

# RECLAMATION

*Managing Water in the West*

## Fontenelle Working Group Meeting

April 27, 2010



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Hydraulic Engineer



U.S. Department of the Interior  
Bureau of Reclamation

# Fontenelle Reservoir Current Status

As of 4/26/10

## Storage

Live Capacity	345,000 AF
Capacity on 4/26/10	<u>124,930 AF</u> (36% full)

## Pool Elevation

Top of reservoir	6506.0 ft
Elevation on 4/20/09	<u>6471.4 ft</u>
Elevation below top	34.6 ft

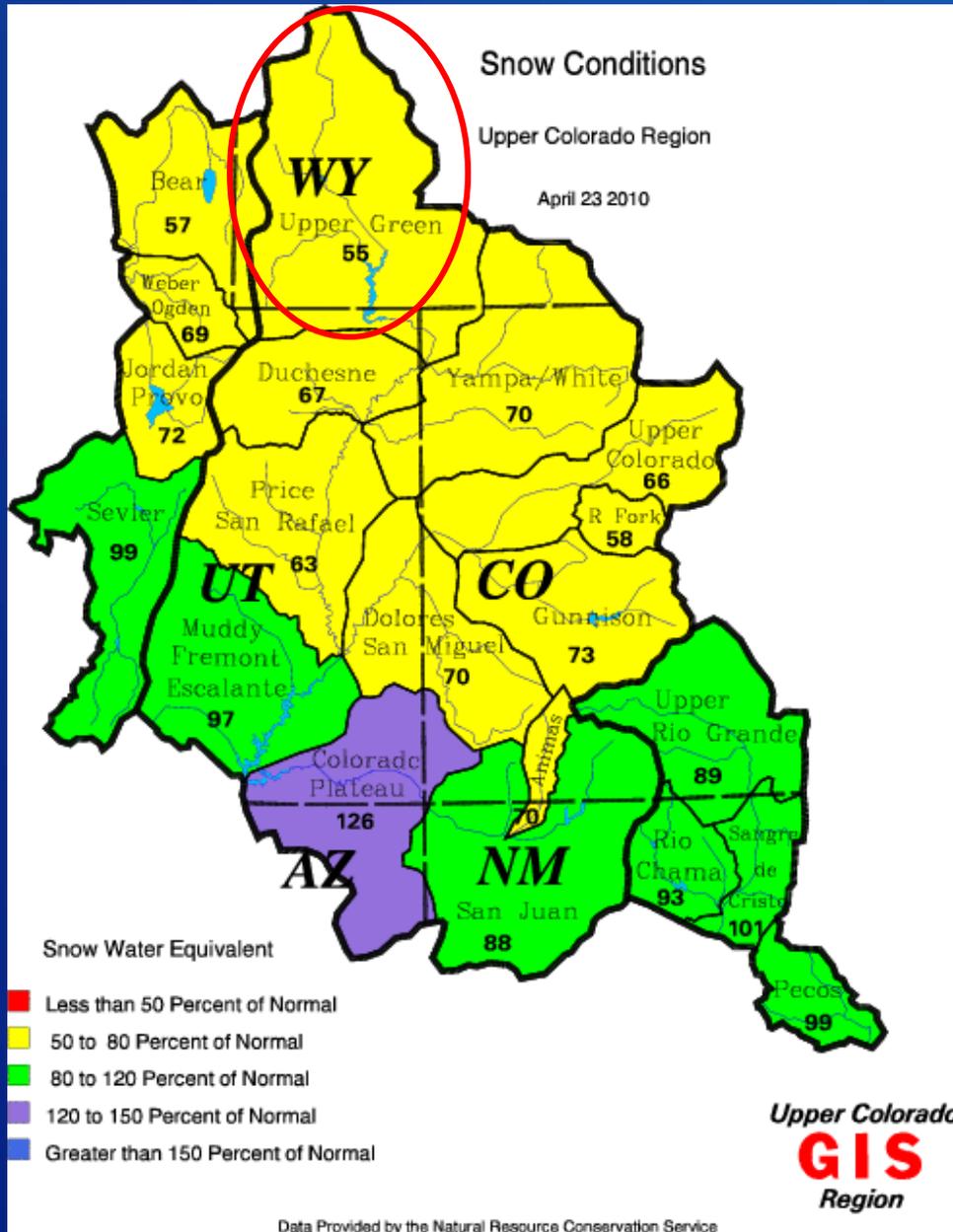
## Inflow and Release

5 Day Average Inflow	1700 cfs
Current Release on 4/26/10	800 cfs

*Expect to release ~800 cfs for most of the spring and summer*

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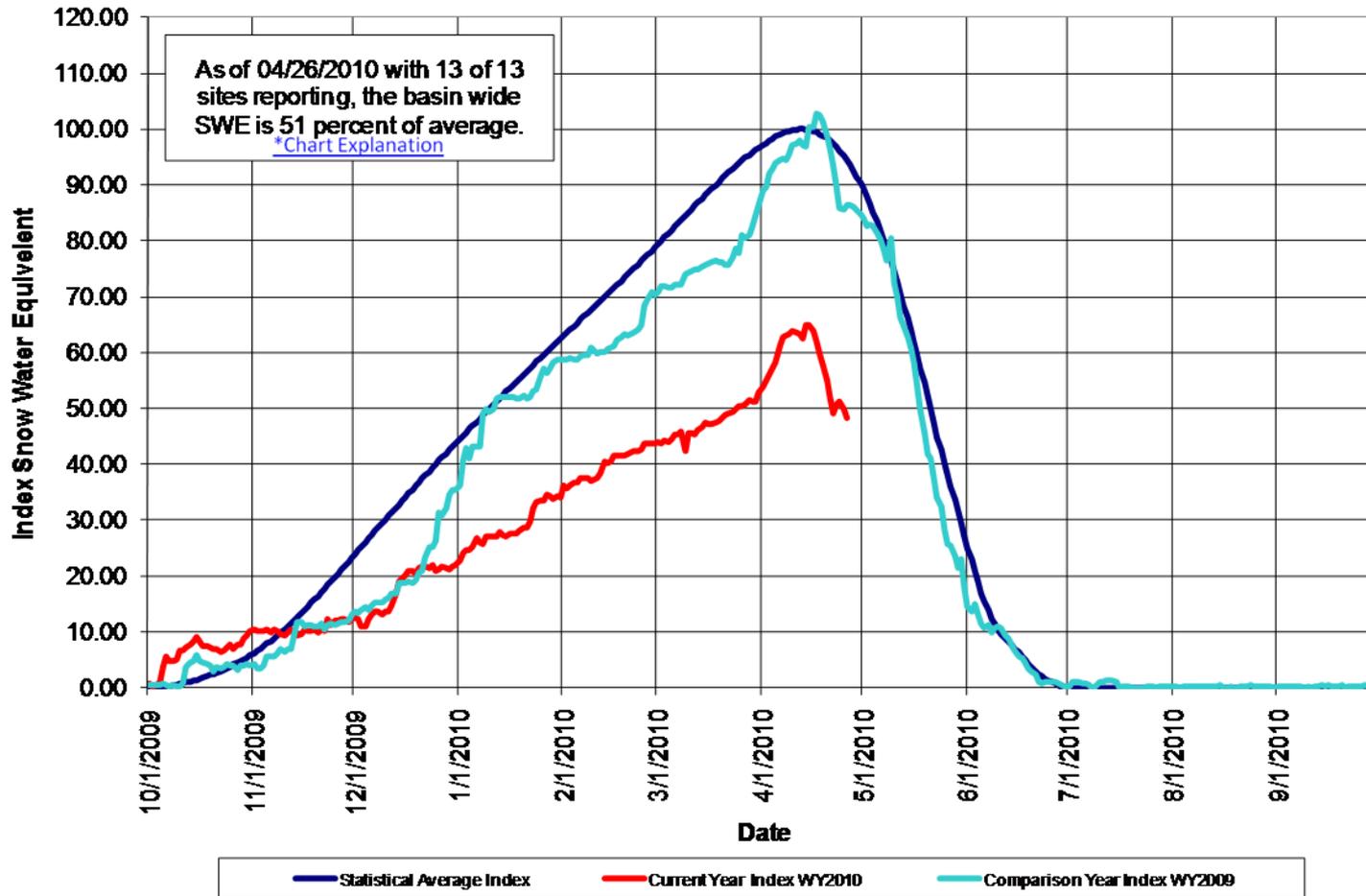
# Snow Water Equivalent (SWE) Current Conditions



