Chesapeake Bay Basin-Jurisdiction Sediment Allocations

Water Quality Goal Implementation Team Conference Call

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SAV Water Quality Standards

- State WQS are based on achieving Submerged Aquatic Vegetation (SAV) acreage goals
  - The SAV goals established on ‘best year’ of 40-70+ year historical record dating back to the 1930s and 1950s
  - Baywide, as of 2009 only about half (46%) of the 185,000 acre SAV goal is being achieved

SAV WQS Attainment

- Acres of SAV is the primary WQS
- Total SAV acres =

  measured SAV acres +

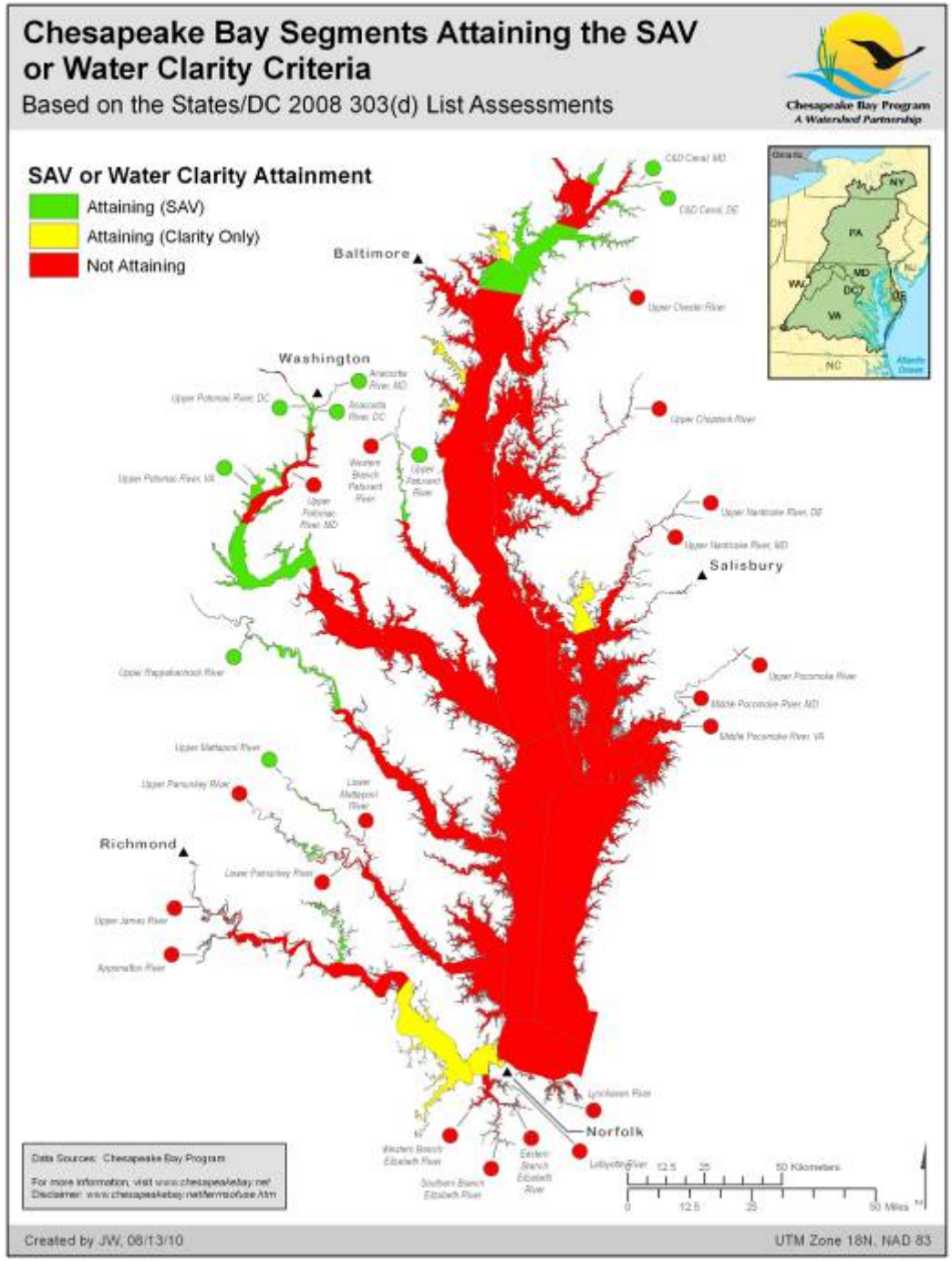
  measured clarity acres/2.5

- 303d listing based mostly on measured SAV (little shallow water clarity data)

