2009 Forecast Review

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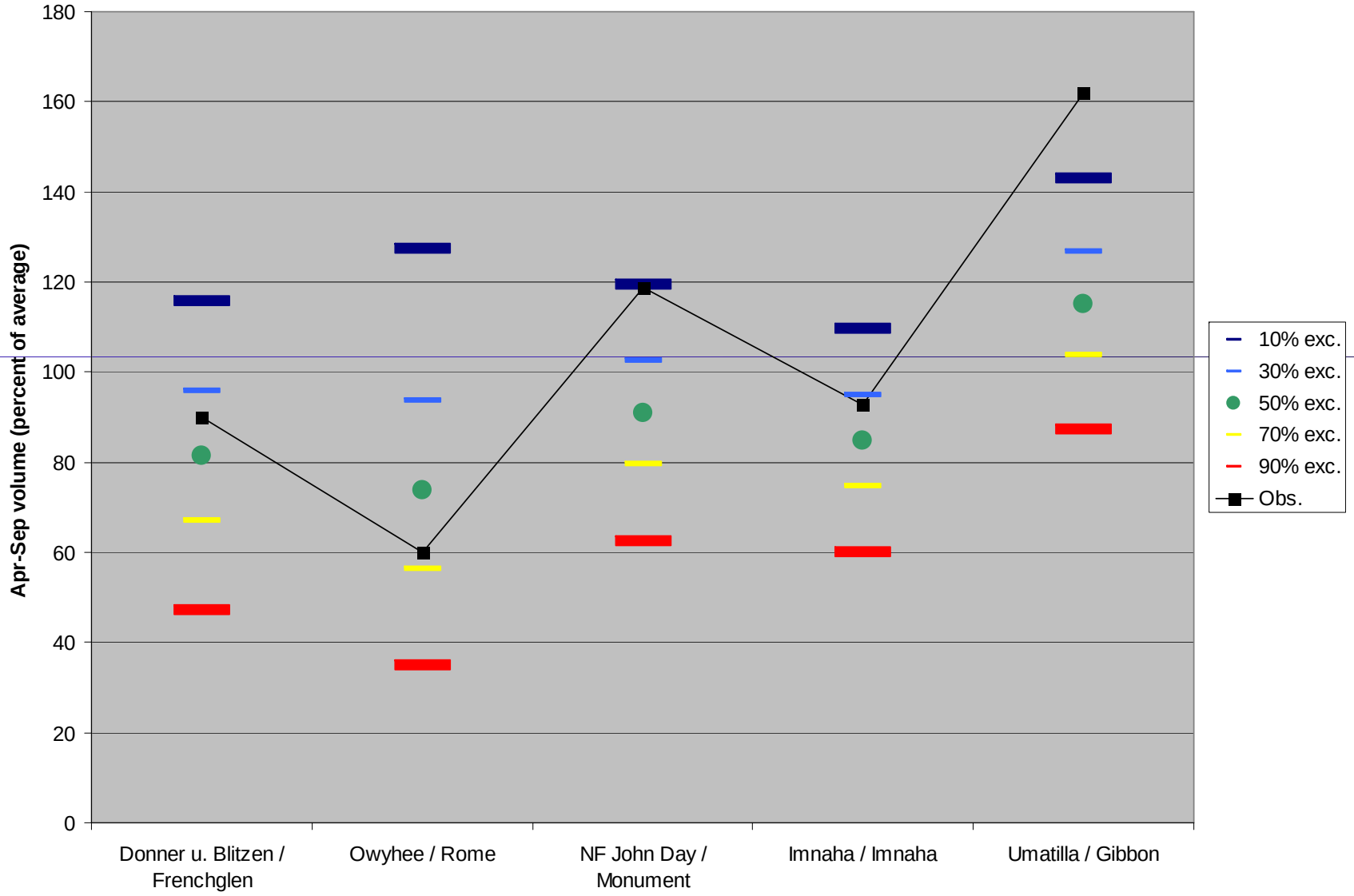
Forecast Verification – A Sampling

- Selected 32 forecast points in Columbia Basin and adjacent areas that have real-time USGS streamflow data and no adjustments
- Analysed 1 April 2009 forecasts for Apr-Sep period
- Expressed observed flow in relation to forecast distribution as depicted by five published exceedance probabilities

