

The background of the slide is a composite of two aerial photographs. The top half shows a wide river, likely the York River, flowing through a wooded landscape with some residential areas. The bottom half shows a school campus with several buildings, a large parking lot, and various sports fields including a baseball field, a soccer field, and tennis courts.

# Urban Fertilizer Update

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Water Quality Goal Implementation Team

June 26, 2023

# Here's What We Learned

NAQWA took us down the wrong road



After further investigation, we learned:

NAWQA data, although sourced from AAPFCO data, are substantially different

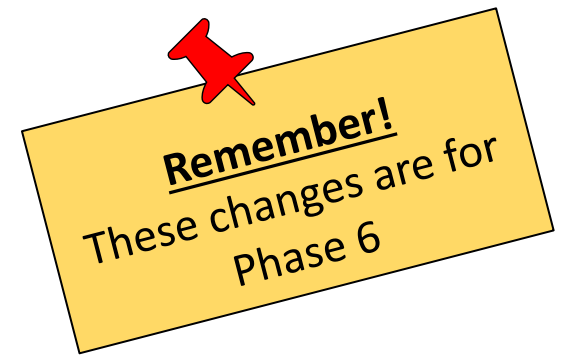
Data processing methods are correct

Fertilizer sales data from AAPFCO needed to be updated



Big Issue: NAWQA data are very different from raw AAPFCO data

# Urban Fertilizer: Where We Are



4/18/23

- Presentation on current methods to USWG

5/16/23

- UNM Task Force recommendations to USWG
- Data and smoothing methods for Phase 6
- VA voted "hold"

Today

- Inform WQGIT

5/3/23

- Meeting with UNM Task force to discuss proposed methods changes for Phase 6

Late May

- VA moved off hold with further discussion
- Recommendation for changes to data and methods approved

USWG = Urban Stormwater Workgroup

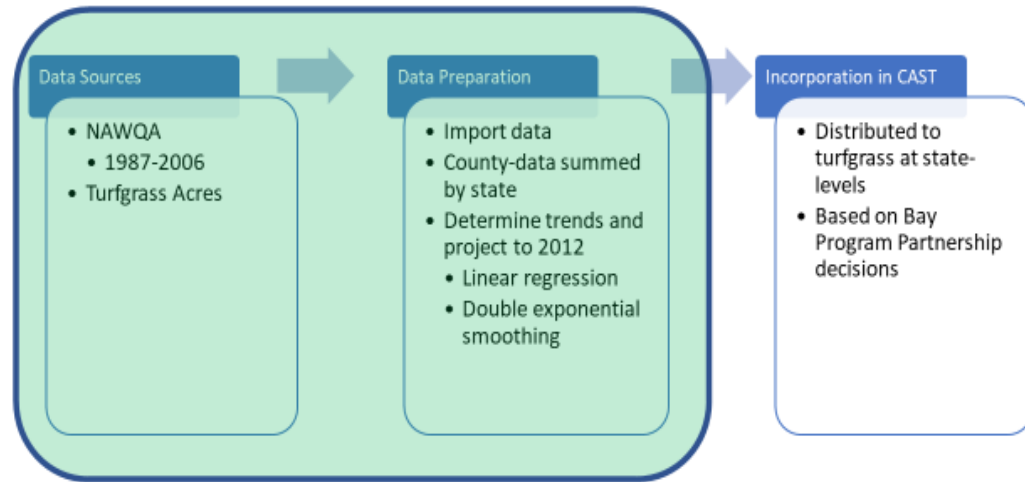
UNM = Urban Nutrient Management

WQGIT = Water Quality Goal Implementation Team



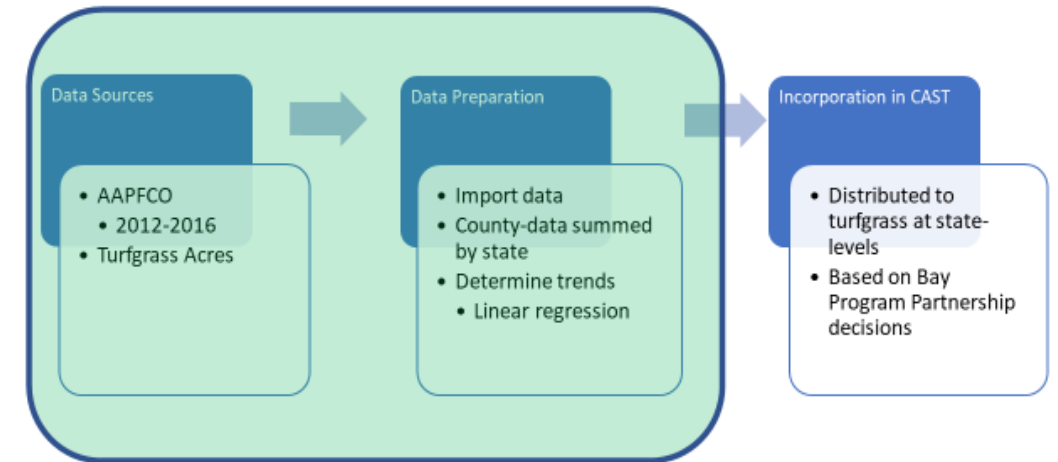
# Previous Method For Turfgrass Application Rates

## 1) NAWQA Data Processing



National Water-Quality Assessment = U.S. Geological Survey (USGS) report with estimated county-level farm and non-farm nitrogen and phosphorus input from commercial fertilizer sales for 1987 – 2006. Based on American Association of Plant Food Control Officials (AAPFCO) data.

