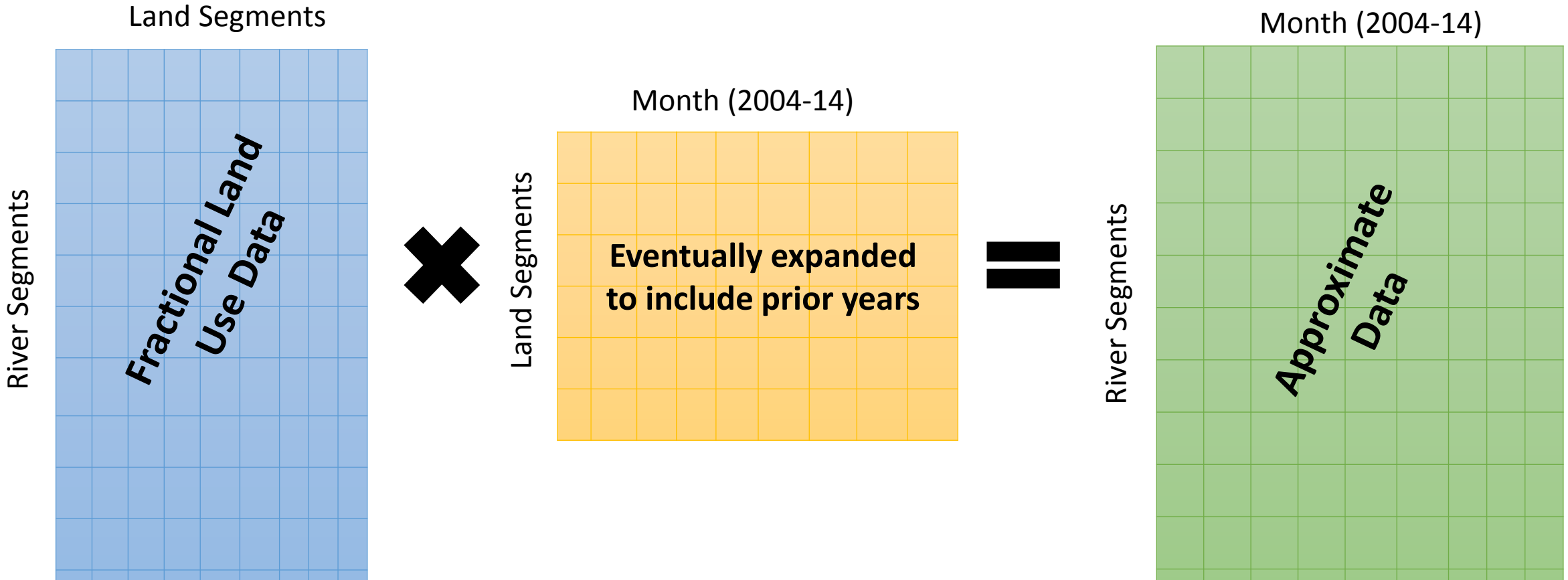
Phase 6 Diversions

Kyle Hinson – Modeling Workgroup

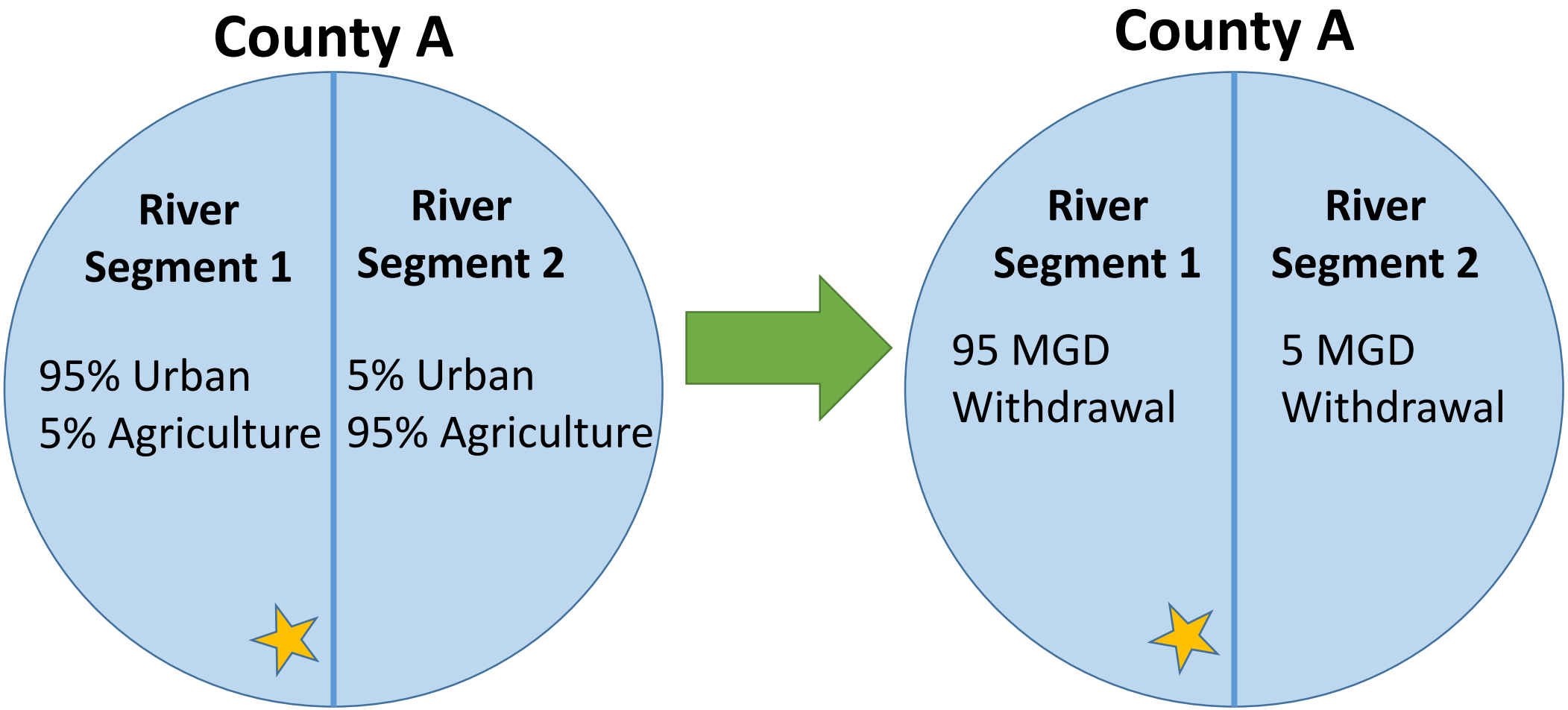
6/9/2016

Methodology

- Fractions of Urban and Agricultural Land Use for each river segment were calculated from land segment data