1 April 2009 Forecasts
Eastern Oregon



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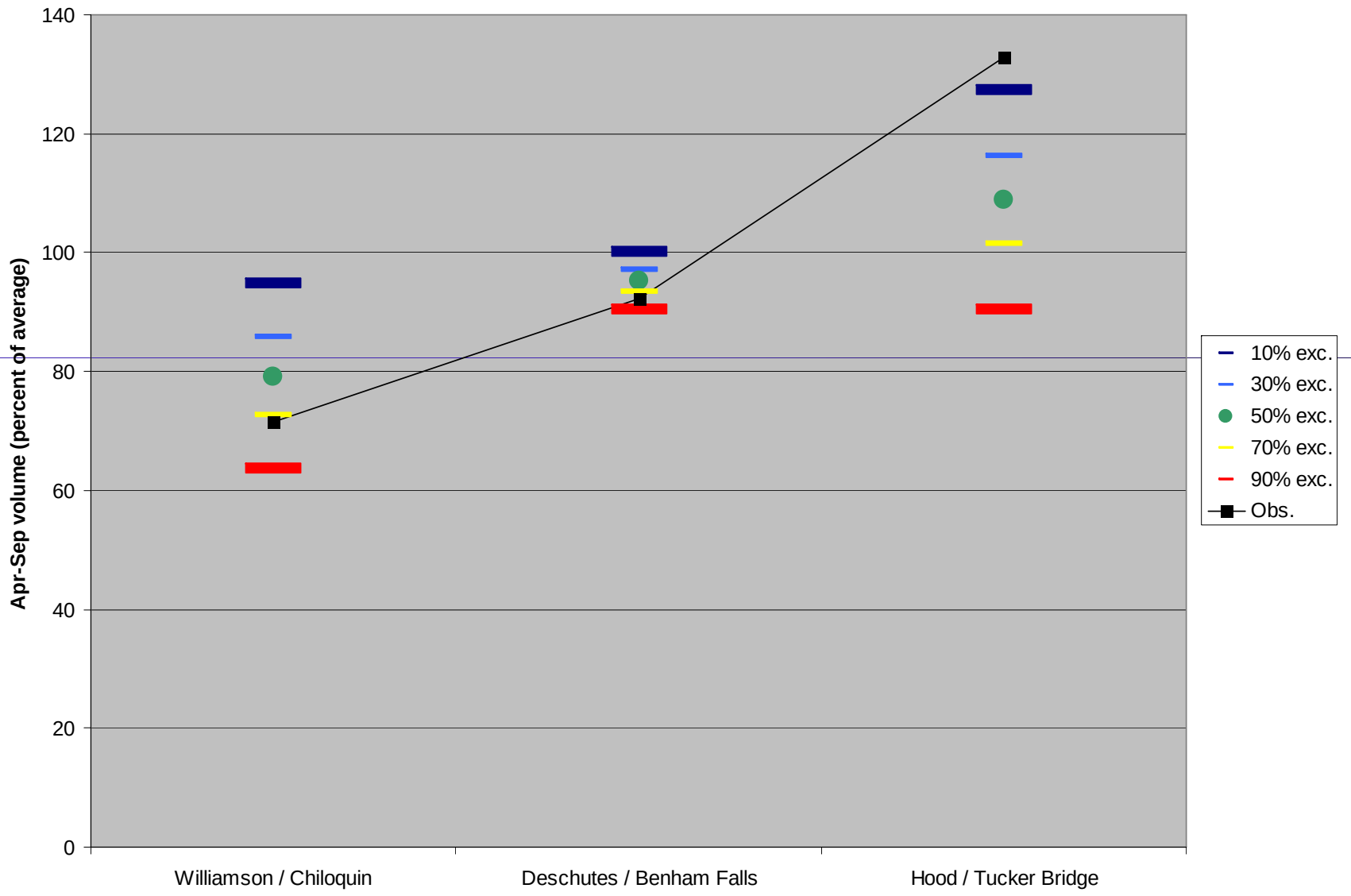

