

# RECLAMATION

*Managing Water in the West*

**Fontenelle Working Group Meeting**

**August 19, 2008**



Katrina Grantz, PhD  
Upper Colorado Region  
Hydraulic Engineer



U.S. Department of the Interior  
Bureau of Reclamation

# Fontenelle Reservoir Current Status

As of 8/18/08

## Storage

|                     |                                 |
|---------------------|---------------------------------|
| Live Capacity       | 345,000 AF                      |
| Capacity on 8/18/08 | <u>302,600 AF</u><br>(88% full) |

## Pool Elevation

|                       |                   |
|-----------------------|-------------------|
| Reservoir Elev. (Max) | 6506.00 ft        |
| Elevation on 8/18/08  | <u>6500.48 ft</u> |
| Elevation below (Max) | 5.52 ft           |

## Inflow and Release

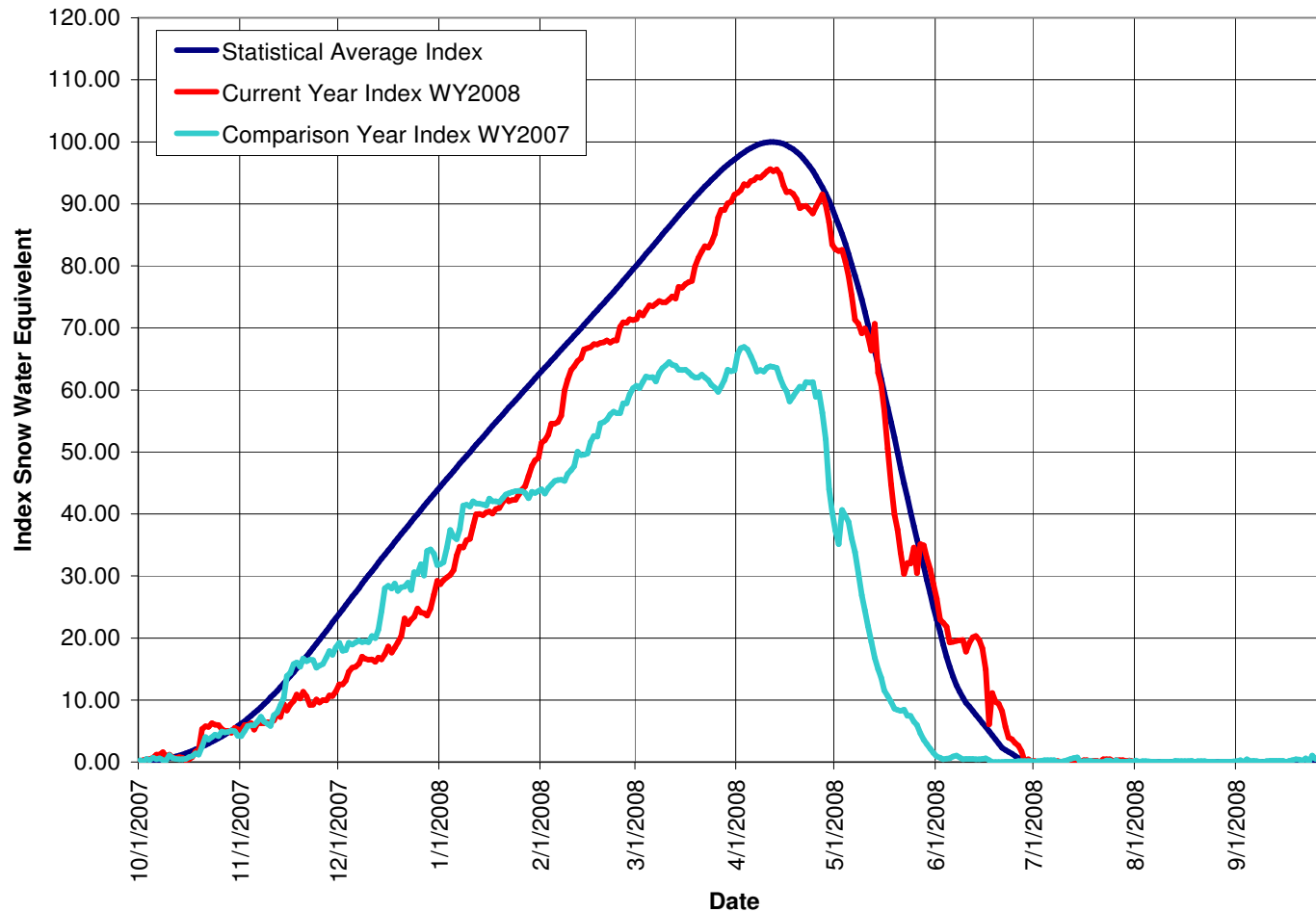
|   |          |
|---|----------|
| 5 Day Average Inflow                                      | 820 cfs  |
| Current Release on 8/18/08                                | 1600 cfs |
| <i>Ramping down 100 cfs/day to reach 1200 cfs 8/22/08</i> |          |

RECLAMATION

# Observed Snowpack

## Water Year 2008

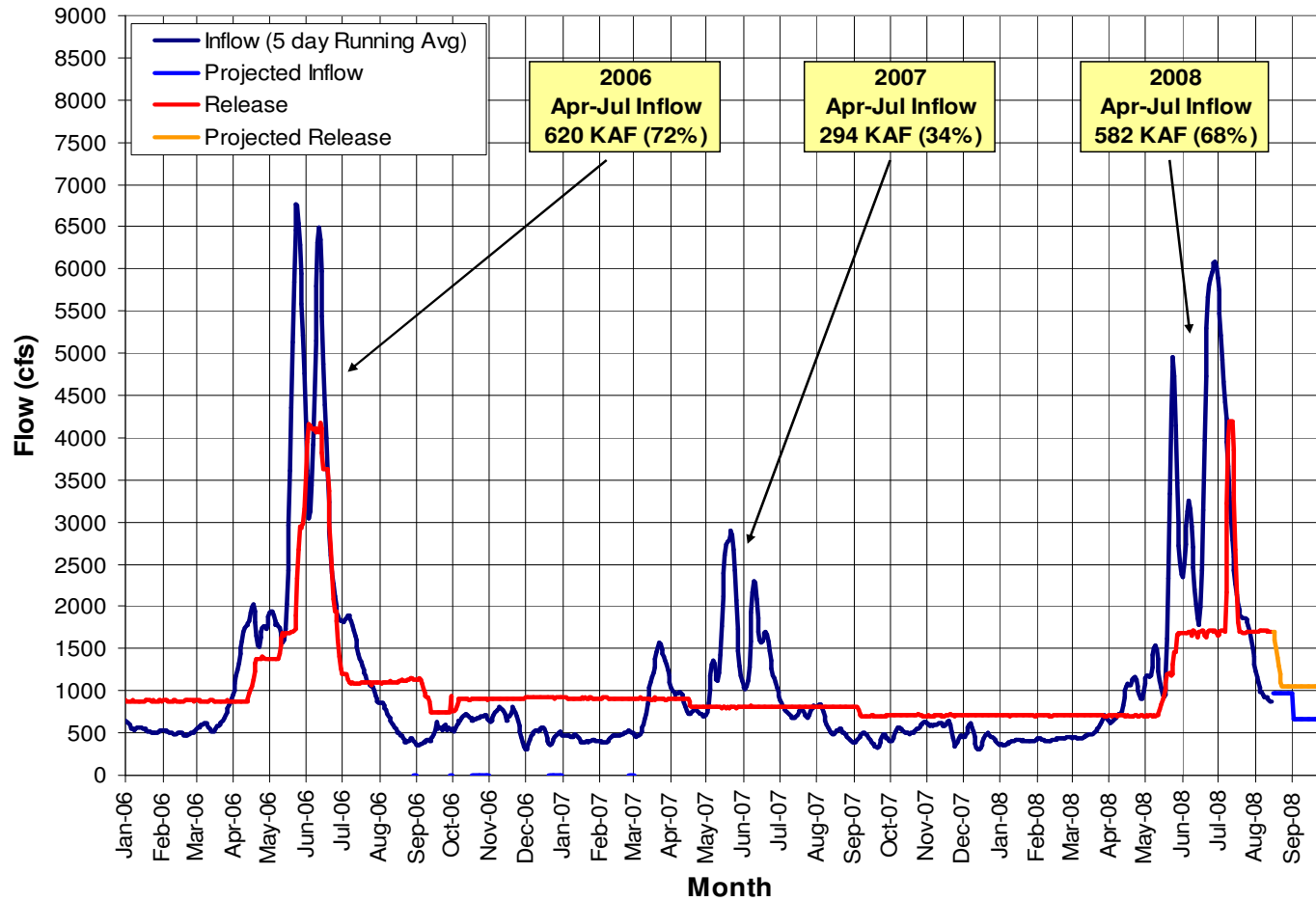
**Upper Green River Basin Snotel Tracking**  
Aggregate of 13 Snotel Sites above Fontenelle Reservoir



