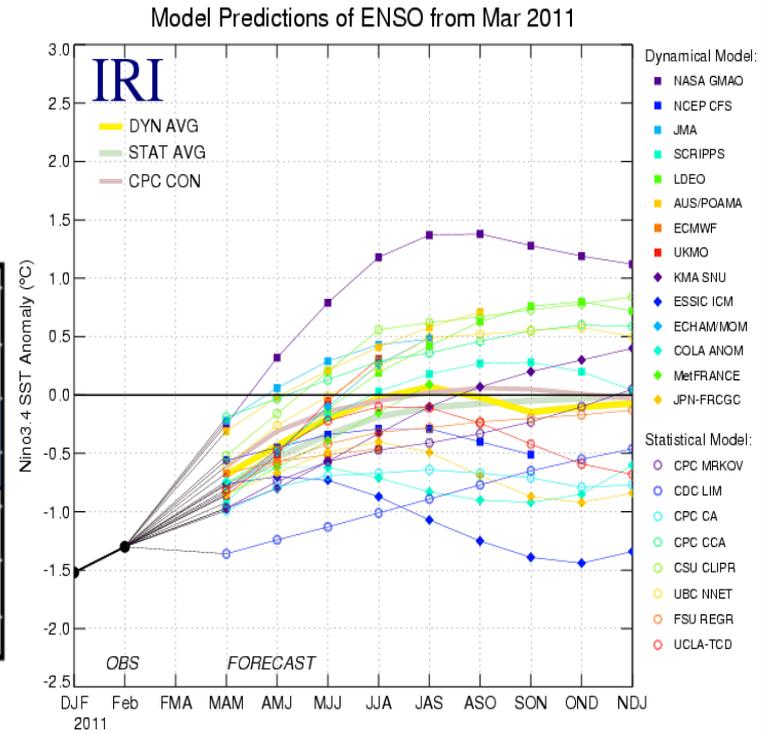
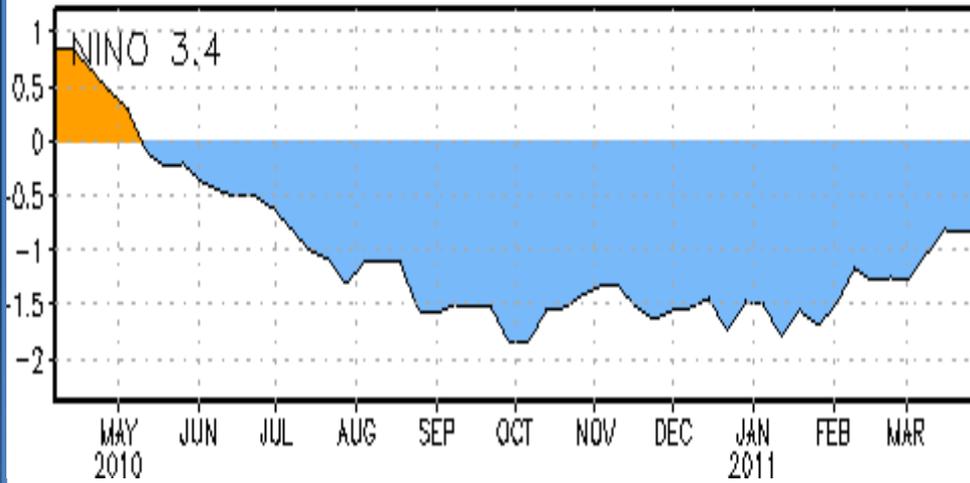
Water Supply Forecasts



Enso: Observed and Forecast SST Anomaly (Deg C)



Observed: SST 3.4 ~ -0.8 Deg C



CPC Synopsis: La Niña is present, but continues to weaken (neutral by June '11).