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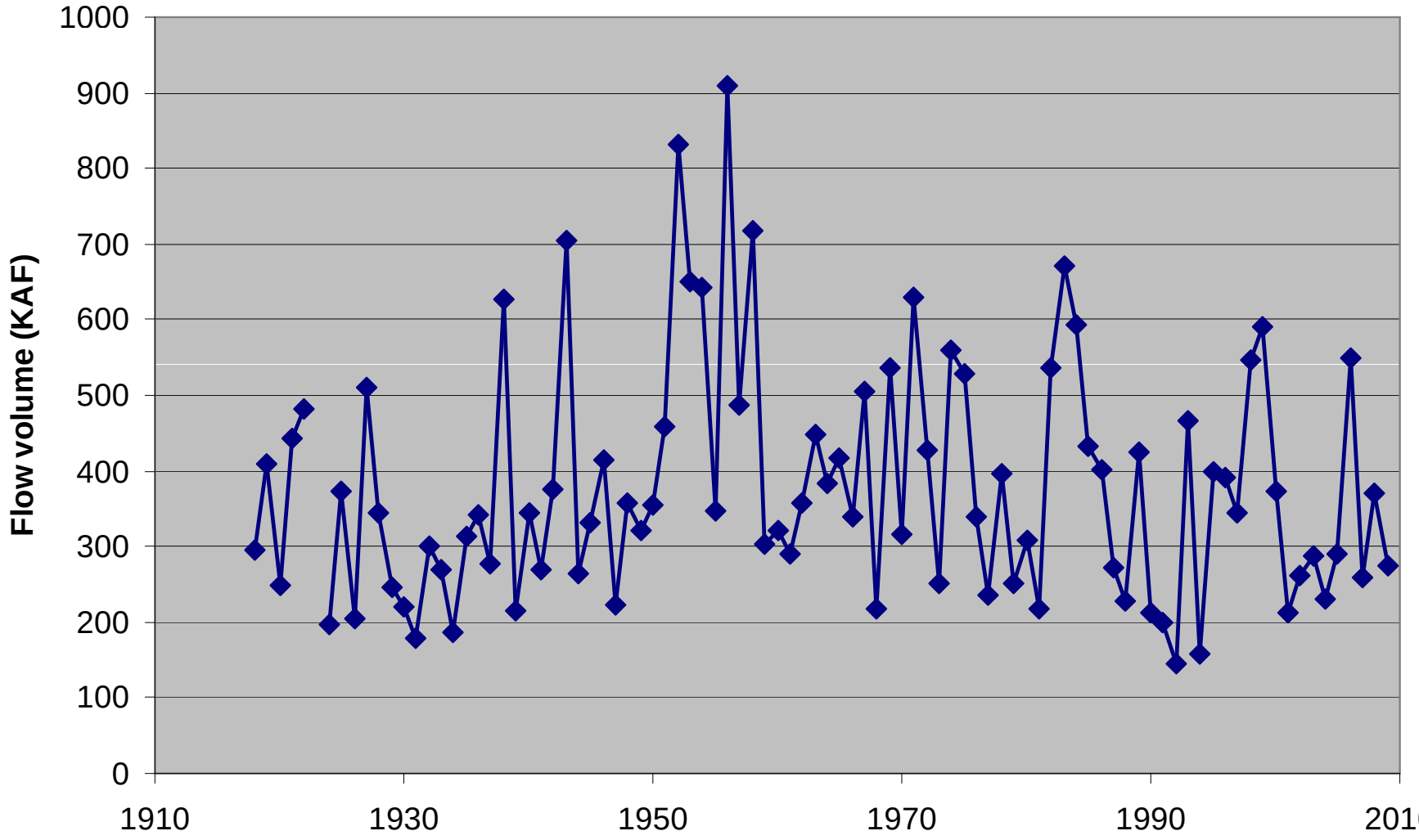
Williamson River, Apr-Sep flow volume, 1918-2009



