Flux Results

Current Practices Scenario

C305

26 April 2007

- I’m still working on charting changes vs. historical data
- This is a partial presentation of results

Range of changes in gains predicted by six input data sets **(CFS)**

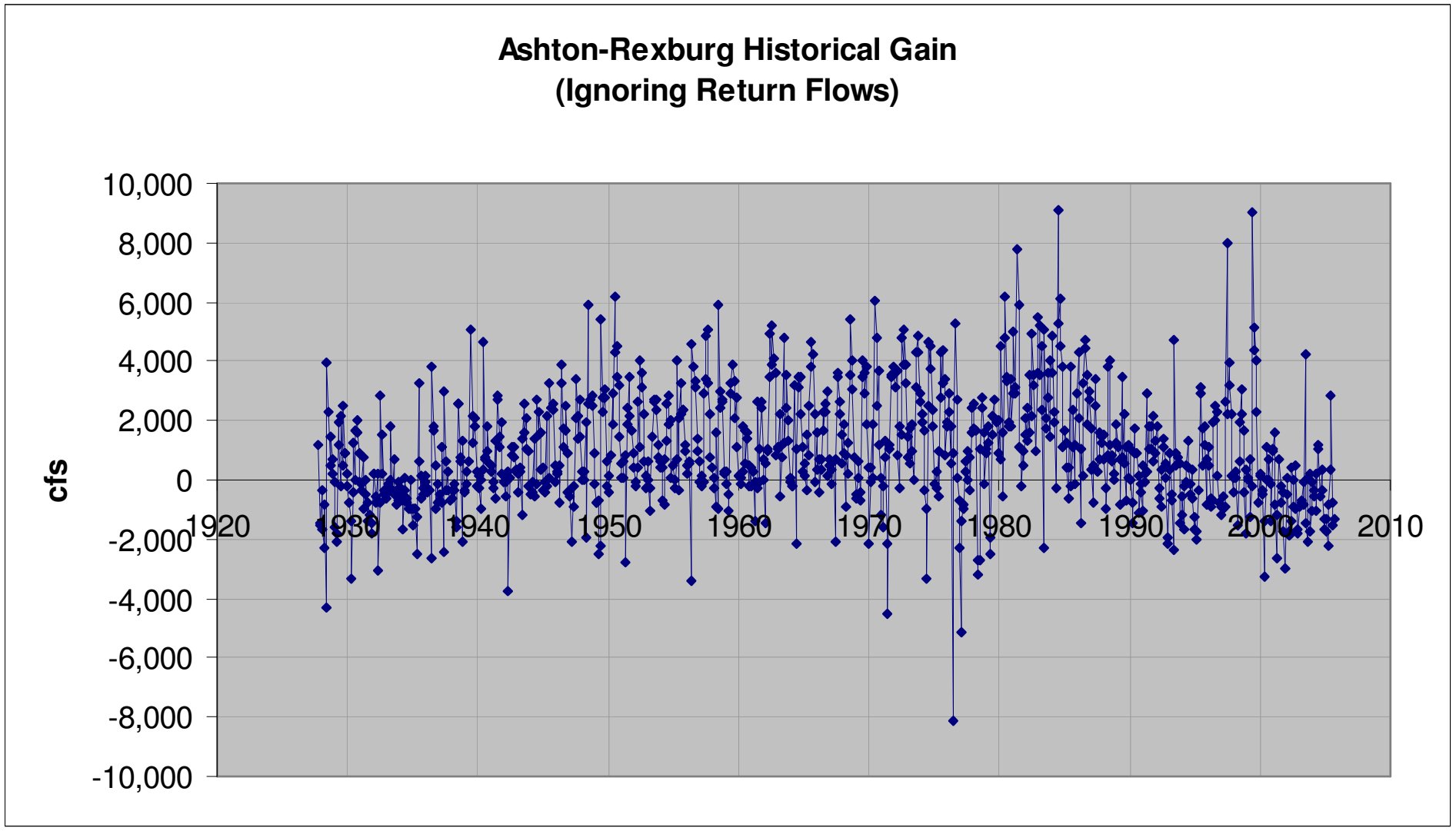
Reach	Median	Max	Min
Ash-Rex	206	273	34
Hei-She	1	23	-52
She-NB	51	60	0
NB-Nee	129	190	-53
Nee-Min	0	16	-25
DWB-Bul	-4	23	-72
Bul-KSP	-8	4	-41
KSP	-9	-1	-37
KSP-Mld	-1	-1	-3
Mld	-12	-7	-32
Mld-Ban	-1	0.5	-6.5

Only one reach has all six data sets showing a positive change over time (from today's condition)

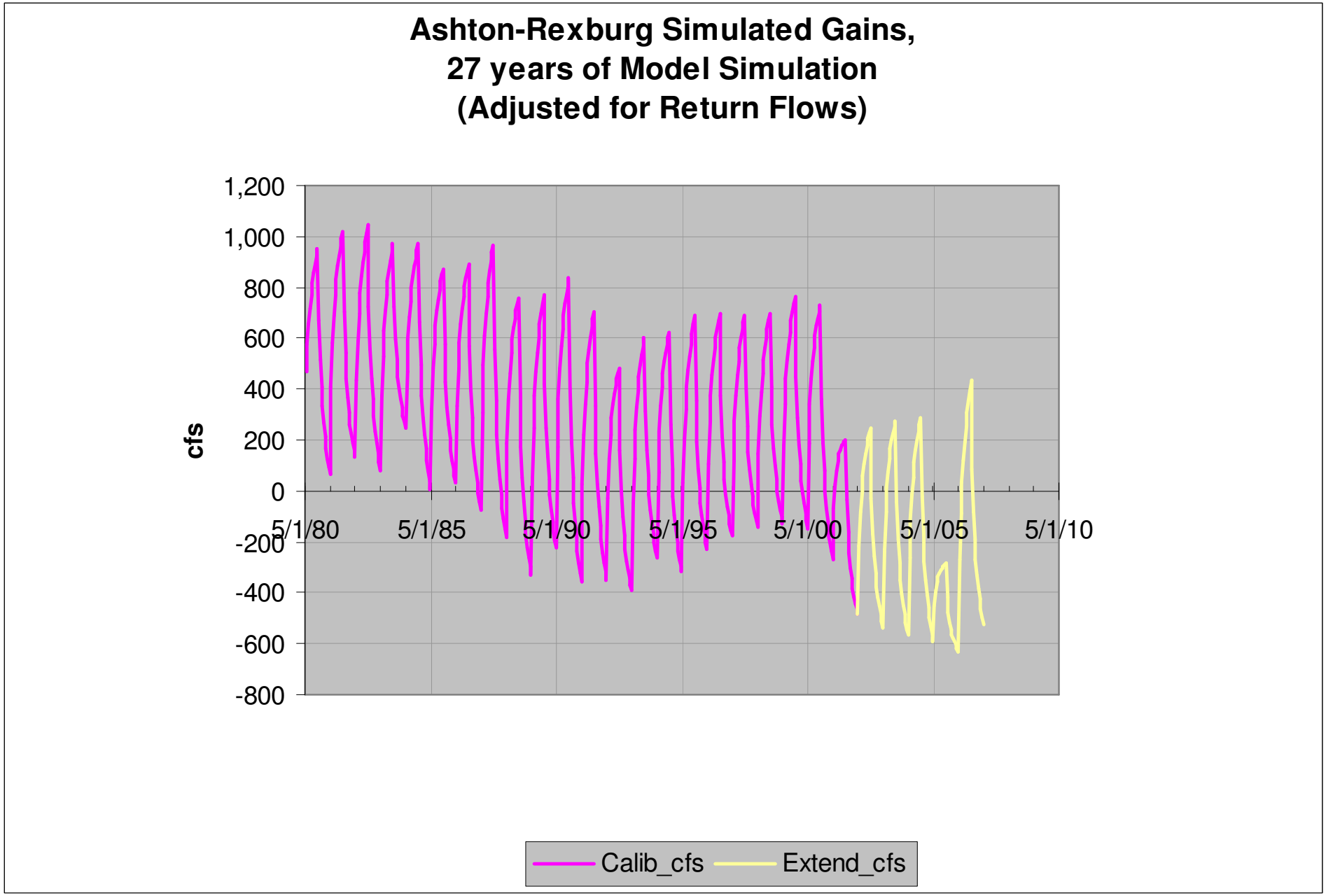
For three reaches, all six data sets show a negative (albeit small) change over time