## 2) AAPFCO Data Processing



AAPFCO = American Association of Plant Food Control Officials commercial fertilizer sales data

# NAWQA and AAPFCO Non-Farm Data: all states- CBW counties only

## Total Nitrogen (TN)



## Total Phosphorus (TP)



NAWQA  
AAPFCO

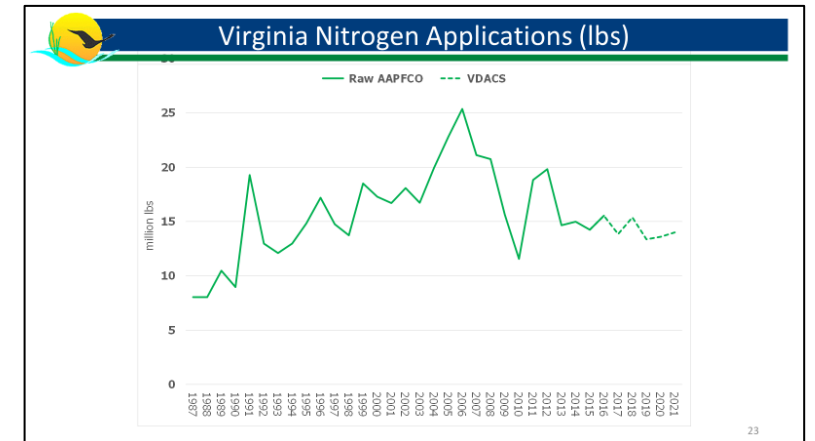
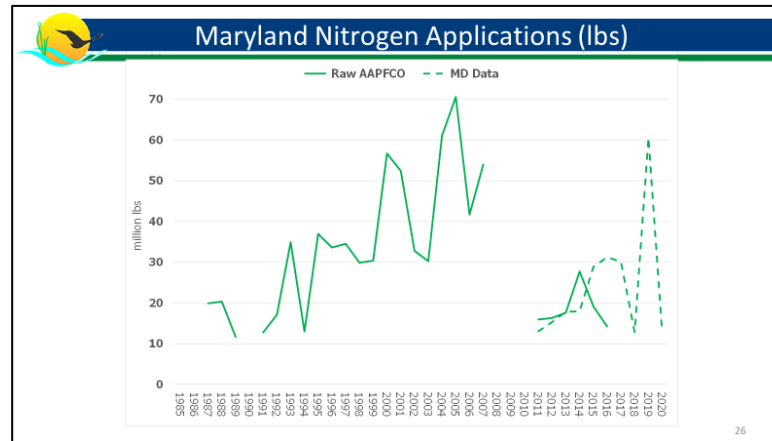
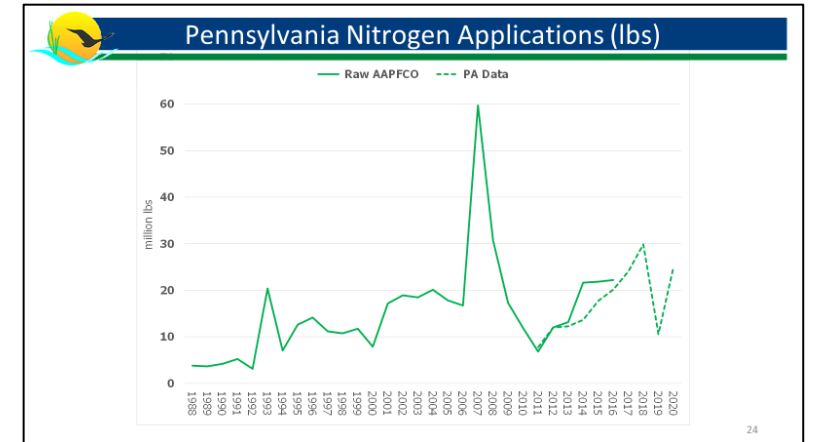
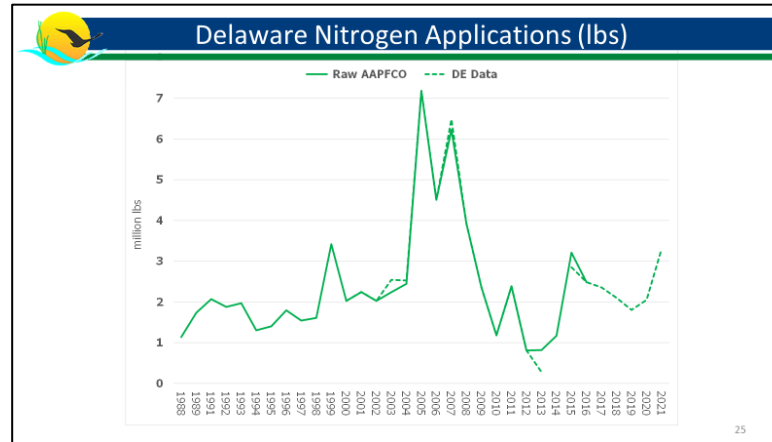
Raw urban (non-farm) data from **NAWQA** and **AAPFCO**.  
Trends lines are shown to elucidate differences between data sources.  
*These trend lines are **not** used in the processing methods.*