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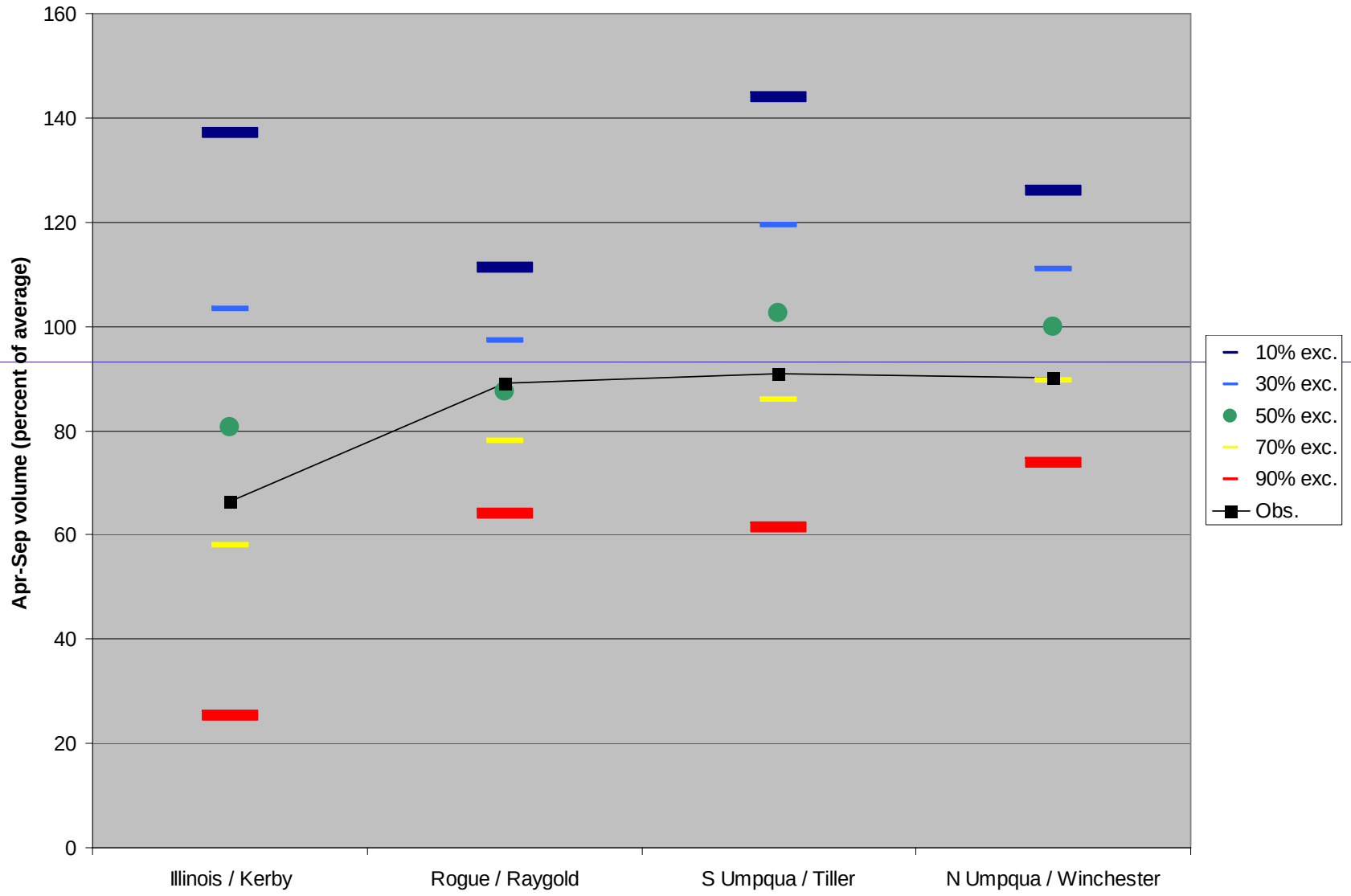
1 April 2009 Forecasts
Southwestern Oregon



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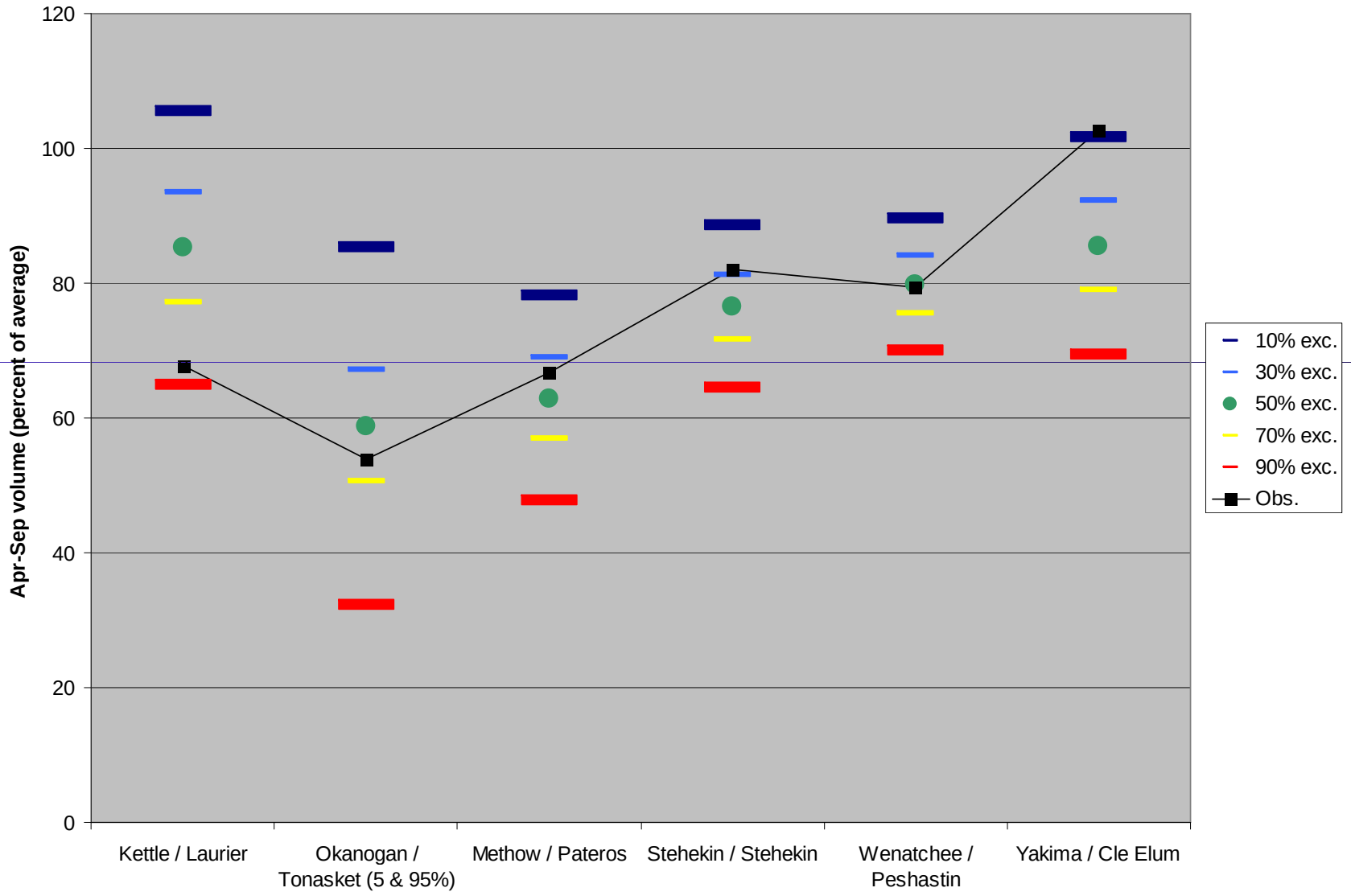
1 April 2009 Forecasts
Eastern Washington