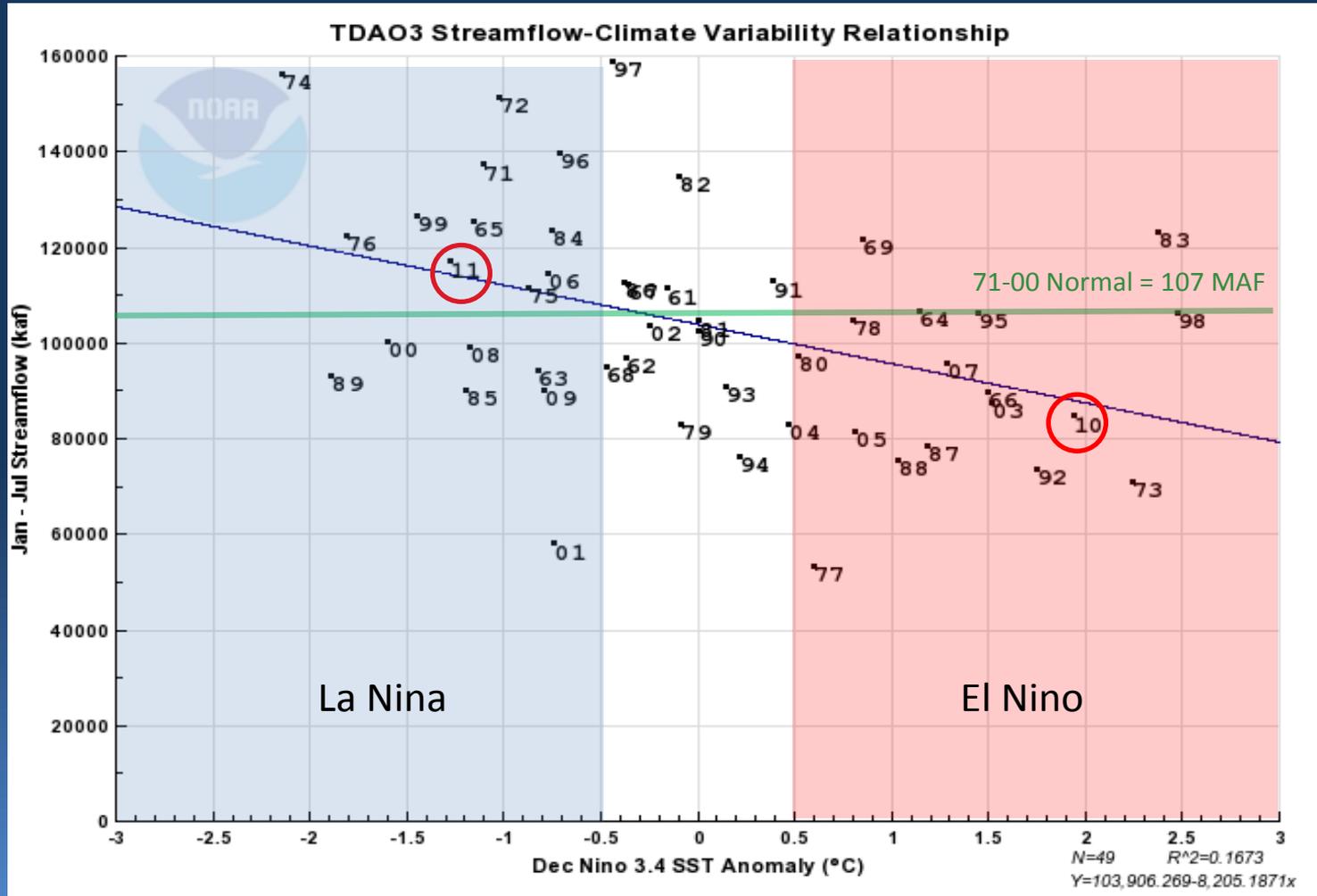
Source: Climate Prediction Center Weekly ENSO Update

