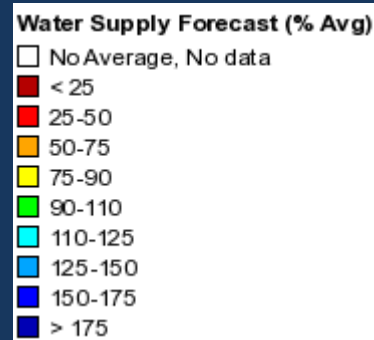
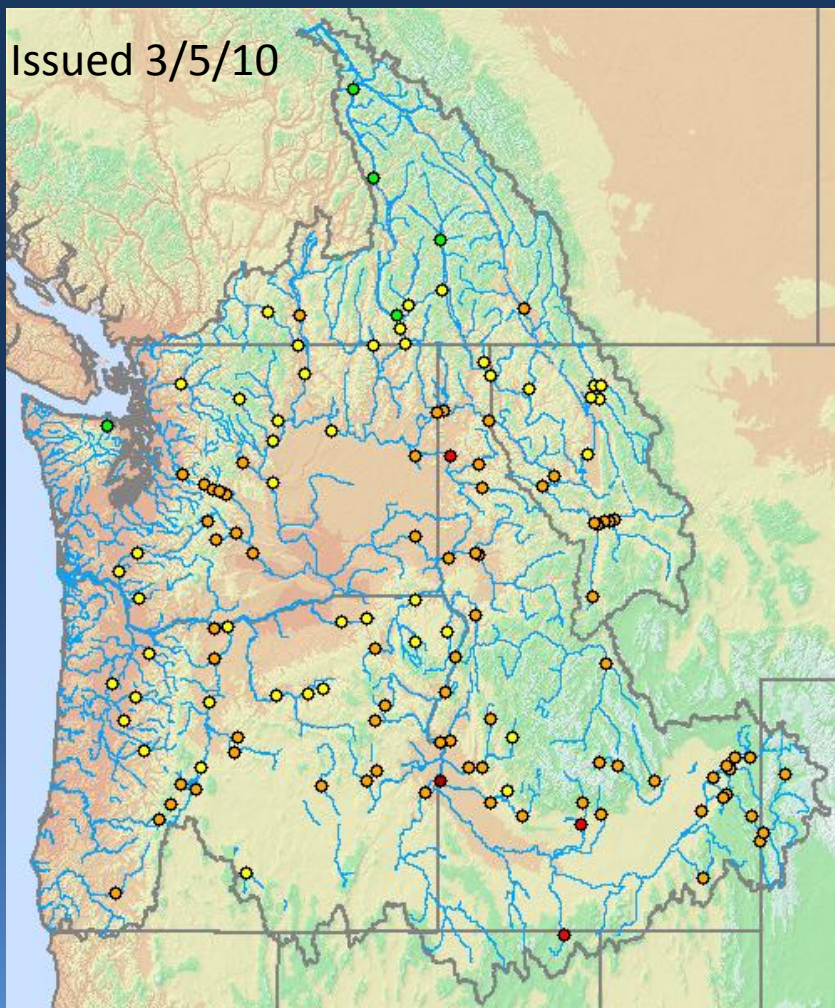




# Northwest River Forecast Center Water Supply Briefing



Mar 5<sup>th</sup> “Final” Forecast

Legacy Regression Model

Agency Coordinated

75% of Normal March  
Precipitation Forecast

NWRFC Forecast for Canada



# Observed Conditions



Runoff

Precipitation

Snowpack



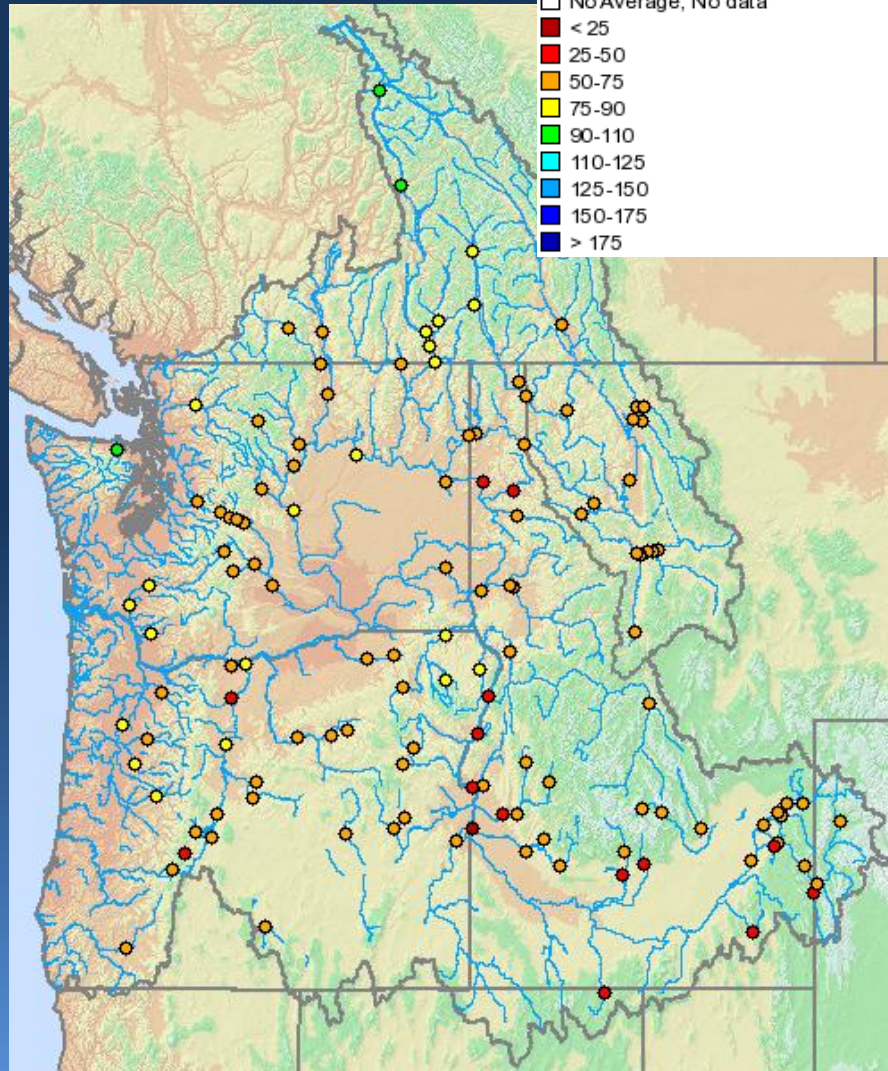
# Current Runoff Conditions



Mar 5, 2010

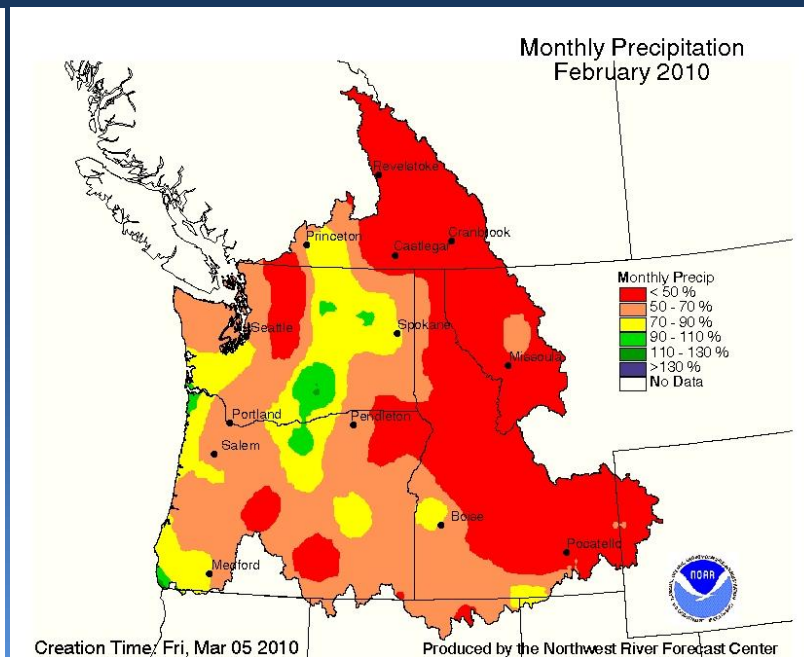
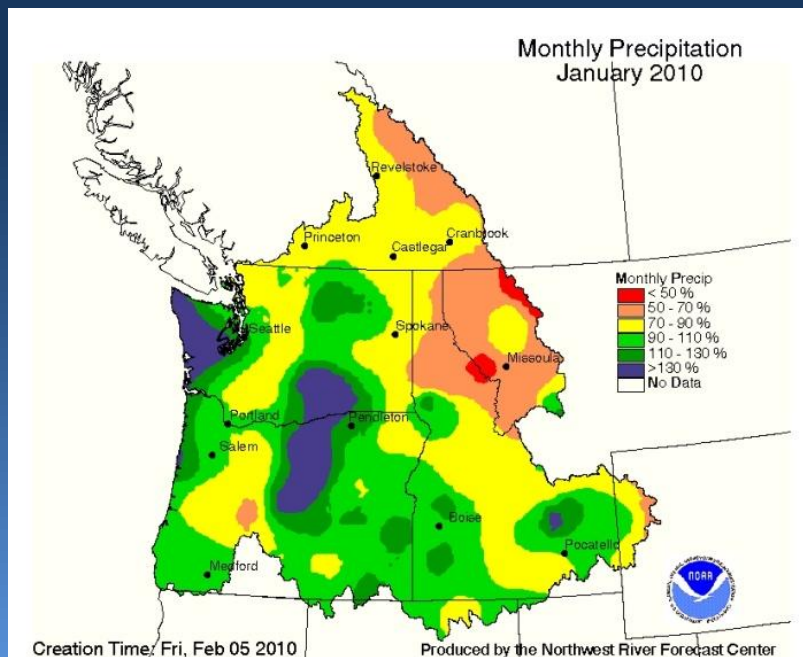
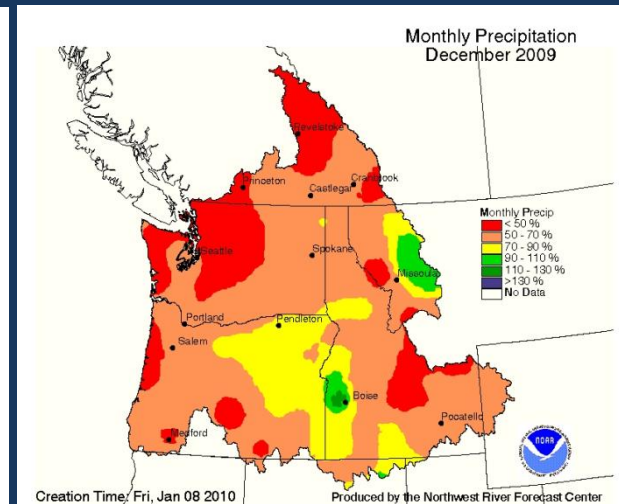
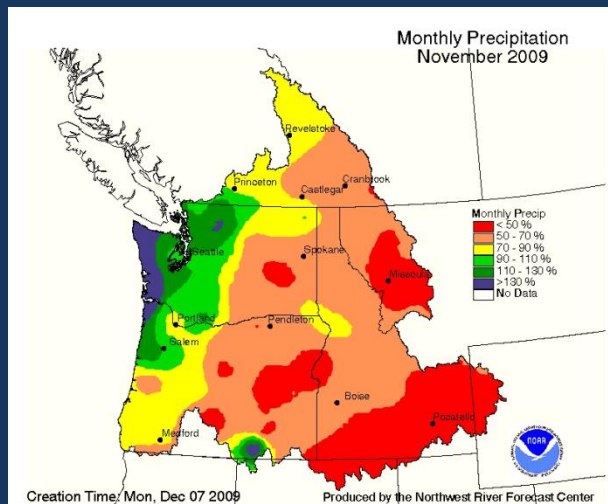
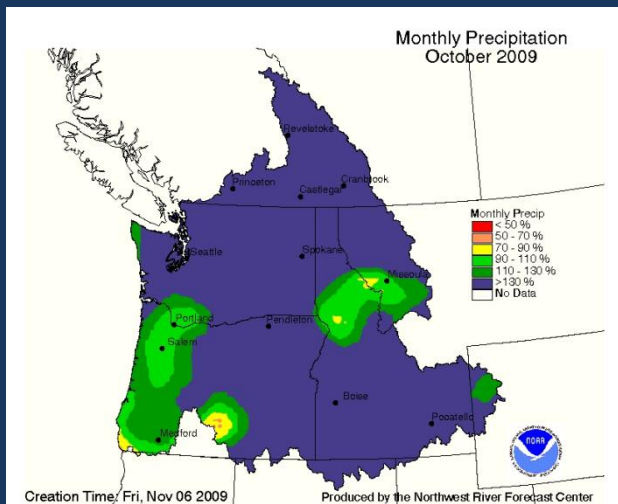
## Water Year Runoff Summary (% Avg)