RECLAMATION

# Observed Inflow and Release

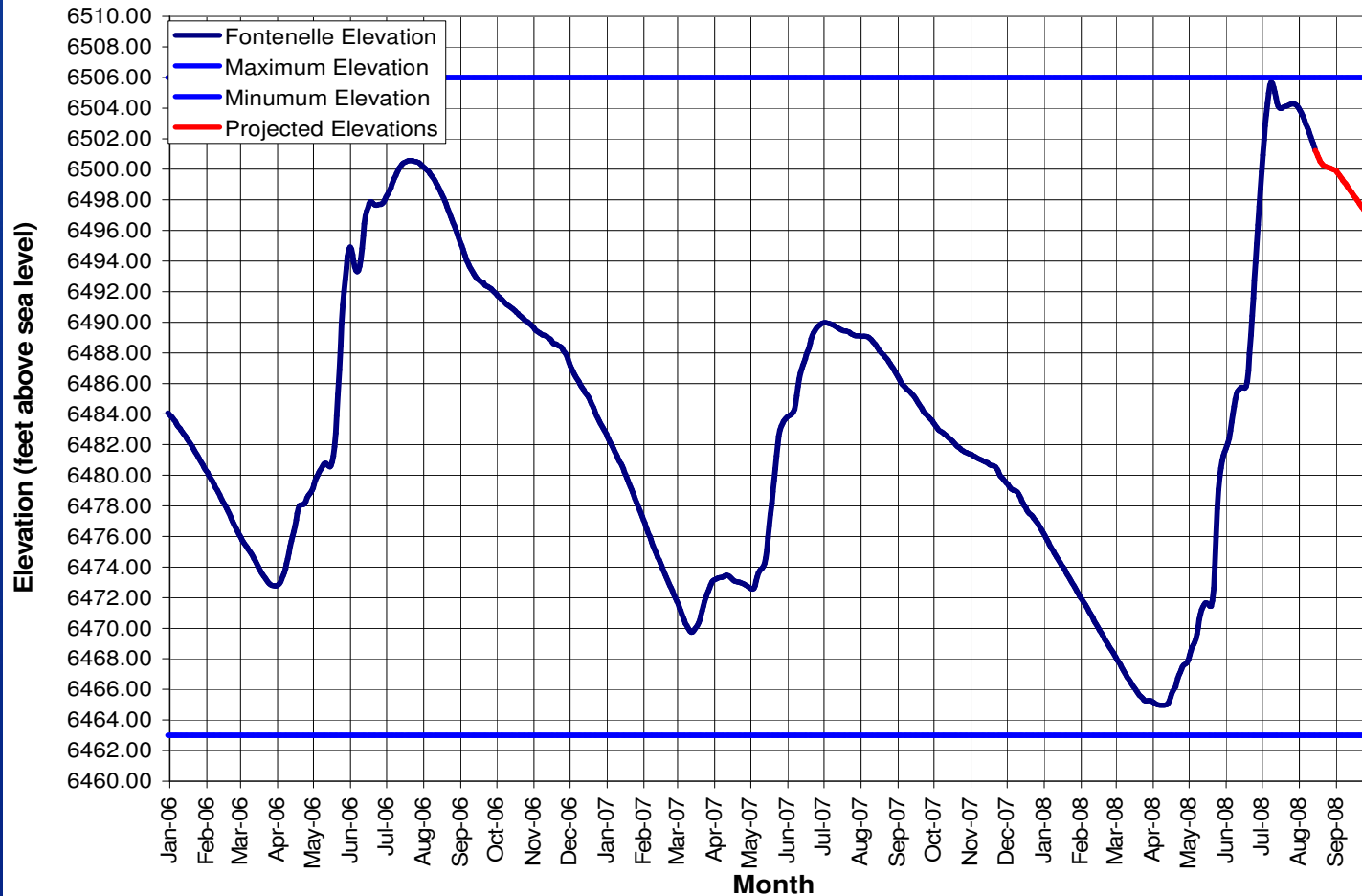
Fontenelle Operations  
Observed WY 2006, 2007, 2008





# Observed Reservoir Elevation

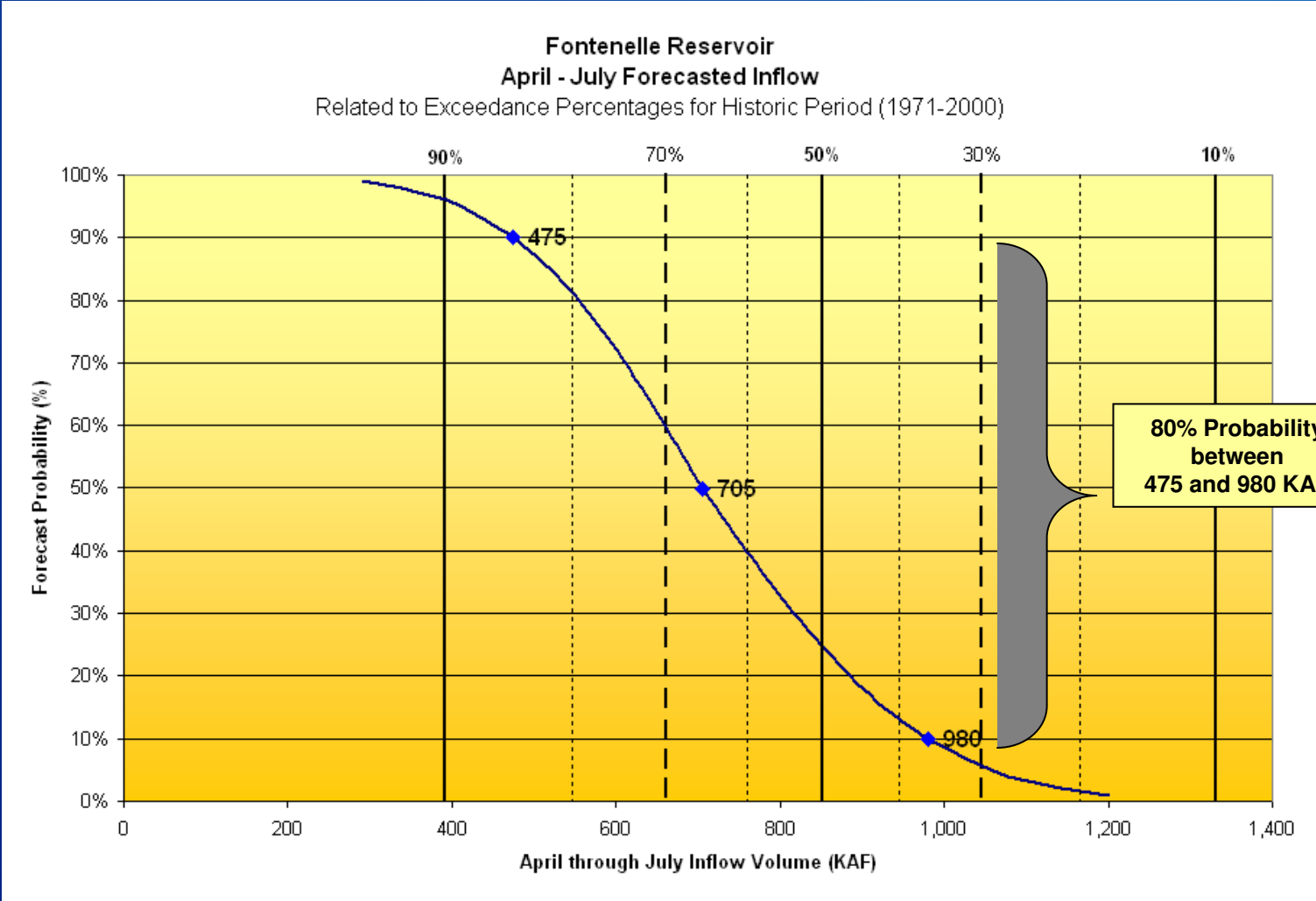
**Fontenelle Operations**  
Observed WY 2006, 2007, 2008