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# Current Snowpack

## Upper Green River Basin Snotel Tracking Aggregate of 13 Snotel Sites above Fontenelle Reservoir



Data Provided by the Natural Resource Conservation Service

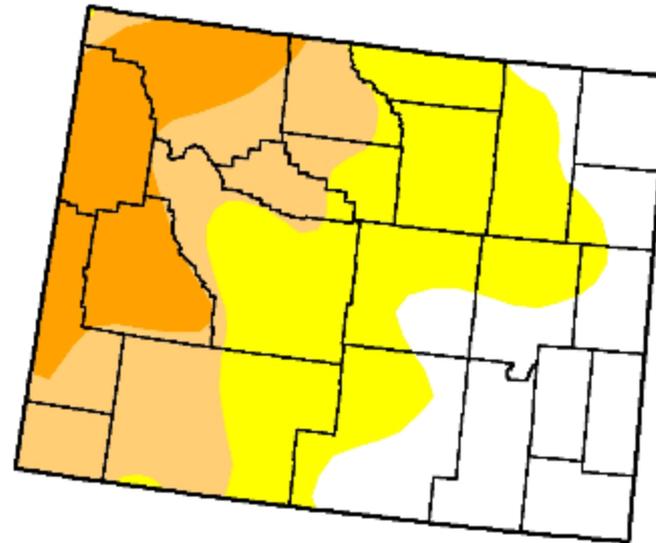
# Drought Conditions

## U.S. Drought Monitor Wyoming

April 20, 2010  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	28.3	71.7	36.8	15.7	0.0	0.0
Last Week (04/13/2010 map)	27.0	73.0	36.4	13.9	0.0	0.0
3 Months Ago (01/26/2010 map)	64.0	36.0	9.9	0.0	0.0	0.0
Start of Calendar Year (01/05/2010 map)	79.3	20.7	0.9	0.0	0.0	0.0
Start of Water Year (10/06/2009 map)	100.0	0.0	0.0	0.0	0.0	0.0
One Year Ago (04/21/2009 map)	68.0	32.0	3.7	0.0	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions.  
Local conditions may vary. See accompanying text summary  
for forecast statements

<http://drought.unl.edu/dm>



Released Thursday, April 22, 2010  
Author: A. Artusa, CPC/NOAA

# 30 Day Temperature Outlook

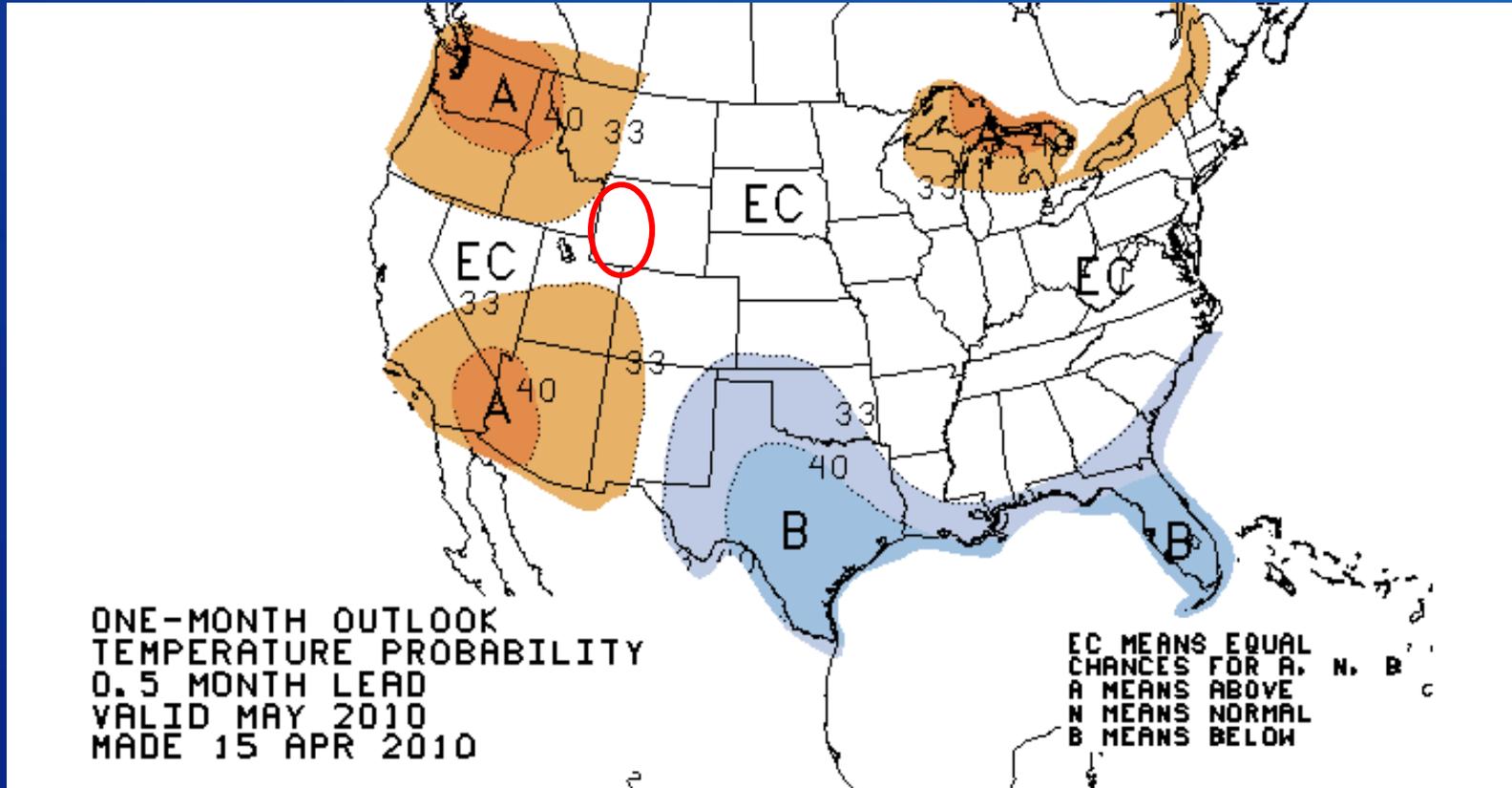


Image courtesy of National Weather Service Climate Prediction Center

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# 30 Day Precipitation Outlook