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



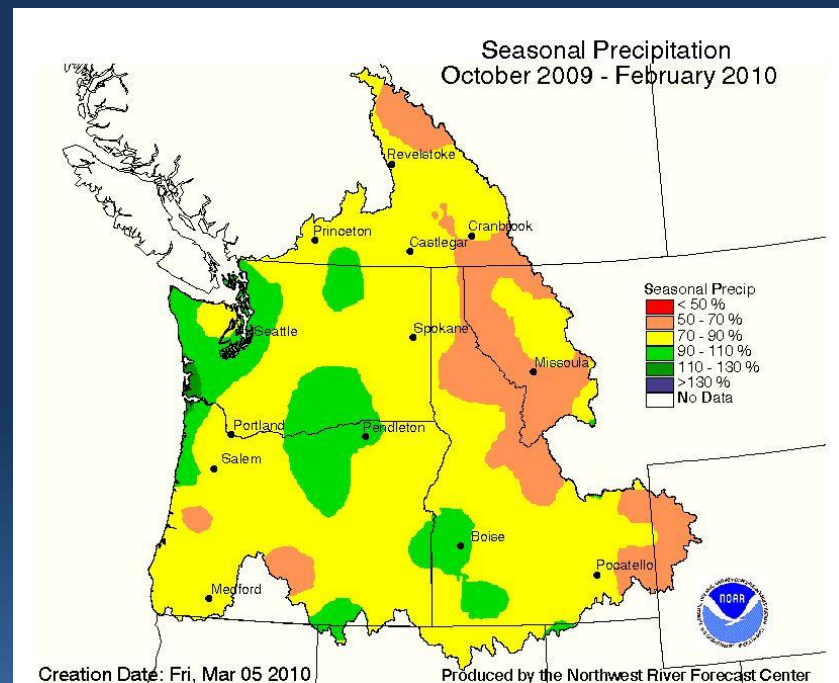
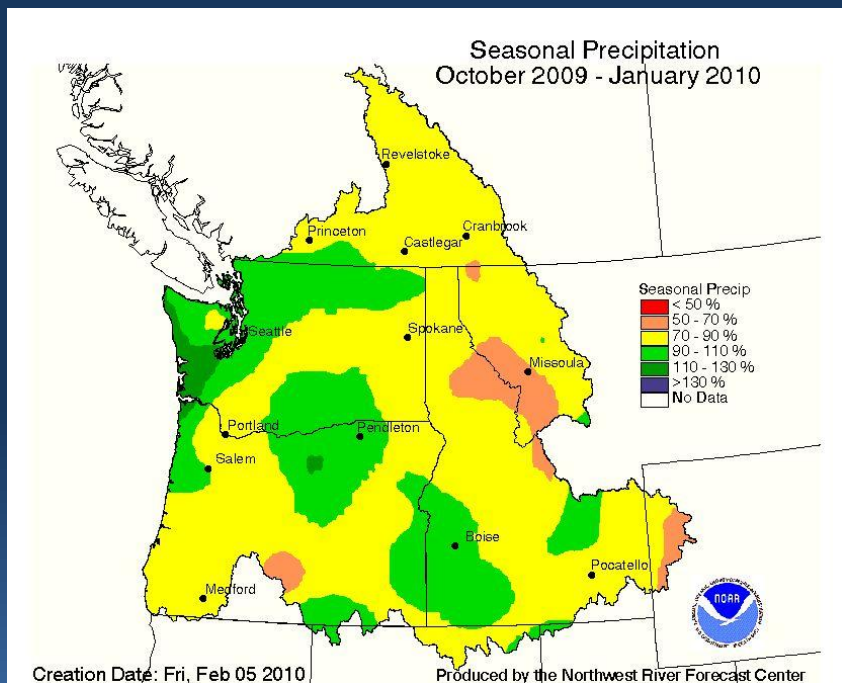


# Observed Monthly Precipitation



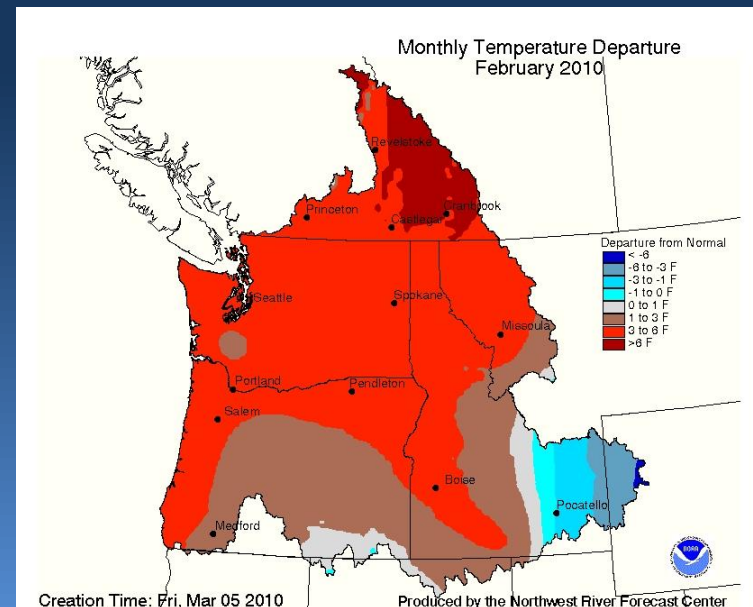
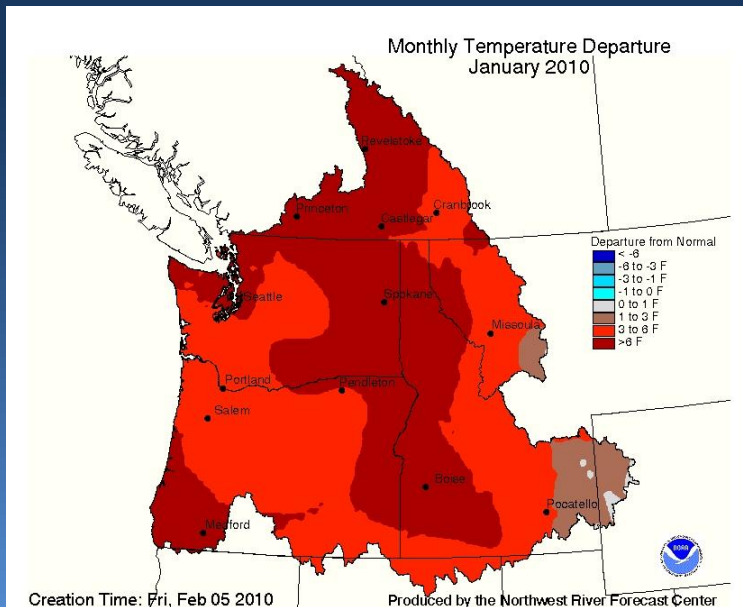
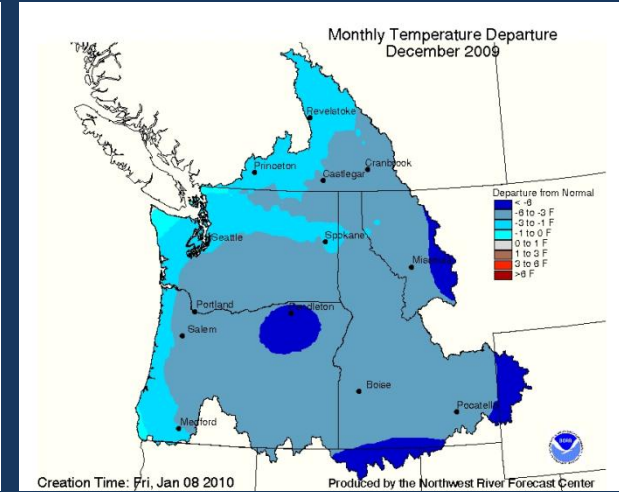
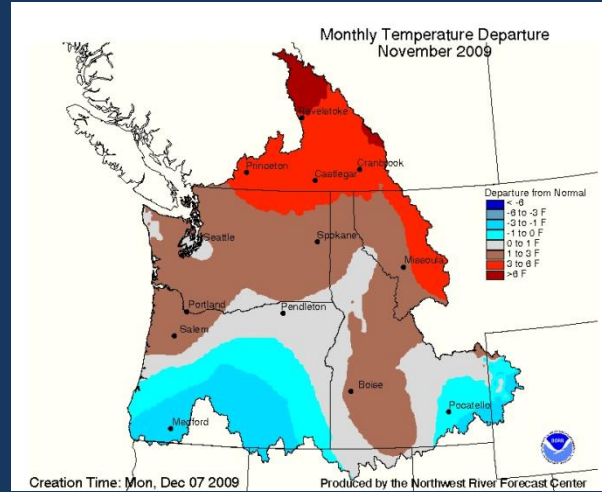
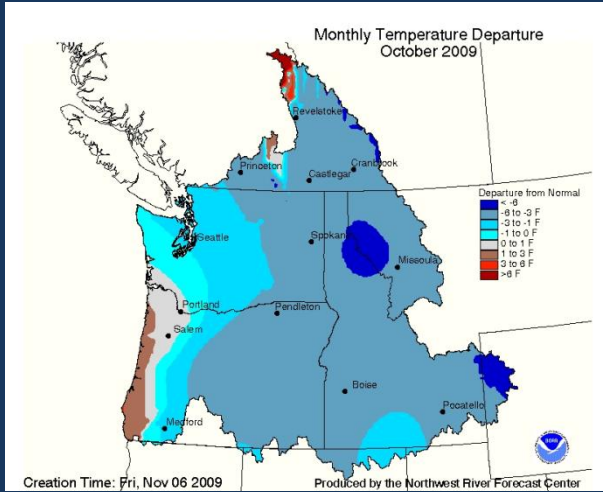