RECLAMATION

# April 1<sup>st</sup> Official Forecast

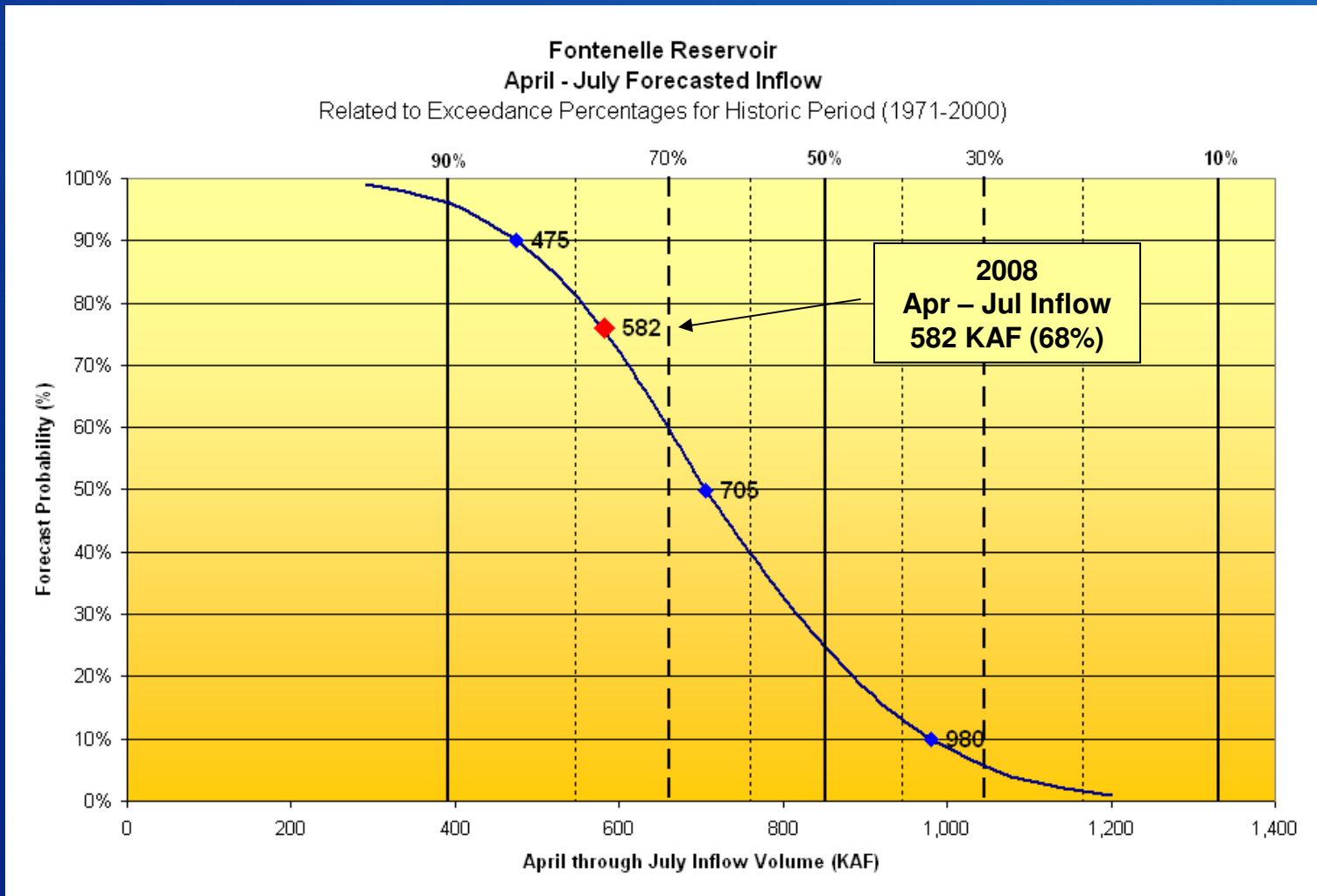
Presented at April Working Group Meeting