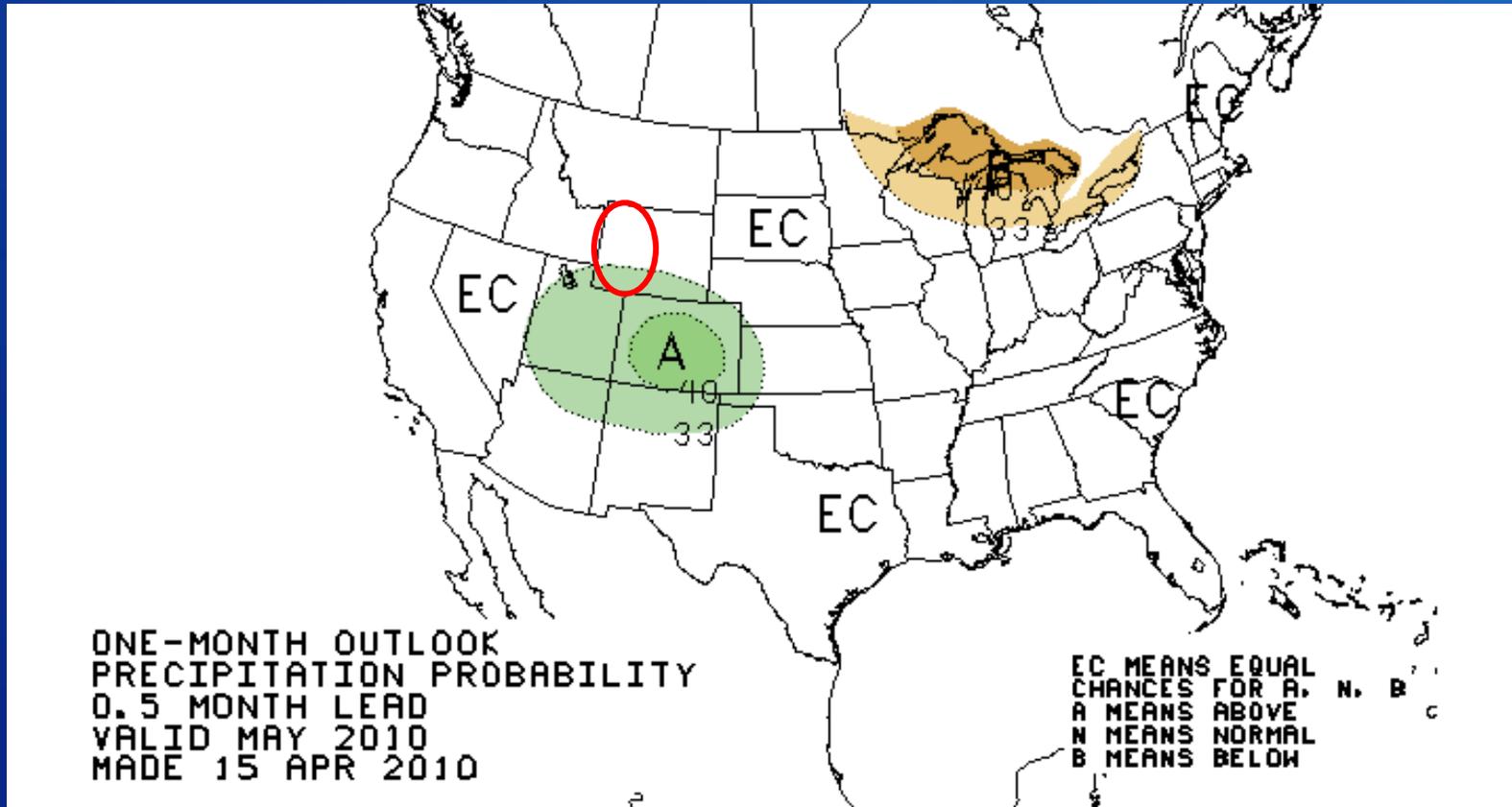
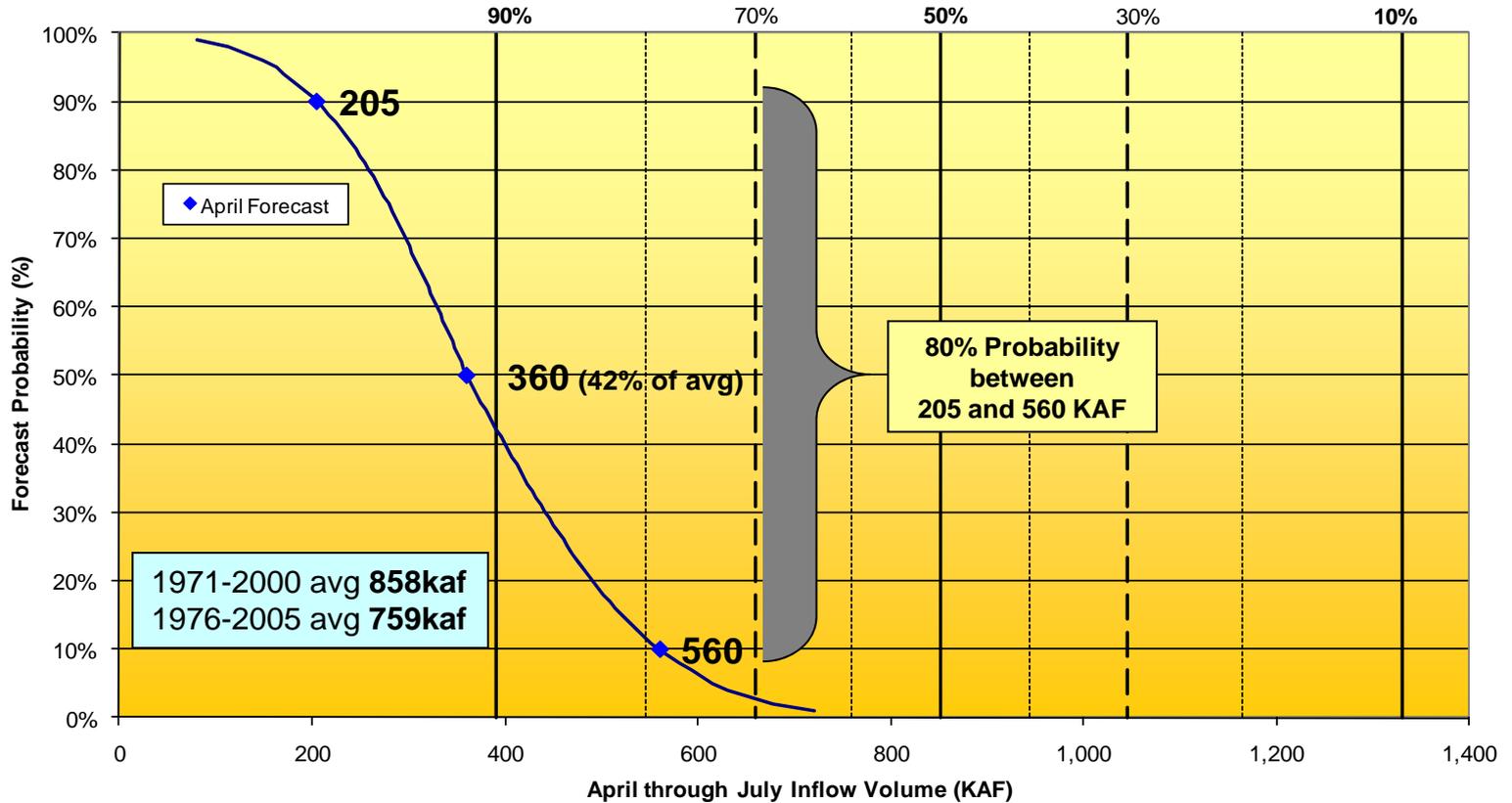


Image courtesy of National Weather Service Climate Prediction Center

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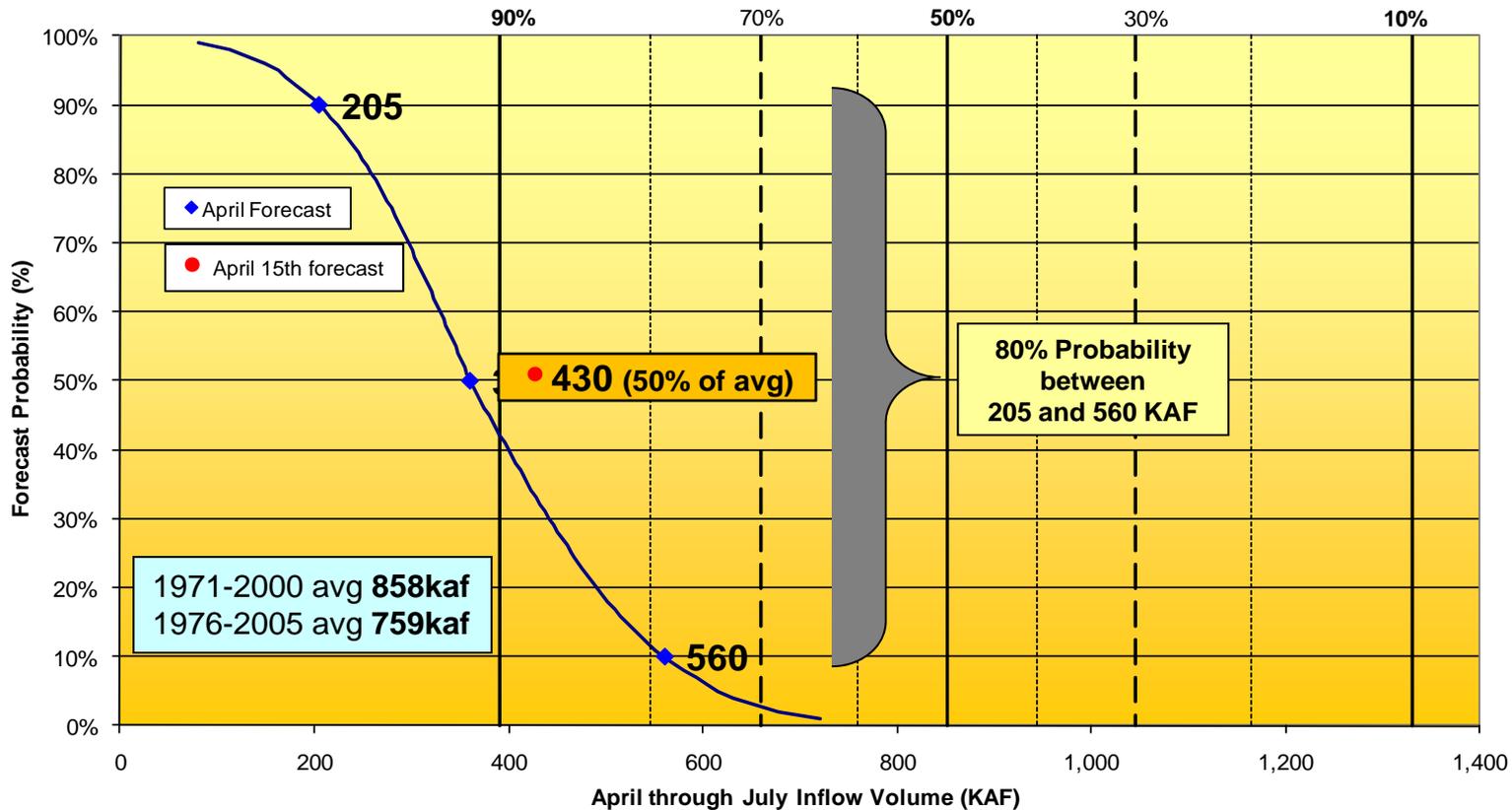
# April Official Forecast

Fontenelle Reservoir  
April - July Forecasted Inflow  
Related to Exceedance Percentages for Historic Period (1971-2000)