# Observed Seasonal Precipitation





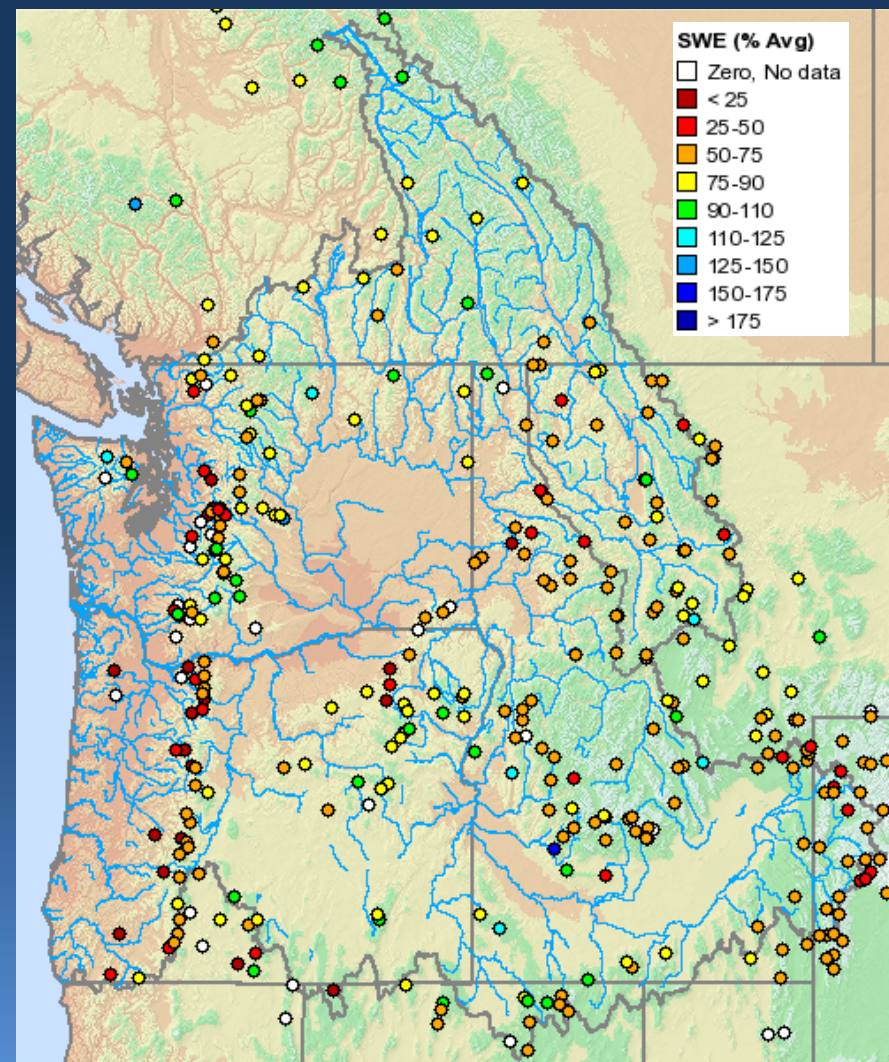
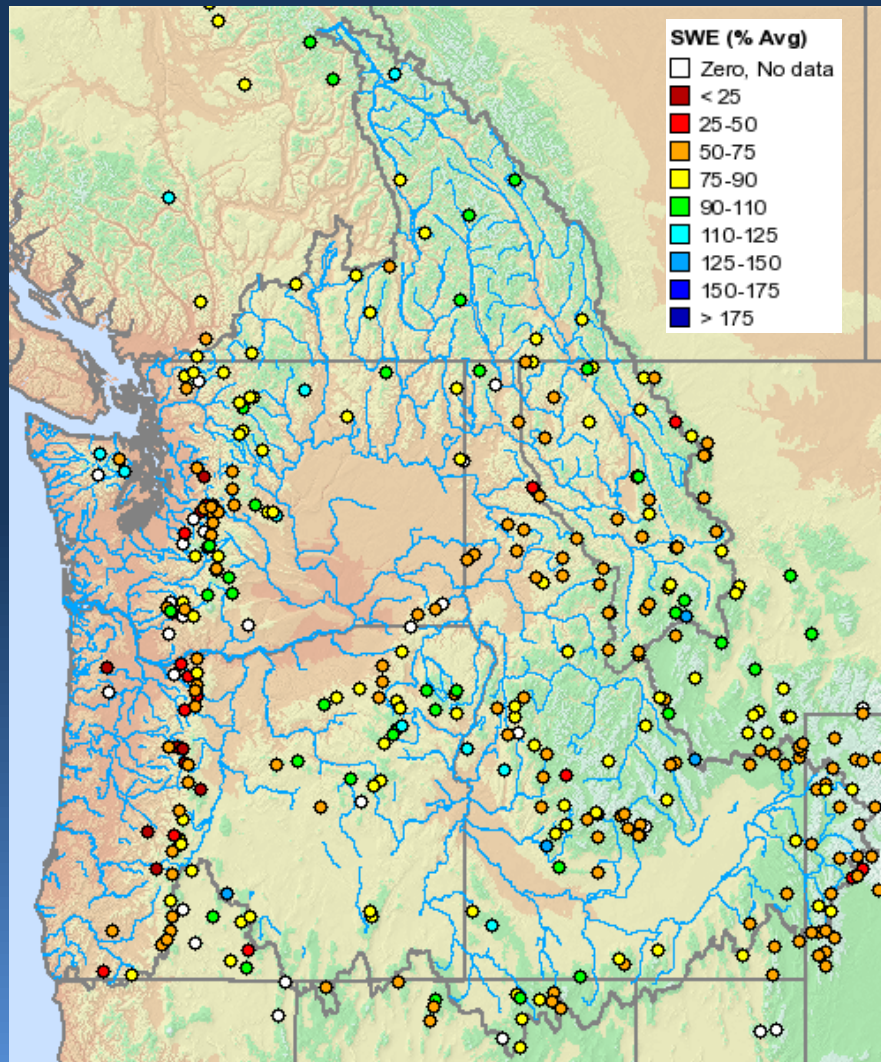
# Observed Monthly Temperature



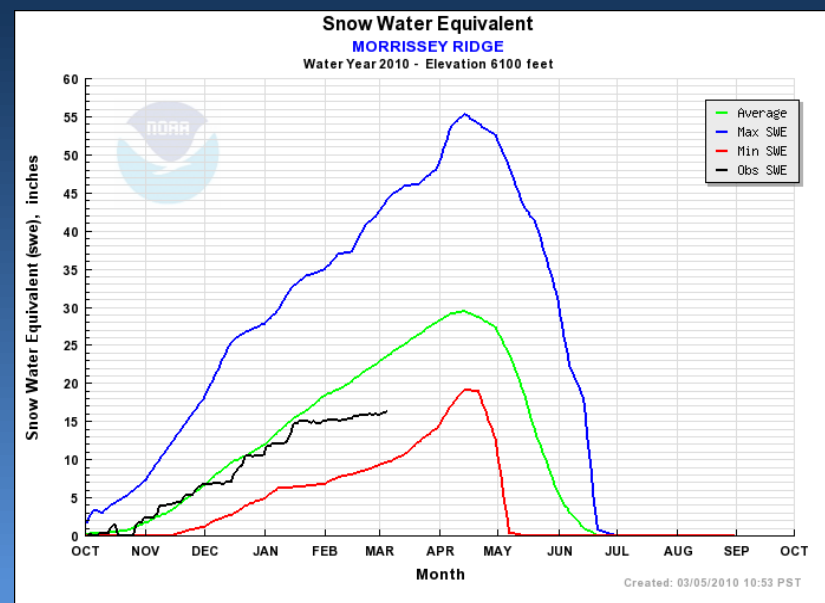
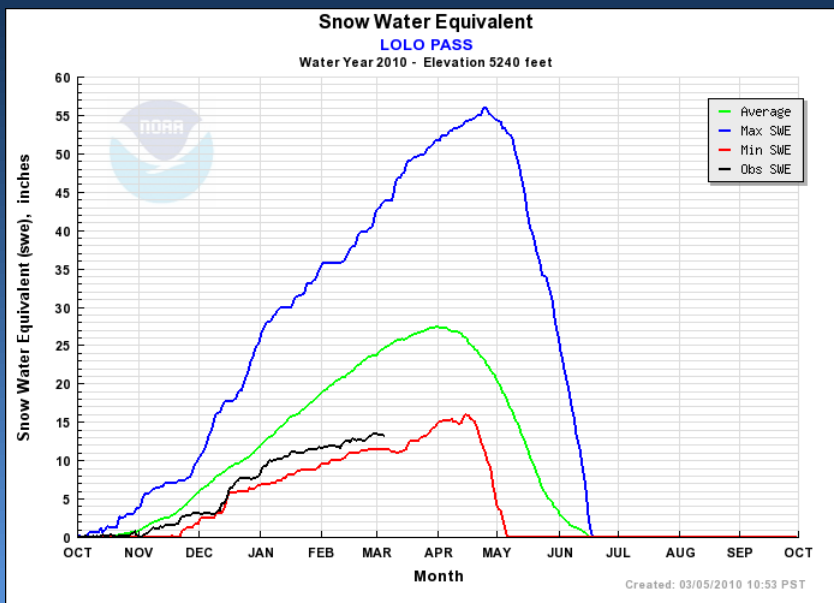
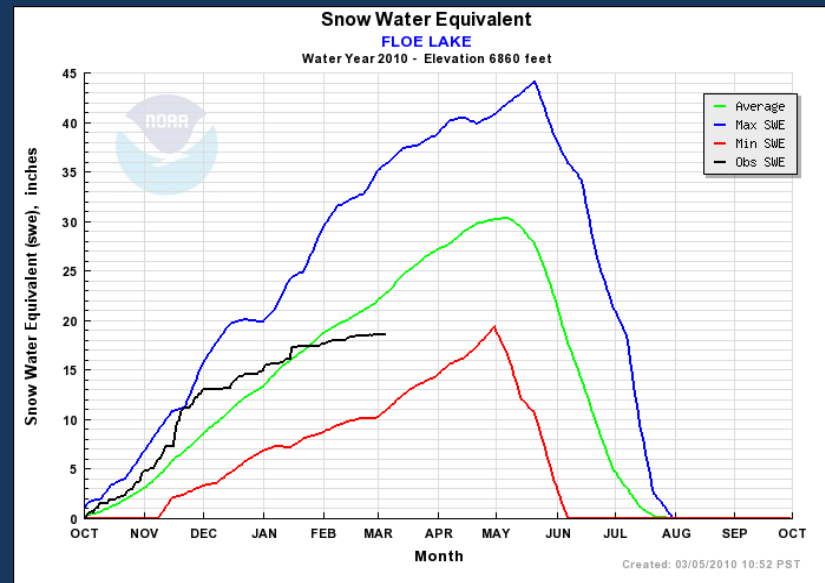
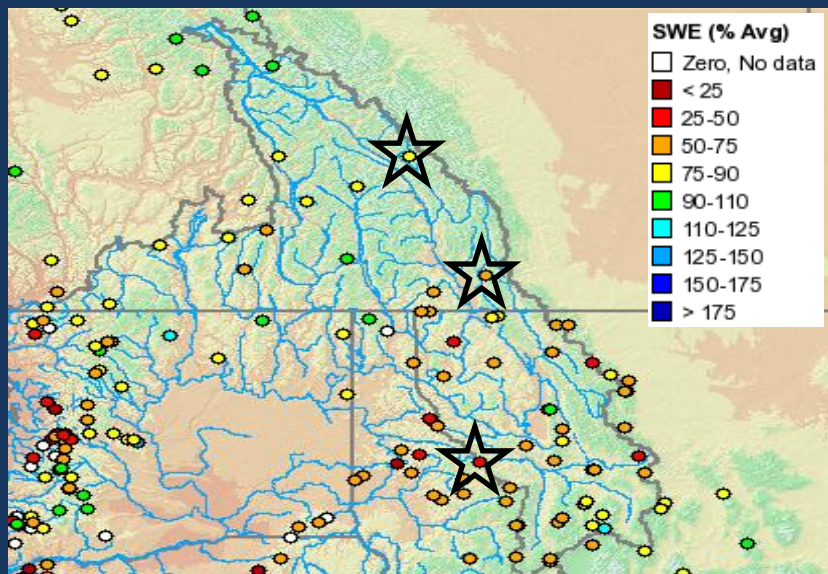
# Current Snow Conditions