- Of the 92 tidal Bay segments assessed by MD, VA, DE and DC, 26 achieved the jurisdiction's SAV/clarity WQ standard in their 2008 303d listings

- 20 segments ■ have mapped SAV acreages meeting the segment-specific SAV restoration acreage in the jurisdiction's WQ standards (single best year of the past three years)

- An additional 6 segments ■ were found to attain the jurisdiction's water clarity criteria based on analysis of shallow-water monitoring data



SAV/Clarity WQS Attainment Using the Bay WQ Model

1. Start with measured SAV from 1993-1995
2. Using regressions of SAV vs. load, extrapolate measured SAV acreage to allocation load
3. Add in water clarity acres from Bay WQ model simulated scenario results
   - Divide water clarity acres by 2.5 to convert to 'water clarity equivalent SAV Acres'
4. Add in 'water clarity equivalent SAV acres' to extrapolated SAV acres

Important Note!

- When **assessing** attainment using monitoring data, only the SAV acres is generally used--still have limited, but growing level of shallow water clarity data

- When **projecting** attainment using the Bay WQ model, the extrapolated measured SAV acres is added to the model projected 'water clarity-equivalent SAV' acres to determine total SAV acres

Attainment Conclusions

- The Bay WQ/sediment transport model is projecting widespread attainment at existing loading levels
  - Scientific understanding of sediments, their transport as well as the state of simulating ALL the factors influencing SAV growth (e.g., sediment composition, sources of seeds/ vegetative materials) continues to develop
- The existing SAV/WQ data shows significant non-attainment
  - 66 of 92 segments in non-attainment in 2008
  - Only 46% at the baywide restoration acreage