For seven reaches, the results are mixed

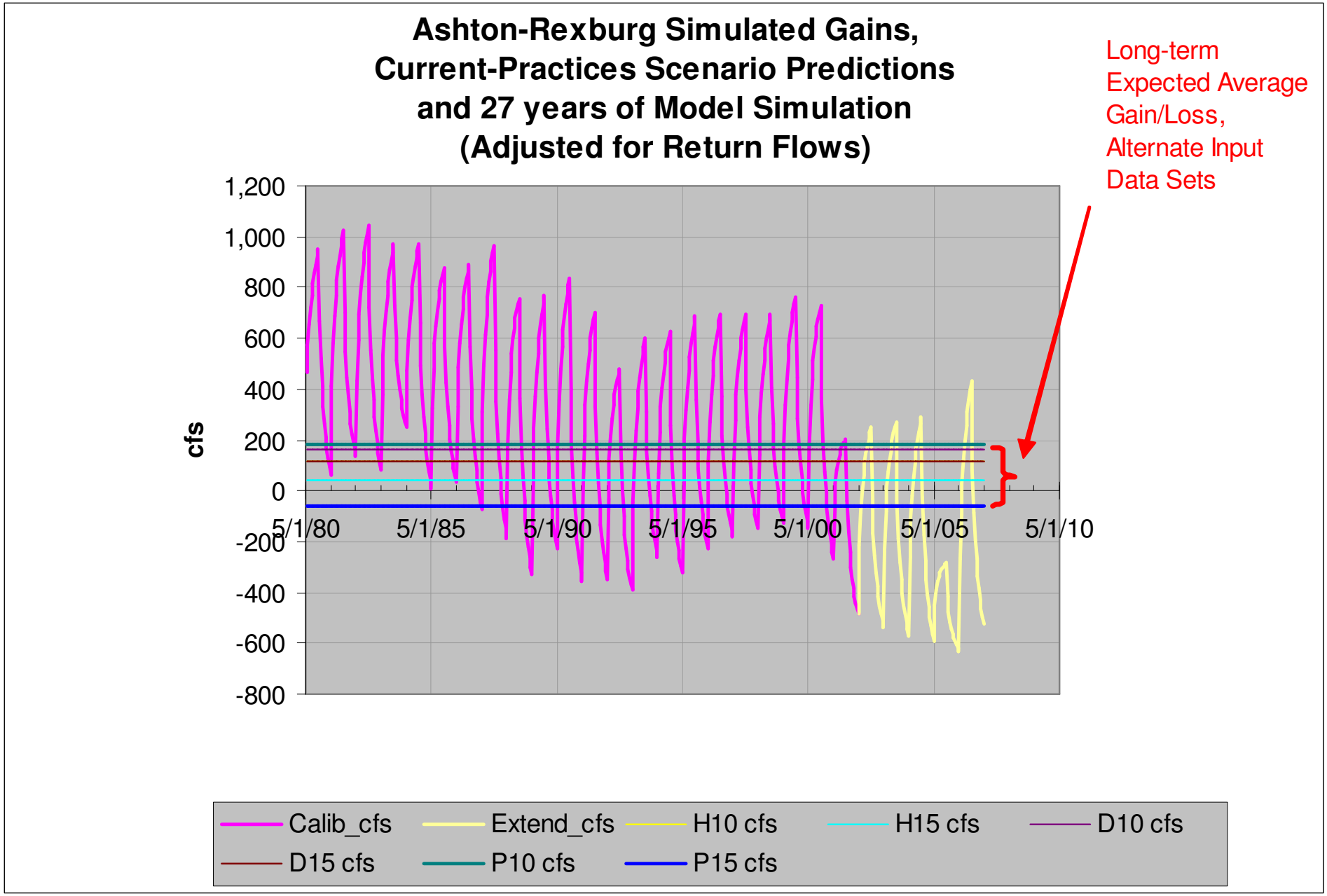
The next several slides illustrate one possible way to show the predicted results in historical context, with additional representation of expected hydrologic variability



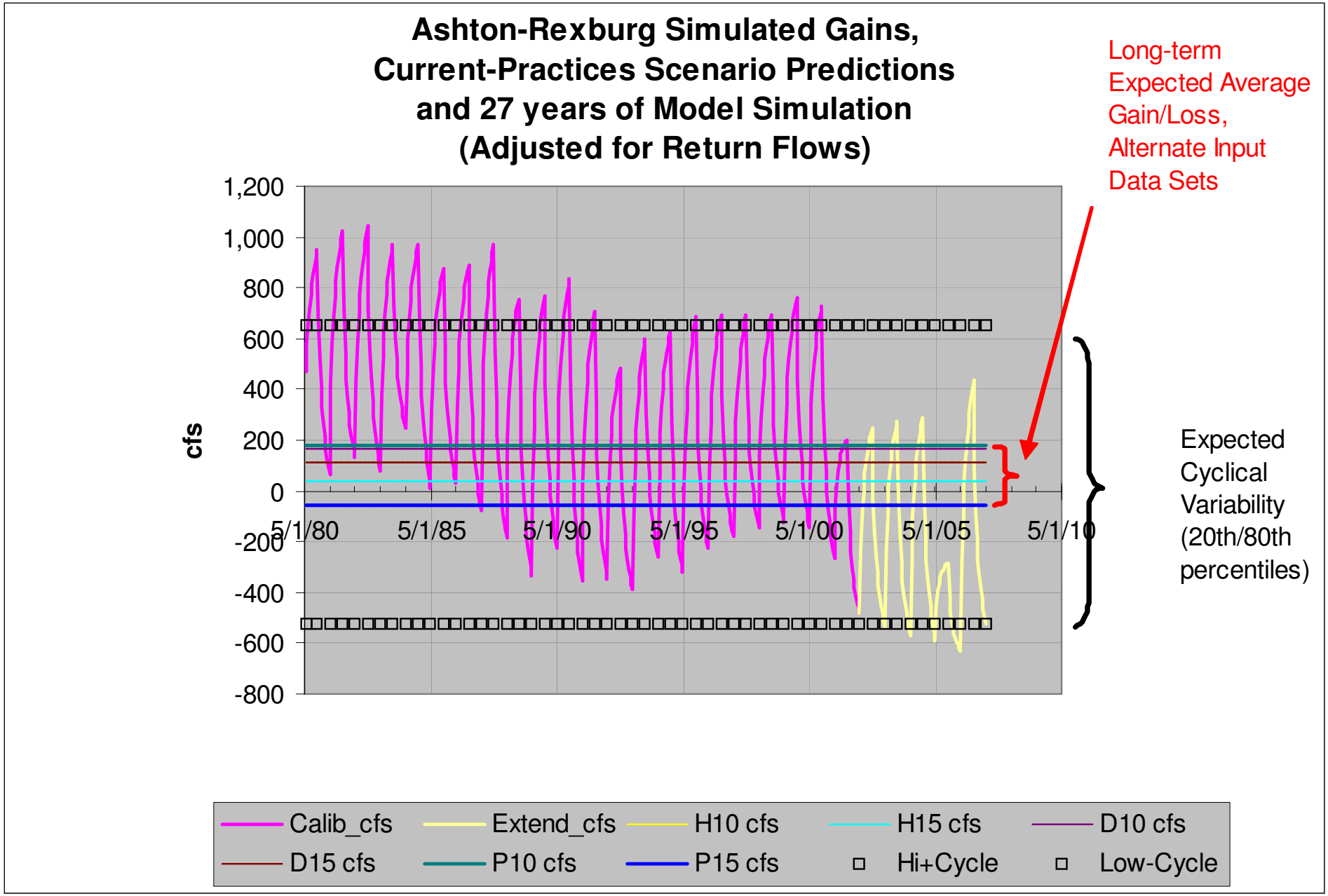
Step 1: Gains from historical observations. Note that these gains ***ignore returns.*** Any return flows that occur are included here as part of gains