Feb 8, 2010

Mar 5, 2010



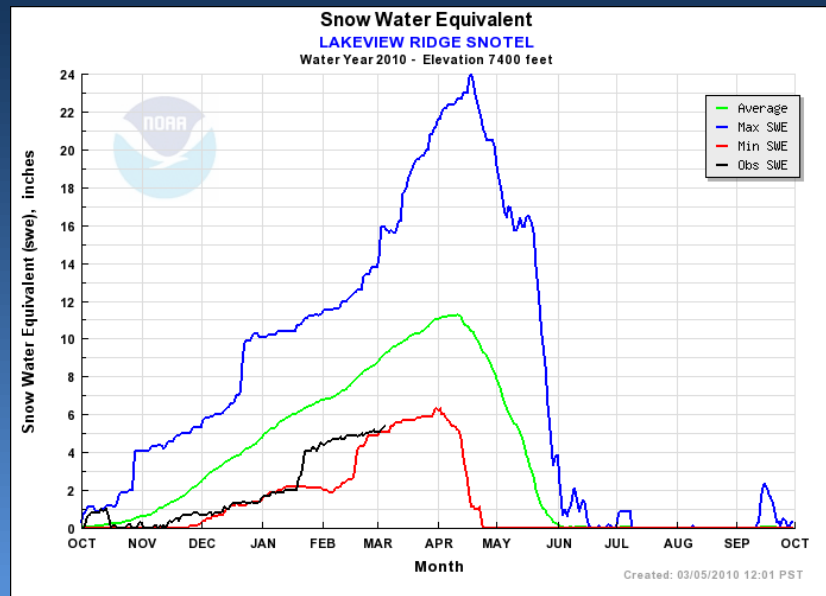
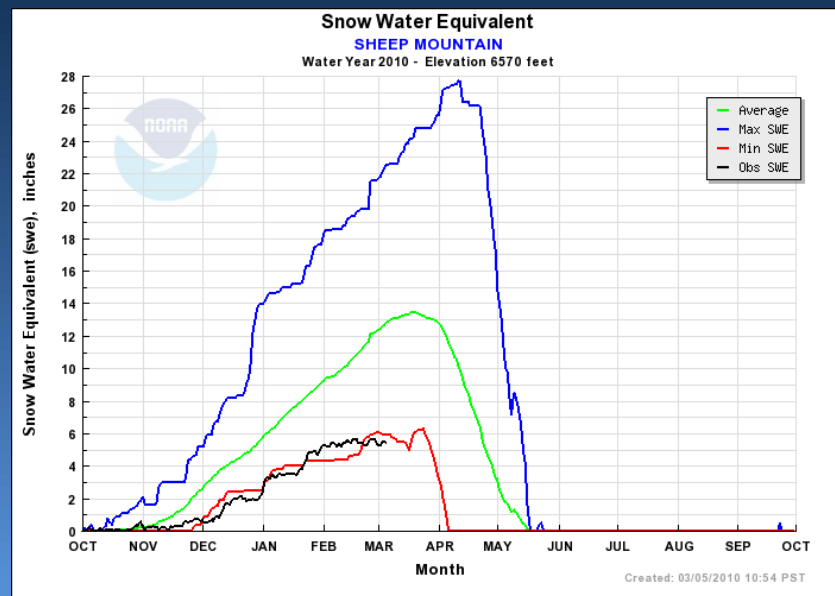
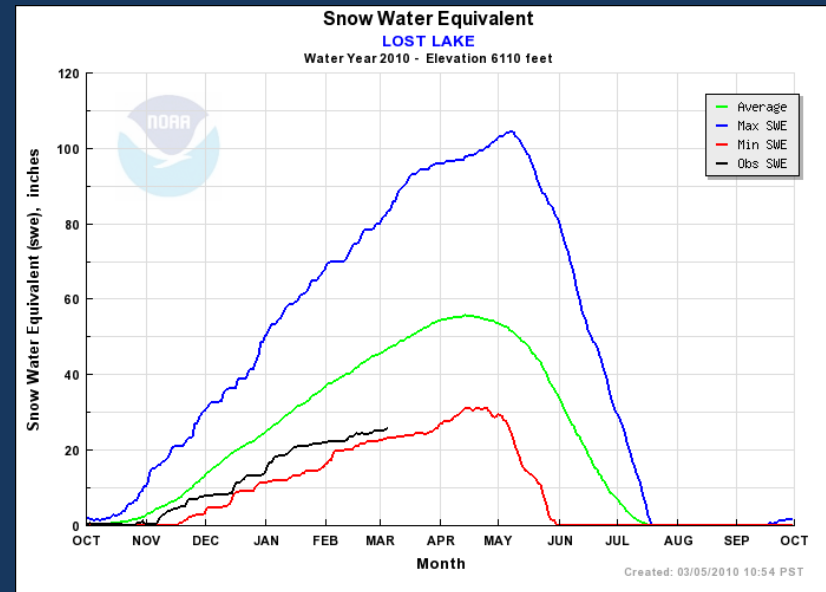
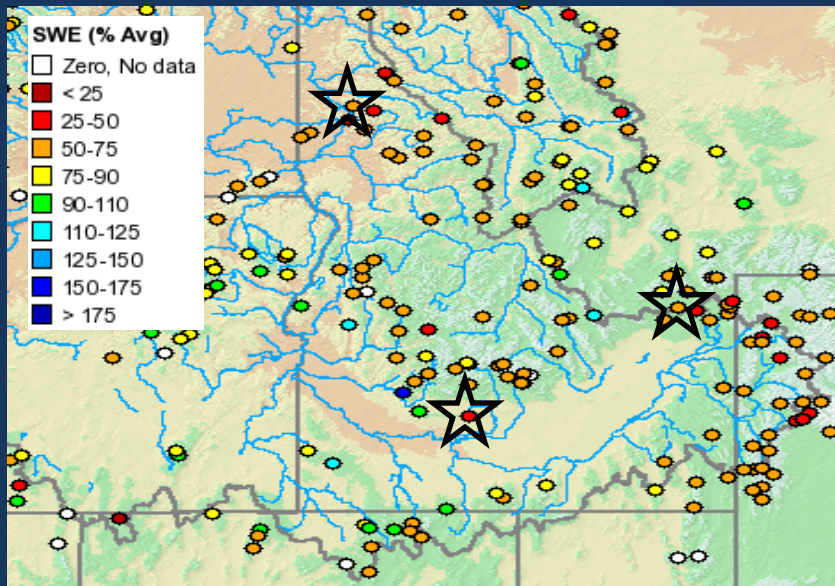
# Upper Columbia Snow Conditions



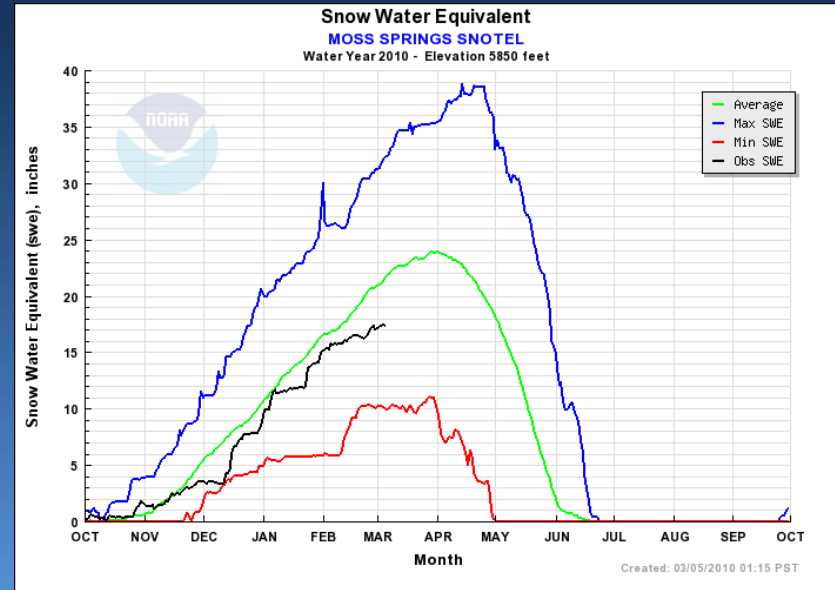
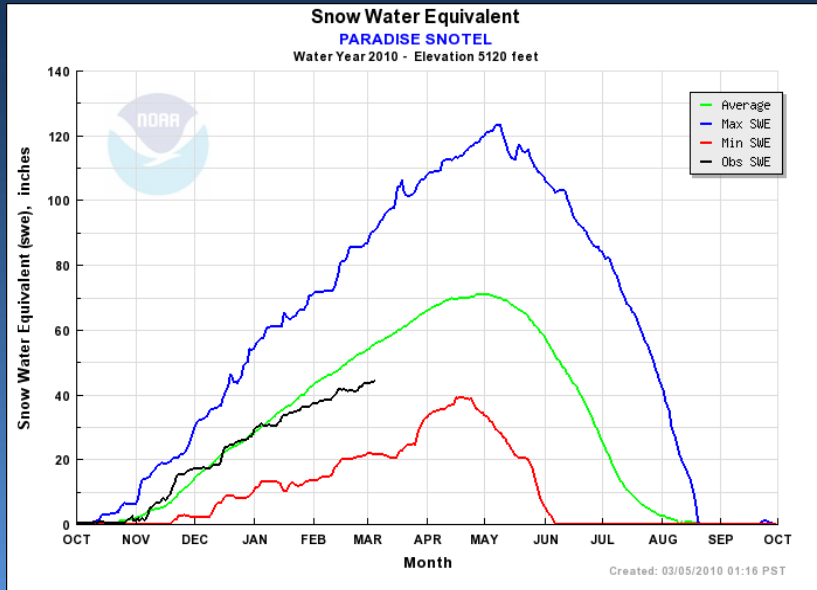
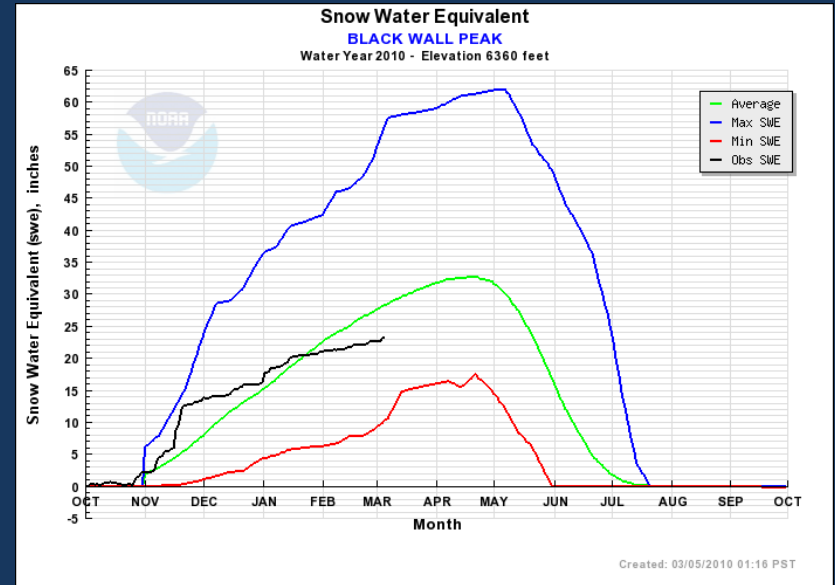
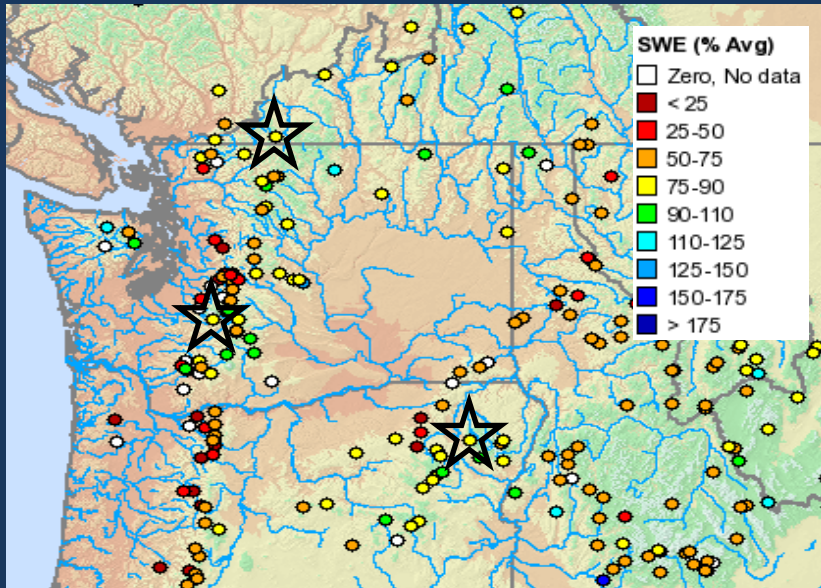