## Nitrogen Applications (lbs)

State  
Provided  
Non-Farm  
Applications  
are Similar to  
AAPFCO (and  
more recent)

### Note

State supplied data are  
basis for AAPFCO data, so  
it's more than just similar

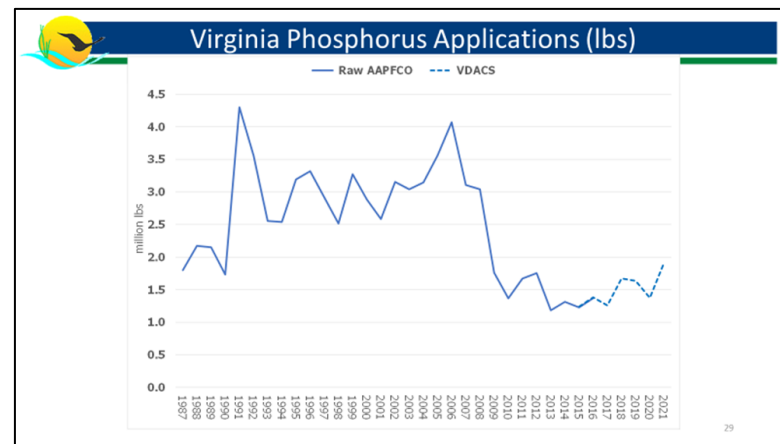
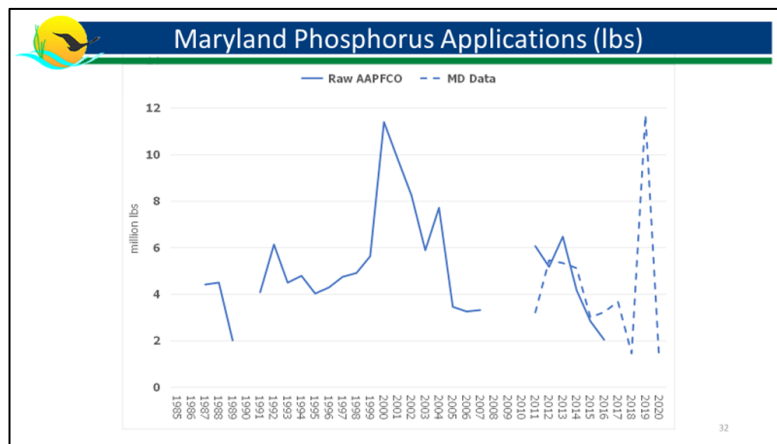
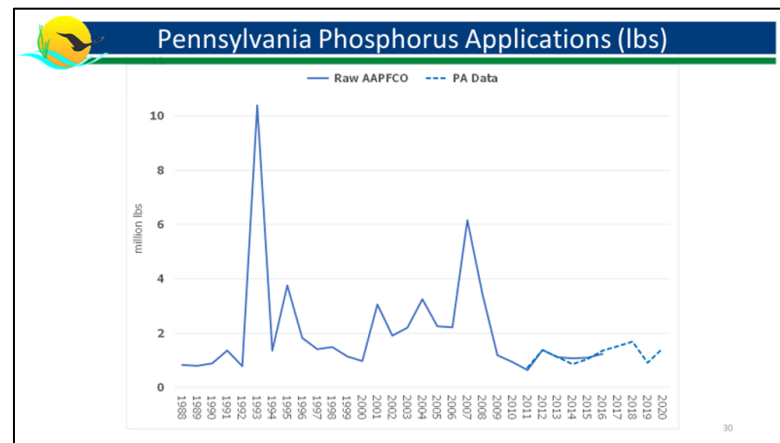
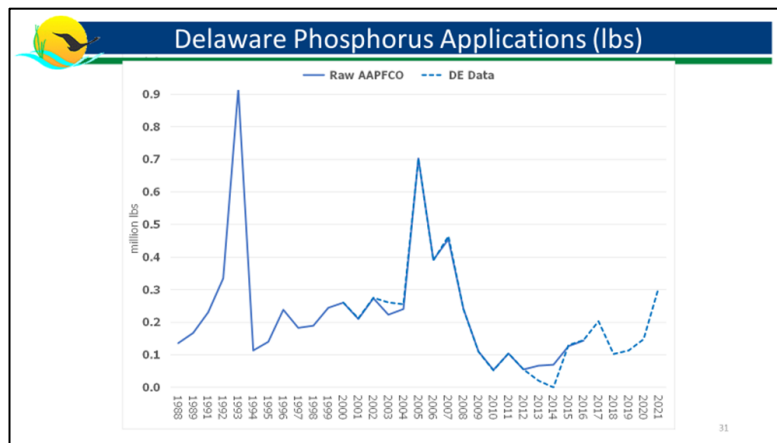


# Phosphorus Applications (lbs)

State  
Provided  
Non-Farm  
Applications  
are Similar to  
AAPFCO (and  
more recent)