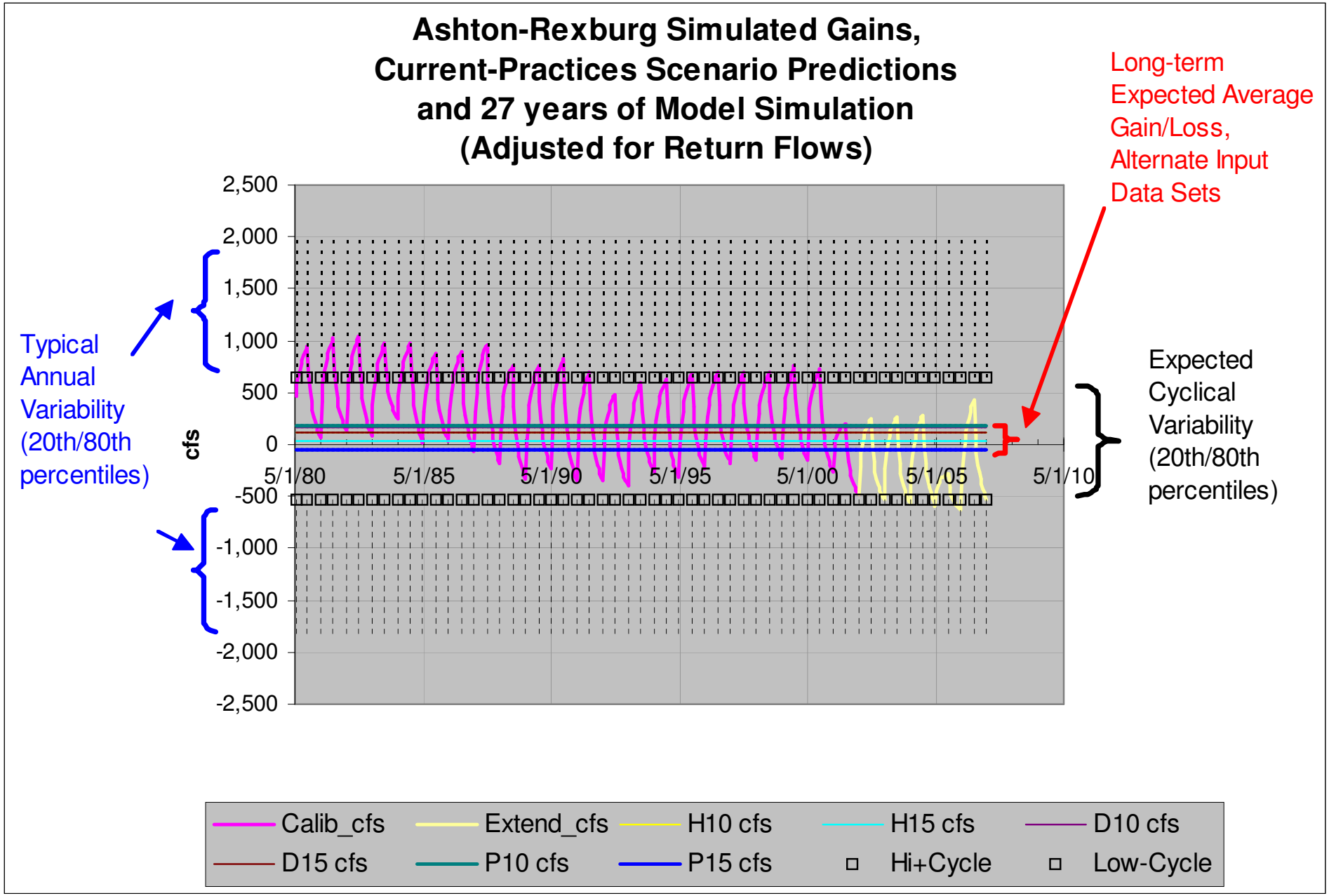
Step 2: Show the 27 years of model simulation. Note that these ***do not*** include returns and therefore are not comparable to the data.



Step 3: Add the six different predicted long-term average results, superimposed on the 27 simulated years for context.



Step 4: Add the range of variability associated with cyclical behavior. For river reaches, this is the 20th/80th percentiles extracted from **measured** gains.

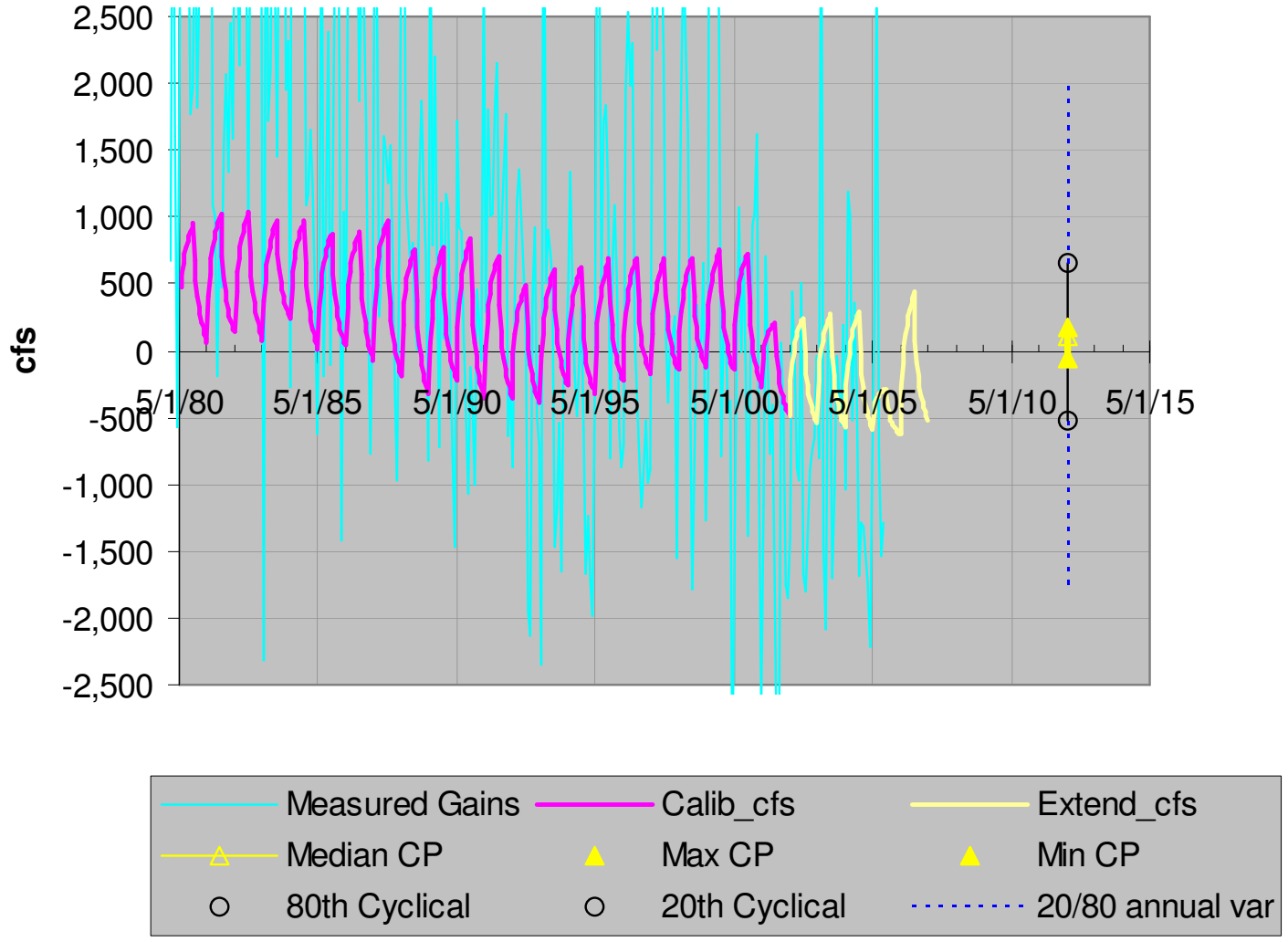


Step 5: Add seasonal variation expected. For river reaches, this is the 20th/80th percentiles extracted from **measured** gains.