# Snake River Snow Conditions



# 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 ~ 1.1 Deg C

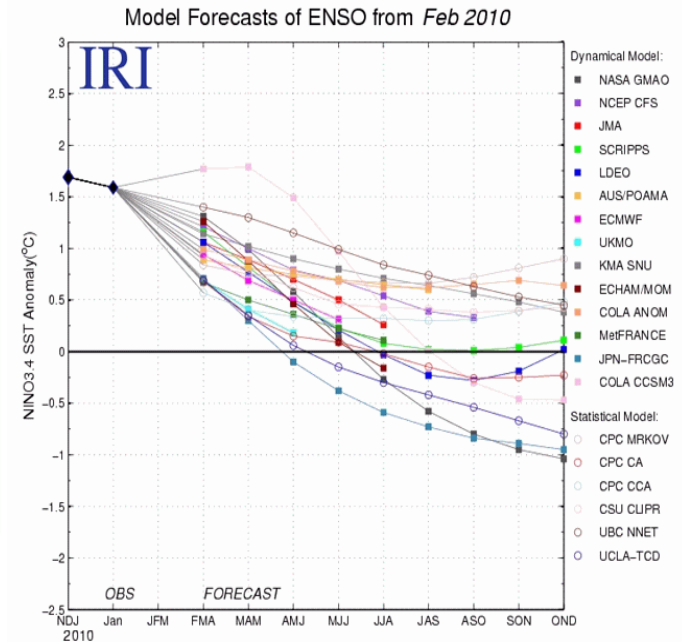
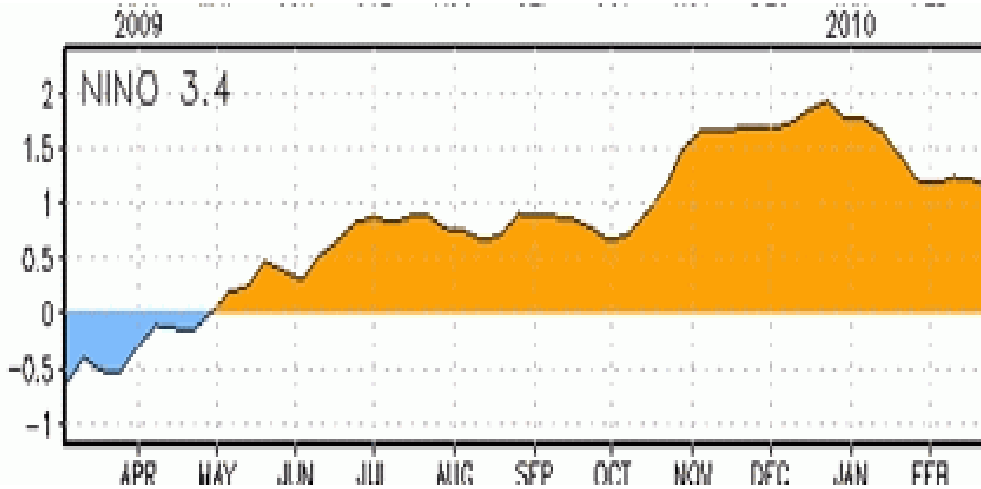


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure courtesy of the International Research Institute (IRI) for Climate and Society. Figure updated 16 February 2010.

**CPC Synopsis: El Niño is expected to continue through spring of 2010 and lose strength into summer.**

Source: El Niño/Southern Oscillation (ENSO) Diagnostic Discussion, Mar 4, 2010

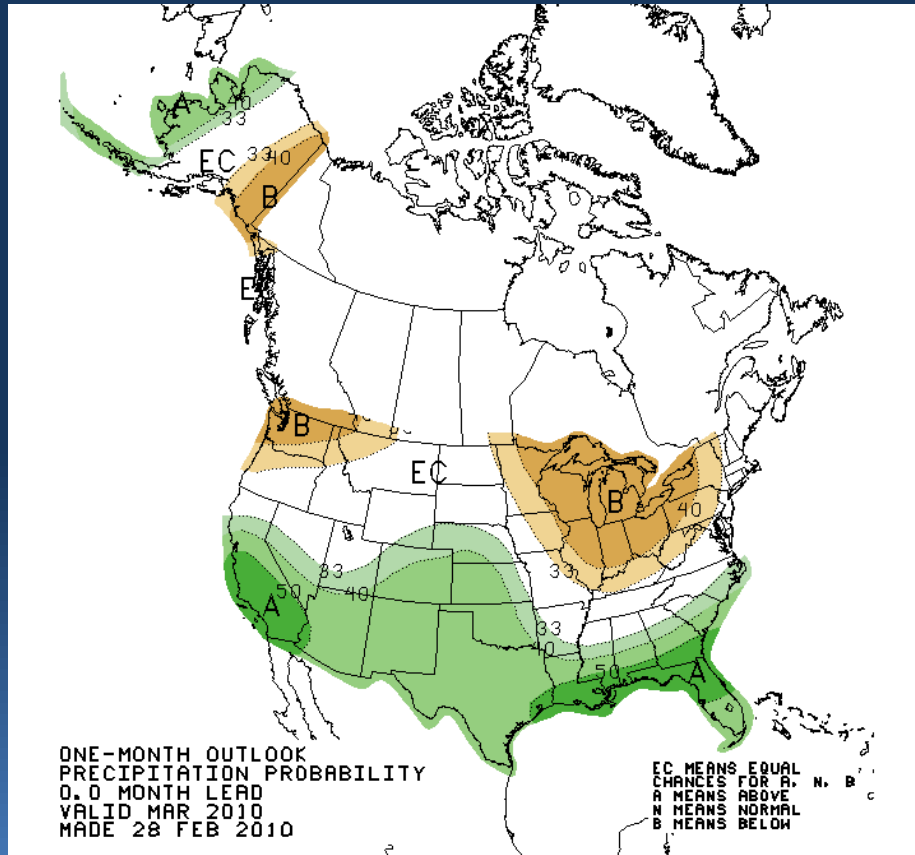
[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/enso\\_advisory/index.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/index.shtml)