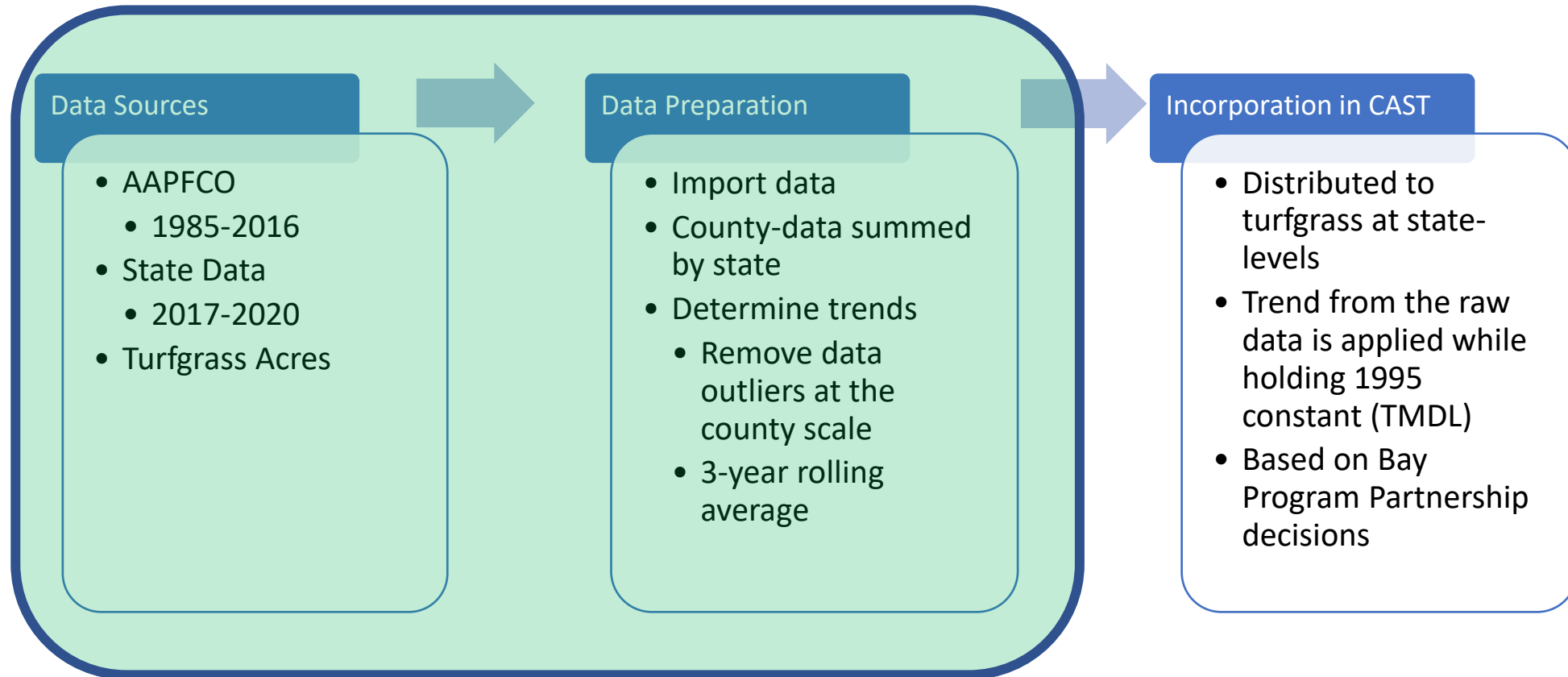
## Note

State supplied data are  
basis for AAPFCO data, so  
it's more than just similar