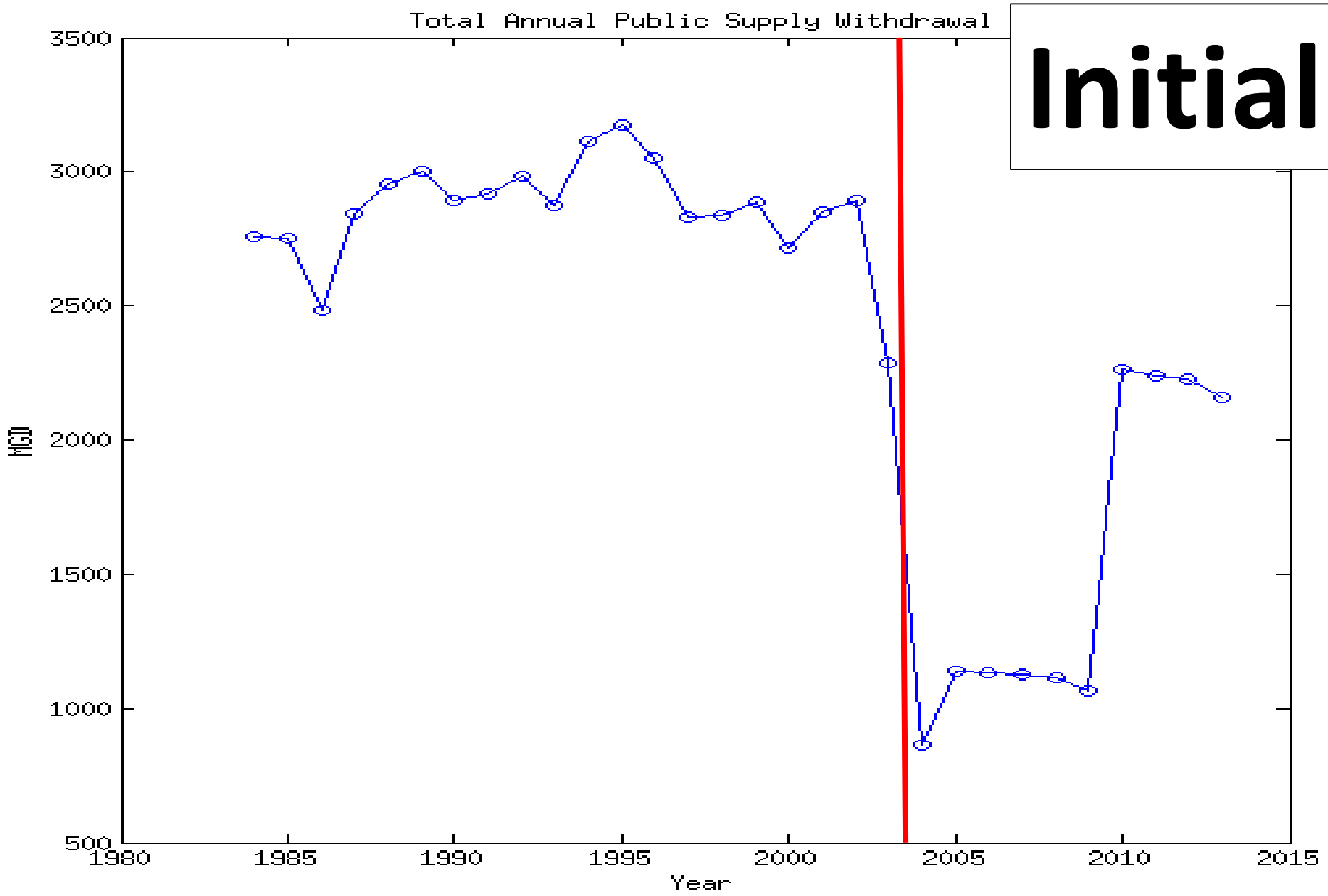


Methods Example: 100 MGD Diversion

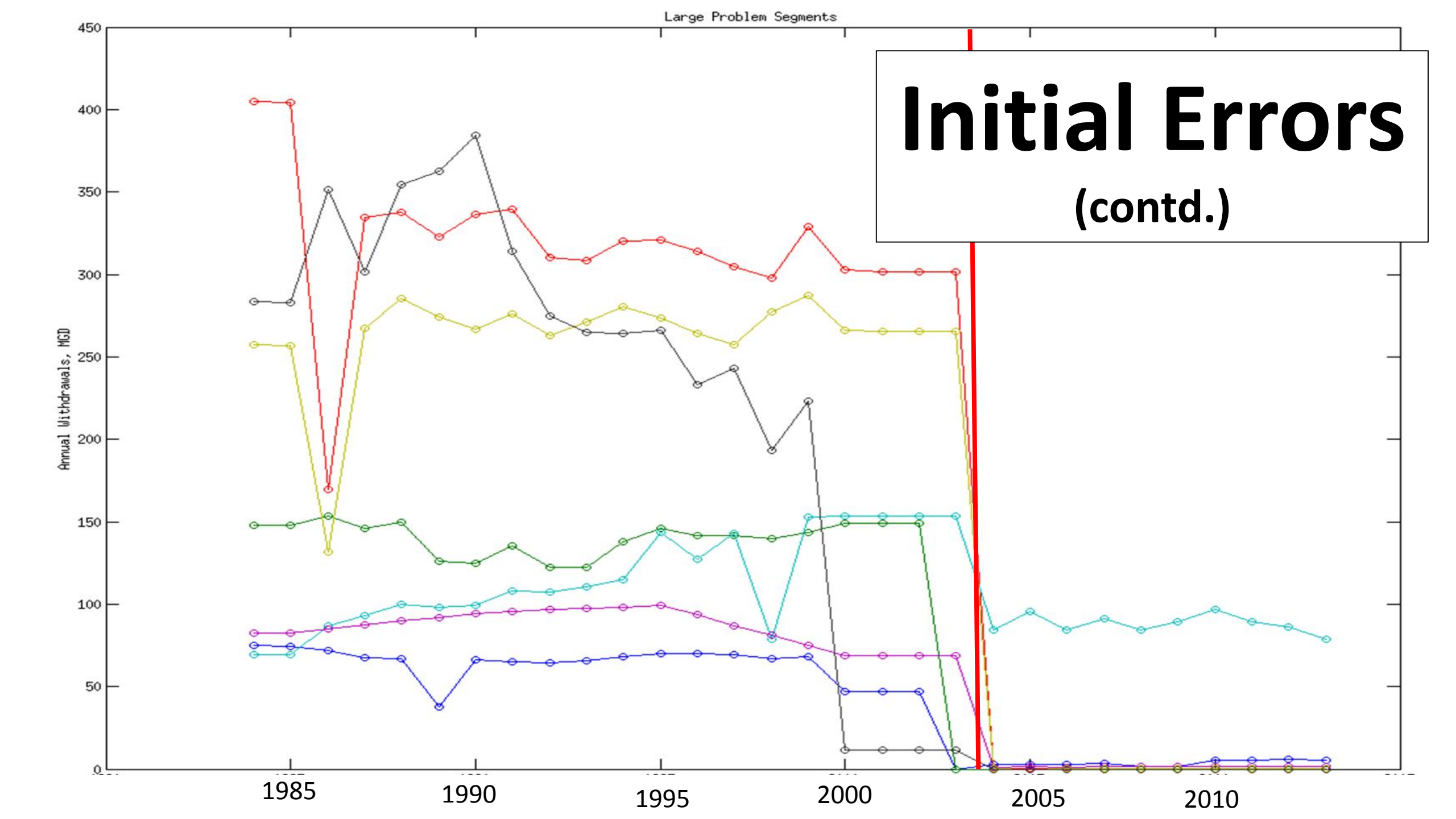