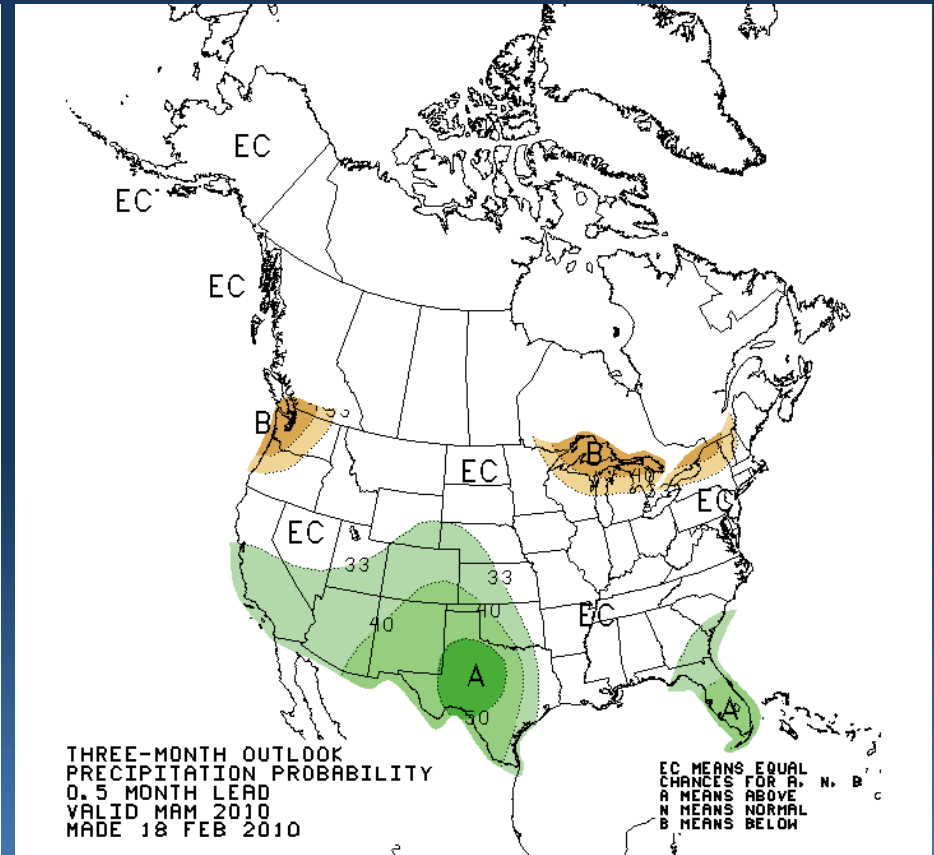
# Climate Outlook: Precipitation



## Current Month Outlook



## Three Month Outlook

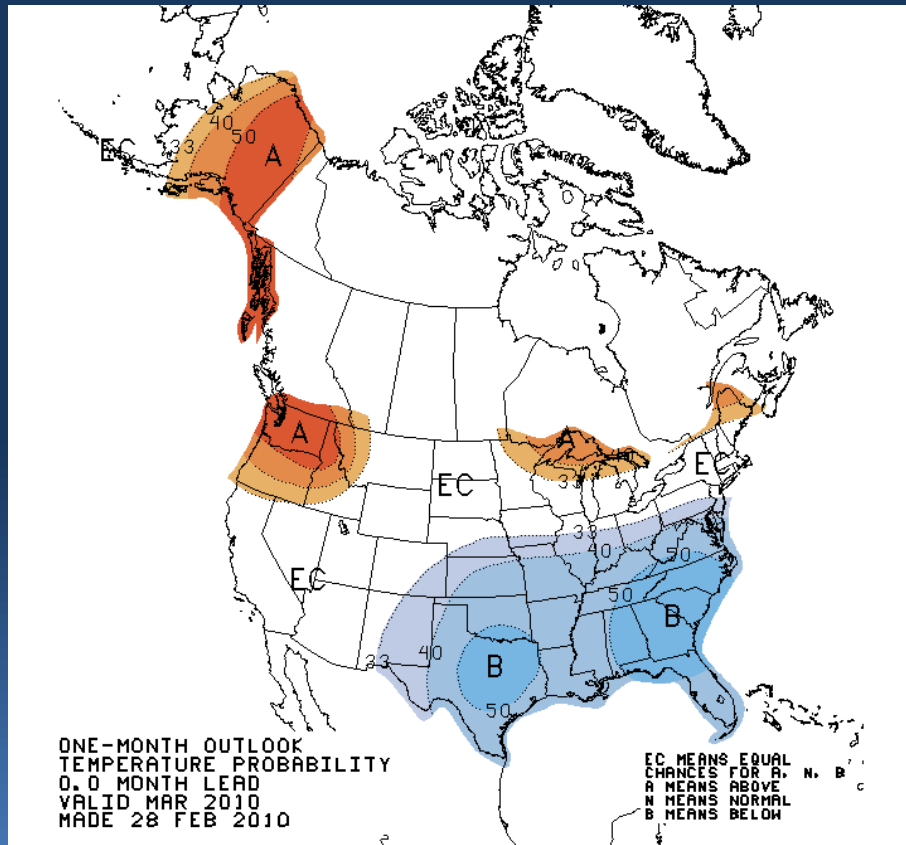




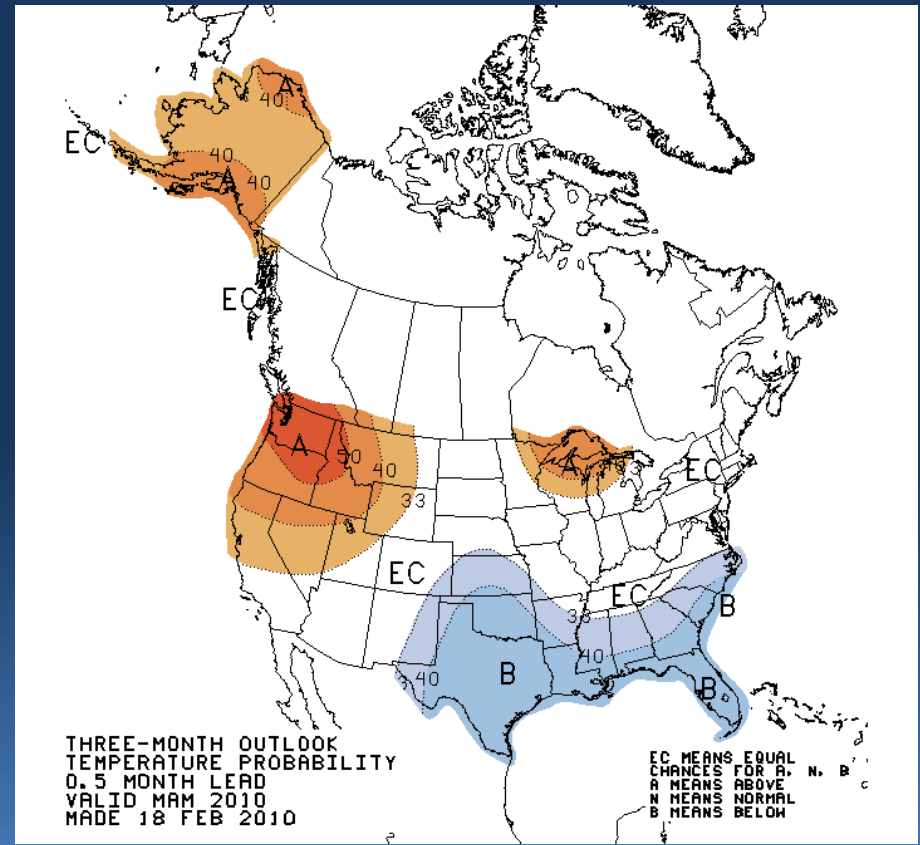
# Climate Outlook: Temperature



## Current Month Outlook



## Three Month Outlook





# Model Precipitation Assumptions



Mar 5<sup>th</sup> Forecast (Final):

Mar Precipitation 75% of Normal

Feb 19<sup>th</sup> Forecast (mid month):

Last 2 Weeks of Feb 60% of Normal

Mar Precipitation 85% of Normal

Feb 25<sup>th</sup> Forecast (early Bird):

Last days of Feb 35% of Normal

Mar Precipitation 80% of Normal

Feb 1<sup>st</sup> Forecast (Final):

Feb Precipitation 60% of Normal (obs ~48%)

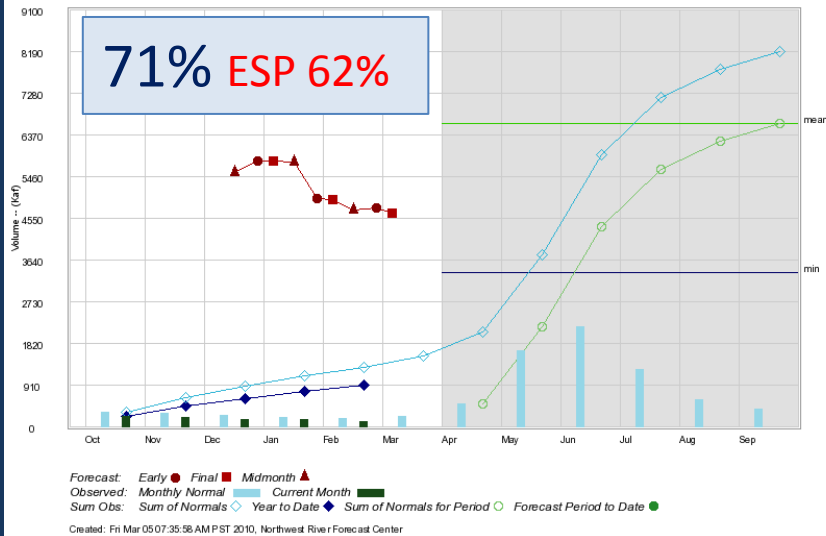


# Water Supply Forecast: Upper Columbia



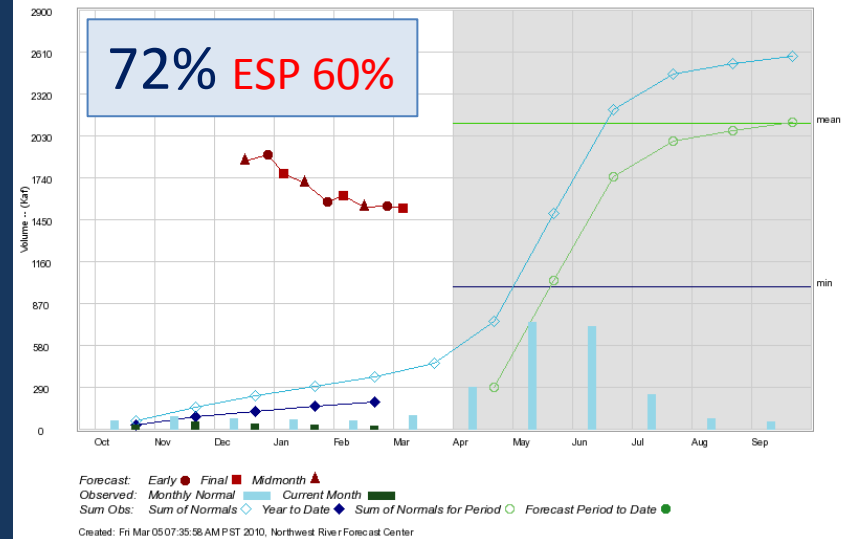
### LIBBY RES INFLOW, MT (1) (LYDM8)

Water Year 2010, Forecast Period Apr -- Sep



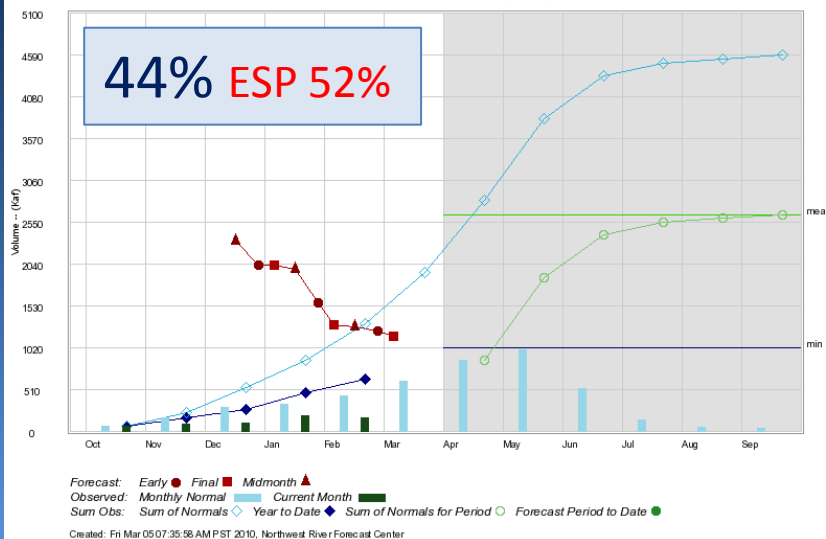
### HUNGRY HORSE RES IN, MT (1) (HHWM8)

Water Year 2010, Forecast Period Apr -- Sep



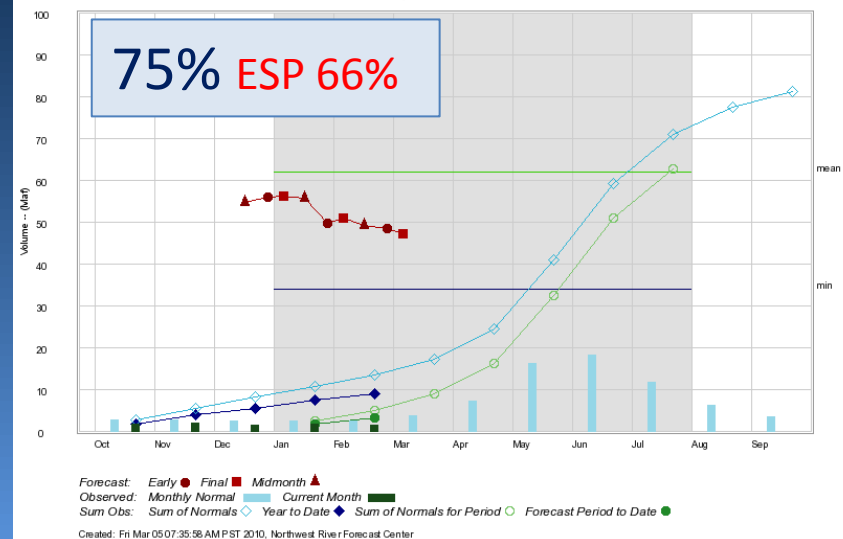
### COEUR D'ALENE LAKE IN, ID (COE1)