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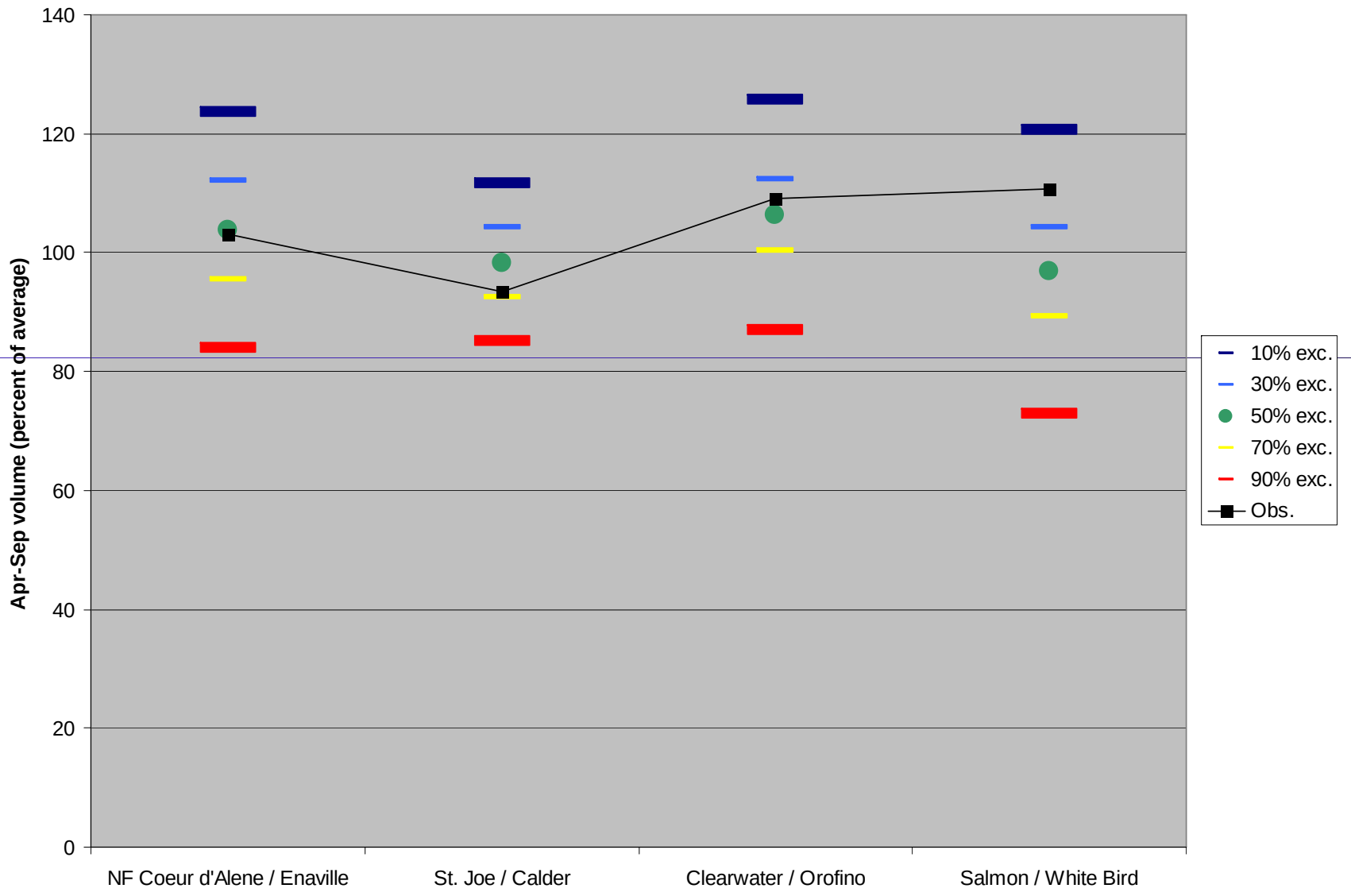