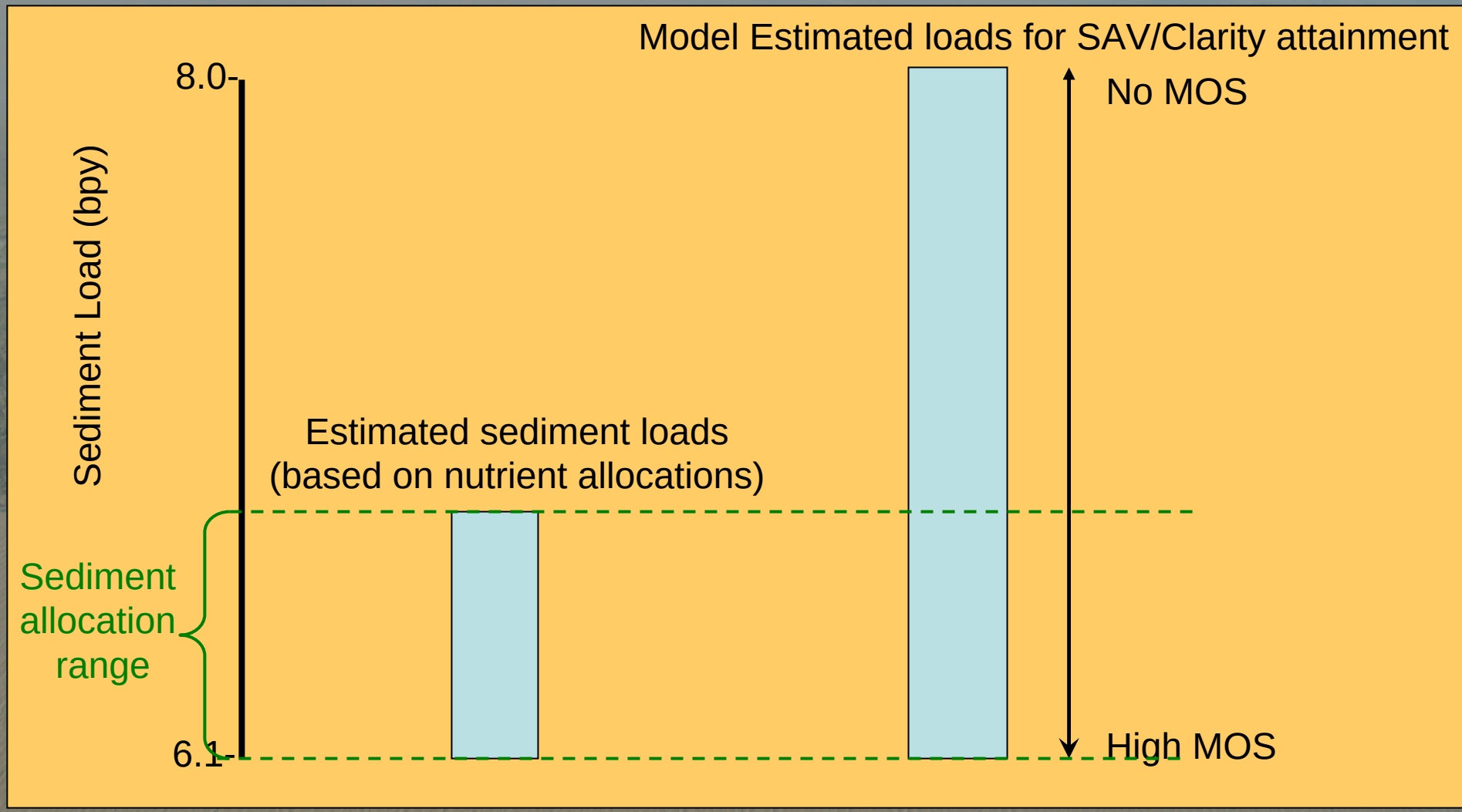
Attainment Conclusions

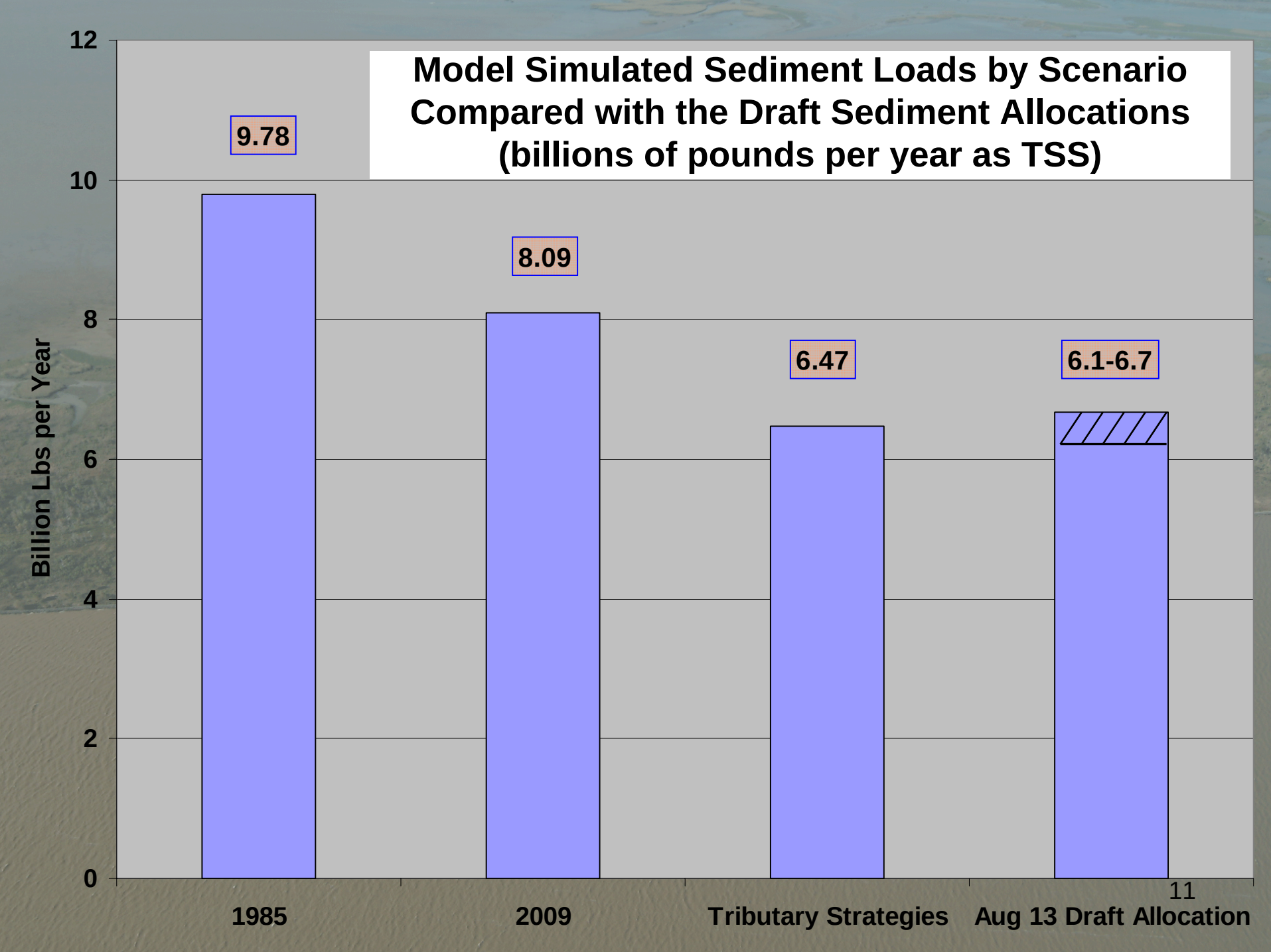
- While this apparent disagreement between measured and modeled attainment exists, remember the ‘important note’
- In a TMDL, where there is uncertainty, an explicit margin of safety is appropriate
- The draft sediment allocations reflect the application of an explicit margin of safety

Sediment Allocation Basics

- Draft nutrient allocations have been established (July 1st)
- Many nutrient controls, especially P controls, also achieve sediment reductions
- The nutrient allocations will drive substantial sediment controls

Sediment Load vs SAV/Clarity Attainment




Model Simulated Sediment Loads by Scenario Compared with the Draft Sediment Allocations (billions of pounds per year as TSS)
Billion Lbs per Year
12
10
8
6
4
2
0
9.78
8.09
6.47
6.1-6.7
1985
2009
Tributary Strategies
Aug 13 Draft Allocation

Basin-Jurisdiction Sediment Allocations

- Set basin and jurisdiction ranges that add up to the bay-wide range of 6.1-6.7 bpy
- Gives states some flexibility in draft WIPs
- Based on state draft WIPs, the draft TMDL will have single number sediment allocations for the 92 segments
  - May need to redistribute sediment loads among some segments to achieve SAV WQS
- Based on final WIPs and public input, the final TMDL will have single number sediment allocations

Chesapeake Bay Watershed Sediment Draft Allocations by Basin	
Basin/Jurisdiction	**Sediment Allocation Range (million pounds total suspended solids (TSS) per year)**
Susquehanna	2,013-2,214
Eastern Shore	256-281
Western Shore	155-171
Patuxent	82-90
Potomac	1,920-2,113
Rappahannock	681-750
York	107-118
James	852-937
Total Basinwide Draft Allocation	**6,066-6,673**

Chesapeake Bay Watershed Sediment Draft Allocations by Basin	
Basin/Jurisdiction	**Sediment Allocation Range (million pounds total suspended solids (TSS) per year)**
Pennsylvania	1,903-2,093
Maryland	1,116-1,228
Virginia	2,446-2,691
District of Columbia	10-11
New York	293-322
Delaware	58-64
West Virginia	241-265
Total Basinwide Draft Allocation	**6,066-6,673**