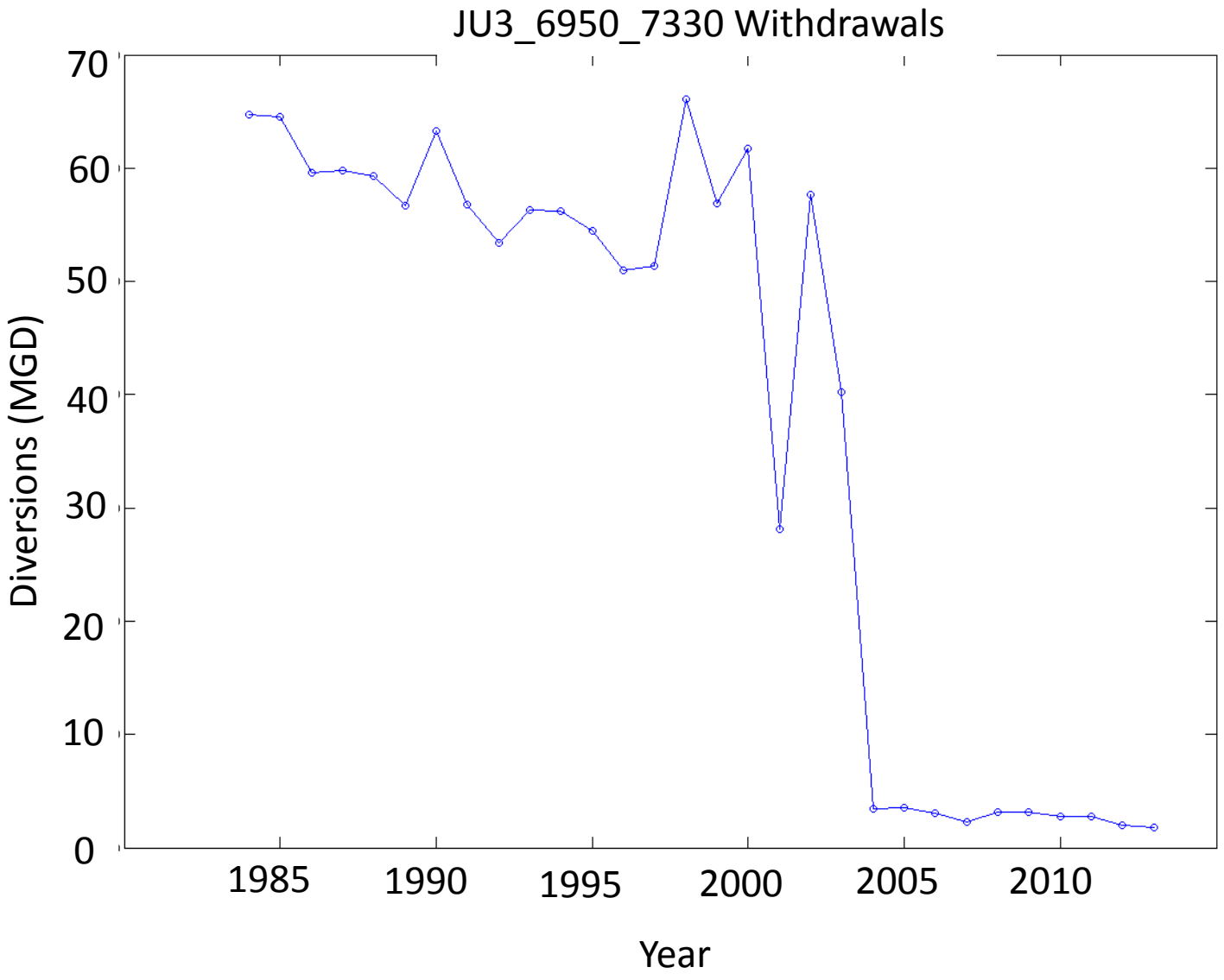
Problems Encountered

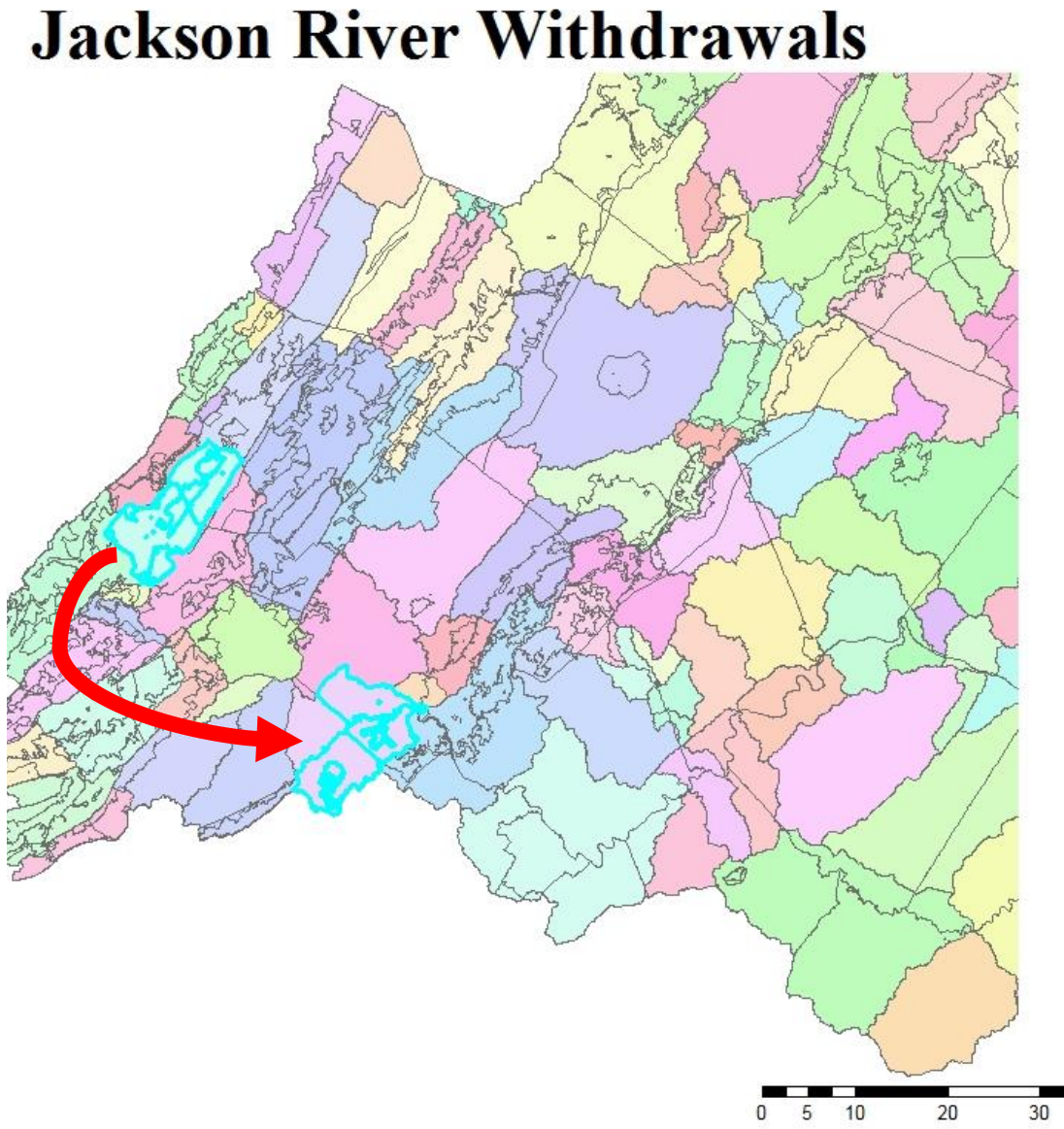
- Misallocations of withdrawal values
- Missing withdrawals
- Legal challenges
- Method approximation