The discussion for the previous slide is

1. The long-term average would be expected to fall somewhere within the six horizontal lines bounded by the red bracket, associated with the six different input data sets.
2. The annual average will have cyclical behavior that should fall within the bounds of the little boxes (black bracket).
3. Annual variability (blue brackets) means that at any given time, the gains could be as high or low as the region bounded by the dotted black lines.
4. For this reach, the entire 27 year period could be considered compatible with the outcome of all six data sets – the annual mean never gets outside the black boxes, and the seasonal extremes never get outside the dotted region

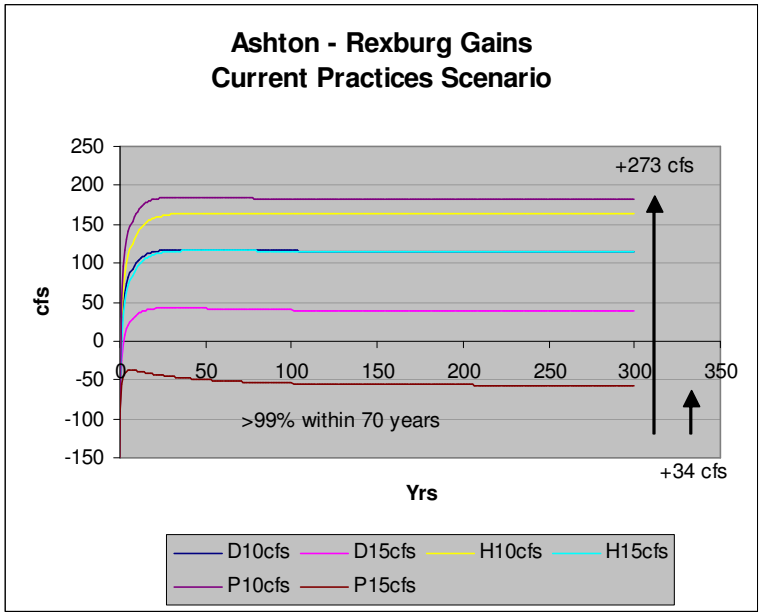
Ashton-Rexburg Simulated Gains, 27 years of Model Simulation and Current Practices Ending Condition (Adjusted for Return Flows) with Measured Gains (Not Adjusted for Return Flows)

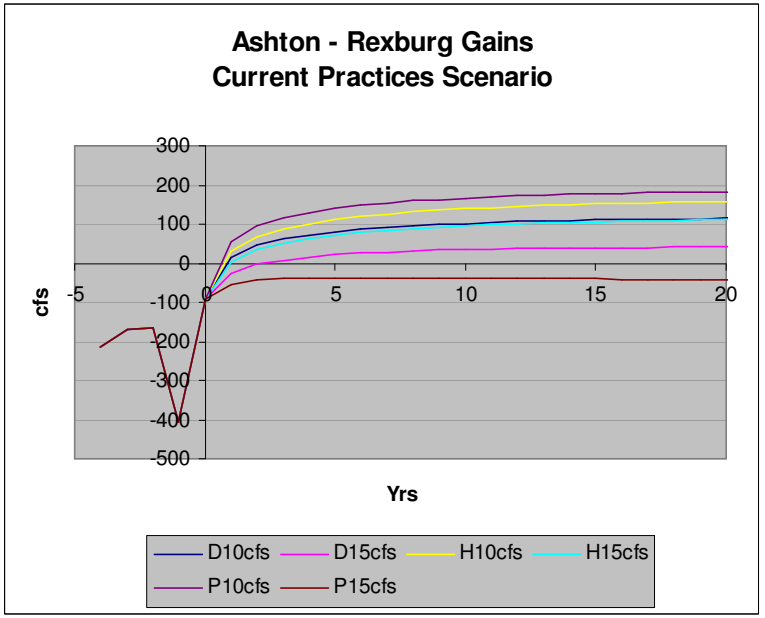


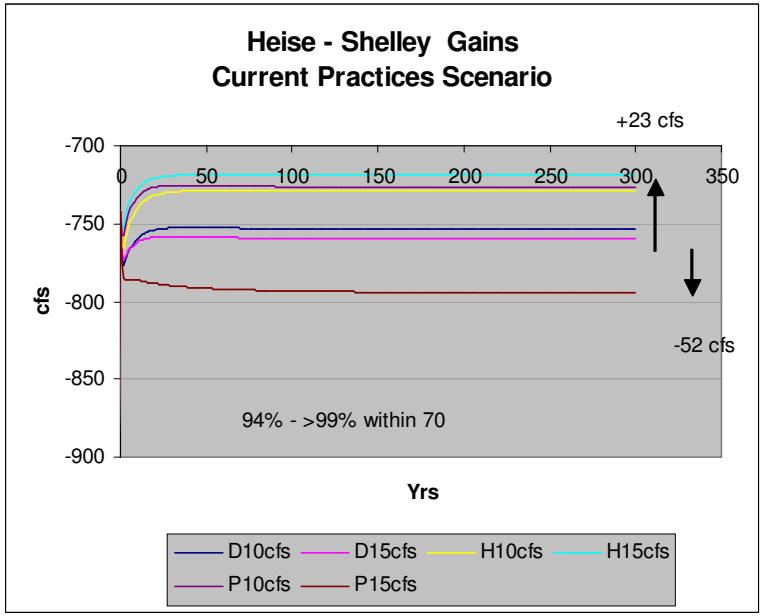
Here's an attempt at pulling the target data into the same slide. This could be misleading because of the difference in treatment of returns.

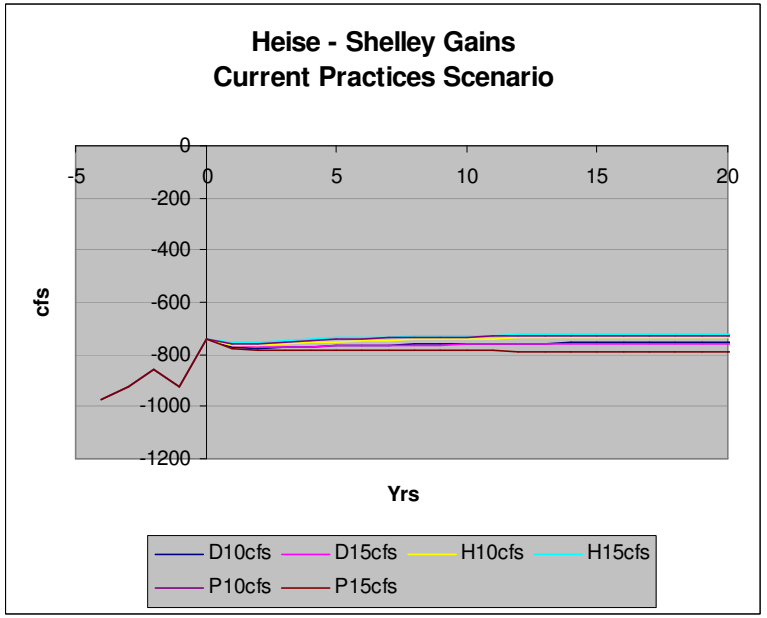
For springs, there are no whole-reach targets, so the variability would be extracted from the model results. Because there are fewer years, and because we tended to under-predict variability of target springs, I propose using the full range (max/min) or even 1.5 – 2.0 times full range to represent variability.

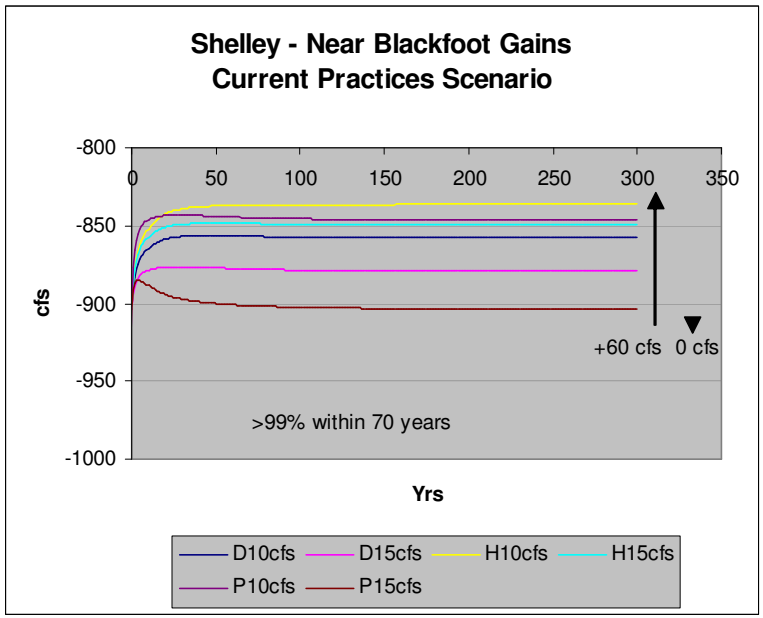
The next several slides show the scenario results for river and spring reaches, but don't yet have any historical reference

