Approach for Estimating 1985 to 2014 CSO Nutrient Loads for Phase 6 Model Calibration

Chesapeake Bay Program WWTWG
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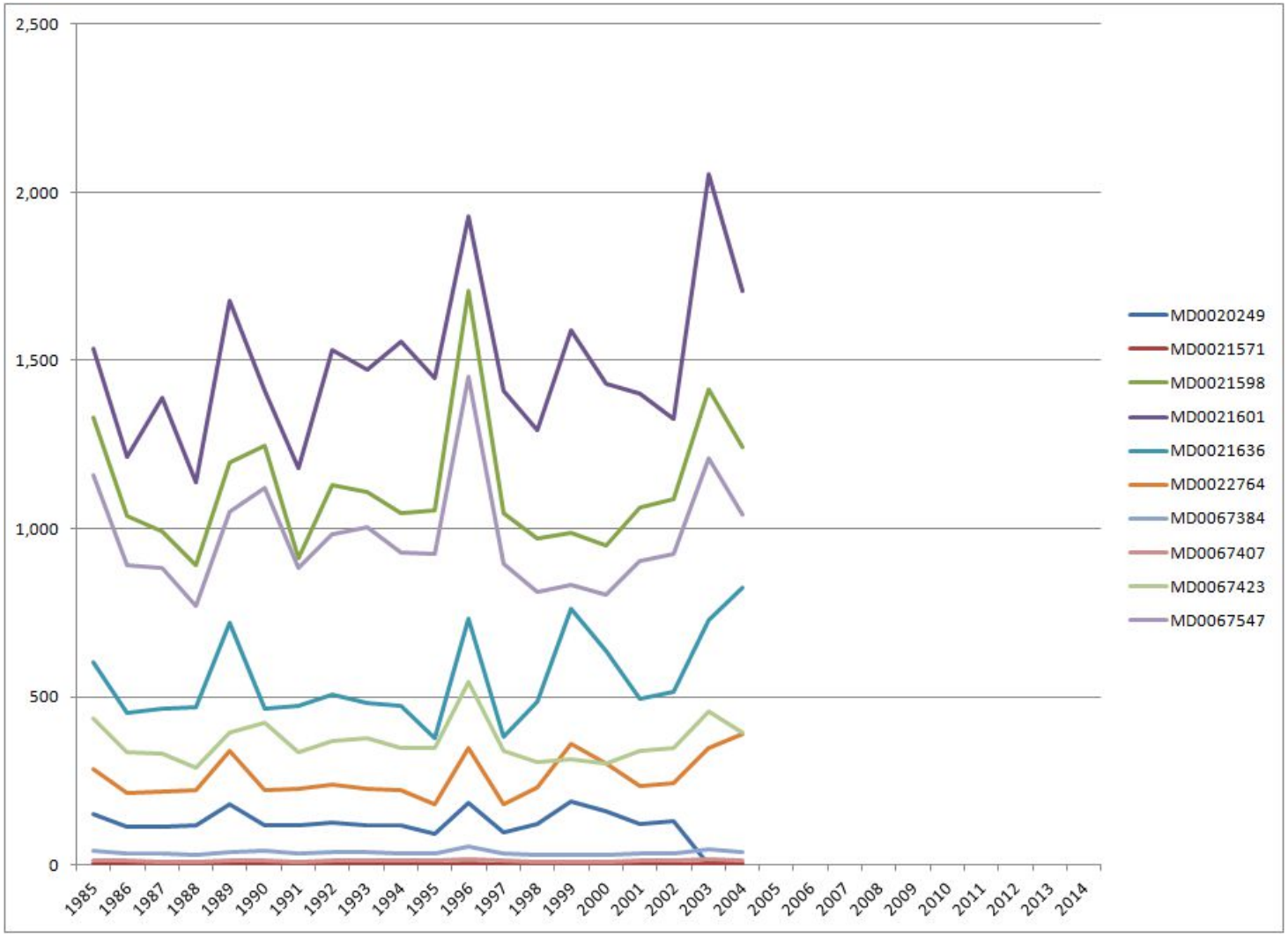
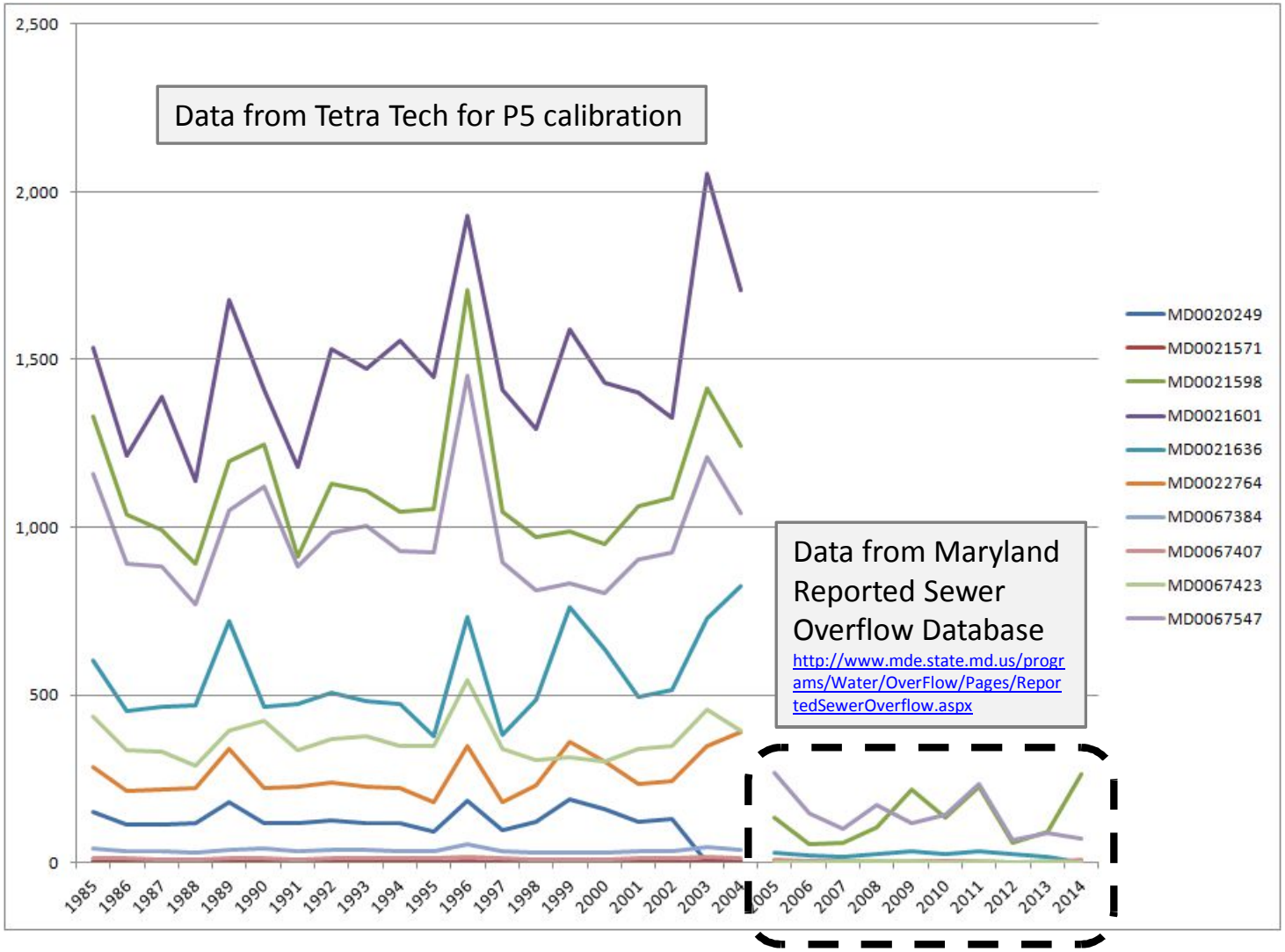
Tetra Tech Flow Estimates