# New Method for Determining Turfgrass Application Rates

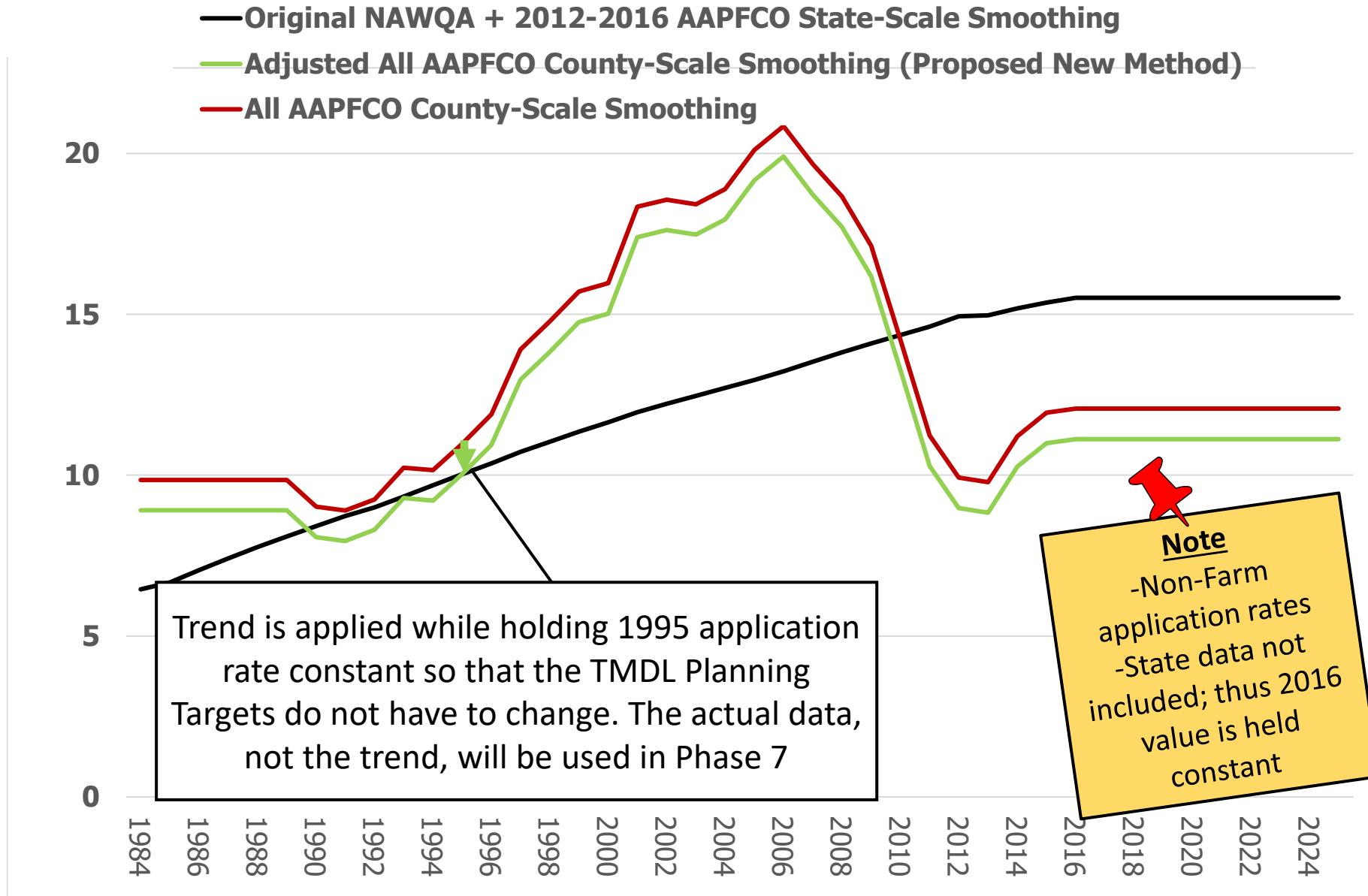
American Association of Plant Food Control Officials (AAPFCO) + State Data