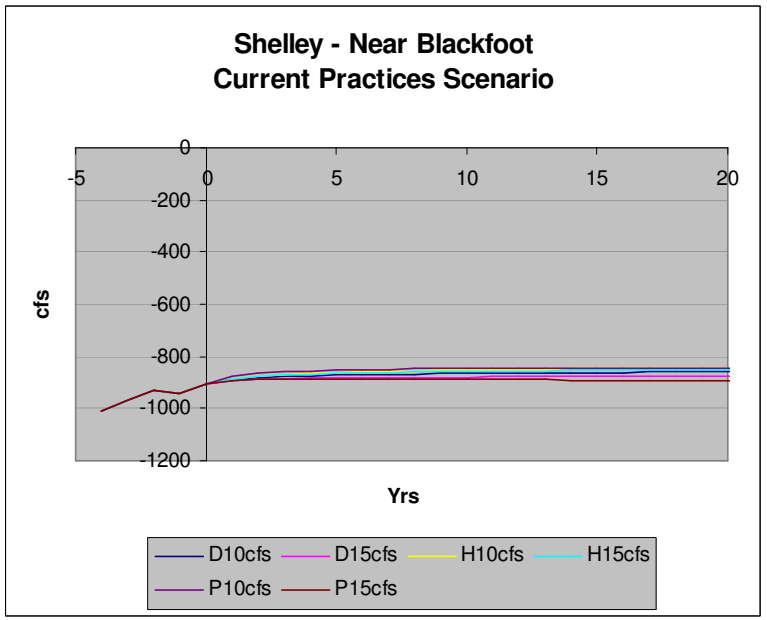

Ashton - Rexburg Gains
Current Practices Scenario
250
200
150
100
50
0
-50
-100
-150
cfs
0
50
100
150
200
250
300
350
Yrs
+273 cfs
+34 cfs
>99% within 70 years
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

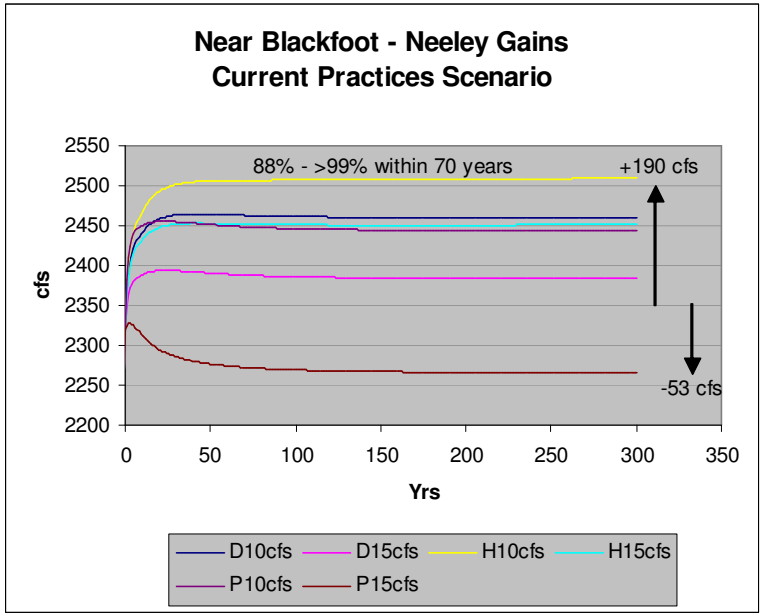

Ashton - Rexburg Gains
Current Practices Scenario
300
200
100
0
-100
-200
-300
-400
-500
cfs
-5
0
5
10
15
20
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

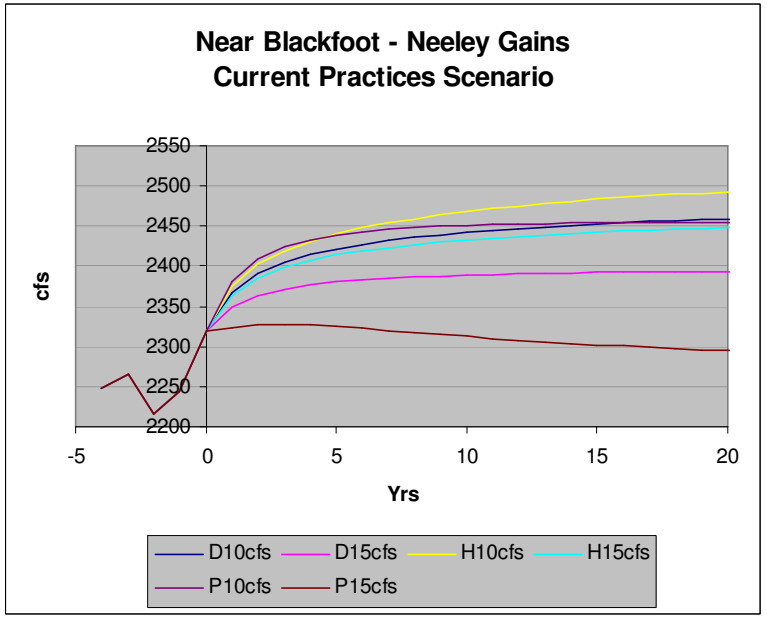

Heise - Shelley Gains
Current Practices Scenario
+23 cfs
-52 cfs
94% - >99% within 70
cfs
Yrs
-700
-750
-800
-850
-900
0
50
100
150
200
250
300
350
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

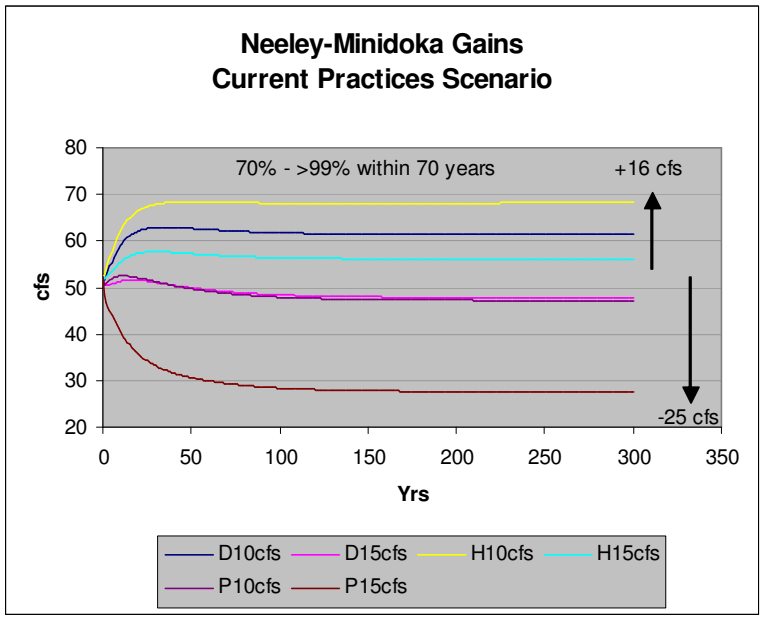

Heise - Shelley Gains
Current Practices Scenario
cfs
Yrs
0
-200
-400
-600
-800
-1000
-1200
-5
0
5
10
15
20
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

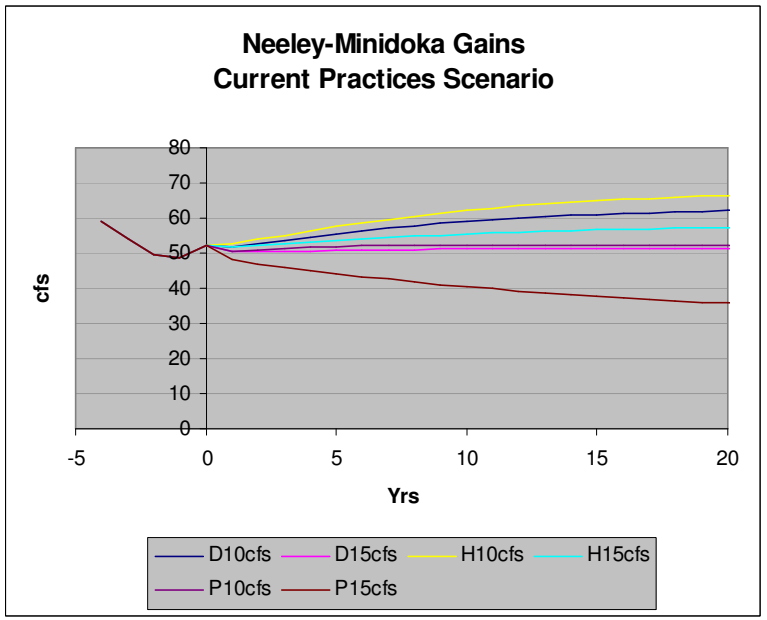

Shelley - Near Blackfoot Gains
Current Practices Scenario
-800
-850
-900
-950
-1000
cfs
0
50
100
150
200
250
300
350
+60 cfs
0 cfs
>99% within 70 years
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