Water Year 2010, Forecast Period Apr -- Sep



### GRAND COULEE, WA (1) (GCDW1)

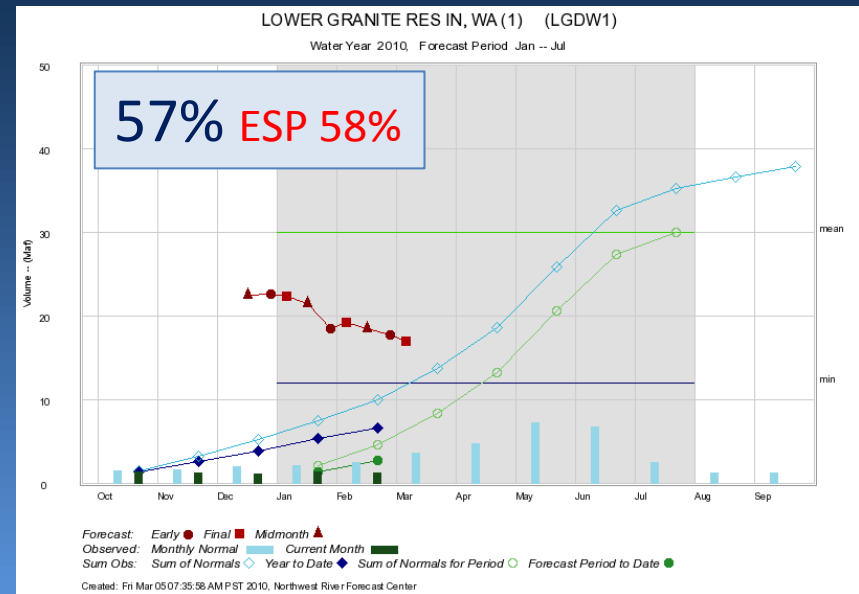
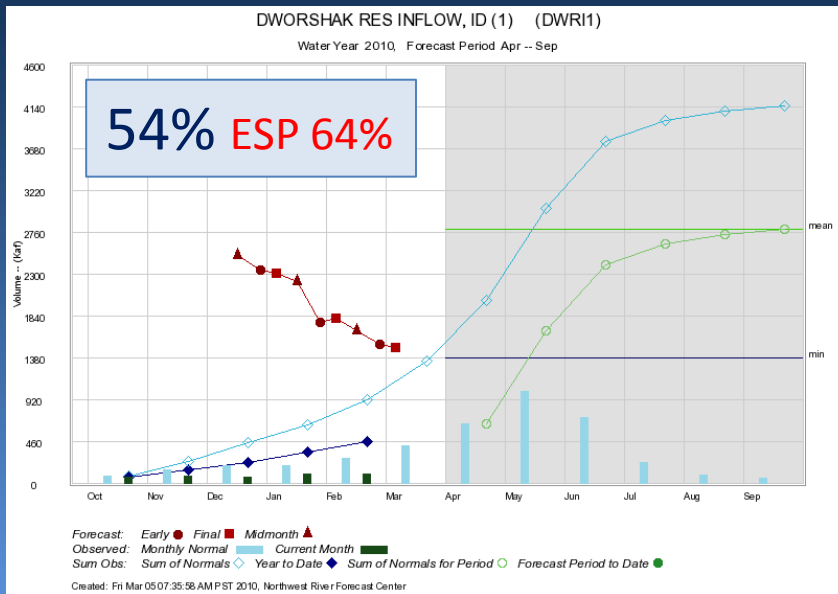
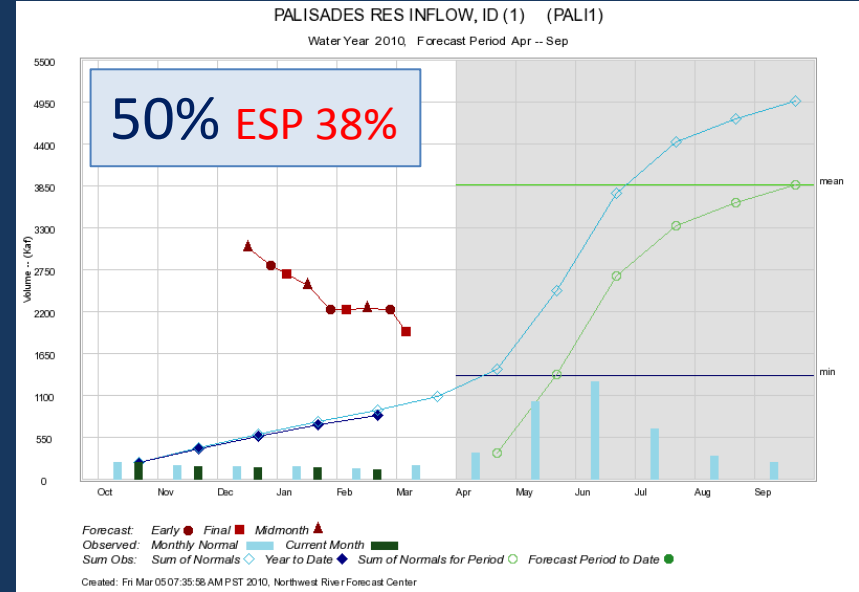
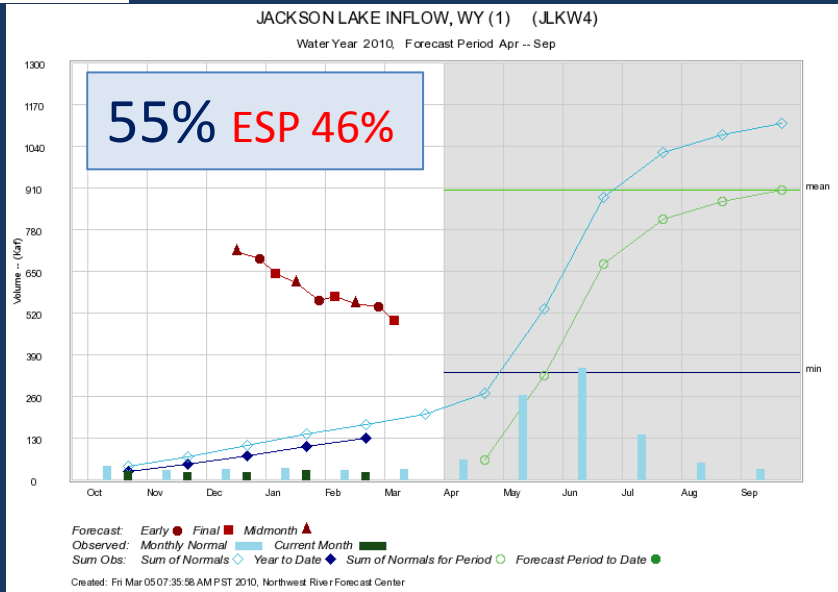
Water Year 2010, Forecast Period Jan -- Jul





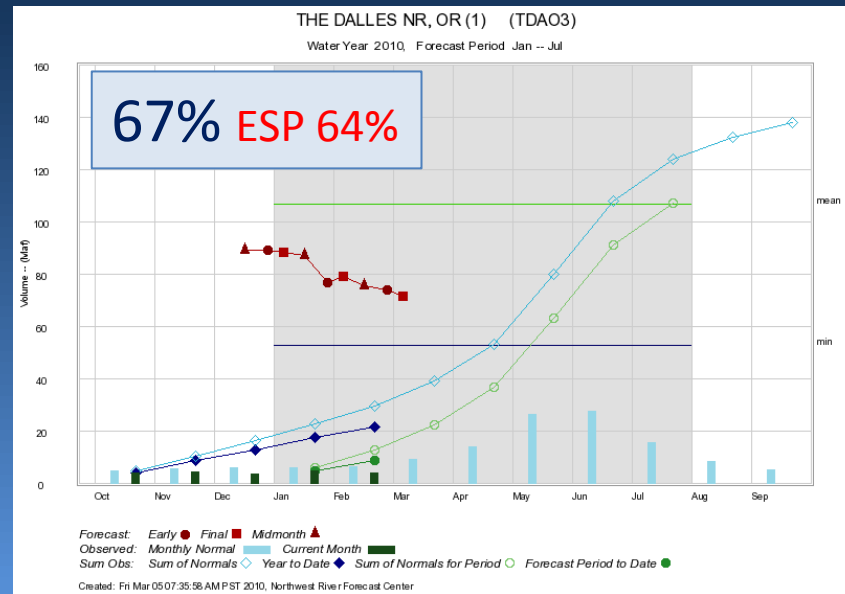
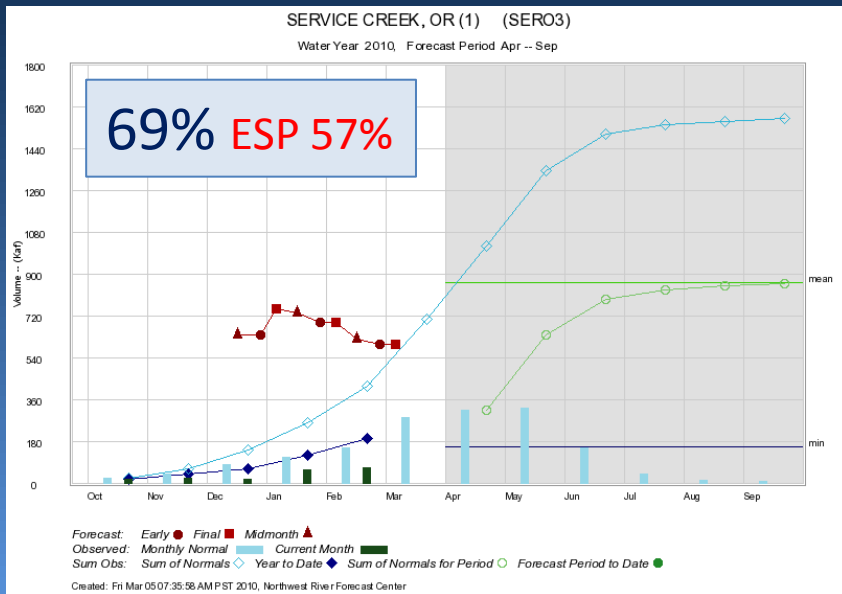
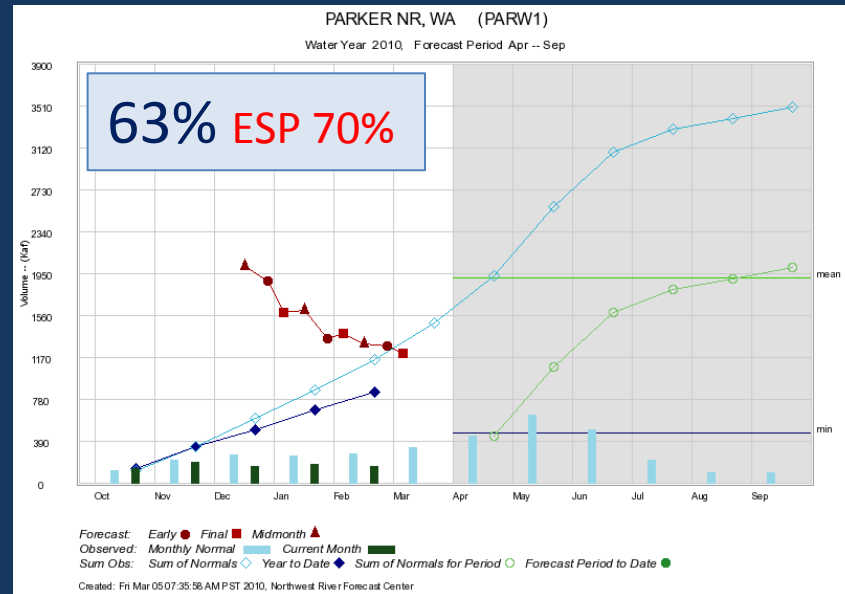
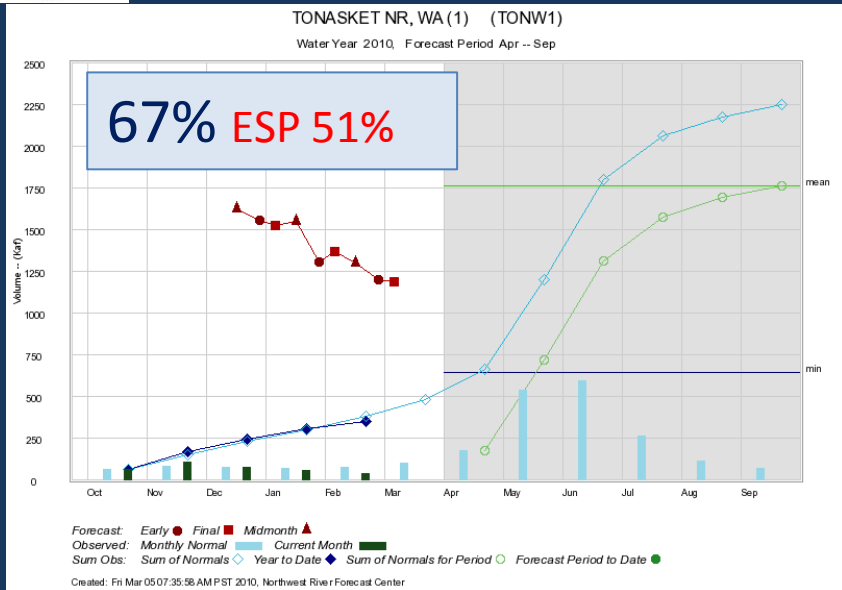