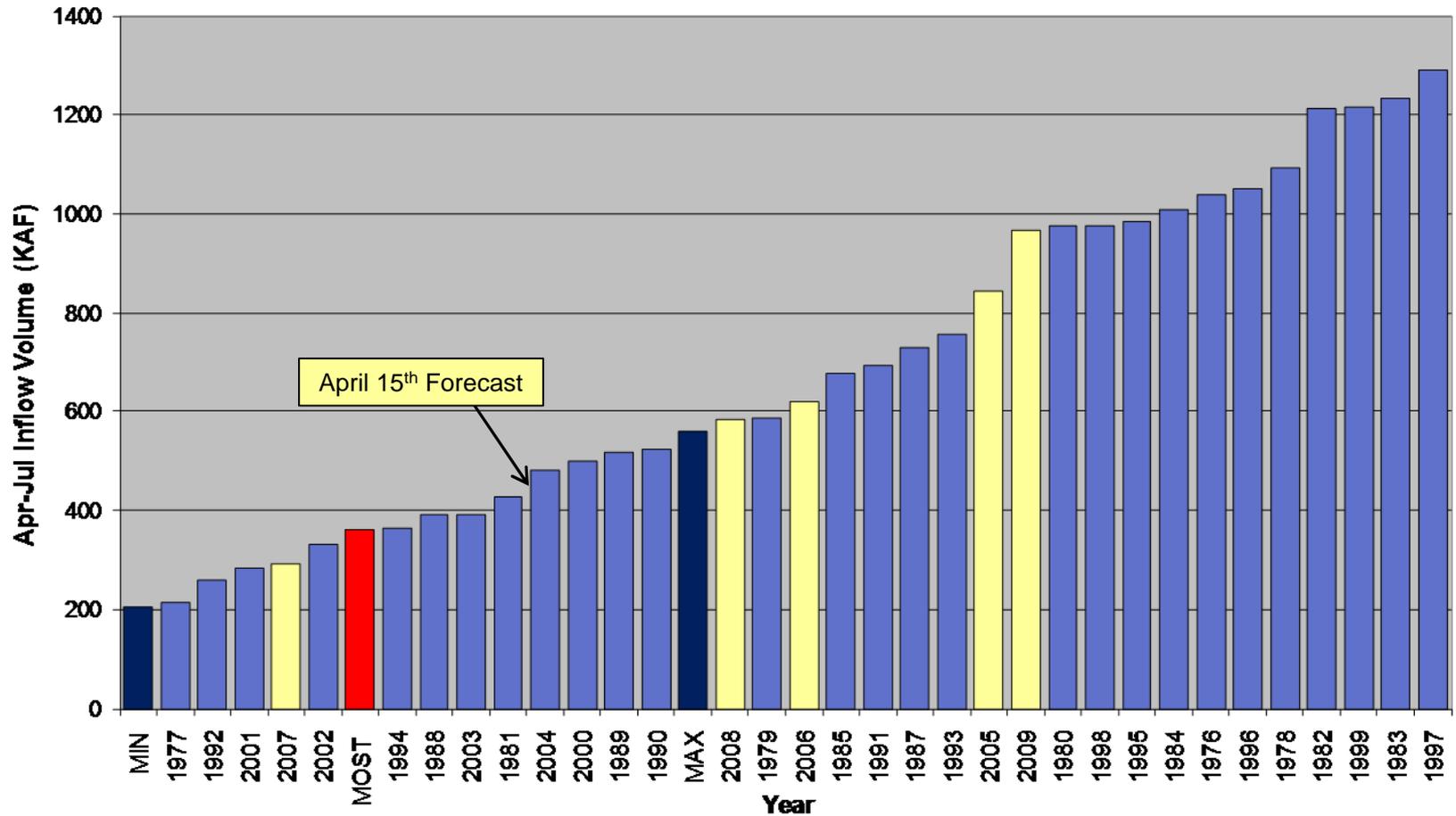
# April 15<sup>th</sup> Forecast

Fontenelle Reservoir  
April - July Forecasted Inflow  
Related to Exceedance Percentages for Historic Period (1971-2000)