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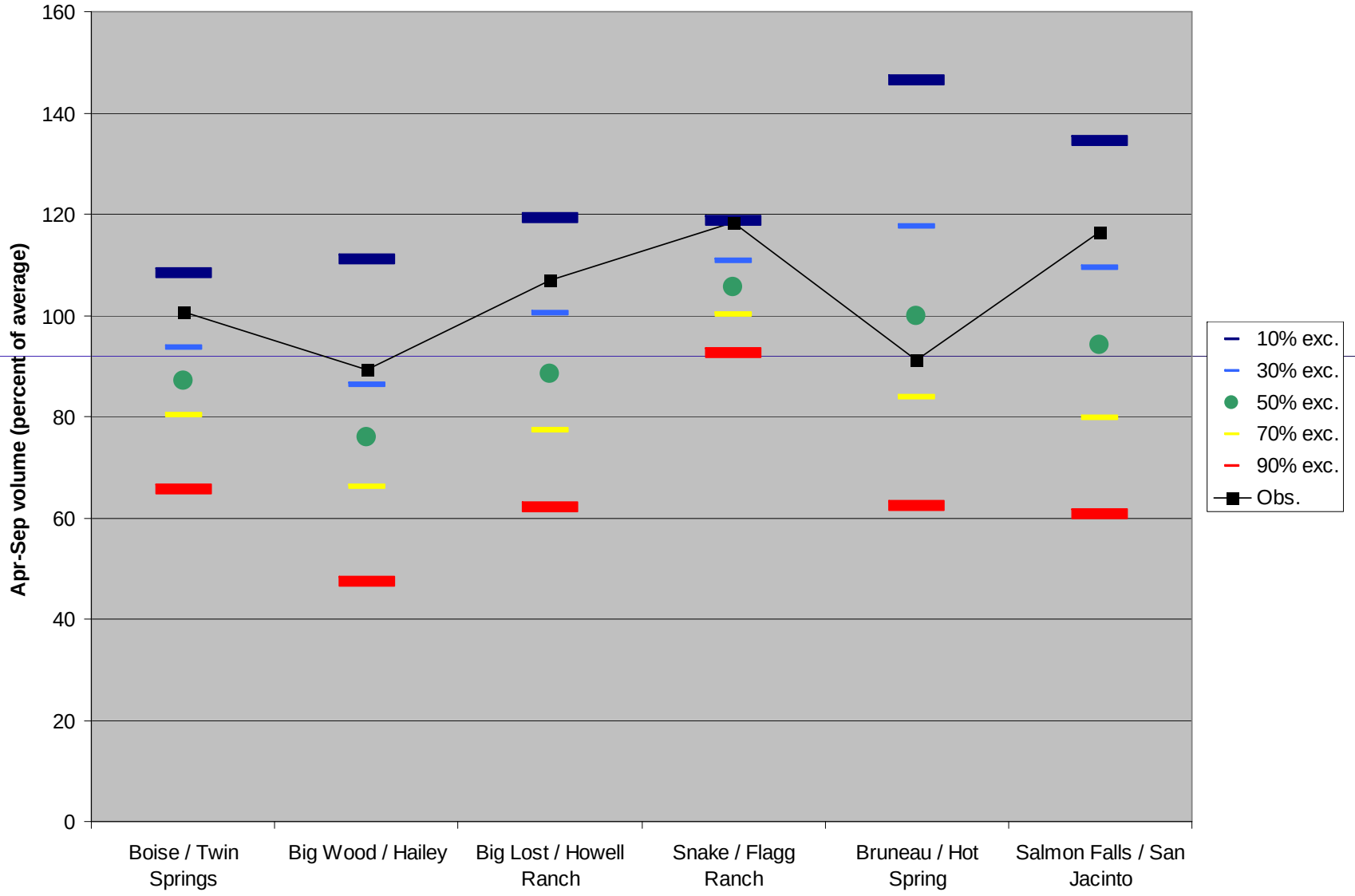
1 April 2009 Forecasts
Southern Idaho