RECLAMATION

# Observed Inflow

## April – July Runoff Season



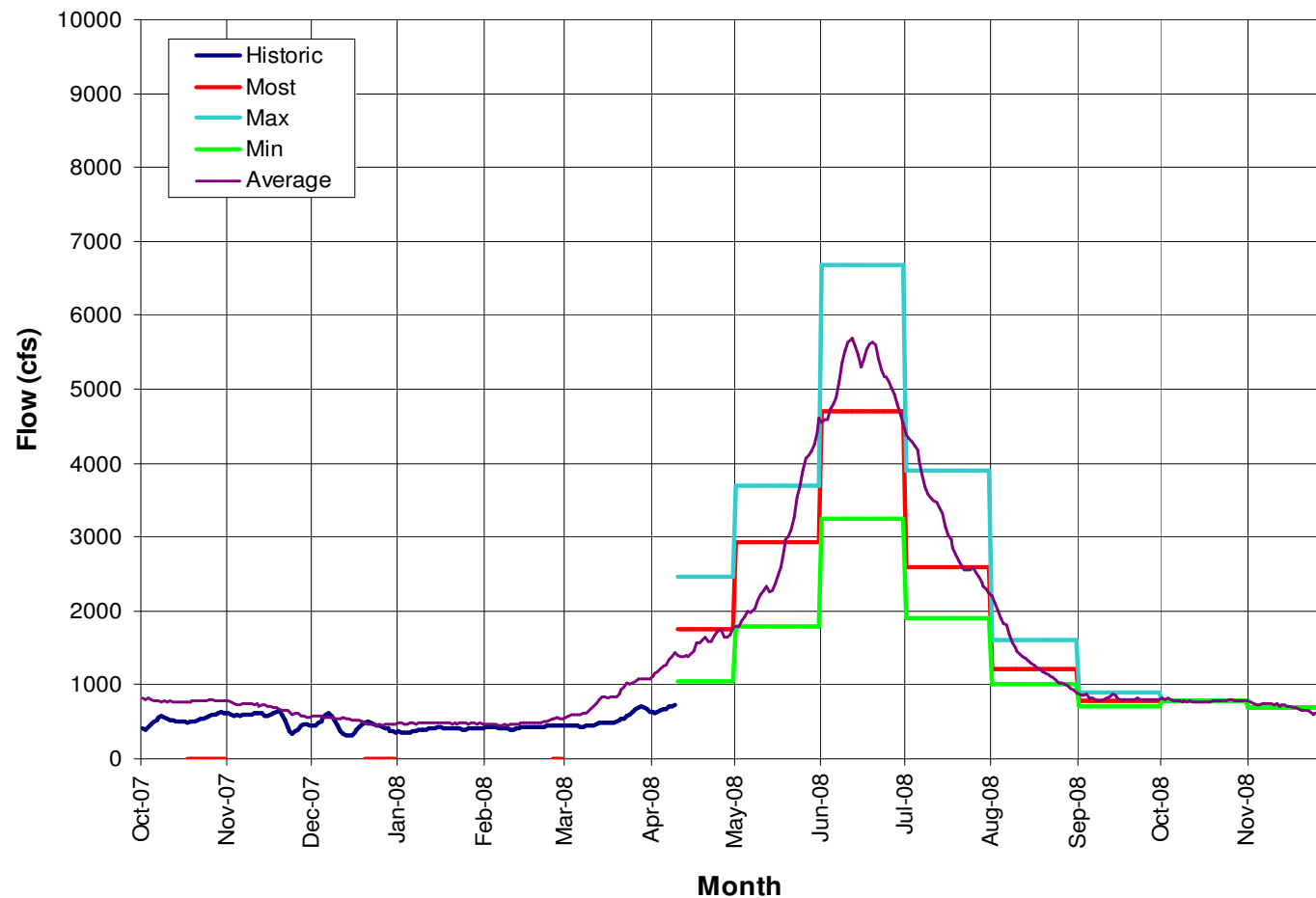
RECLAMATION

# Projected Inflow Scenarios

Presented at April Working Group Meeting

## Fontenelle Reservoir 2008 April-July Inflow Scenarios

as of 4/11/2008



RECLAMATION

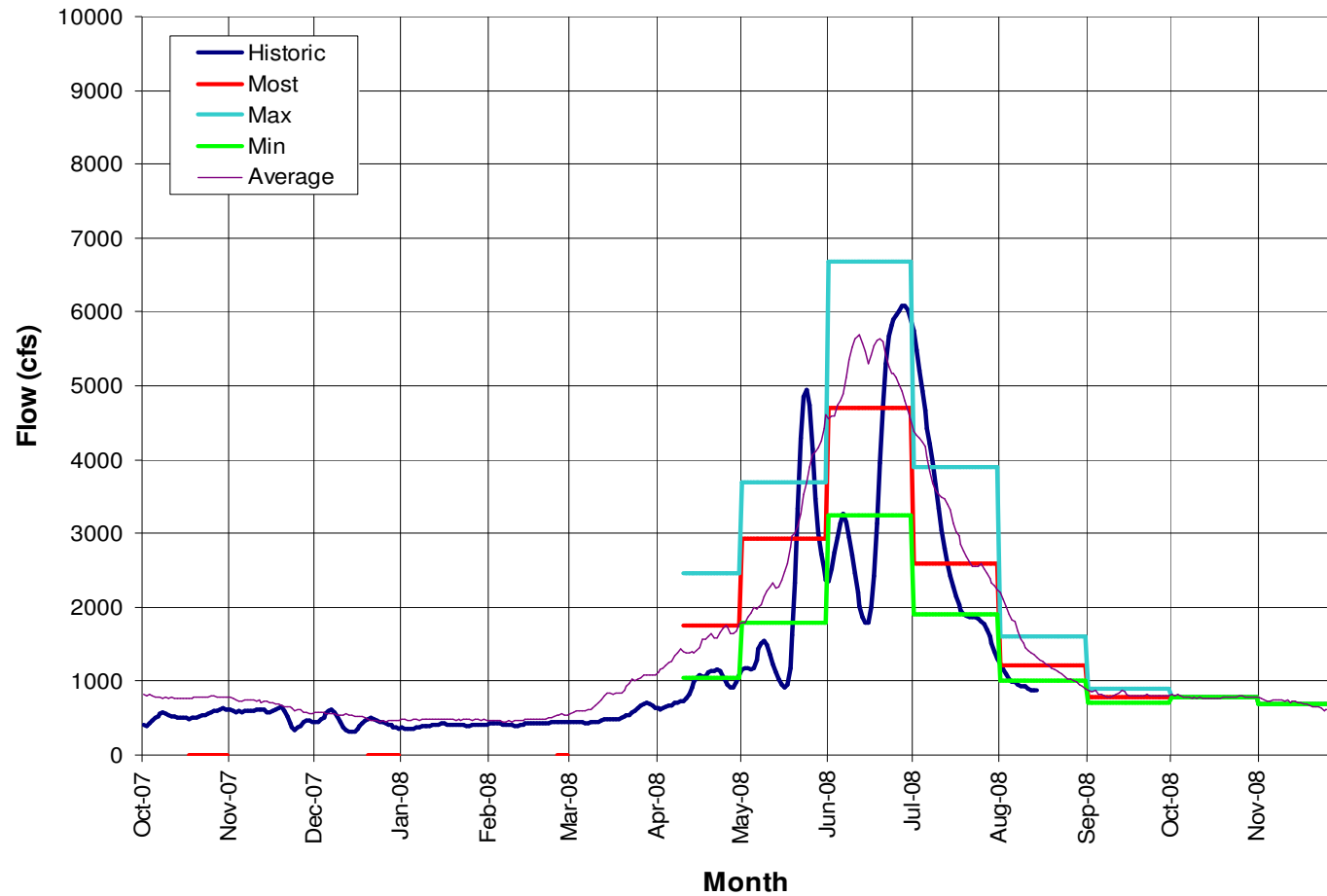