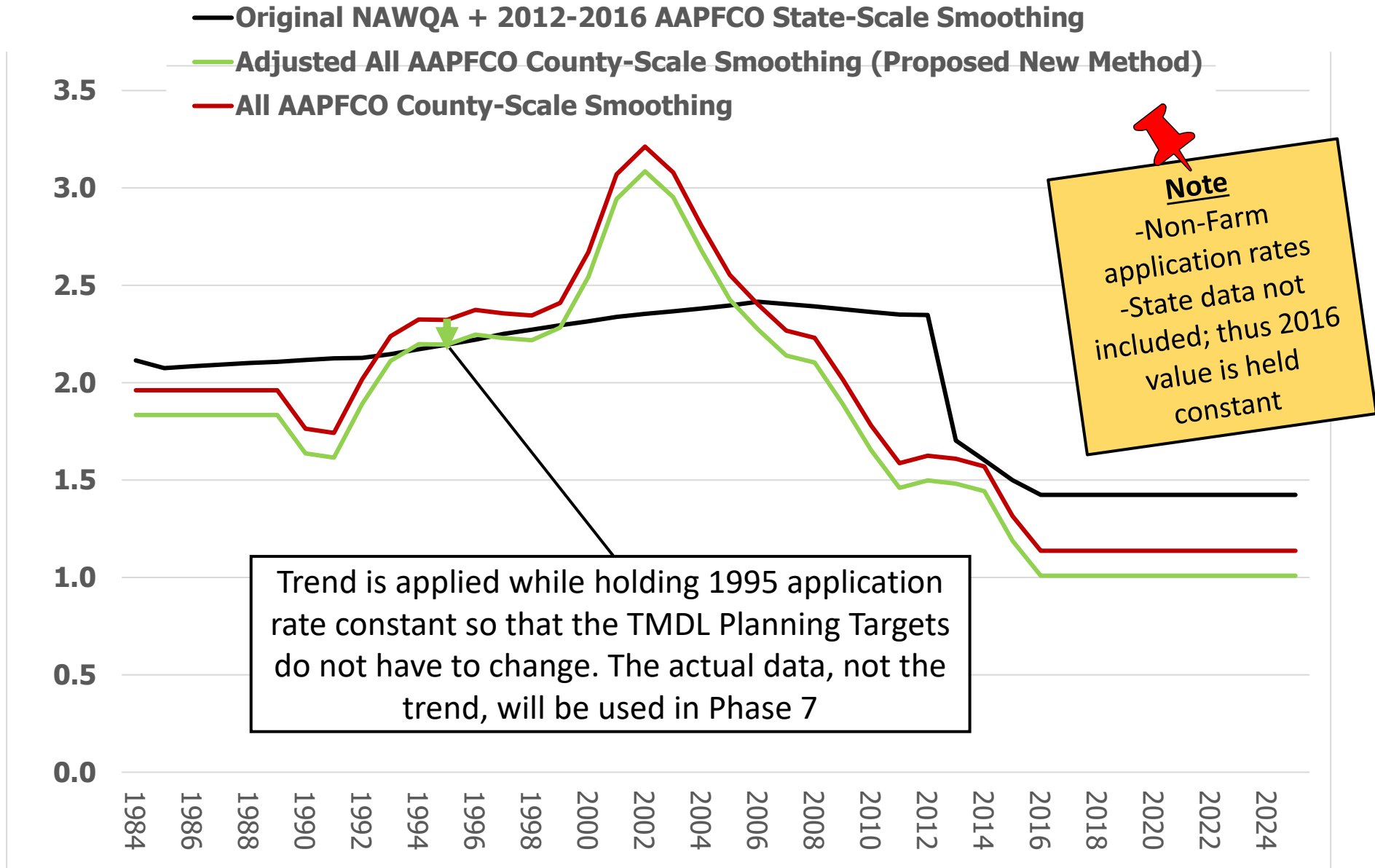


# Chesapeake Bay Watershed Nitrogen Applications (lbs/acre)





# Chesapeake Bay Watershed Phosphorus Application Rates (lbs/acre)



# Urban Stormwater Workgroup Decisions



Use AAPFCO data for the entire period of record

Use instead of NAWQA data



County-scale smoothing method



Incorporate data from states/jurisdictions, if possible

If new information is not available, lock in last available year of data to at most, 2-years prior to the present date

Takes care of latency with AAPFCO data



An aerial photograph of a school campus. In the foreground, there is a large school building with a white roof and orange-brown walls. To the left of the building is a large parking lot filled with cars. To the right of the building are several sports fields: a baseball field, a soccer field, and a football field. In the background, a large lake with a bridge crossing it is visible. The surrounding area is mostly wooded with bare trees, suggesting a late autumn or winter setting. The word "Questions?" is overlaid in the center of the image in a large, white, sans-serif font.

# Questions?





# Urban Fertilizer Turfgrass Application Rates

Presented to the Urban Stormwater Workgroup on May 3, 2023

Comparison of Previous Method (Black Lines) and New Method (**Green** Lines)

Following slides include rates for nitrogen and phosphorus for each state/jurisdiction.

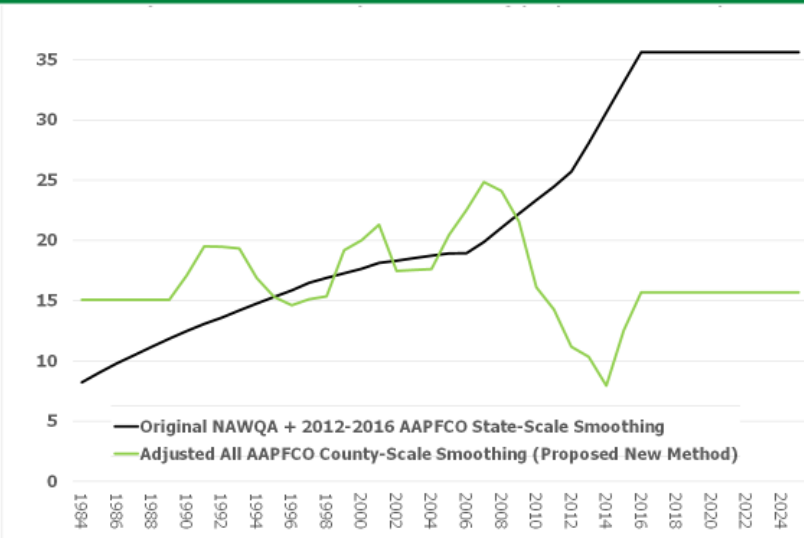
*Does not include state provided data. 2016 value was held constant*