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

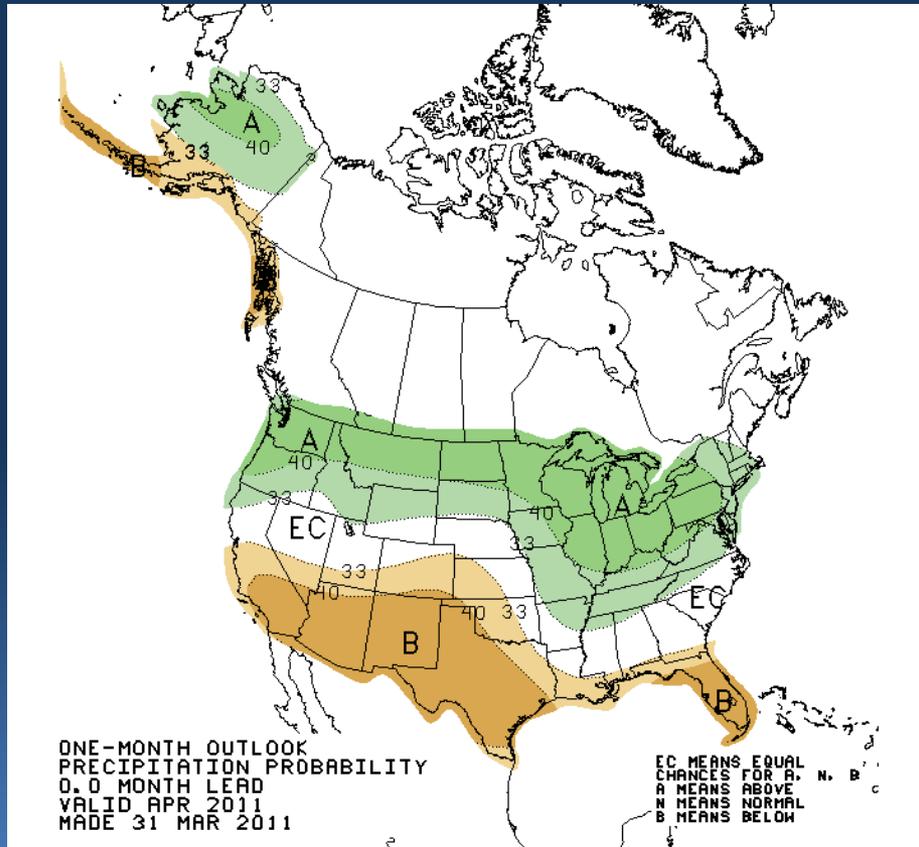




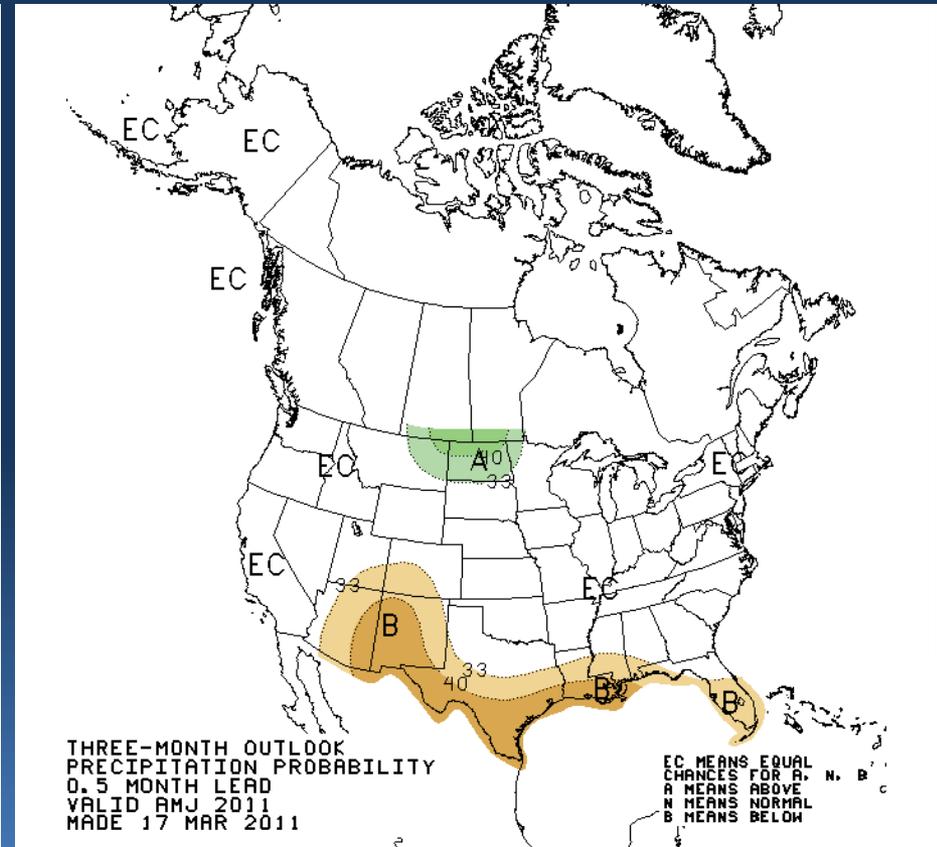
Climate Outlook: Precipitation



Current Month Outlook



Three Month Outlook

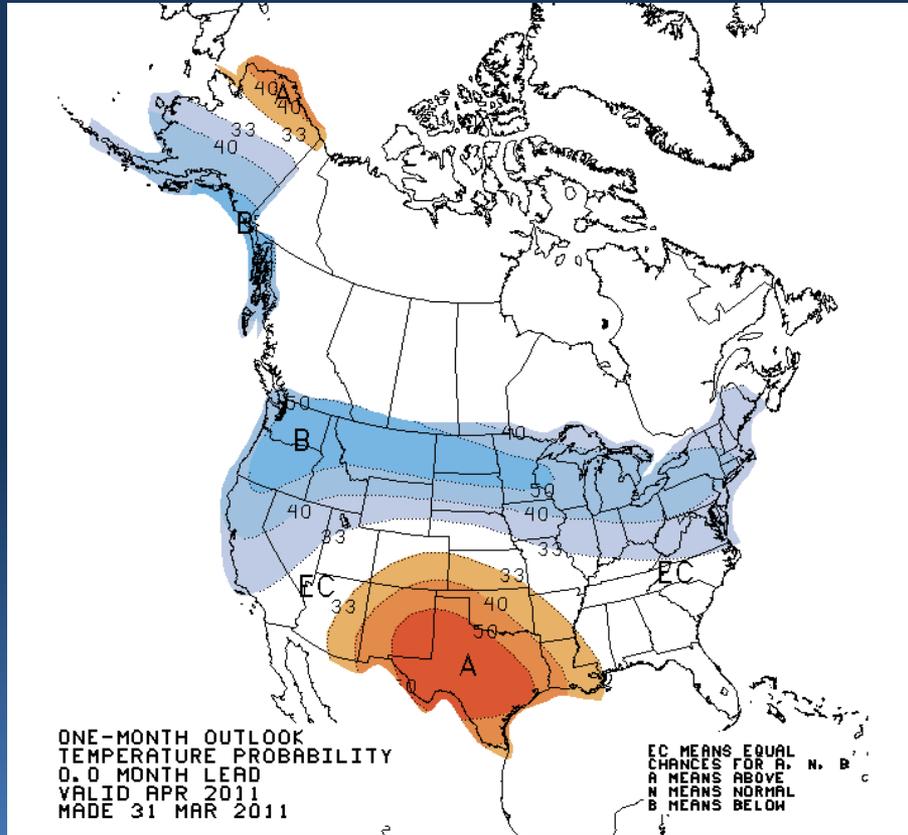




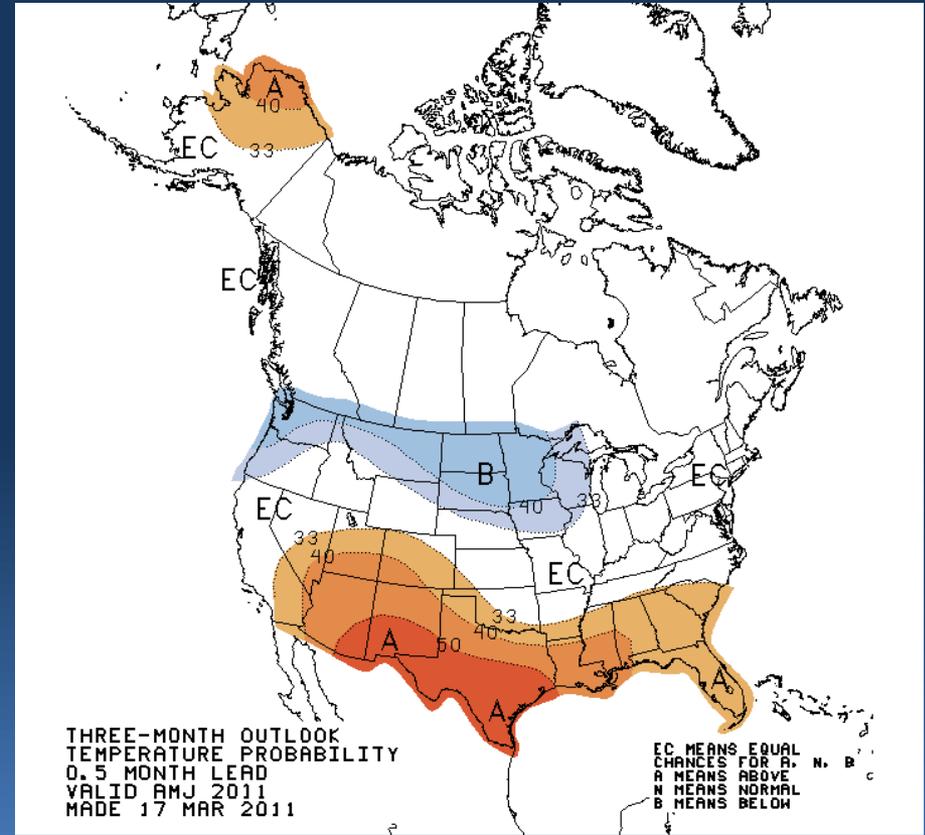