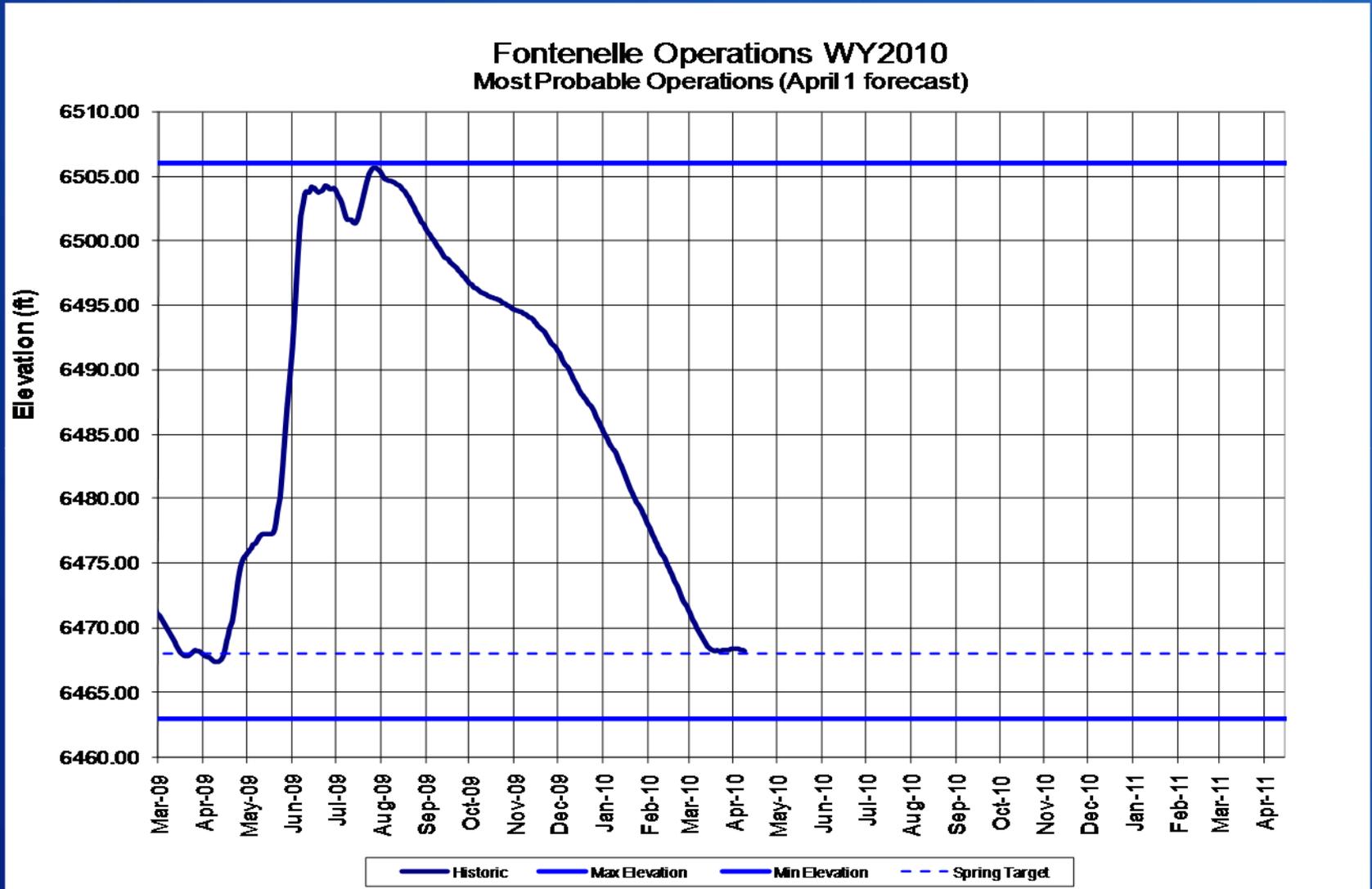


# 2010 Forecast

**Fontenelle Forecast 2010**  
Comparison with History

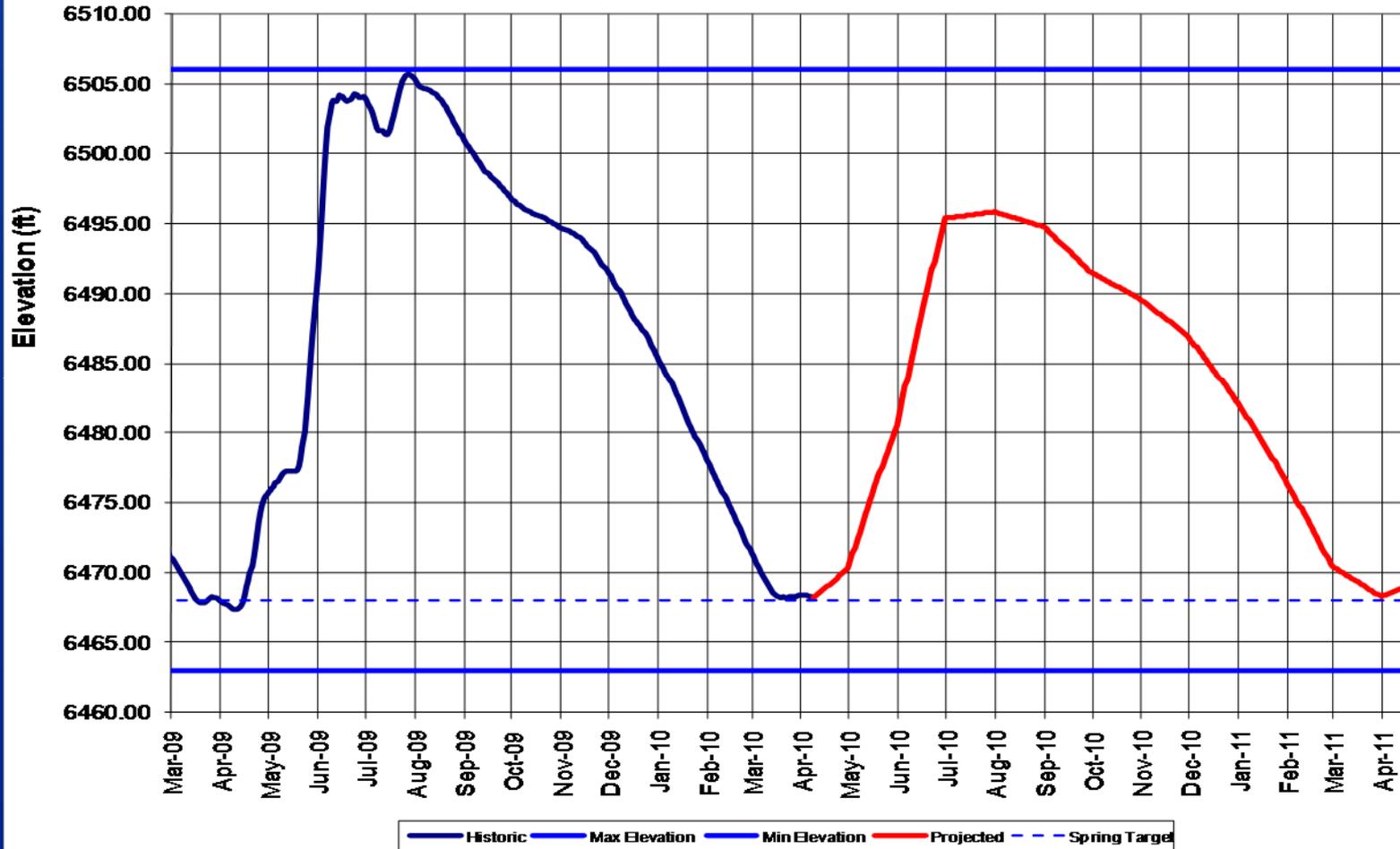


# Observed Reservoir Elevation

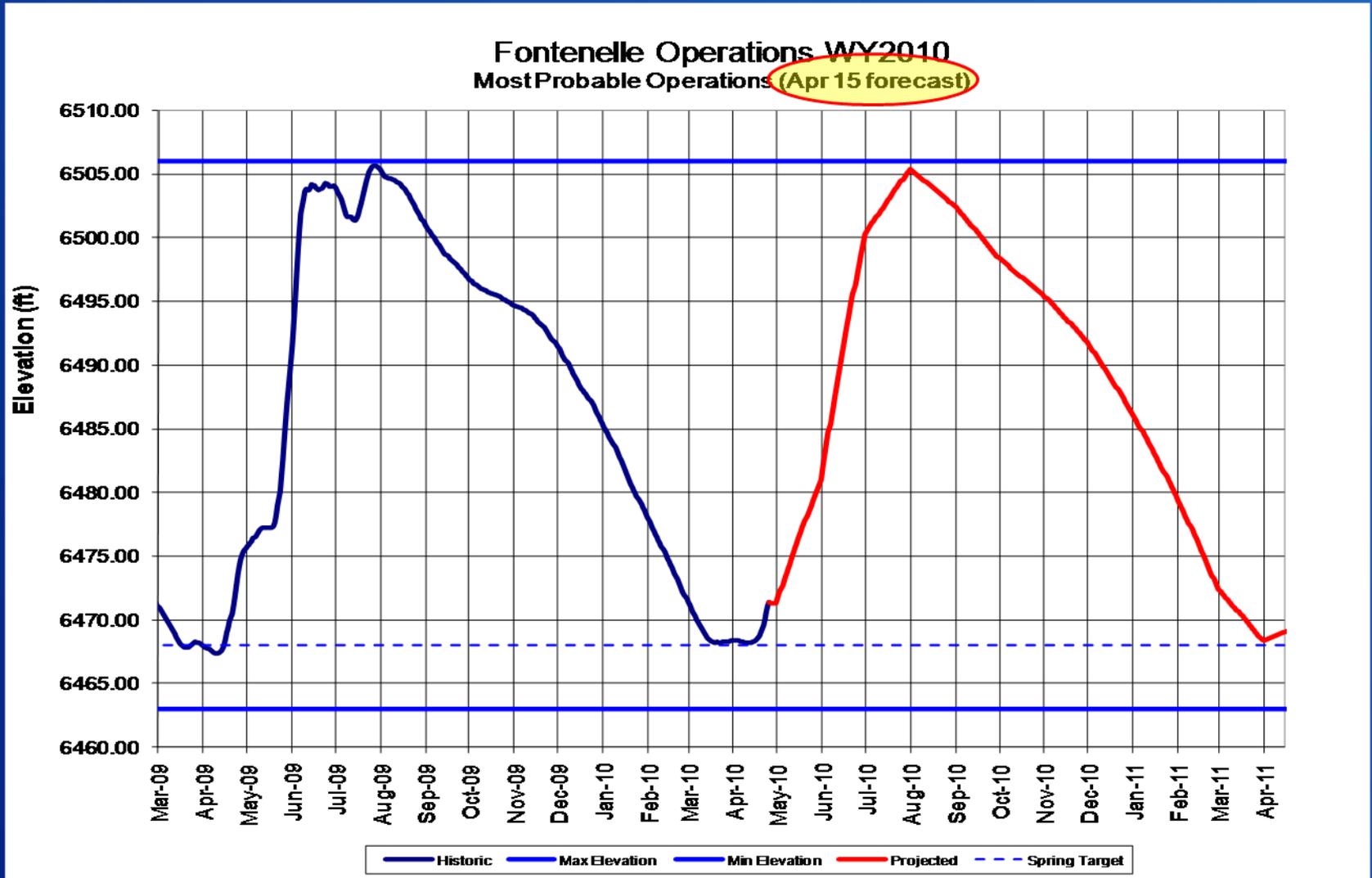


# Projected Reservoir Elevation

Fontenelle Operations WY2010  
Most Probable Operations (April 1 forecast)