# Observed Inflow

As of Aug 15, 2008

## Fontenelle Reservoir 2008 April-July Inflow Scenarios

as of 8/15/2008



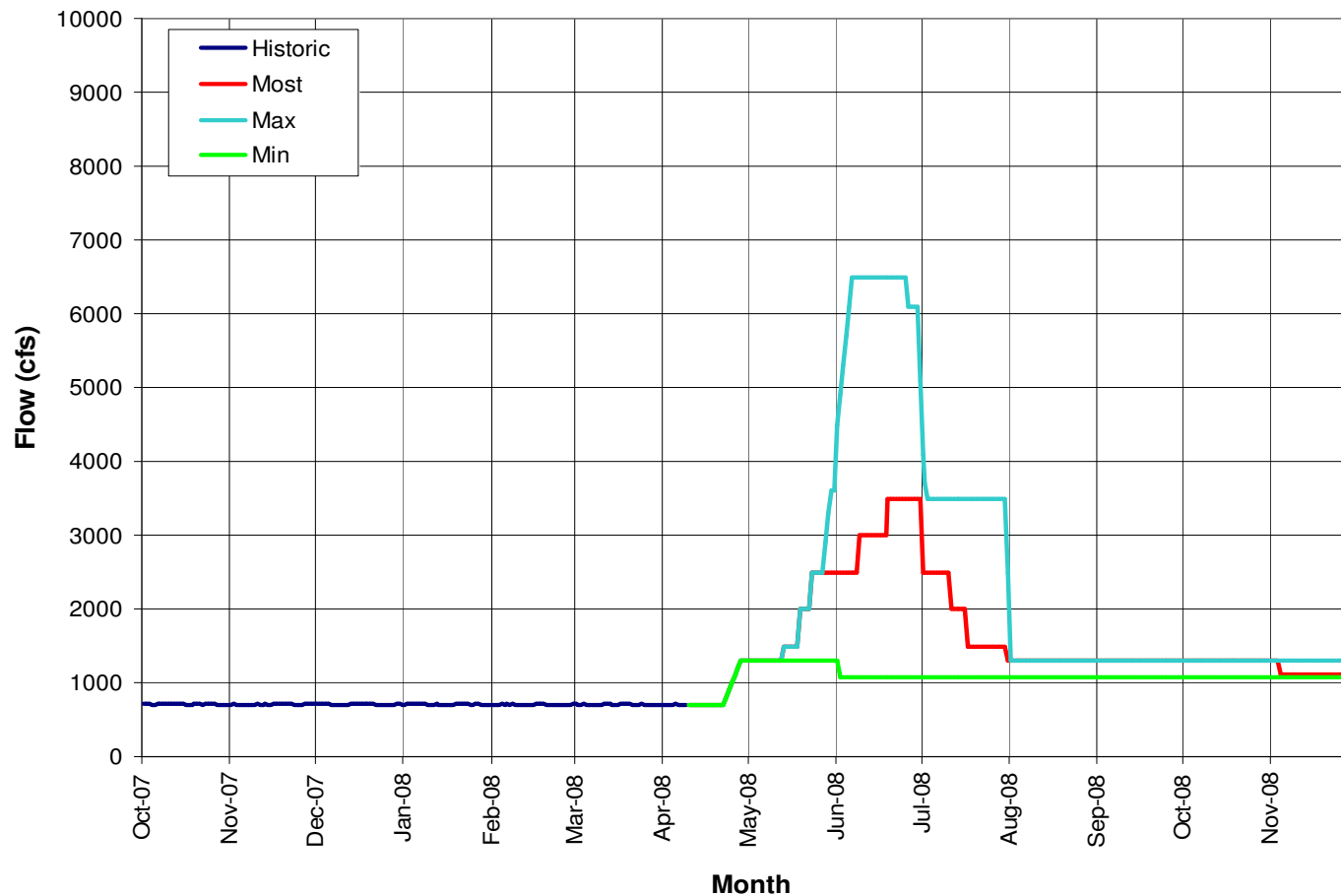
RECLAMATION

# Projected Release Scenarios

Presented at April Working Group Meeting

## Fontenelle Reservoir 2008 April-July Release Scenarios

as of 4/11/2008