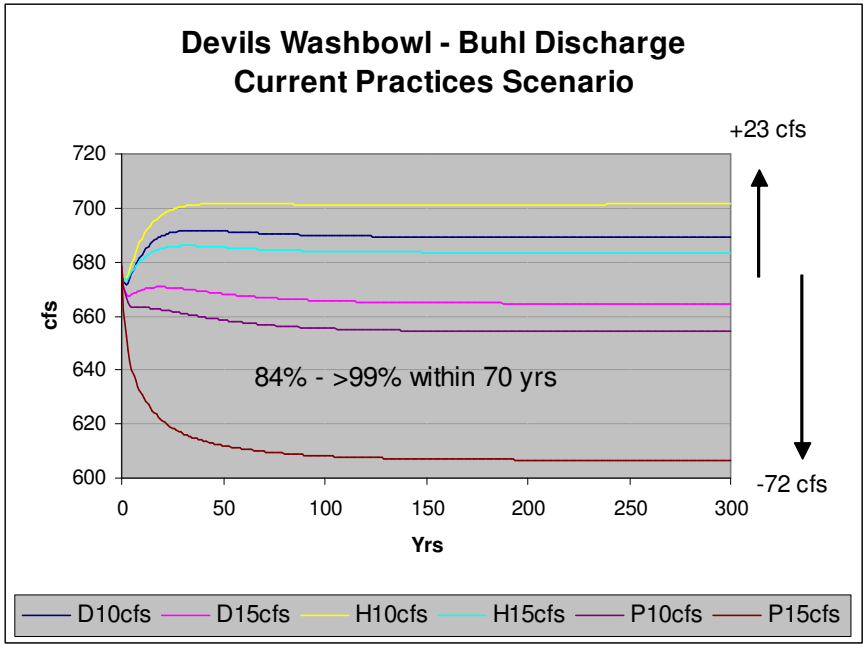

Shelley - Near Blackfoot
Current Practices Scenario
0
-200
-400
-600
-800
-1000
-1200
cfs
-5
0
5
10
15
20
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

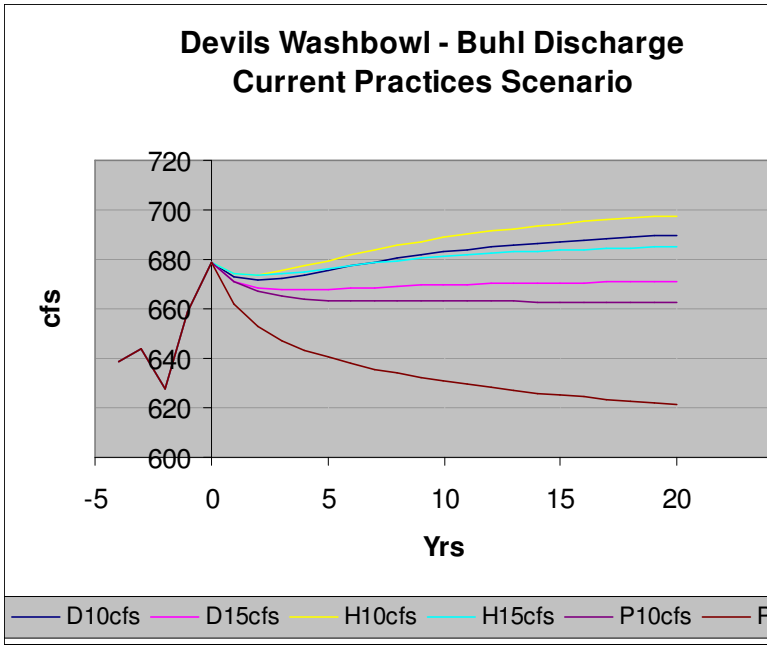

Near Blackfoot - Neeley Gains
Current Practices Scenario
88% - >99% within 70 years
+190 cfs
-53 cfs
cfs
Yrs
2550
2500
2450
2400
2350
2300
2250
2200
0
50
100
150
200
250
300
350
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

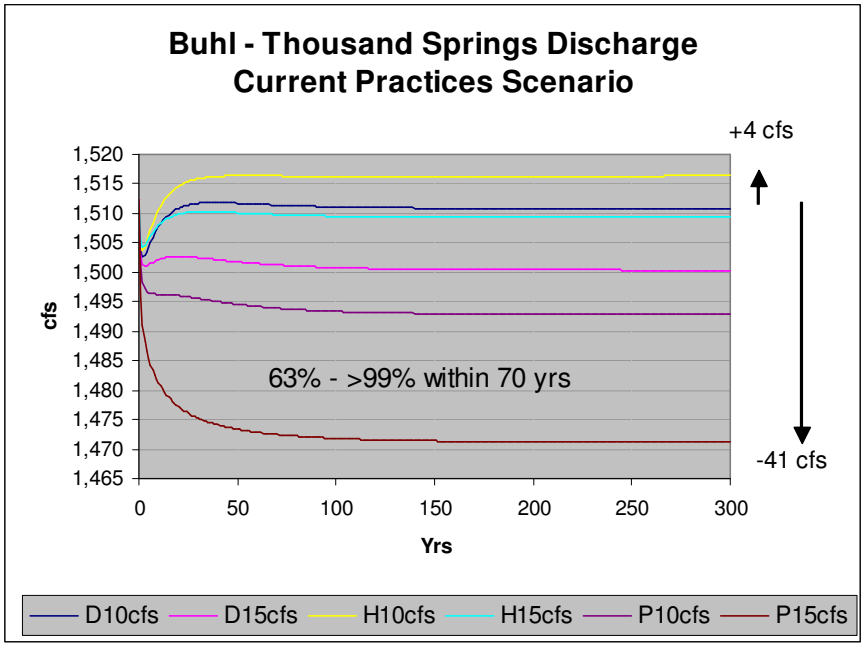

Near Blackfoot - Neeley Gains
Current Practices Scenario
cfs
Yrs
2550
2500
2450
2400
2350
2300
2250
2200
-5
0
5
10
15
20
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

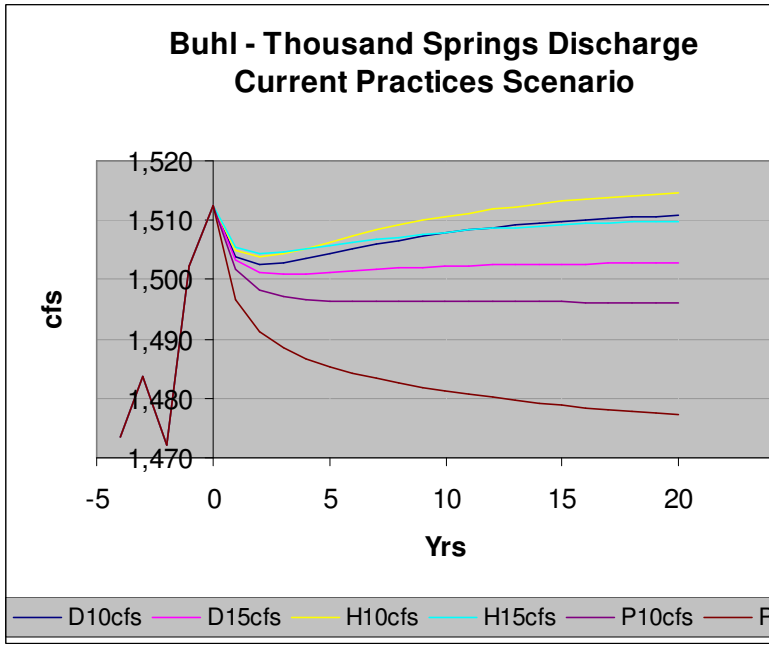

Neeley-Minidoka Gains
Current Practices Scenario
70% - >99% within 70 years
+16 cfs
-25 cfs
cfs
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