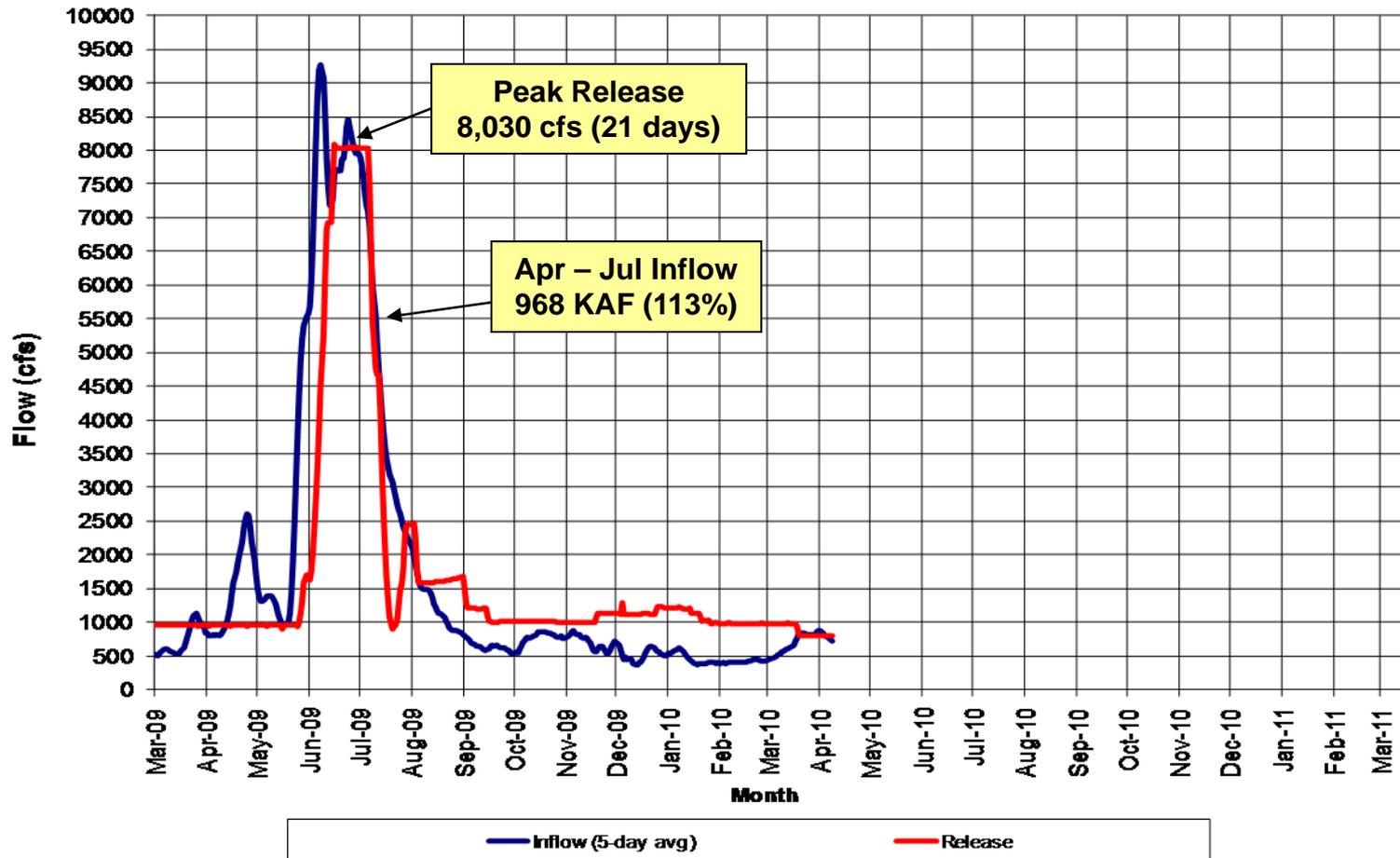


# Projected Reservoir Elevation



# Observed Inflow and Release

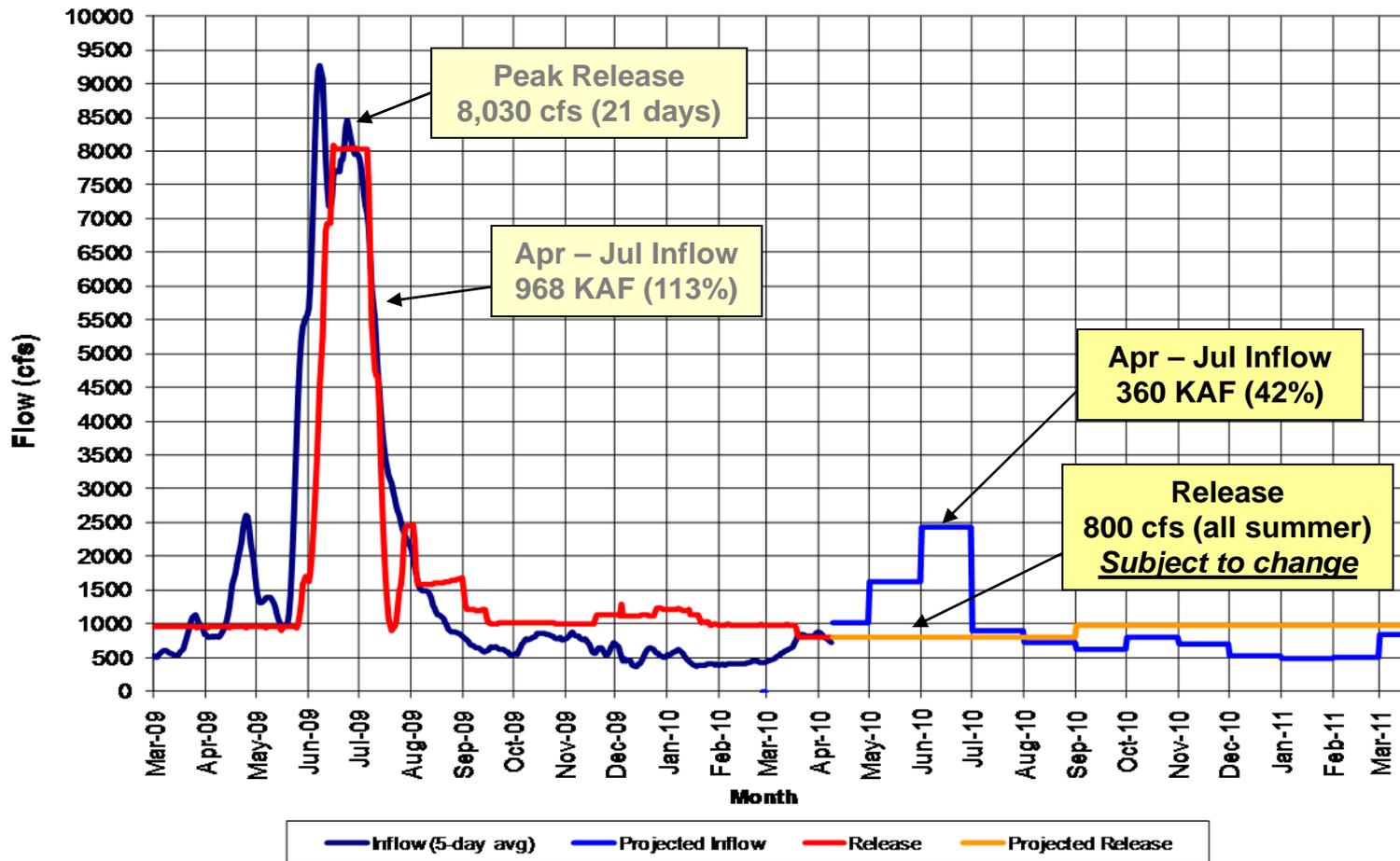
Fontenelle Operations WY2010  
Most Probable Operations (April 1 forecast)



# Projected Inflow and Release

## Based on April 1<sup>st</sup> Forecast

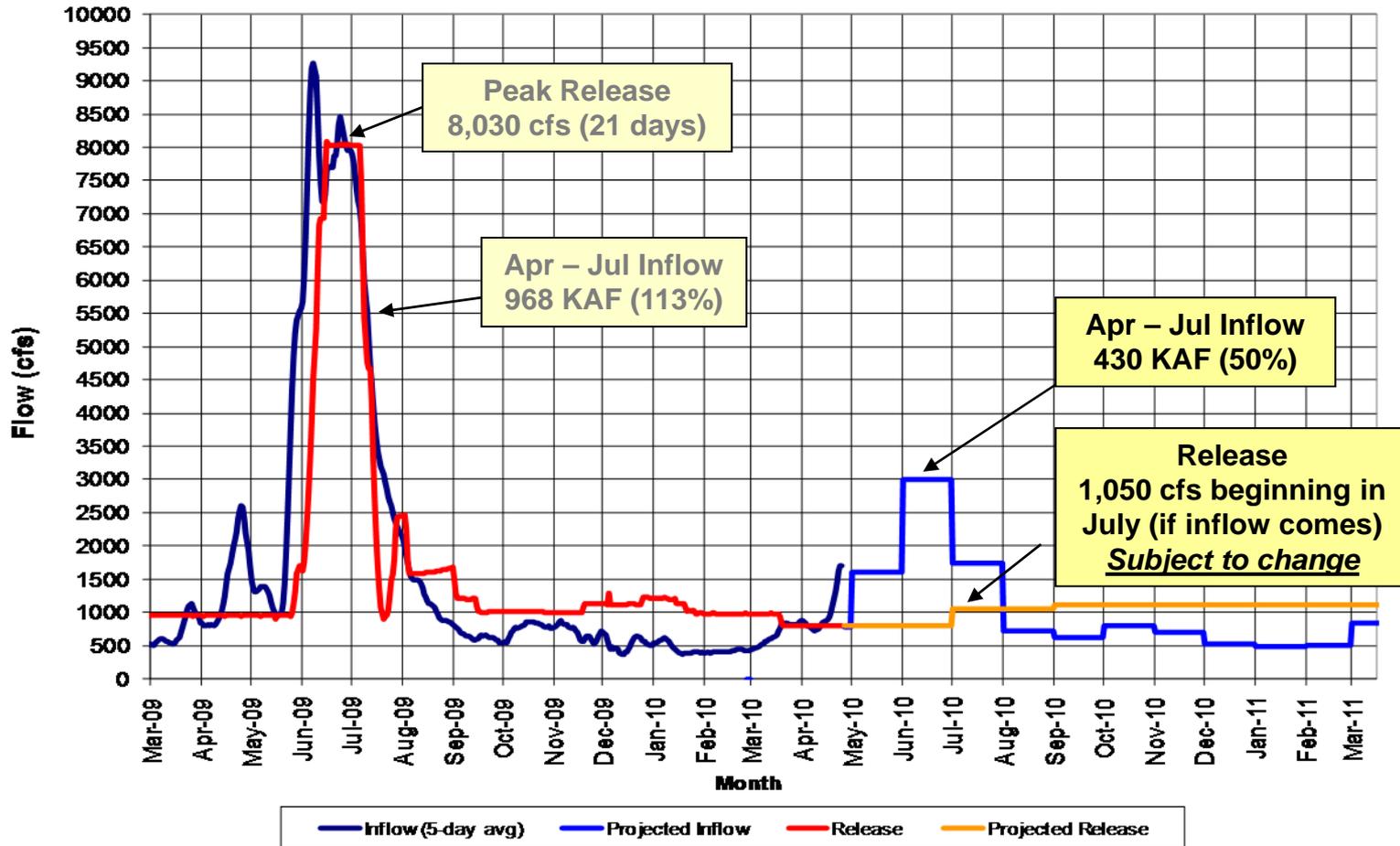
Fontenelle Operations WY2010  
Most Probable Operations (April 1 forecast)