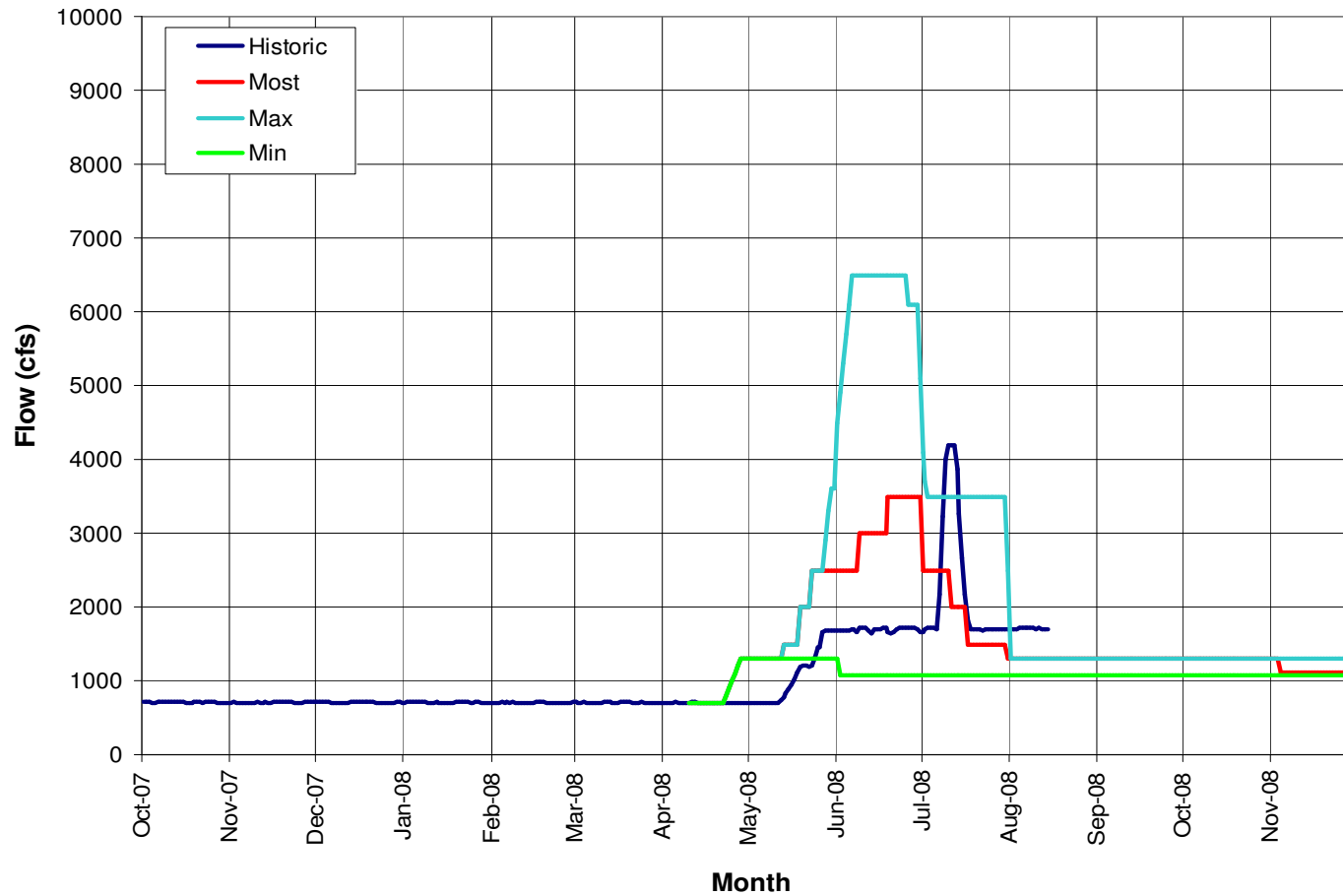
RECLAMATION

# Observed Release

As of Aug 15, 2008

## Fontenelle Reservoir 2008 April-July Release Scenarios

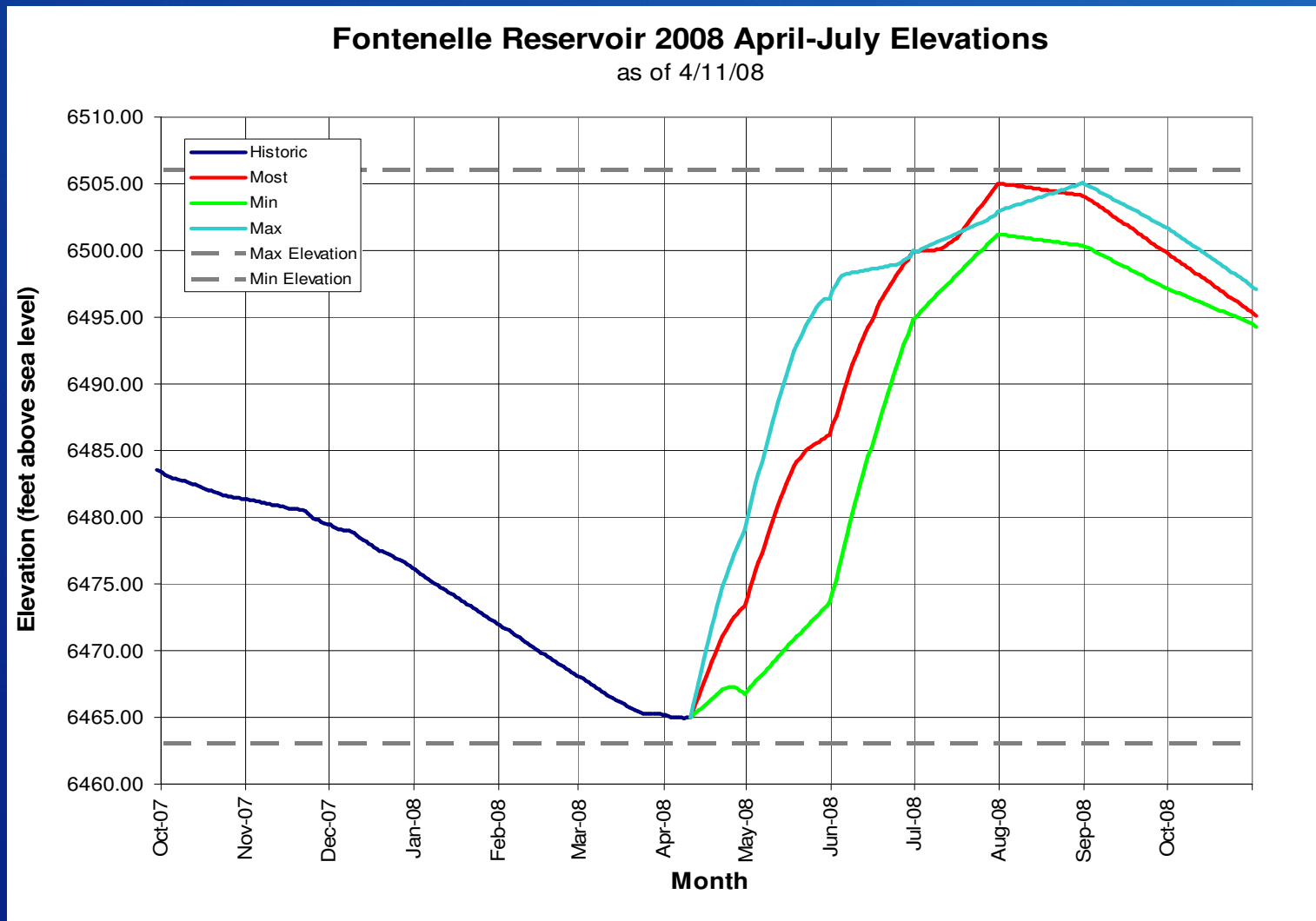
as of 8/15/2008



RECLAMATION

# Projected Elevation Scenarios

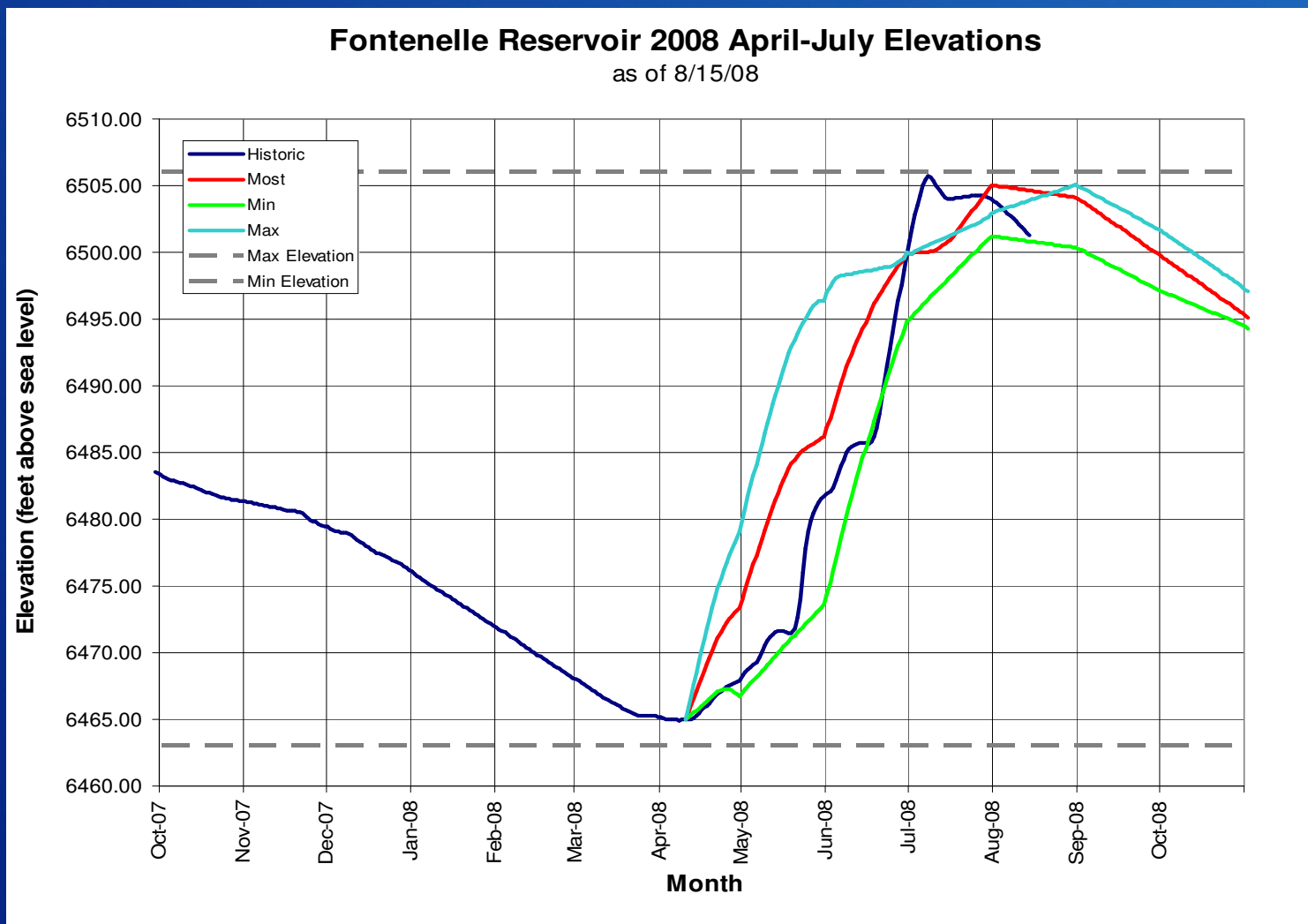
Presented at April Working Group Meeting