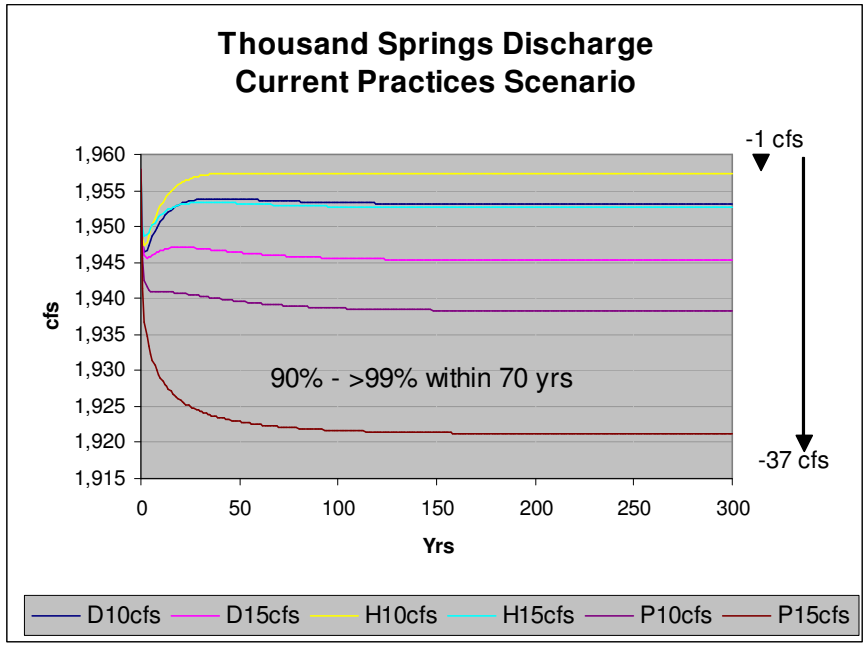

Neeley-Minidoka Gains
Current Practices Scenario
cfs
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

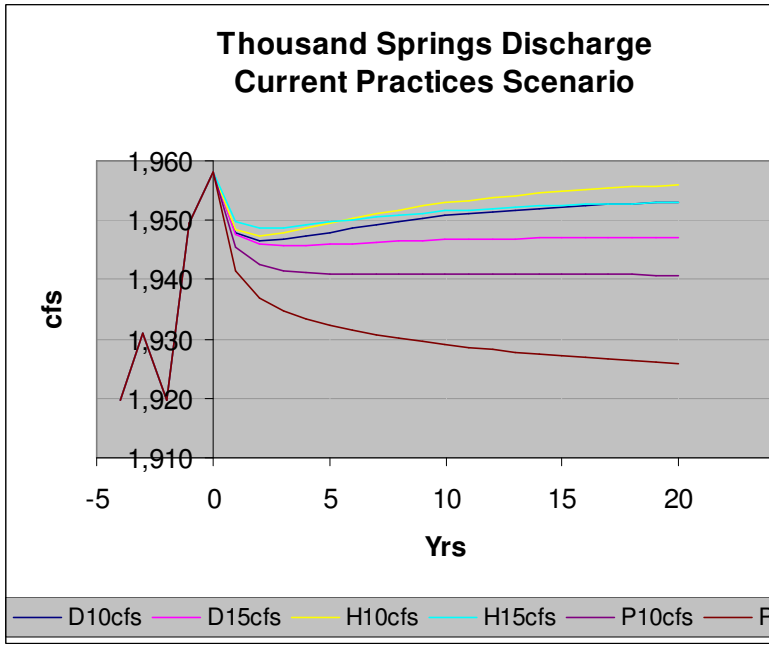

Devils Washbowl - Buhl Discharge
Current Practices Scenario
+23 cfs
-72 cfs
84% - >99% within 70 yrs
cfs
Yrs
720
700
680
660
640
620
600
0
50
100
150
200
250
300
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

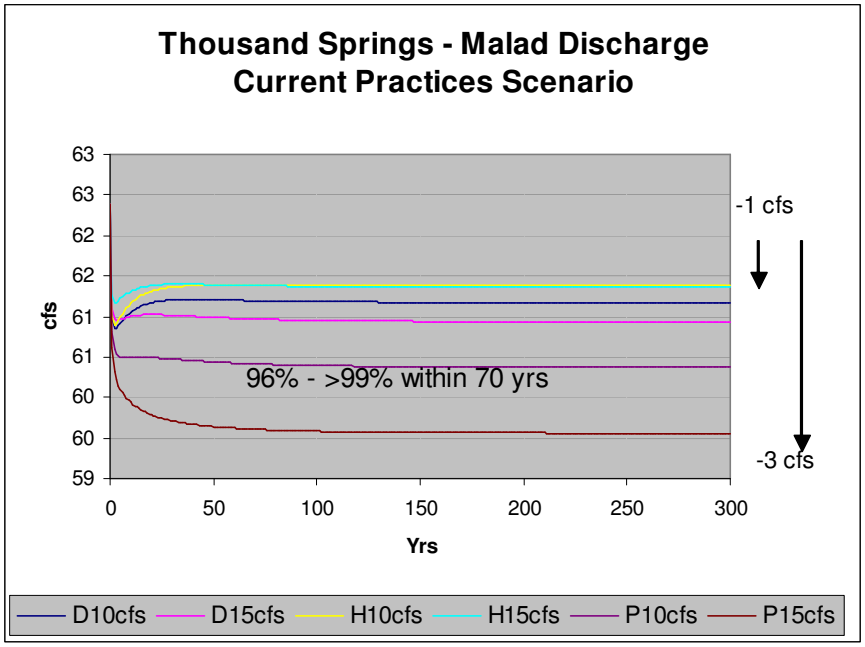

Devils Washbowl - Buhl Discharge
Current Practices Scenario
cfs
Yrs
720
700
680
660
640
620
600
-5
0
5
10
15
20
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs

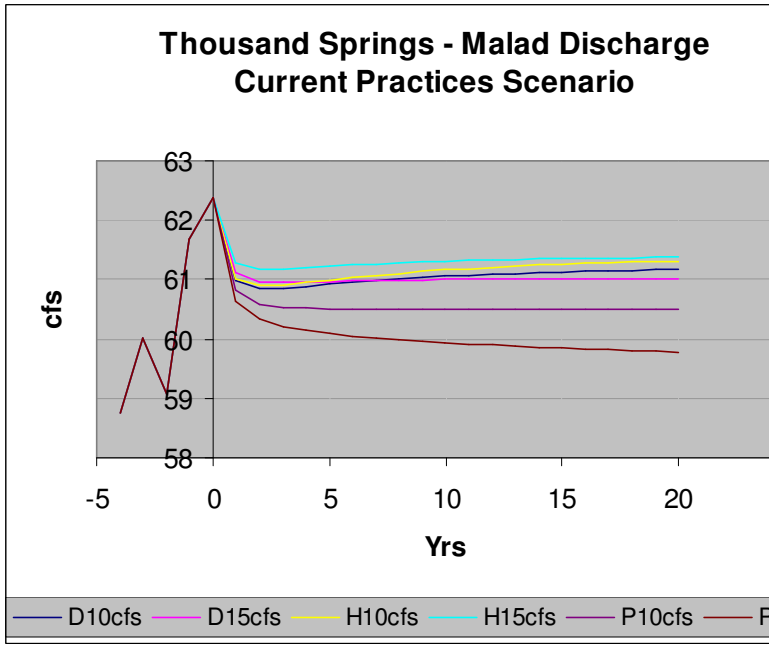

Buhl - Thousand Springs Discharge
Current Practices Scenario
+4 cfs
-41 cfs
63% - >99% within 70 yrs
cfs
Yrs
1,520
1,515
1,510
1,505
1,500
1,495
1,490
1,485
1,480
1,475
1,470
1,465
0
50
100
150
200
250
300
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