# Projected Inflow and Release

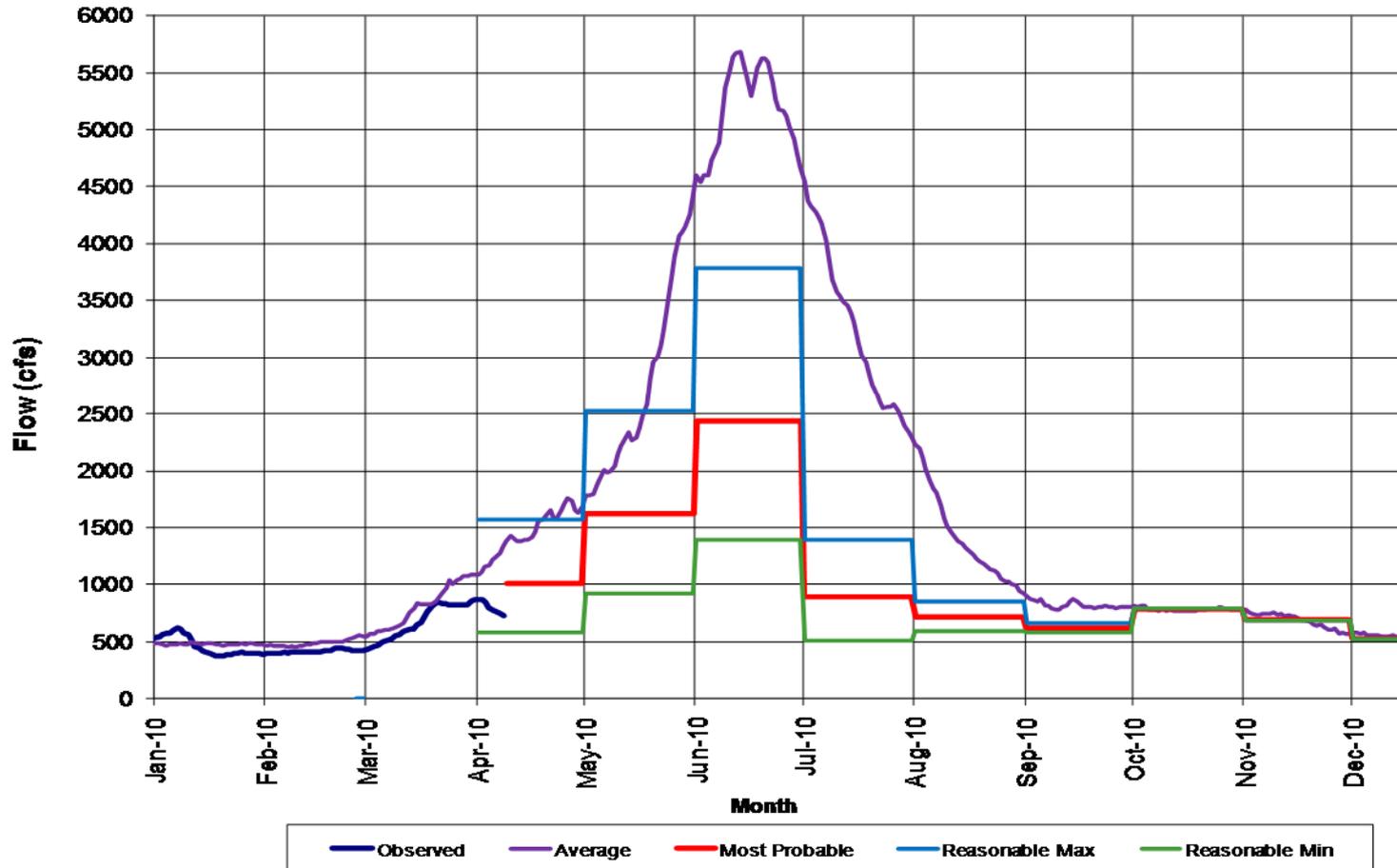
## Based on April 15<sup>th</sup> Forecast

Fontenelle Operations 2010  
 Most Probable Operations (April 15 forecast)