Climate Outlook: Temperature



Current Month Outlook



Three Month Outlook



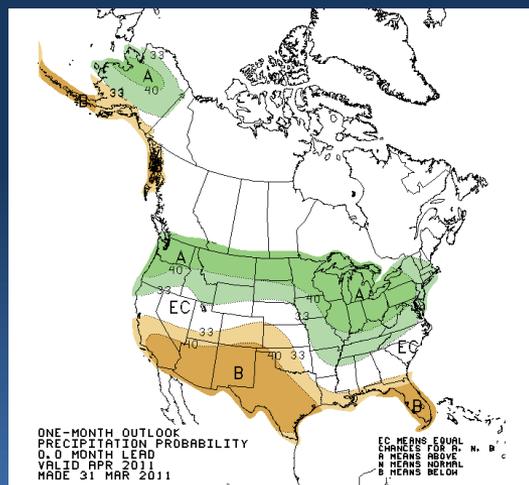


Model Precipitation Assumptions

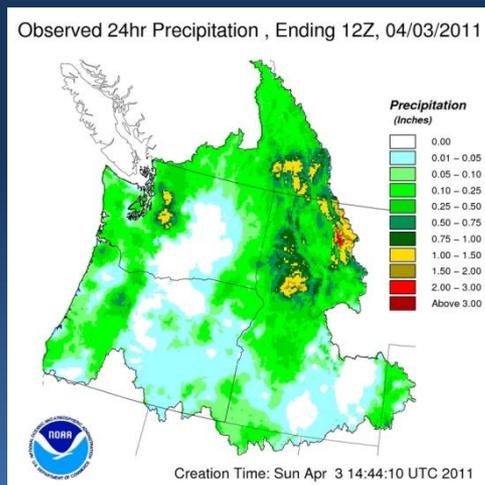


April Final Water Supply Forecast:
April Precipitation 110% of Normal
May – Jul Precipitation 100% of Normal