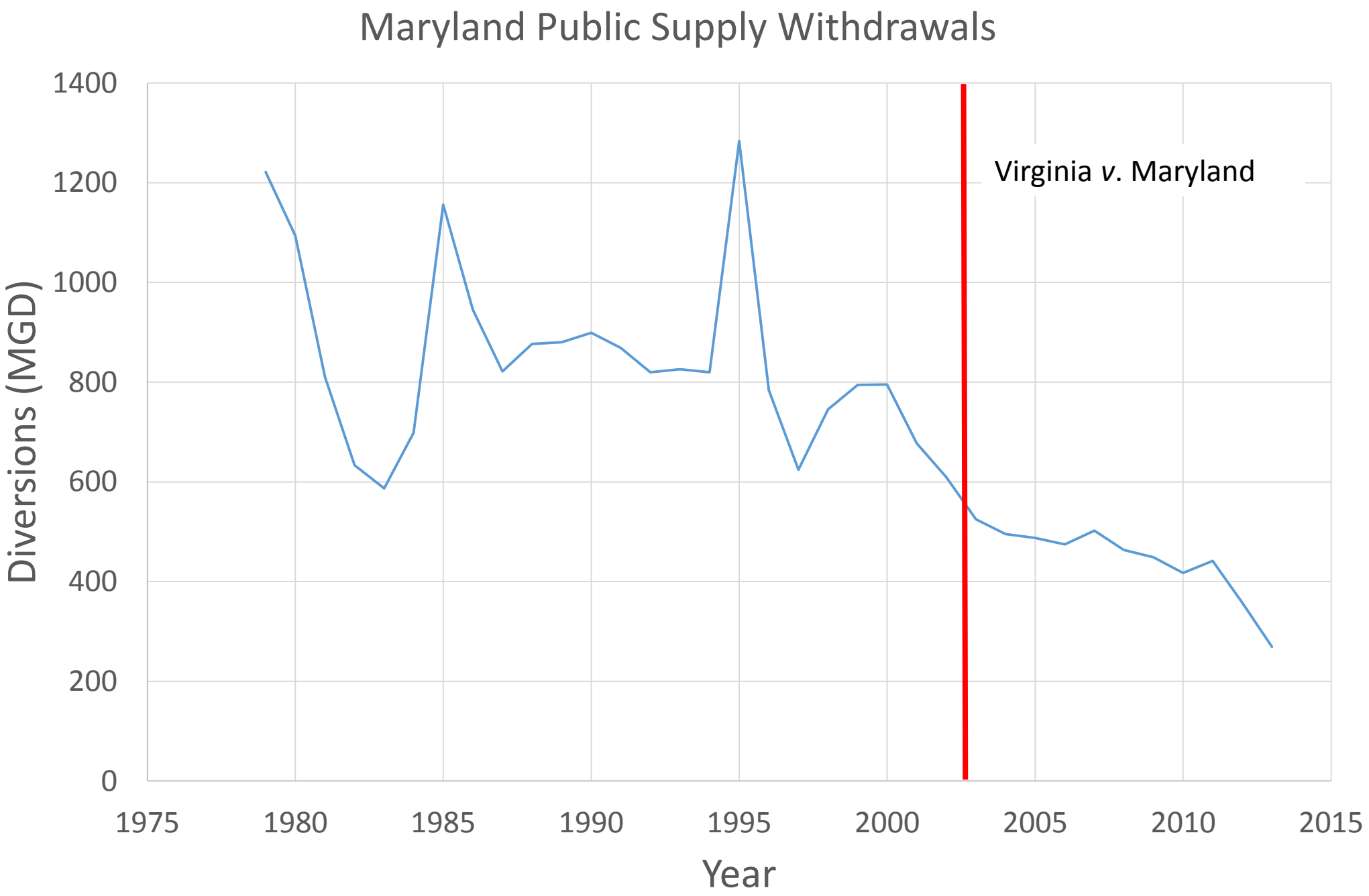


Initial Errors


Large Problem Segments
Annual Withdrawals, MGD
450
400
350
300
250
200
150
100
50
0
1985
1990
1995
2000
2005
2010
Initial Errors
(contd.)