Flow in million gallons per year

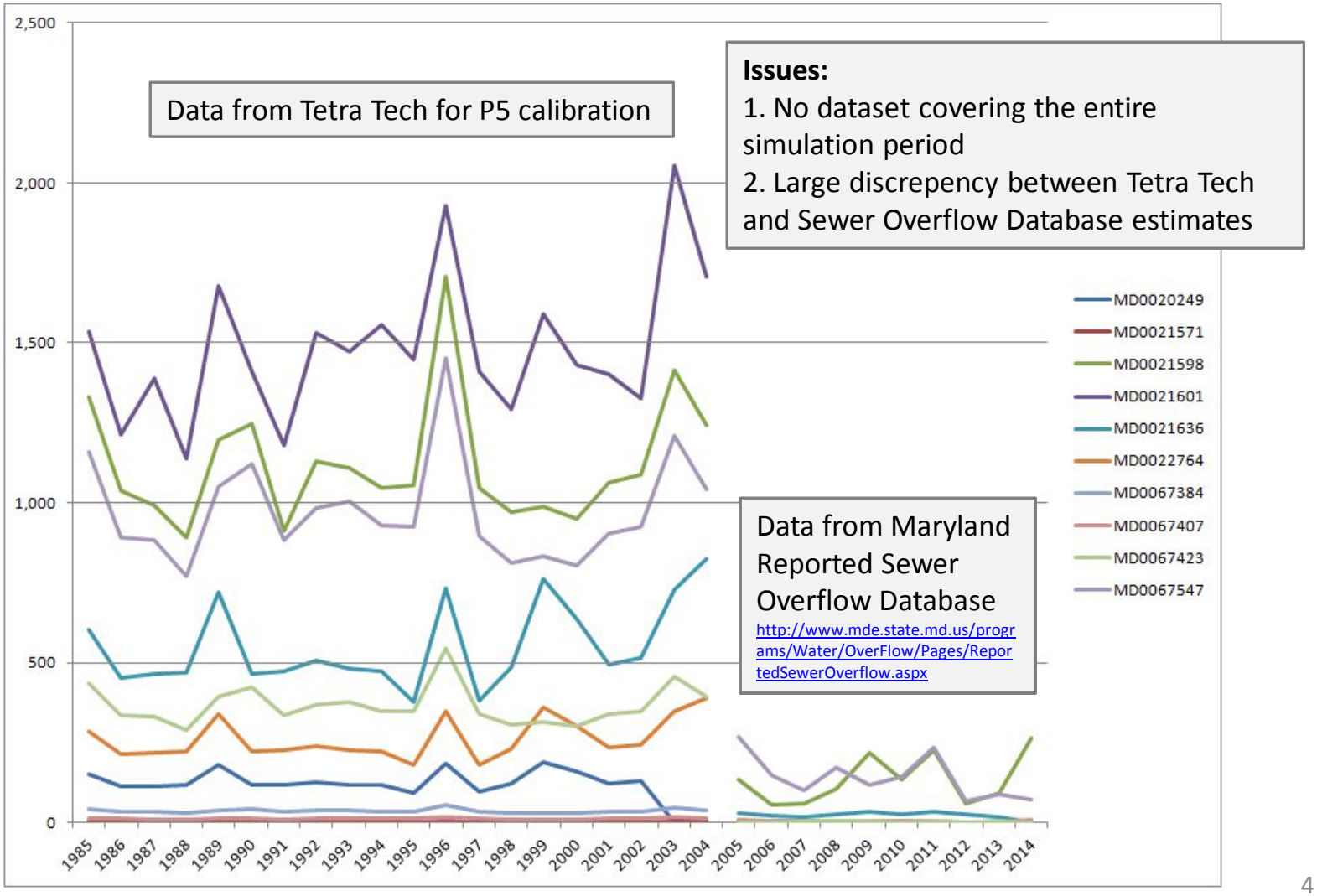


Combined Flow Estimates

Flow in million gallons per year



Combined Flow Estimates



Differences between estimates

- Why is there a significant drop between CSO flows estimated by Tetra Tech estimates and those reported in the Sewer Overflow Database?
  - Tetra Tech estimates are based off of less accurate CSO coverages and a rainfall threshold of 0.01 inches
  - Sewer Overflow Database is based on permit-required reporting
- Could this be the result of sewer separation?
  - Unlikely, decreases in MD0021598 and MD0067547 predate actual work being done
- Which is more accurate?
  - Tetra Tech is modeled while the database is reported based on actual data