# Water Supply Forecast: Snake





# Water Supply Forecast: Lower Columbia





# Water Supply Forecast Summary



## January - July Forecast

71.8 MAF 67% of (1971-2000) average

### Historical January-July Volumes in MAF

Mean: 107 Min: 53 Max: 159

Year	Jan-Jul Vol (MAF)	Rank	Exceedance Prob
2005	81.35	42	82.353 %
1987	78.64	43	84.314 %
1994	76.40	44	86.275 %
1988	75.54	45	88.235 %
1992	73.55	46	90.196 %
2010	71.80	47	92.157 %
1973	70.99	48	94.118 %
2001	58.19	49	96.078 %
1977	53.29	50	98.039 %

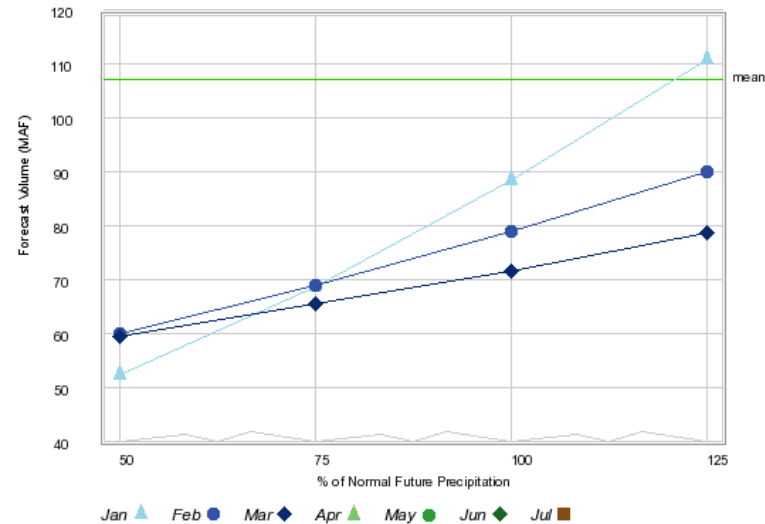
Rankings and probabilities based on historical water years 1961 to 2010  
[Click for full ranking list of all years](#)

(49 years)

		Contingency Forecast (MAF)			
Date	Type	50%	75%	100%	125%
2010-01-01	Early Bird	52	69	89	111
2010-01-01	Final	52	68	88	111
2010-01-01	Mid Month	56	70	87	105
2010-02-01	Early Bird	57	69	77	99
2010-02-01	Final	60	69	79	90
2010-02-01	Mid Month	63	69	75	83
2010-03-01	Early Bird	61	67	74	81
2010-03-01	Final	59	65	71	78

## THE DALLES (TDAO3)

Contingency forecast for 2010, Forecast period: Jan - Jul





# Water Supply Forecast: ESP Comparison



## COLUMBIA - GRAND COULEE DAM (GCDW1) Forecasts for WY 2010

Official Forecast (Regression) <i>Issued: 2010-03-05</i> (Description)								ESP Forecasts <i>Issued: 2010-03-02</i>					
Period	Forecast (KAF)	% of Average	5% Forecast	95% Forecast	30yr (1971-2000) Average	Max of Record	Min of Record	Forecast Period	ESP Forecasts for Forecast Period (KAF)				
									90 % Exceedance Probability	70 % Exceedance Probability	50 % Exceedance Probability	30 % Exceedance Probability	10 % Exceedance Probability
JAN-SEP	54900.0	75	65156.0	44644.0	73040.0	103500.0	44000.0	JAN-SEP	47454.4	50031.1	52841.9	55480.3	58274.9
MAR-SEP	51400.0	76	61656.0	41144.0	67820.0			MAR-SEP	43971.4	46548.1	49358.9	51997.3	54791.9
APR-JUL	40900.0	76	51156.0	30644.0	53850.0	76239.0	31885.0	APR-JUL	33364.7	36002.5	37143.7	39080.7	41775.8
APR-SEP	48500.0	76	58756.0	38244.0	63990.0	88512.0	39829.0	APR-SEP	41729.0	43959.8	47254.6	49591.4	52227.1
JAN-JUL	47300.0	75	57556.0	37044.0	62900.0	91140.0	34760.0	JAN-JUL	39070.2	41797.0	43309.4	44868.0	47917.9

## SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for WY 2010

Official Forecast (Regression) <i>Issued: 2010-03-05</i> (Description)								ESP Forecasts <i>Issued: 2010-03-02</i>					
Period	Forecast (KAF)	% of Average	5% Forecast	95% Forecast	30yr (1971-2000) Average	Max of Record	Min of Record	Forecast Period	ESP Forecasts for Forecast Period (KAF)				
									90 % Exceedance Probability	70 % Exceedance Probability	50 % Exceedance Probability	30 % Exceedance Probability	10 % Exceedance Probability
JAN-SEP	18500.0	57	25770.0	11230.0	32610.0	53055.0	14754.0	JAN-SEP	17869.2	19755.9	20498.9	21375.3	23937.3
MAR-SEP	15700.0	56	22970.0	8430.0	27870.0			MAR-SEP	15040.2	16926.9	17669.9	18546.3	21108.3
APR-JUL	12100.0	56	19370.0	4830.0	21550.0	33528.0	8634.0	APR-JUL	10743.5	12373.6	12855.5	13743.1	16096.3
APR-SEP	13600.0	56	20870.0	6330.0	24140.0	37104.0	10420.0	APR-SEP	12845.7	14734.8	15358.6	16191.5	18657.5
JAN-JUL	17000.0	57	24270.0	9730.0	30020.0	49478.0	12878.0	JAN-JUL	15766.9	17419.3	18109.8	19017.6	21371.2

## COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for WY 2010

Official Forecast (Regression) <i>Issued: 2010-03-05</i> (Description)								ESP Forecasts <i>Issued: 2010-03-02</i>					
Period	Forecast (KAF)	% of Average	5% Forecast	95% Forecast	30yr (1971-2000) Average	Max of Record	Min of Record	Forecast Period	ESP Forecasts for Forecast Period (KAF)				
									90 % Exceedance Probability	70 % Exceedance Probability	50 % Exceedance Probability	30 % Exceedance Probability	10 % Exceedance Probability
JAN-SEP	81200.0	67	98834.0	63566.0	121300.0	176593.0	64517.0	JAN-SEP	77367.7	79990.0	84140.5	87832.8	92343.5
MAR-SEP	72200.0	67	89834.0	54566.0	108200.0			MAR-SEP	68364.7	70987.0	75137.5	78829.8	83340.5
APR-AUG	62100.0	67	79734.0	44466.0	93090.0	133733.0	49445.0	APR-AUG	57918.3	60216.0	64018.8	66959.5	72062.7
JAN-AUG	77500.0	67	95134.0	59866.0	115700.0	168669.0	59871.0	JAN-AUG	72587.1	75380.4	79036.0	82110.8	87084.0
MAR-AUG	68500.0	67	86134.0	50866.0	102700.0			MAR-AUG	63584.1	66377.4	70033.0	73107.8	78081.0
APR-SEP	65800.0	67	83434.0	48166.0	98650.0	141056.0	54091.0	APR-SEP	62544.2	65234.2	69557.1	72745.7	77118.3
JAN-JUL	71800.0	67	89434.0	54166.0	107300.0	159000.0	53359.0	JAN-JUL	65854.0	68084.4	71712.4	74054.4	79898.3



# NWRFC Water Supply Webpage

## www.nwrfc.noaa.gov



**National Weather Service**  
**Northwest**  
**River Forecast Center**

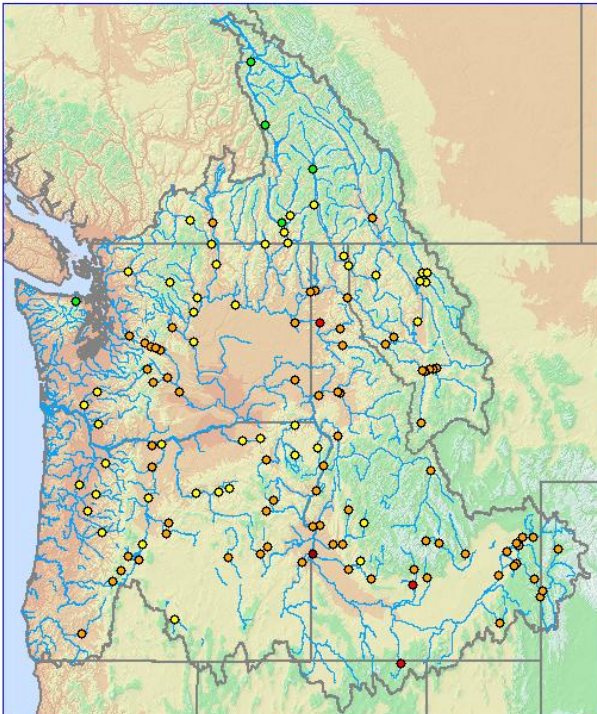
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[Organization](#)

## Water Supply Forecast (Issued 02-05-2010)

Map data updated 02/05.16:55 GMT, 02/05.08:55 PST.

**Join Us LIVE for a Water Supply Briefing** -- click here for more Information  
[click for Water Supply Briefing -- 01/11/2010](#)

Place cursor over point for Station Info, click point for data plot.  
 Select Zoom Option to zoom in on map  
**Click to:** [Select](#) | [Zoom](#)    **Zoom to:** [1x](#) [4x](#) [8x](#)



**Legend**

**Water Supply Forecast (% Avg)**

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

**Point Info/Search**

Station Name

ID

Forecast Period

Volume Forecast (KAF)

% of Avg (1971-2000)

5% Forecast (KAF)

95% Forecast (KAF)

30-YR Avg (KAF)

Click for [Summary List of Water Supply Forecasts](#)  
 Click for [Comma Delimited WS Forecasts \(Issued 02-05-2010\)](#)  
 (Description)

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[Western Water Sup](#)

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