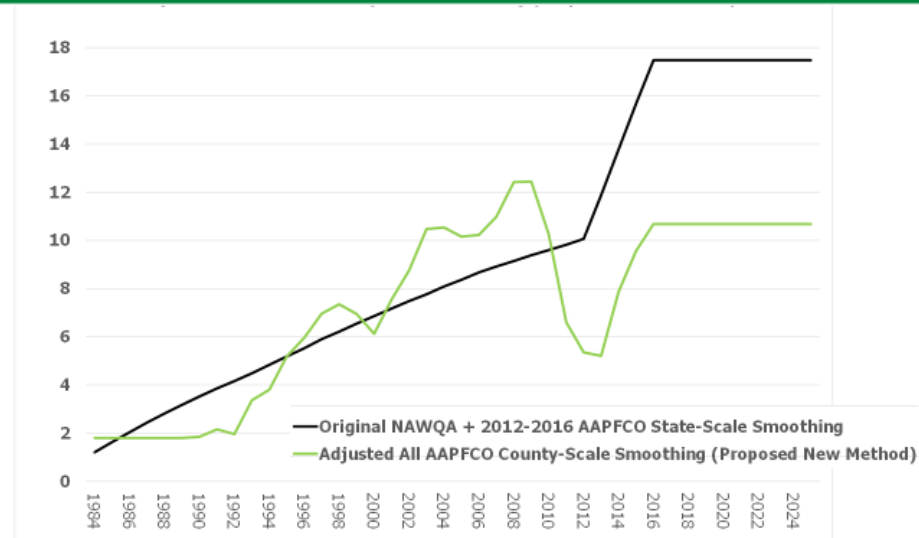




## Delaware Nitrogen Application Rates (lbs/acre)



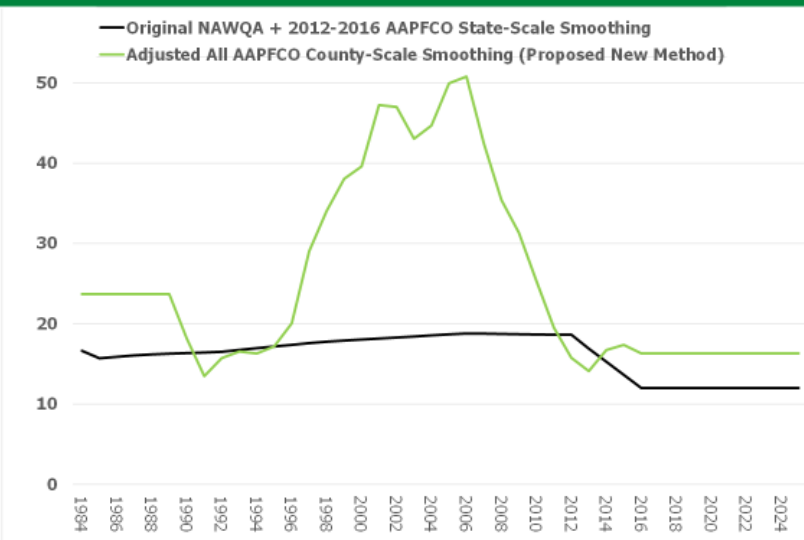
## Pennsylvania Nitrogen Application Rates (lbs/acre)



42



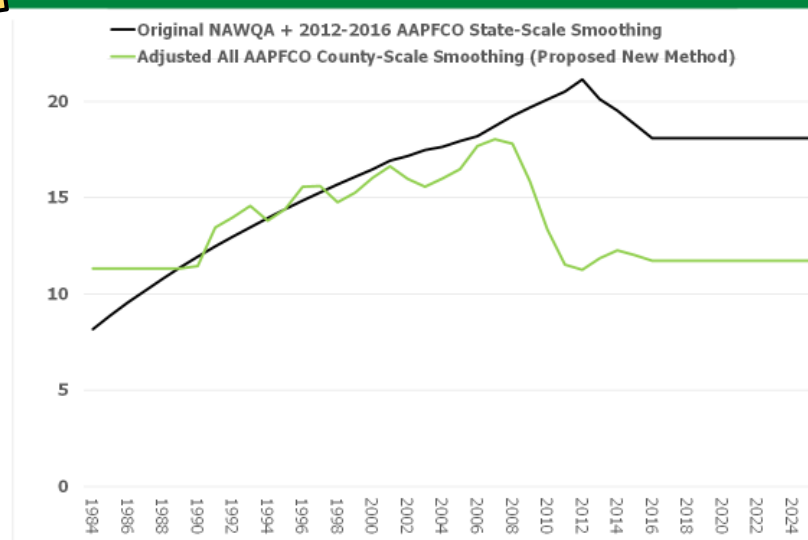
## Maryland Nitrogen Application Rates (lbs/acre)