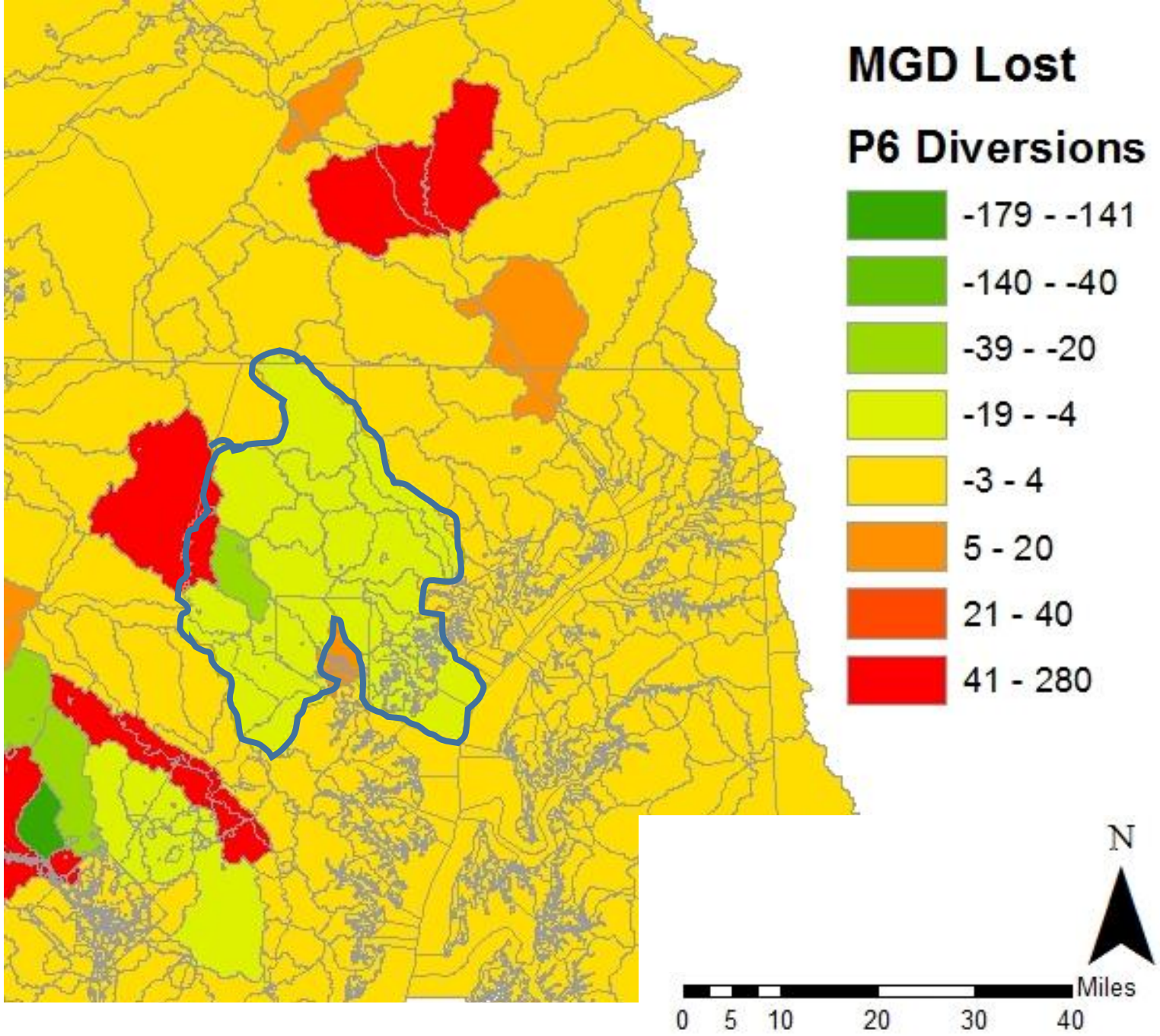

JU3_6950_7330 Withdrawals
Diversions (MGD)
70
60
50
40
30
20
10
0
1985
1990
1995
2000
2005
2010
Year


Jackson River Withdrawals
0
5
10
20
30

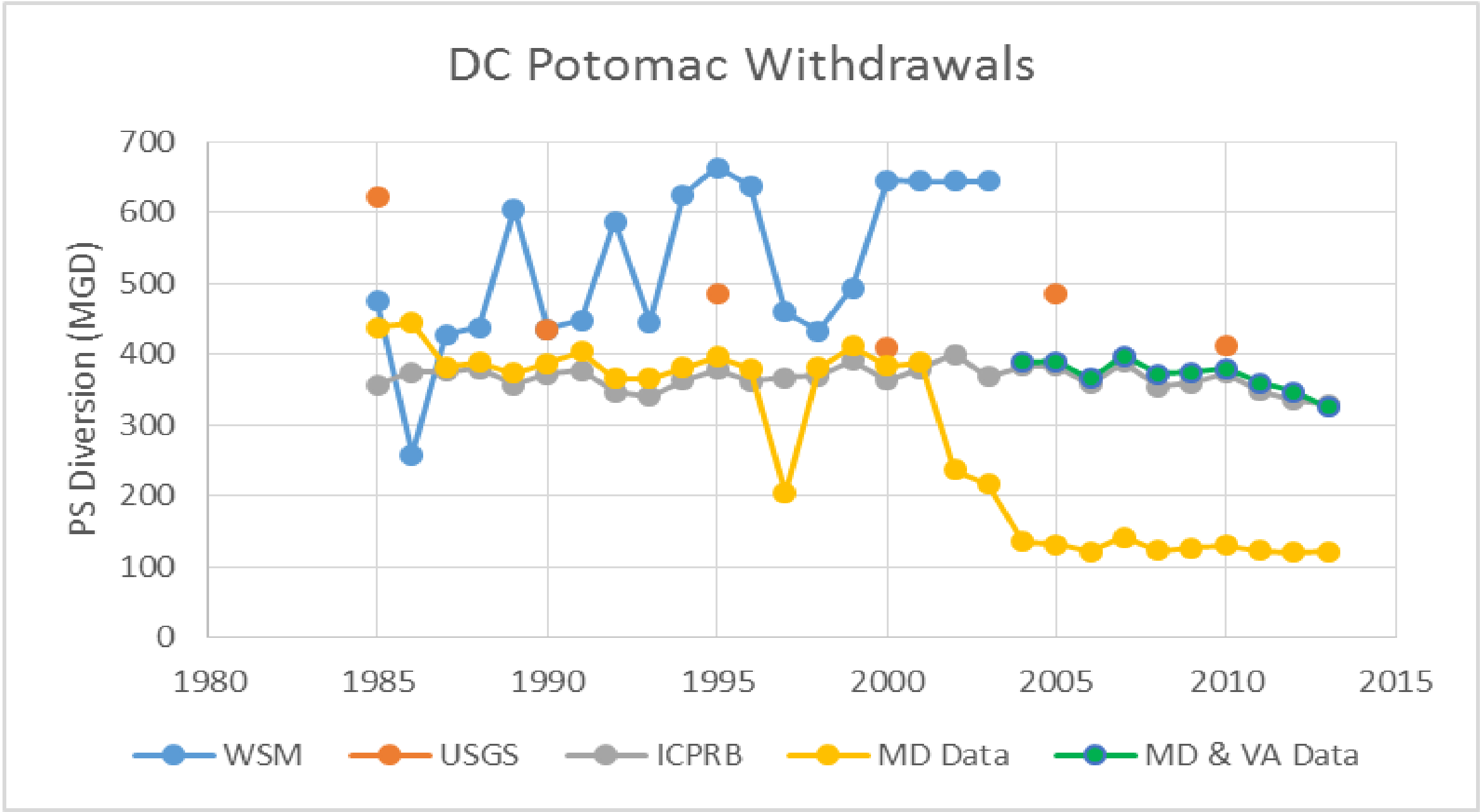

Maryland Public Supply Withdrawals
Diversions (MGD)
1400
1200
1000
800
600
400
200
0
1975
1980
1985
1990
1995
2000
2005
2010
2015
Year
Virginia v. Maryland