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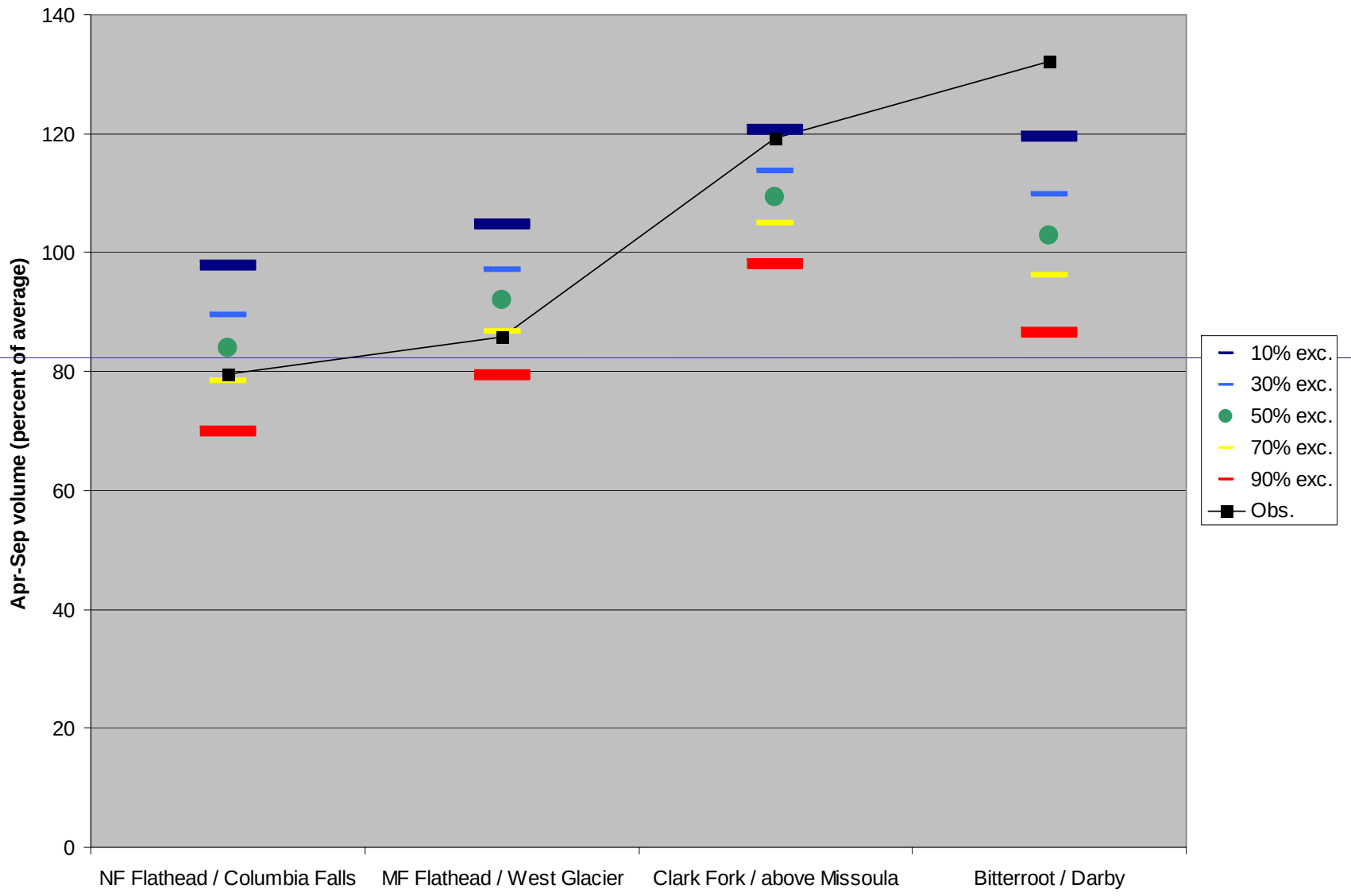

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Forecast Percentile Bins for Observed Flows