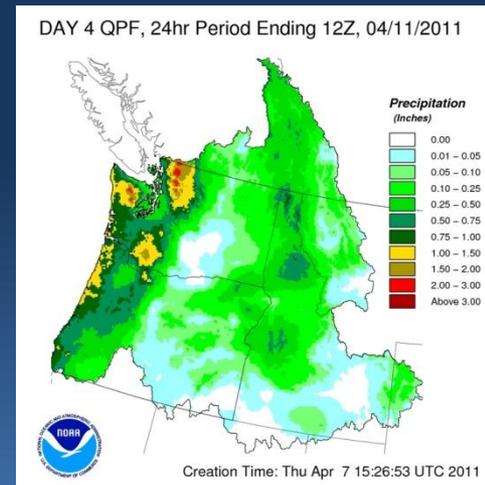
CPC Monthly 30/ 90 Day Outlooks



Observed Precip Days 1-5

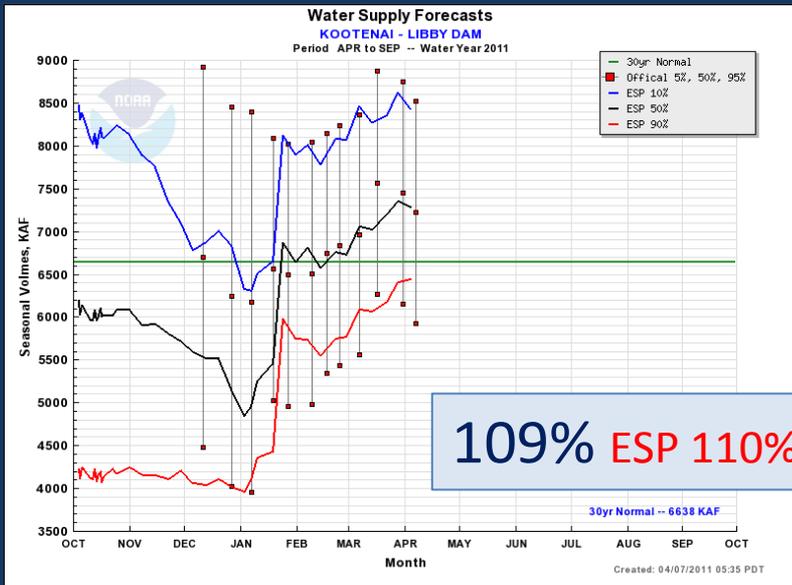


Forecast Precip Days 6-15

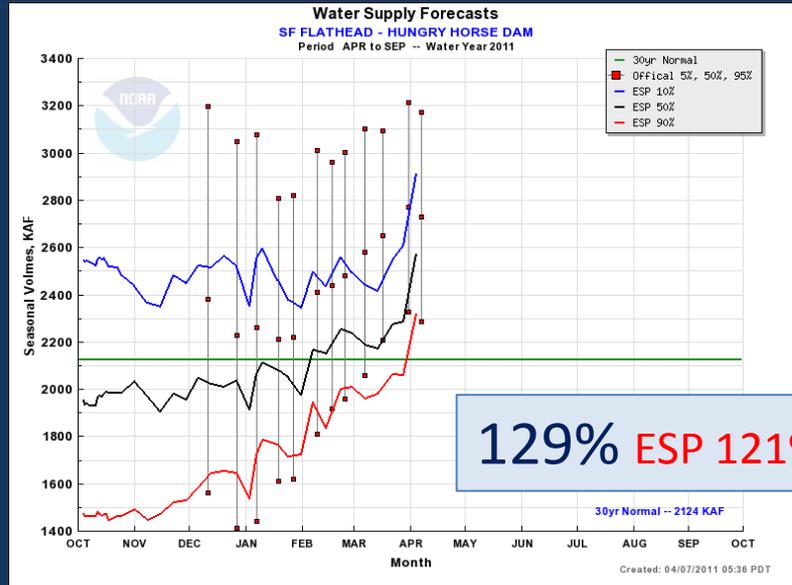




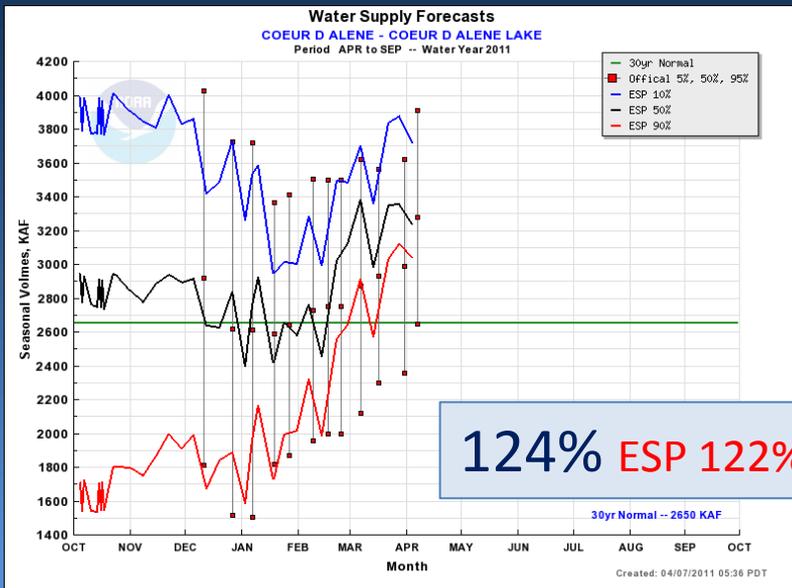