Method Approximation Example

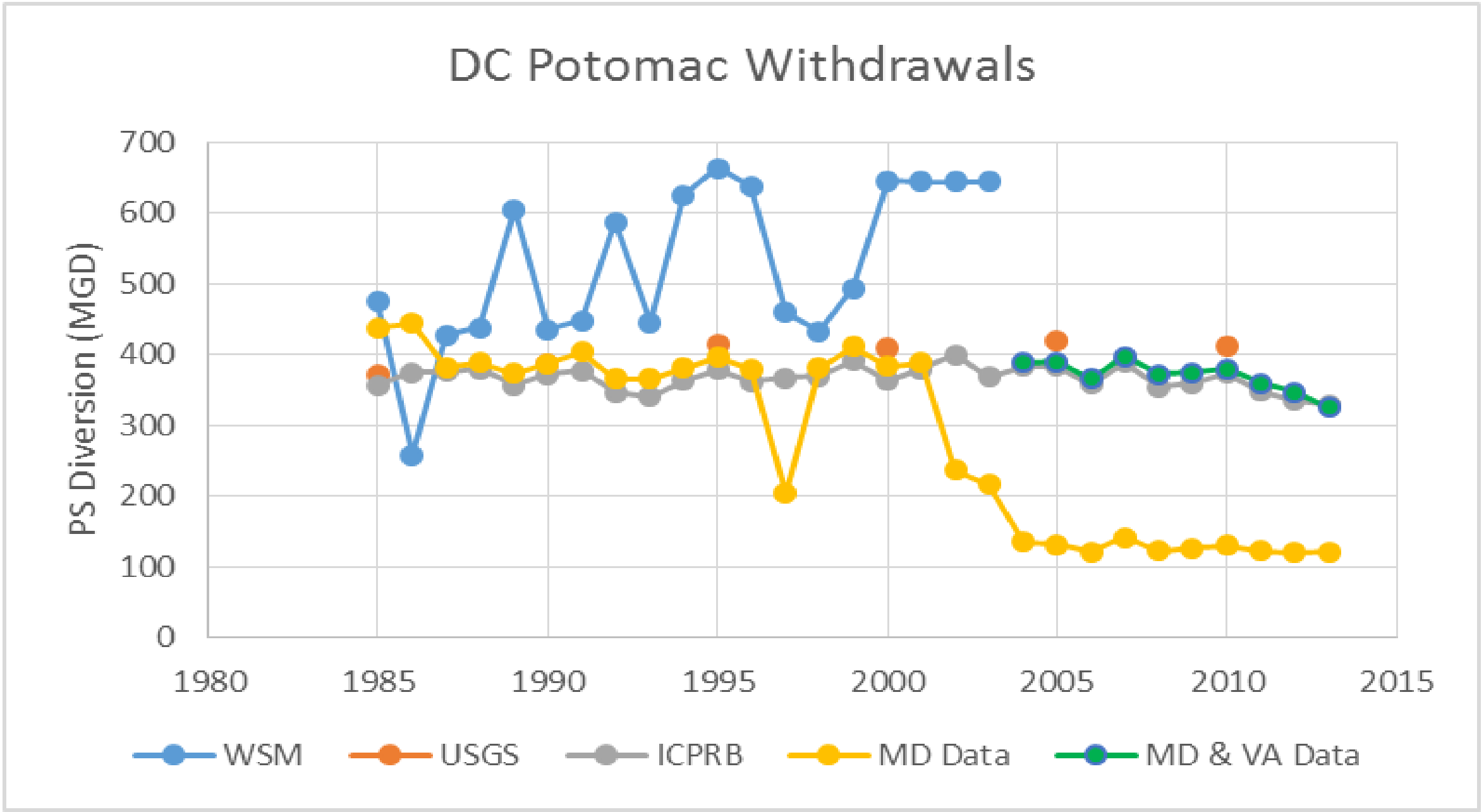
- Tendency to distribute the withdrawal values erroneously
- Manual fixes required in some larger instances