- Overforecast -

- Underforecast -

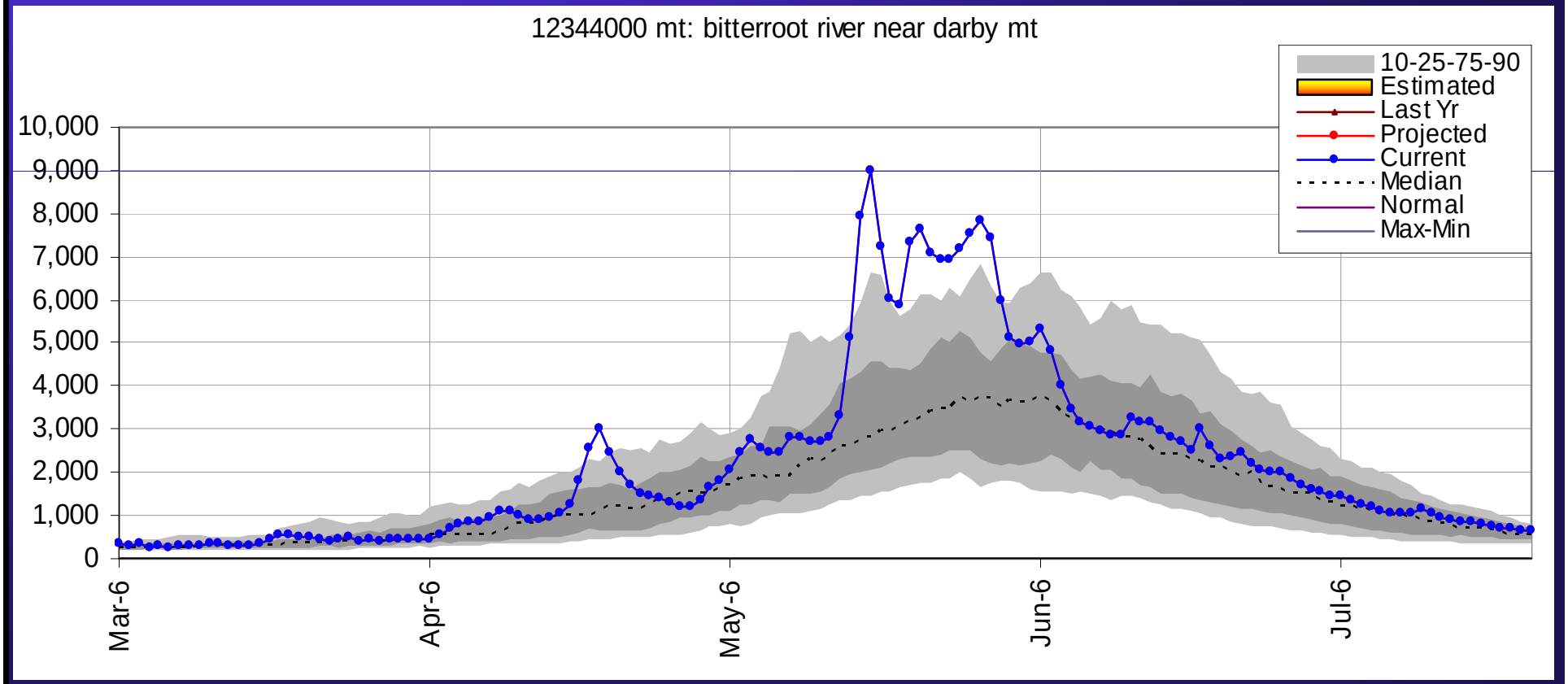
	Theoretical	Actual
100-90% exc.	3.2	0
90-70% exc.	6.4	4
70-50% exc.	6.4	10
50-30% exc.	6.4	5
30-10% exc.	6.4	9
10-0% exc.	3.2	4

Based on sample of 32 forecasts

SWE, Precipitation, Forecast, Observed

	1 Apr SWE %	Apr-Sep precip %	Apr-Sep forecast %	Apr-Sep observed %
Umatilla / Gibbon	124	88	115	162
NF John Day / Monument	103	99	91	119
Hood / Tucker Bridge	130	93	109	133
Yakima / Cle Elum	88	89	86	103
Snake / Flagg Ranch	97	119	106	118
Bitterroot / Darby	107	86	103	132

Bitterroot / Darby Daily Hydrograph



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Conclusions

- There were four basins for which the observed flow fell outside of the 80% prediction confidence bounds, all on the high side: Umatilla, Hood, Yakima, Bitterroot. Otherwise all other sampled forecasts were within reasonable ranges with respect to observed values.
- Forecast percentile bin distribution of observed flows was somewhat shifted to the underforecast range. However, this could be due to regional weather patterns this year.