Water Supply Forecast: Upper Columbia



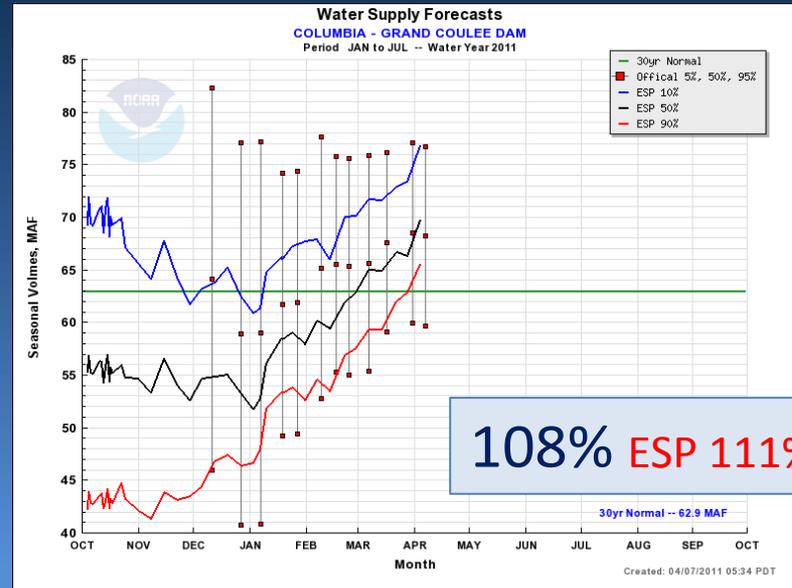
109% ESP 110%



129% ESP 121%



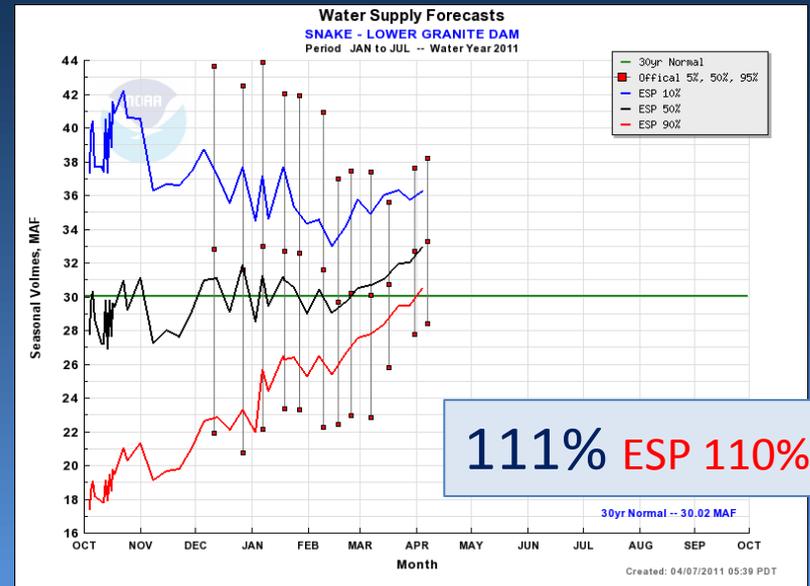
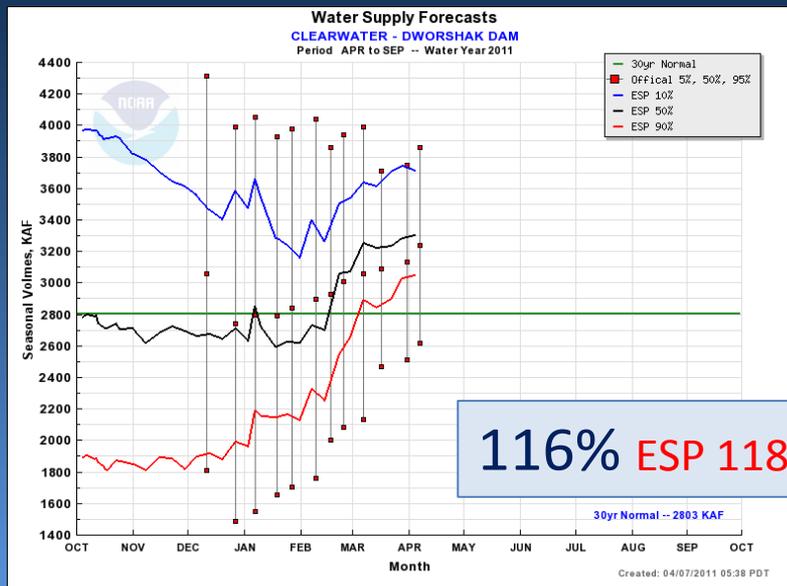
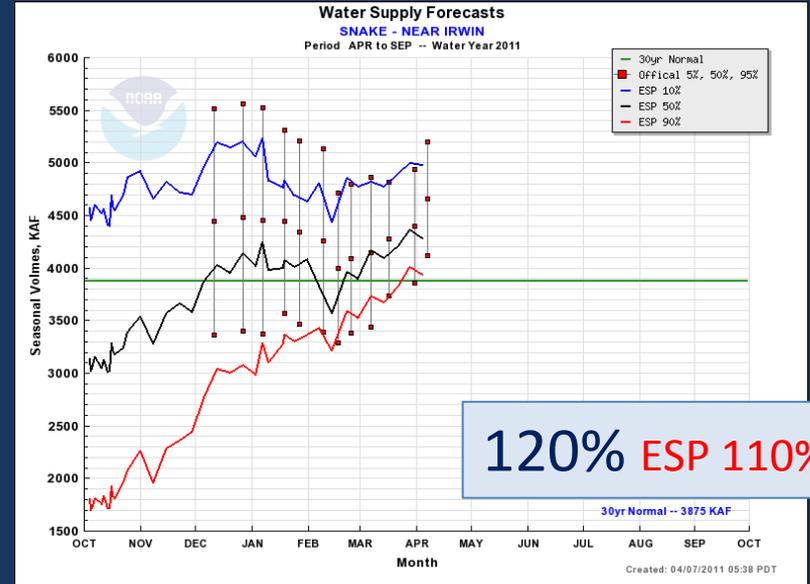
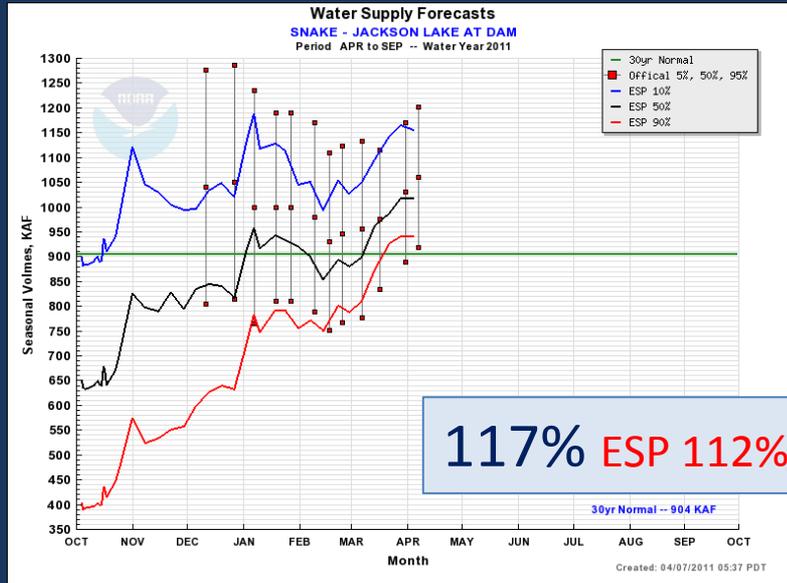
124% ESP 122%