RECLAMATION

# Observed Elevation

As of Aug 15, 2008



RECLAMATION



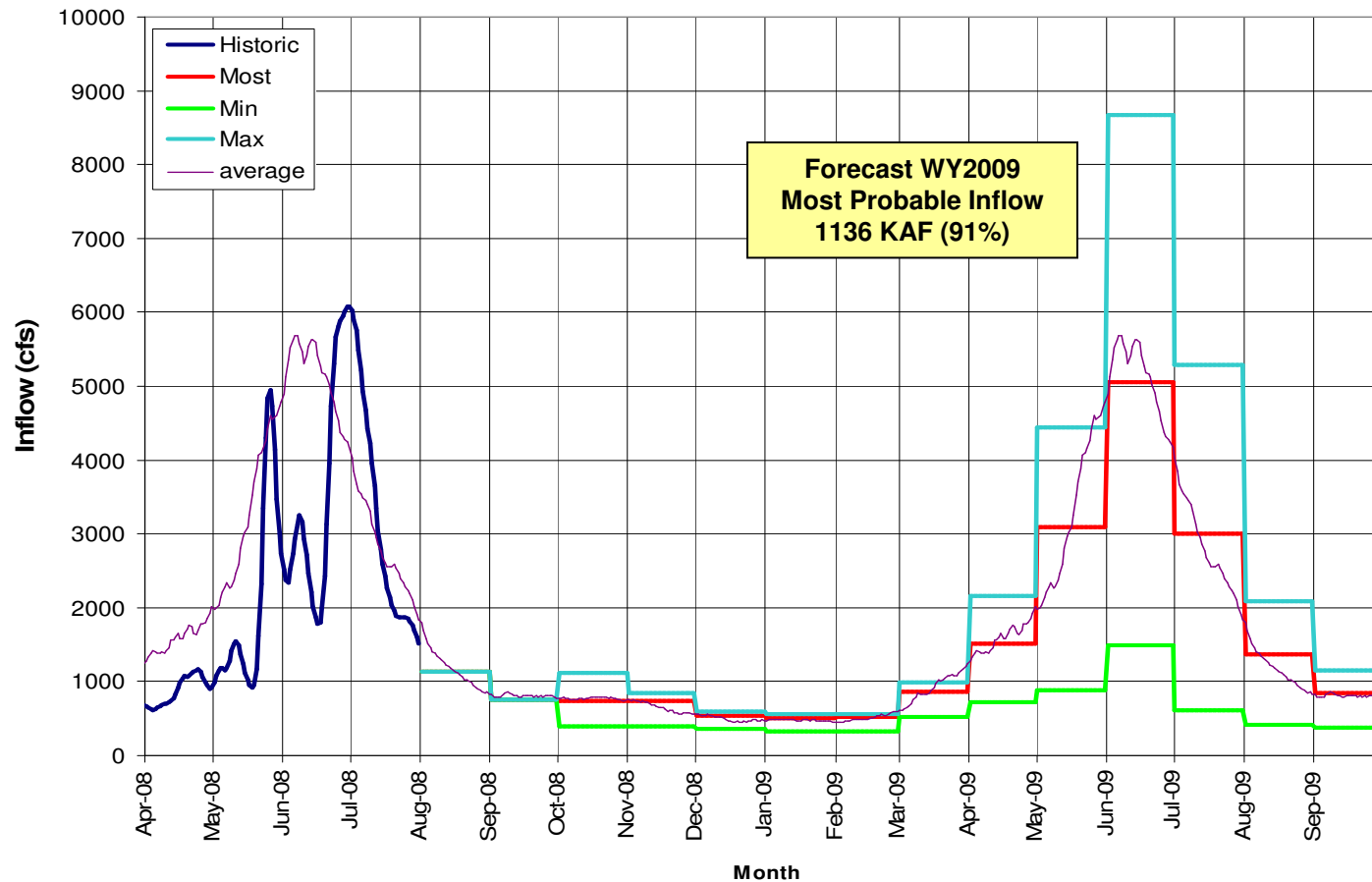
# Water Year 2009 Proposed Operations

RECLAMATION

# Inflow Scenarios

## Water Year 2009

Fontenelle Reservoir 2009 Water Year Inflow Scenarios

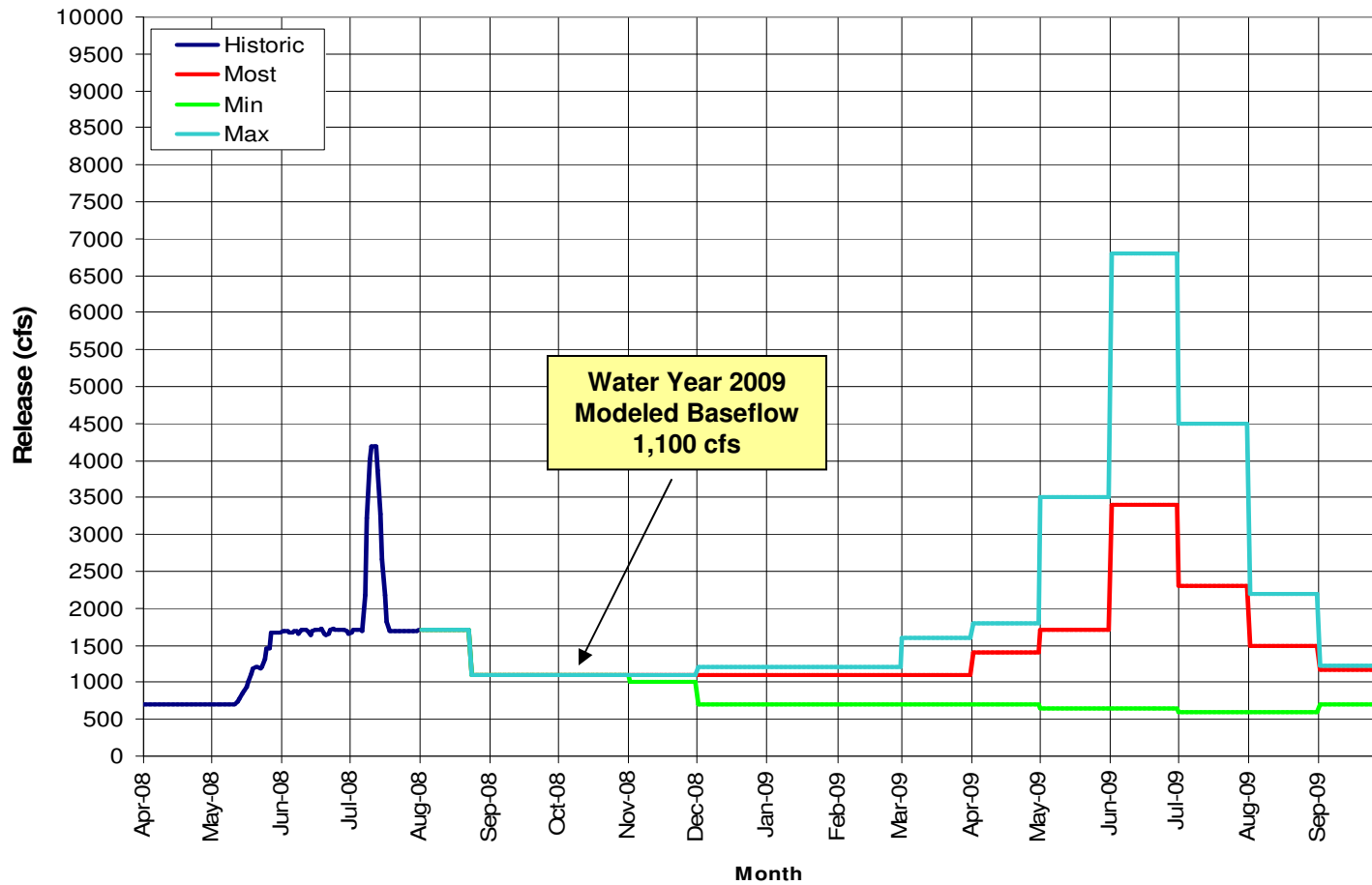


RECLAMATION

# Release Scenarios

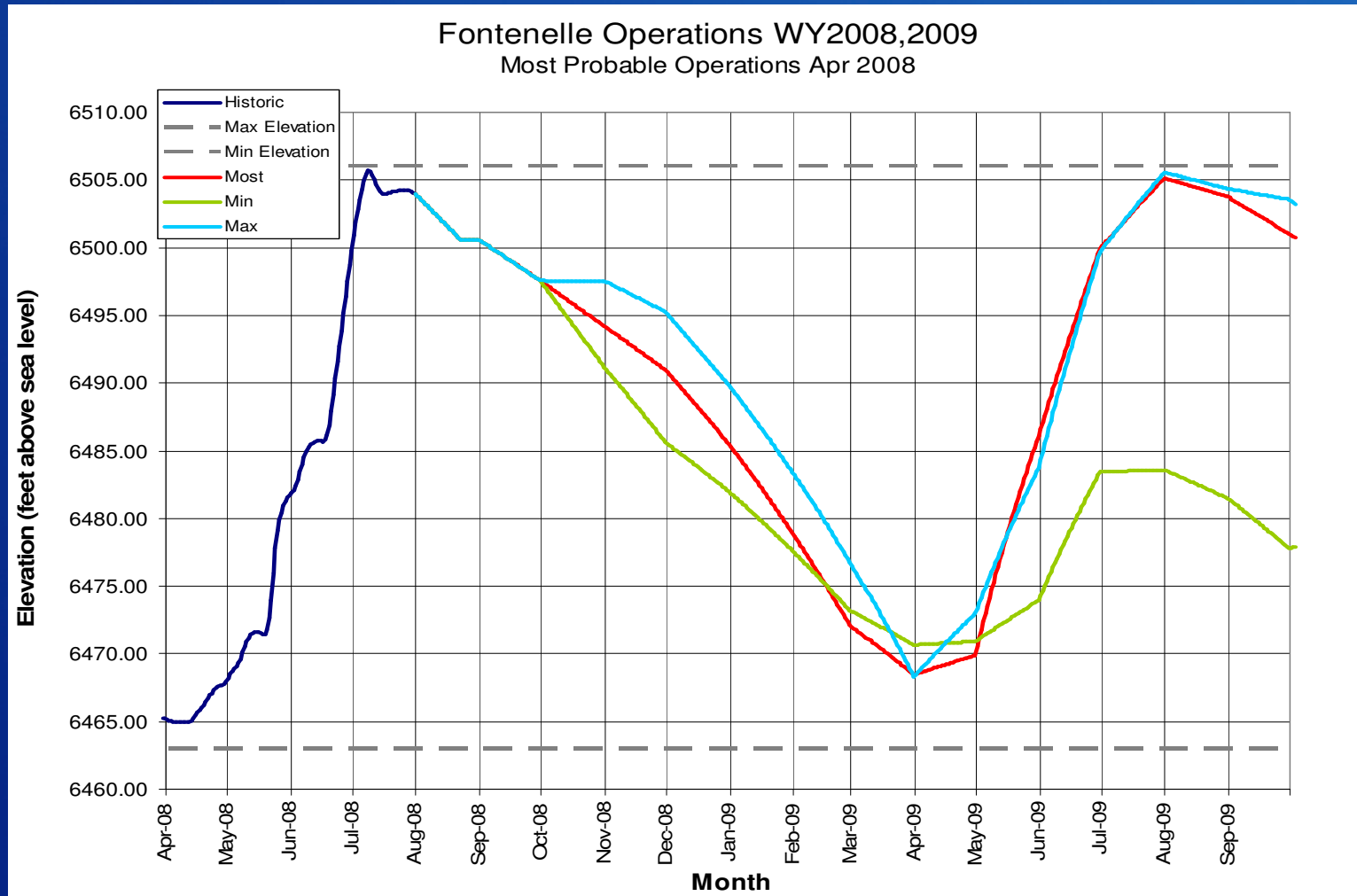
## Water Year 2009

Fontenelle Reservoir 2009 Water Year Release Scenarios



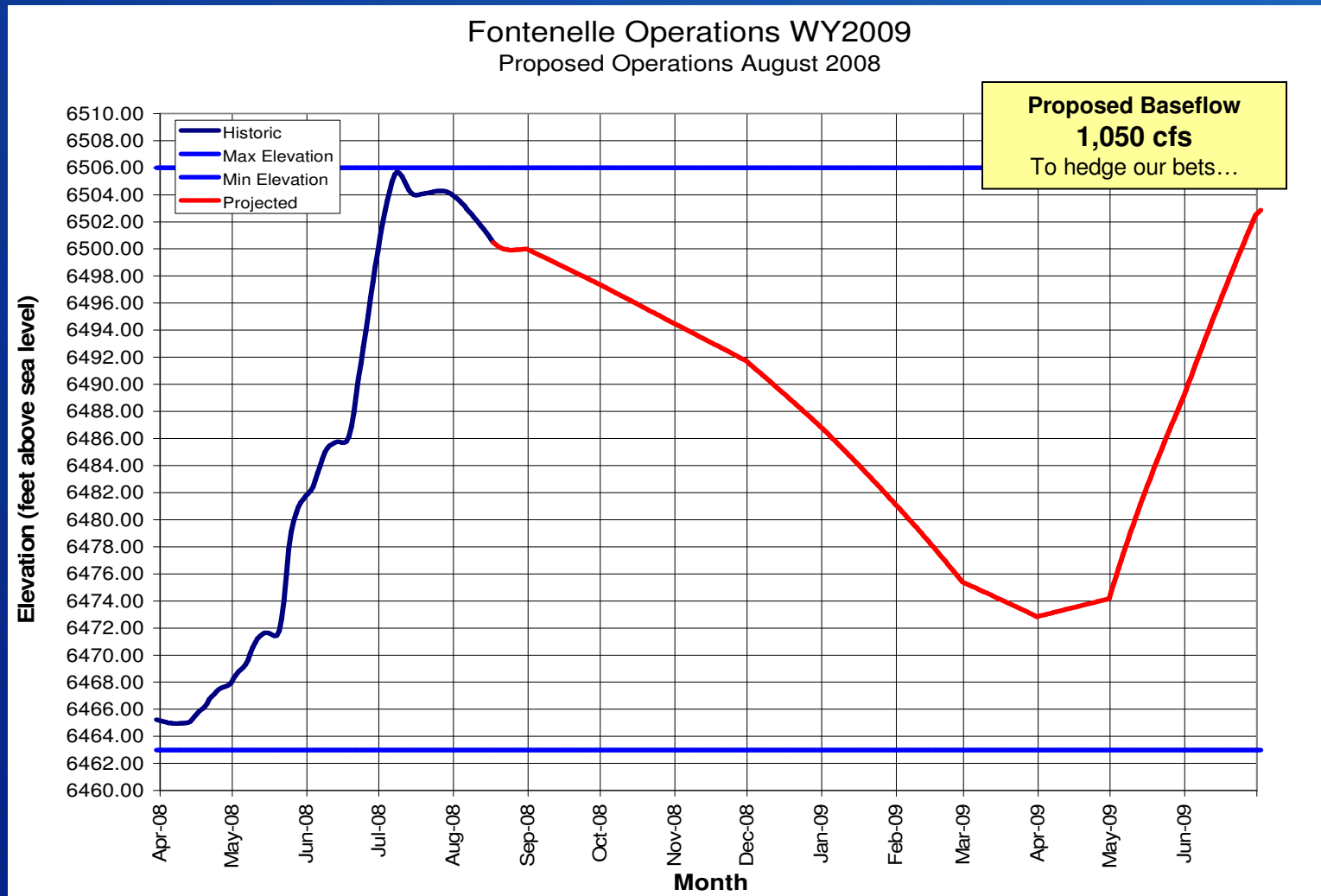
# Elevation Scenarios

## Water Year 2009



RECLAMATION

# Proposed Baseflow Water Year 2009



RECLAMATION



# Fontenelle Working Group Meeting August 2008



Questions?

Comments?

RECLAMATION

Extra Slides Follow

RECLAMATION

# 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>    |
| WY   | 409 | <b>546</b> | 721 | 855 | 974 | 1,089 | 1,208 | 1,340 | 1,501 | <b>1,734</b> | 1,936 | <b>1,120</b> |
| APR-JUL  | 188 | <b>298</b> | 439 | 546 | 641 | 734   | 830   | 936   | 1,065 | <b>1,252</b> | 1,414 | <b>759</b>   |

RECLAMATION

# 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>    |
| WY   | 518 | <b>673</b> | 863 | 1,002 | 1,121 | 1,234 | 1,348 | 1,471 | 1,616 | <b>1,820</b> | 1,991 | <b>1,242</b> |
| APR-JUL  | 265 | <b>392</b> | 547 | 661   | 759   | 852   | 945   | 1,046 | 1,165 | <b>1,332</b> | 1,472 | <b>858</b>   |

RECLAMATION



# Stage – Discharge Tables

provided by the USGS

USGS updates these periodically-- every time a new profile of the river is done

– Green River at Green River, WY

[http://waterdata.usgs.gov/nwisweb/data/exsa\\_rat/09217000.rdb](http://waterdata.usgs.gov/nwisweb/data/exsa_rat/09217000.rdb)

– Green River below Fontenelle Reservoir

[http://waterdata.usgs.gov/nwisweb/data/exsa\\_rat/09211200.rdb](http://waterdata.usgs.gov/nwisweb/data/exsa_rat/09211200.rdb)

RECLAMATION