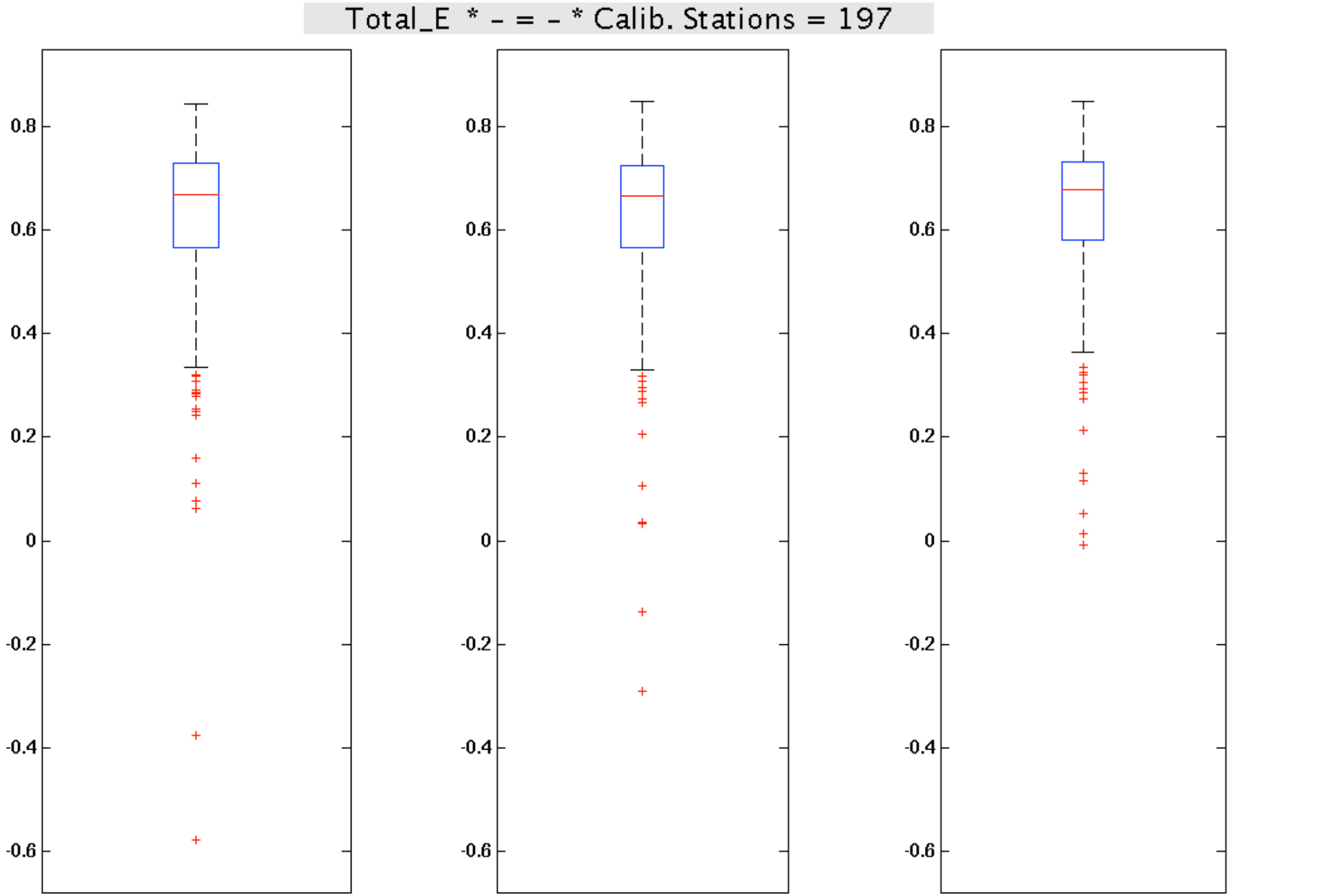


Diversion Data Comparison



Fairfax and DC Correction





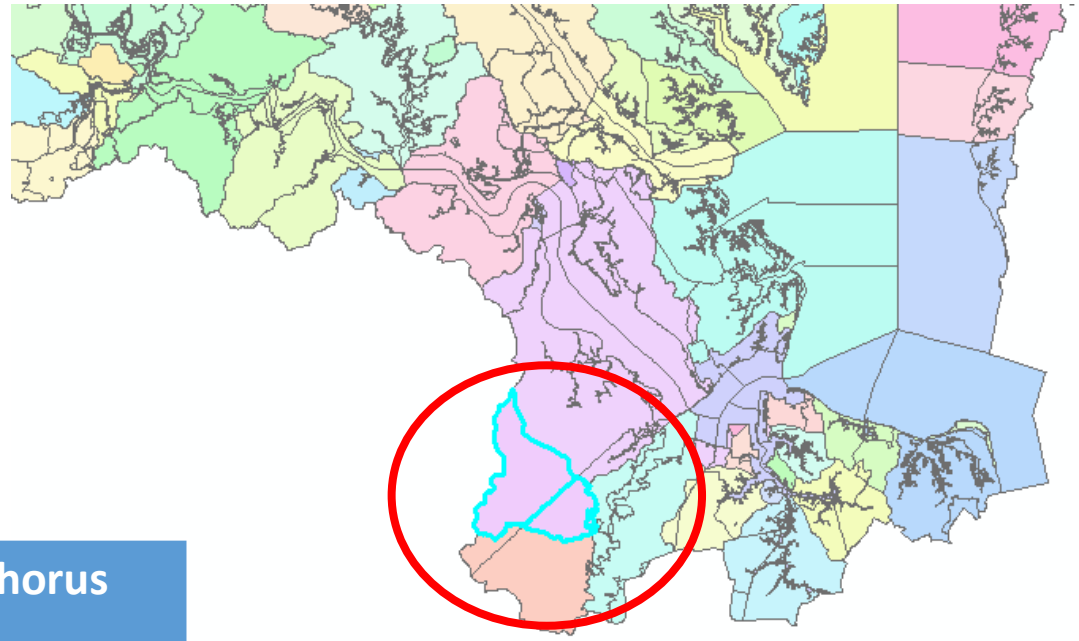
Phase 6 Beta 1

Phase 6 Beta 1

Phase 6 Beta 2 with Re-Calibration

What does this mean for loads?

- River Segment JB2_7800_0001 (Western Branch Reservoir) had a diversion correction
- Withdrawals were underestimated in Phase 5.3.2 by approximately 30 MGD



Constituent	Total Nitrogen	Total Phosphorus
Percentage Reduction	-31%	-49.5%

Conclusions, Questions?

- Better Calibration overall
- To-Do:
  - Make Final Adjustments
  - Represent removal of loads below fall line

- Thanks to everyone who helped at: VADEQ, MDNR, PA DEP, SRBC, ICPRB, WVDEP, DE DNREC