108% ESP 111%

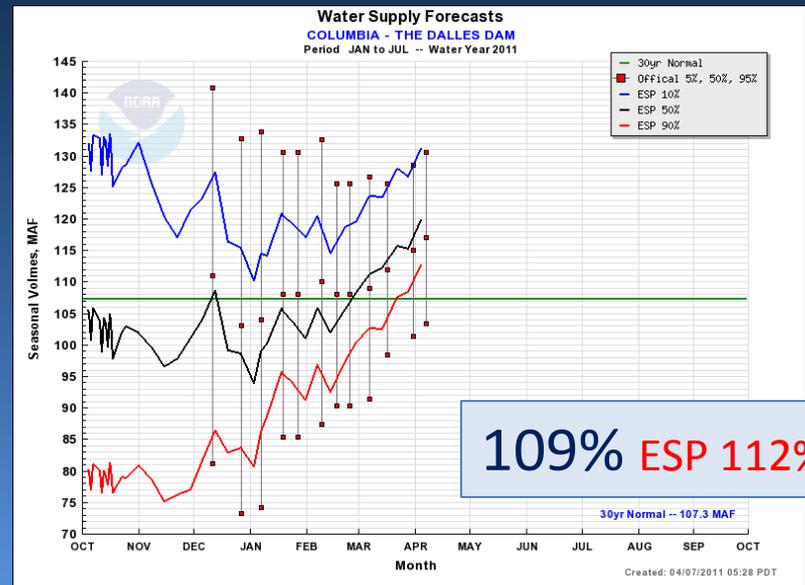
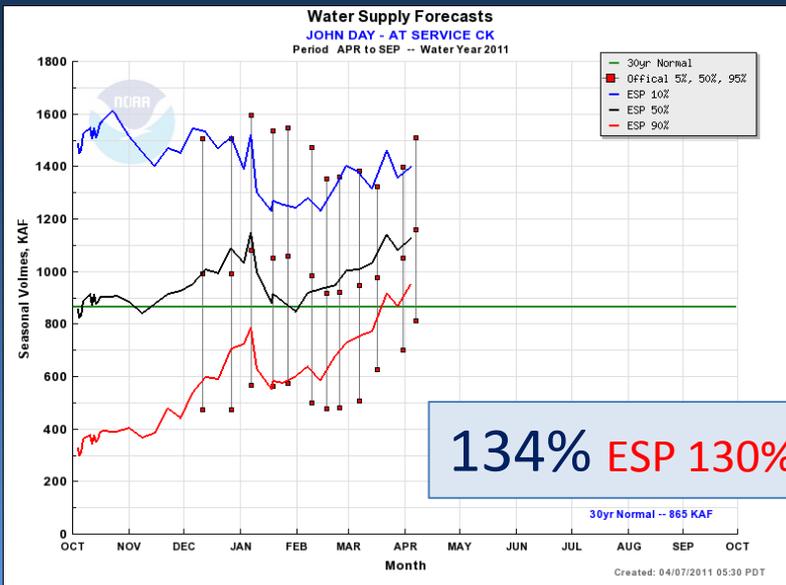
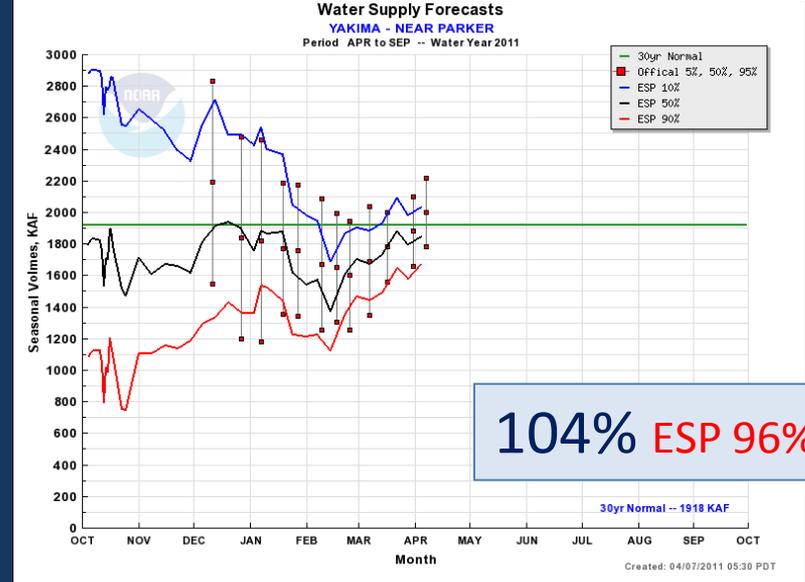
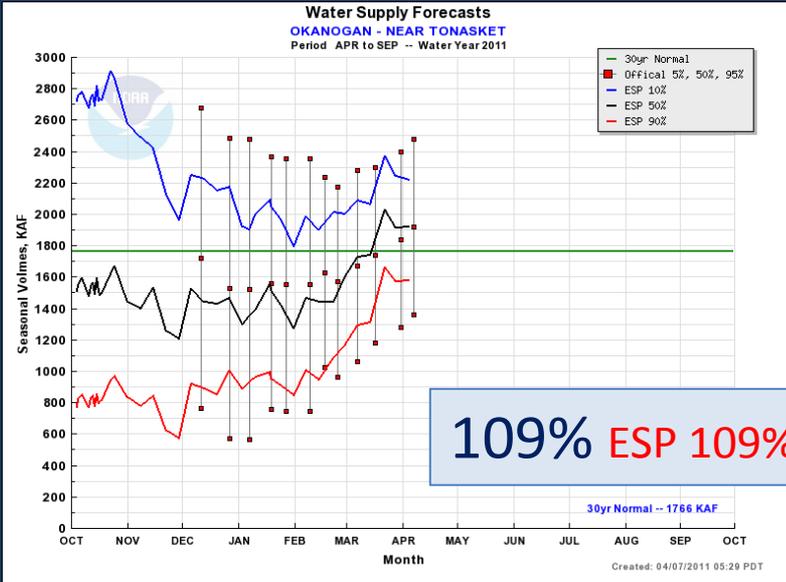