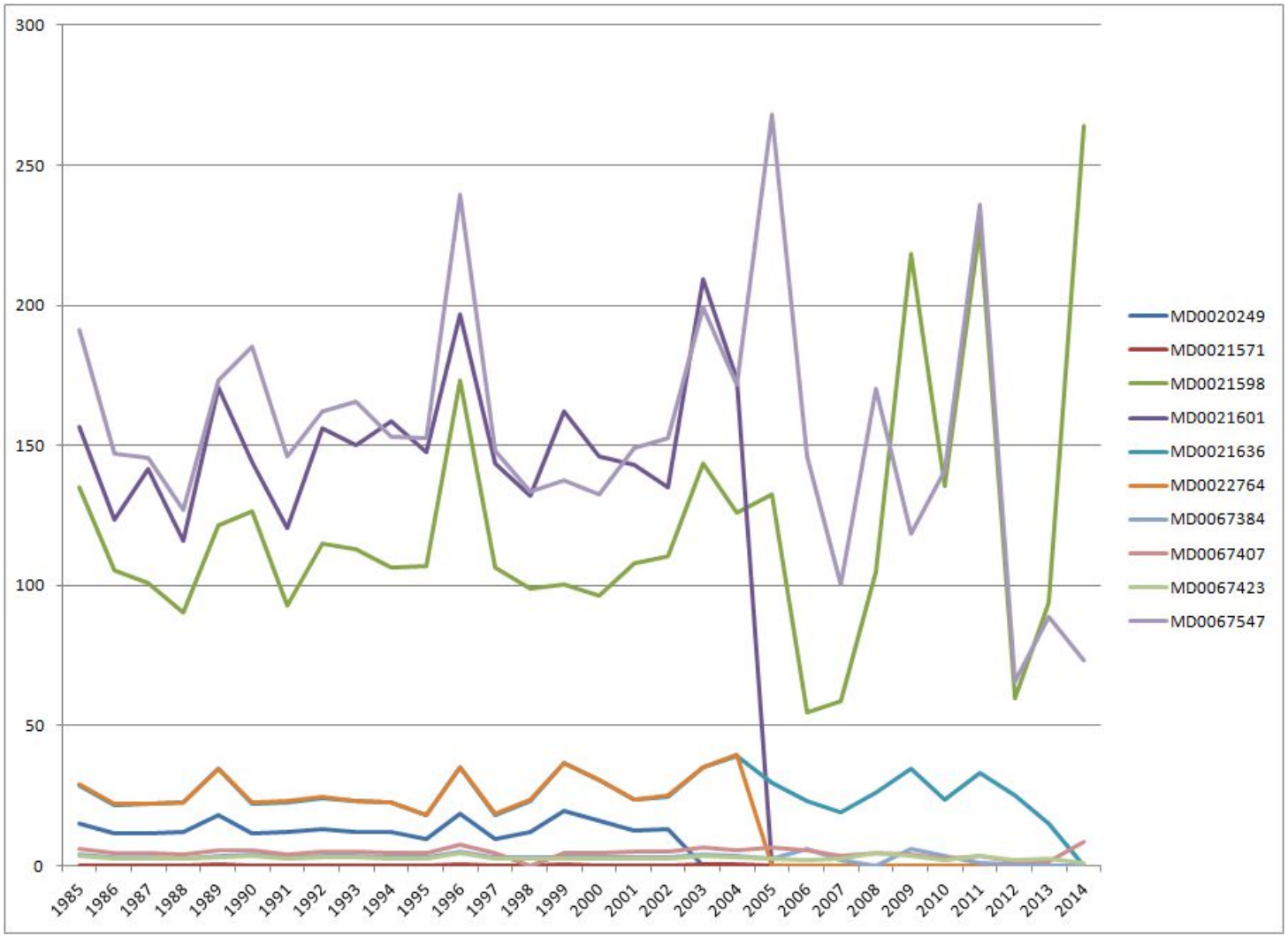
Recommendation

- Use flows from Maryland Reported Sewer Overflow Database for period 2005 to 2014
- Adjust Tetra Tech estimates for 1985 to 2004 by a factor equal to:
  - average database load divided by the average Tetra Tech flow
- Continue using Tetra Tech nutrient concentrations

NPDES	Adjustment Factor
MD0020249	0.102
MD0021571	0.102
MD0021598	0.102
MD0021601	0.102
MD0021636	0.048
MD0022764	0.102
MD0067384	0.093
MD0067423	0.008
MD0067547	0.165
MD0067407	0.425

Recommended Flows

Flow in million gallons per year



Results

- There is a significant decrease in flows and loads between P5 and P6
- Moving to reported data is likely an improvement over the previous modeling, however, there is still significant uncertainty
- CSO loads will become less of a factor as sewer separations come to completion
- Based on refinements to its CSS coverage estimates, Maryland's CSS area will be significantly lower in P6