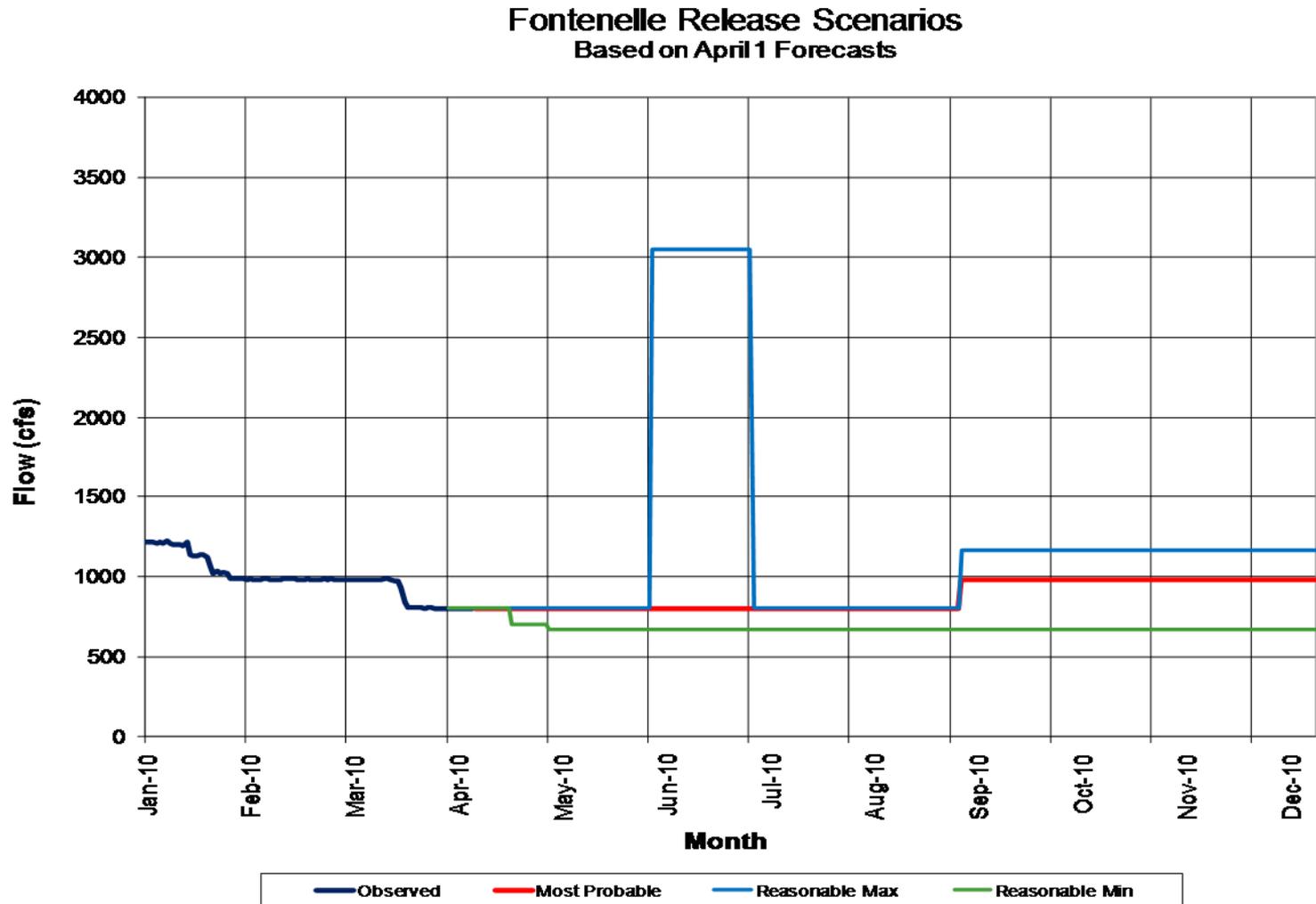


# Inflow Scenarios

Fontenelle Inflow Scenarios  
Based on April 1 Forecasts

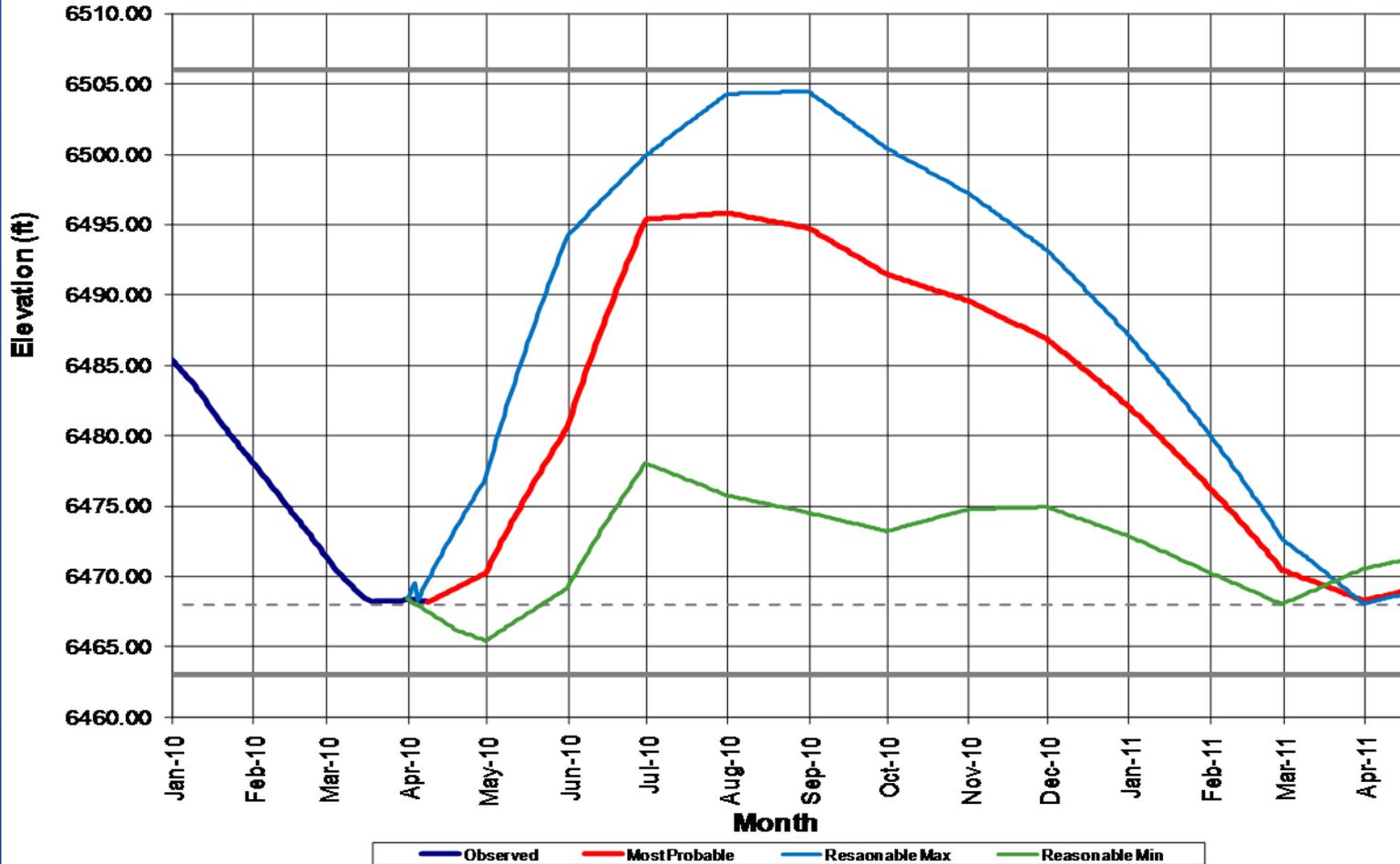


# Release Scenarios



# Elevation Scenarios

Fontenelle Elevation Scenarios  
Based on April 1 Inflow Forecasts



# Fontenelle Working Group Meeting April 2010



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**Additional Slides Follow**

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# Historic Inflow Statistics

## Period of Record 1971-2000

### ANNUALIZED MONTHLY INFLOW VOLUME(THOUSAND-ACRE-FEET)

Month	95%	90%	80%	70%	60%	50%	40%	30%	20%	10%	5%	Average
OCT	36	<b>37</b>	39	41	44	47	51	55	61	<b>70</b>	79	<b>51</b>
NOV	33	<b>36</b>	39	41	43	44	45	47	48	<b>50</b>	52	<b>43</b>
DEC	29	<b>30</b>	31	32	33	33	34	35	36	<b>37</b>	38	<b>33</b>
JAN	26	<b>27</b>	29	30	31	32	32	33	34	<b>35</b>	36	<b>31</b>
FEB	24	<b>26</b>	27	28	29	30	30	31	32	<b>32</b>	33	<b>29</b>
MAR	42	<b>43</b>	45	47	49	51	53	55	58	<b>63</b>	67	<b>52</b>
APR	59	<b>64</b>	72	79	85	92	98	106	115	<b>129</b>	141	<b>93</b>
MAY	69	<b>105</b>	143	169	189	207	223	239	257	<b>280</b>	296	<b>196</b>
JUN	98	<b>148</b>	213	261	304	346	388	435	492	<b>573</b>	642	<b>356</b>
JUL	38	<b>75</b>	119	152	181	208	235	265	301	<b>351</b>	393	<b>213</b>
AUG	35	<b>48</b>	63	74	84	92	100	108	118	<b>130</b>	139	<b>92</b>
SEP	29	<b>34</b>	41	46	50	54	58	61	65	<b>70</b>	75	<b>53</b>
<b>WY</b>	<b>518</b>	<b>673</b>	<b>863</b>	<b>1,002</b>	<b>1,121</b>	<b>1,234</b>	<b>1,348</b>	<b>1,471</b>	<b>1,616</b>	<b>1,820</b>	<b>1,991</b>	<b>1,242</b>
<b>APR-JUL</b>	<b>265</b>	<b>392</b>	<b>547</b>	<b>661</b>	<b>759</b>	<b>852</b>	<b>945</b>	<b>1,046</b>	<b>1,165</b>	<b>1,332</b>	<b>1,472</b>	<b>858</b>

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# Historic Inflow Statistics

## Period of Record 1976-2005

### ANNUALIZED MONTHLY INFLOW VOLUME(THOUSAND-ACRE-FEET)

Month	95%	90%	80%	70%	60%	50%	40%	30%	20%	10%	5%	Average
OCT	31	<b>32</b>	35	37	40	44	48	53	59	<b>70</b>	80	<b>49</b>
NOV	30	<b>32</b>	36	38	40	42	43	45	47	<b>50</b>	52	<b>41</b>
DEC	28	<b>29</b>	30	31	31	32	33	34	35	<b>37</b>	39	<b>32</b>
JAN	25	<b>26</b>	27	28	29	30	31	32	33	<b>34</b>	36	<b>30</b>
FEB	23	<b>24</b>	26	27	27	28	29	29	30	<b>31</b>	32	<b>27</b>
MAR	41	<b>43</b>	45	47	49	51	53	55	58	<b>62</b>	66	<b>51</b>
APR	52	<b>57</b>	65	73	79	86	94	102	113	<b>129</b>	143	<b>89</b>
MAY	37	<b>72</b>	112	139	162	182	201	221	244	<b>275</b>	299	<b>176</b>
JUN	81	<b>118</b>	170	212	250	289	330	377	434	<b>521</b>	597	<b>308</b>
JUL	19	<b>51</b>	91	122	150	177	205	236	273	<b>328</b>	375	<b>186</b>
AUG	20	<b>33</b>	49	61	71	81	90	101	113	<b>129</b>	142	<b>83</b>
SEP	24	<b>29</b>	35	40	44	48	52	56	61	<b>69</b>	75	<b>49</b>
<b>WY</b>	<b>409</b>	<b>546</b>	<b>721</b>	<b>855</b>	<b>974</b>	<b>1,089</b>	<b>1,208</b>	<b>1,340</b>	<b>1,501</b>	<b>1,734</b>	<b>1,936</b>	<b>1,120</b>
<b>APR-JUL</b>	<b>188</b>	<b>298</b>	<b>439</b>	<b>546</b>	<b>641</b>	<b>734</b>	<b>830</b>	<b>936</b>	<b>1,065</b>	<b>1,252</b>	<b>1,414</b>	<b>759</b>

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