Water Supply Forecast: Snake





Water Supply Forecast: Lower Columbia





Water Supply Forecast: ESP Comparison



COLUMBIA - GRAND COULEE DAM (GCDW1) Forecasts for Water Year 2011

Official Water Supply Forecast <i>Issued: 2011-04-07</i>					ESP Water Supply Forecast <i>Issued: 2011-04-04</i>				
Forecast Period	Forecasts Are in KAF				Forecasts Are in KAF				30 Year Normal
	95 %	50 %	% Normal	05 %	90 %	50 %	% Normal	10 %	
APR-SEP	60153	68700	107	77247	66778	71314	111	78027	63990
APR-JUL	49153	57700	107	66247	55004	59182	110	66309	53850
APR-AUG	56153	64700	107	73247	62781	66422	110	73764	60290
JAN-JUL	59653	68200	108	76747	65497	69675	111	76802	62900

SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2011

Official Water Supply Forecast <i>Issued: 2011-04-07</i>					ESP Water Supply Forecast <i>Issued: 2011-04-04</i>				
Forecast Period	Forecasts Are in KAF				Forecasts Are in KAF				30 Year Normal
	95 %	50 %	% Normal	05 %	90 %	50 %	% Normal	10 %	
APR-SEP	22984	27900	116	32816	25220	27577	114	31013	24140
APR-JUL	20184	25100	116	30016	22249	24655	114	27982	21550
APR-AUG	21484	26400	115	31316	23833	26344	115	29681	22870
JAN-JUL	28384	33300	111	38216	30518	32924	110	36251	30020

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

Official Water Supply Forecast <i>Issued: 2011-04-07</i>					ESP Water Supply Forecast <i>Issued: 2011-04-04</i>				
Forecast Period	Forecasts Are in KAF				Forecasts Are in KAF				30 Year Normal
	95 %	50 %	% Normal	05 %	90 %	50 %	% Normal	10 %	
APR-SEP	93409	107000	108	120591	104455	111163	113	122365	98650
APR-JUL	78109	91700	108	105291	87498	94532	112	105903	84650
APR-AUG	87409	101000	108	114591	98055	104370	112	116237	93090
JAN-JUL	103409	117000	109	130591	112751	119785	112	131156	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	2011	117000.00	109	26.190 %
12	2006	114672.00	107	28.571 %
13	1991	112959.91	105	30.952 %
14	1986	112488.48	105	33.333 %
15	1975	111495.75	104	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

April forecast volume for The Dalles:
109% of Normal (Jan-Jul)
Rank of 11 out of 40 years

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