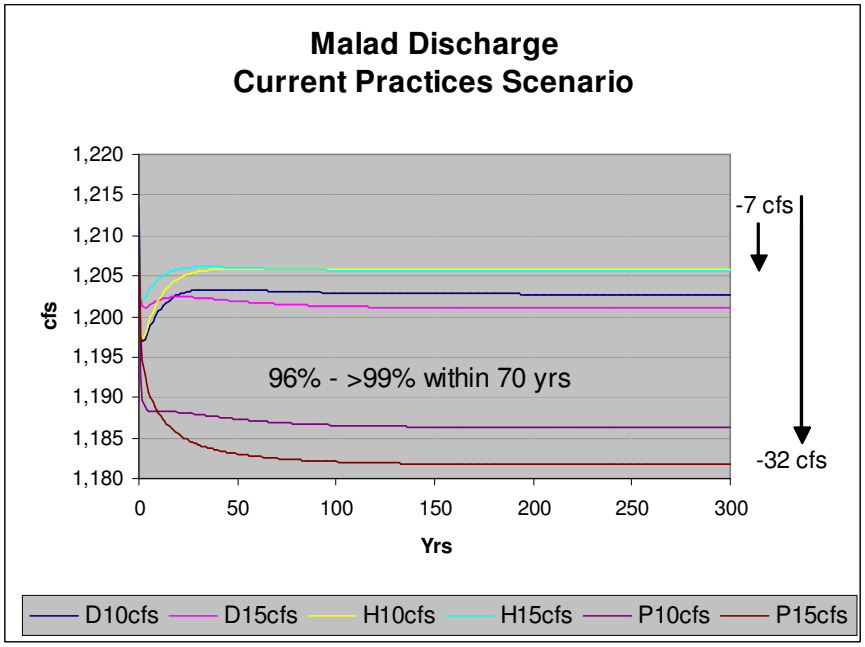

Buhl - Thousand Springs Discharge
Current Practices Scenario
cfs
Yrs
1,520
1,510
1,500
1,490
1,480
1,470
-5
0
5
10
15
20
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs

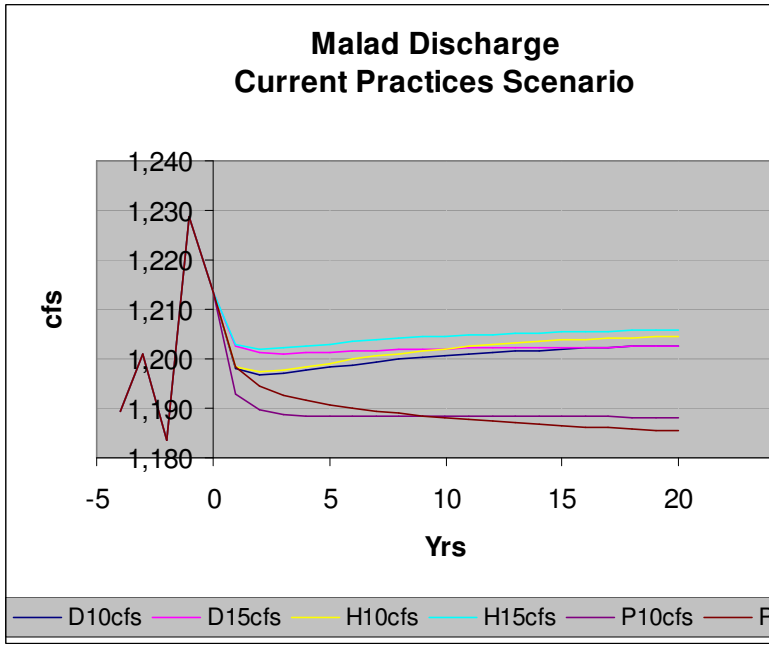

Thousand Springs Discharge
Current Practices Scenario
-1 cfs
-37 cfs
90% - >99% within 70 yrs
cfs
Yrs
1,960
1,955
1,950
1,945
1,940
1,935
1,930
1,925
1,920
1,915
0
50
100
150
200
250
300
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs

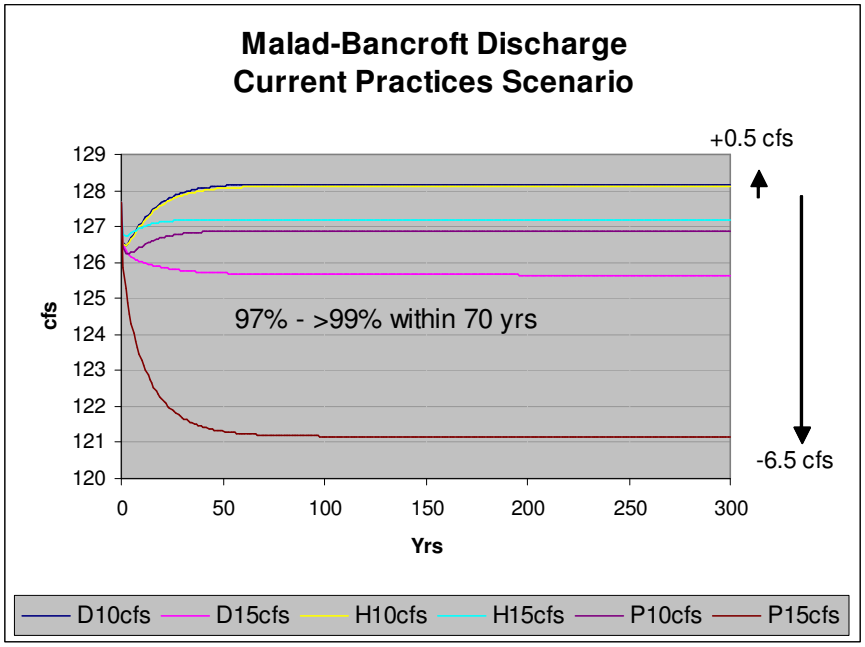

Thousand Springs Discharge
Current Practices Scenario
cfs
Yrs
1,960
1,950
1,940
1,930
1,920
1,910
-5
0
5
10
15
20
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs

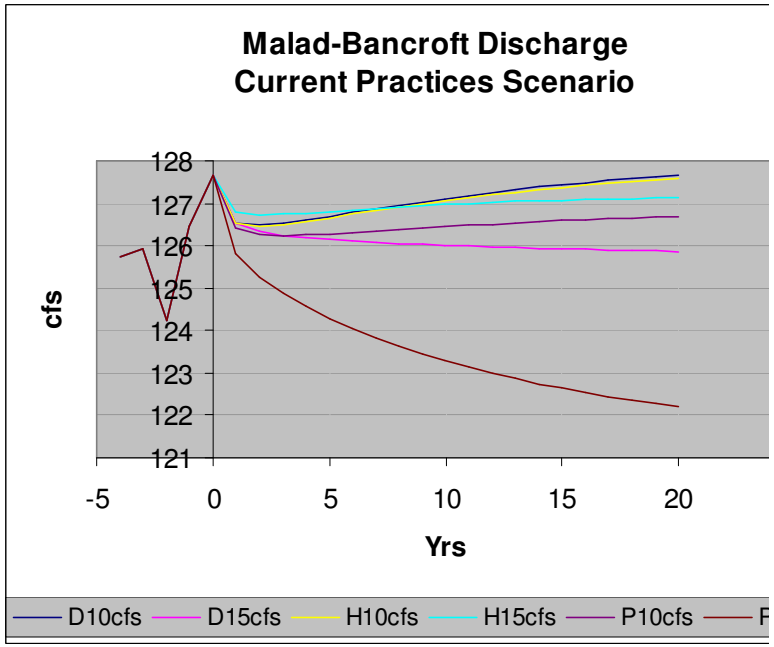

Thousand Springs - Malad Discharge
Current Practices Scenario
63
63
62
62
61
61
60
60
59
cfs
0
50
100
150
200
250
300
Yrs
-1 cfs
-3 cfs
96% - >99% within 70 yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs


Thousand Springs - Malad Discharge
Current Practices Scenario
63
62
61
60
59
58
cfs
-5
0
5
10
15
20
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs


Malad Discharge
Current Practices Scenario
1,220
1,215
1,210
1,205
1,200
1,195
1,190
1,185
1,180
cfs
0
50
100
150
200
250
300
Yrs
-7 cfs
-32 cfs
96% - >99% within 70 yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs


Malad Discharge
Current Practices Scenario
1,240
1,230
1,220
1,210
1,200
1,190
1,180
cfs
-5
0
5
10
15
20
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs


Malad-Bancroft Discharge
Current Practices Scenario
+0.5 cfs
-6.5 cfs
97% - >99% within 70 yrs
cfs
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs
P15cfs


Malad-Bancroft Discharge
Current Practices Scenario
cfs
Yrs
D10cfs
D15cfs
H10cfs
H15cfs
P10cfs