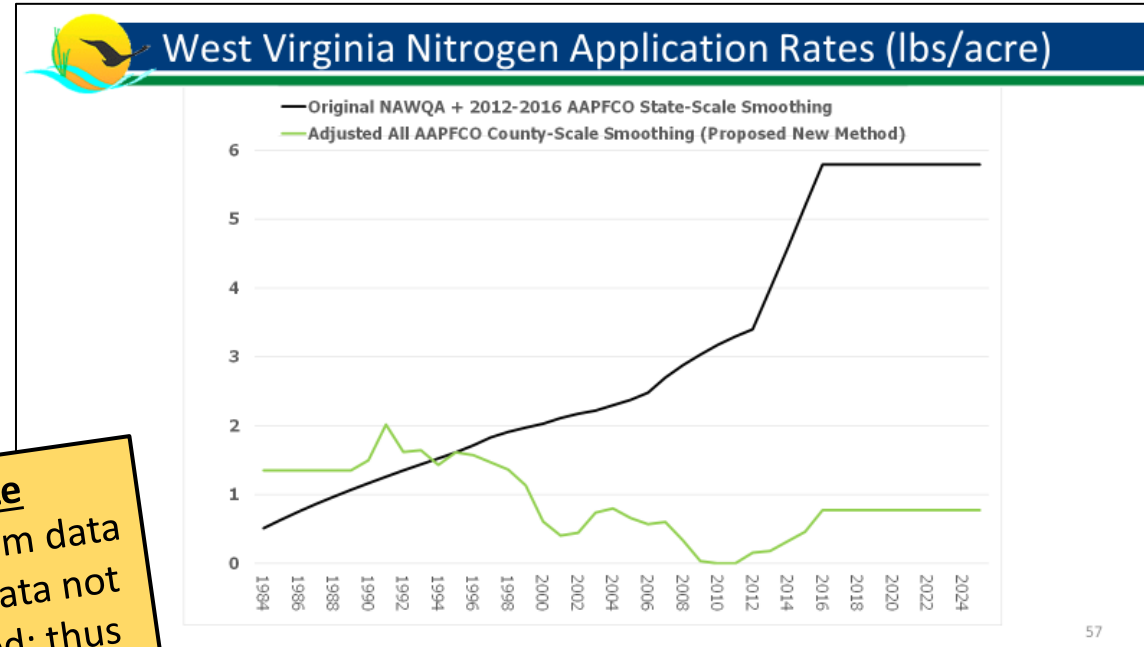
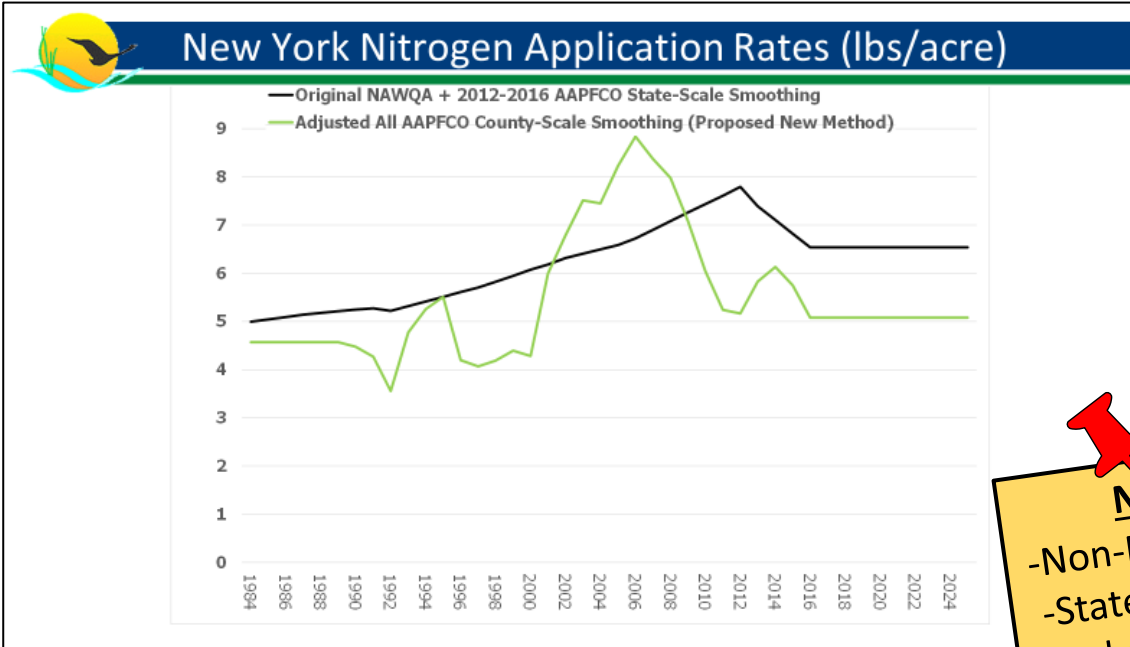
47

**Note**  
-Non-Farm data  
-State data not  
included; thus  
2016 value is  
held constant

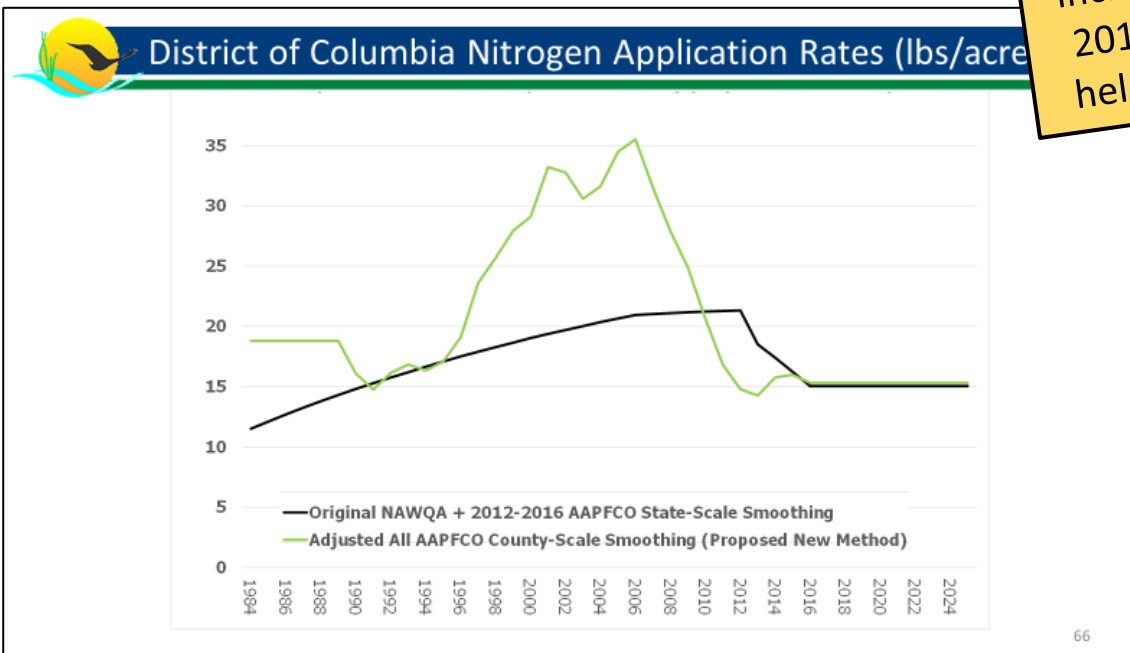
## Virginia Nitrogen Application Rates (lbs/acre)



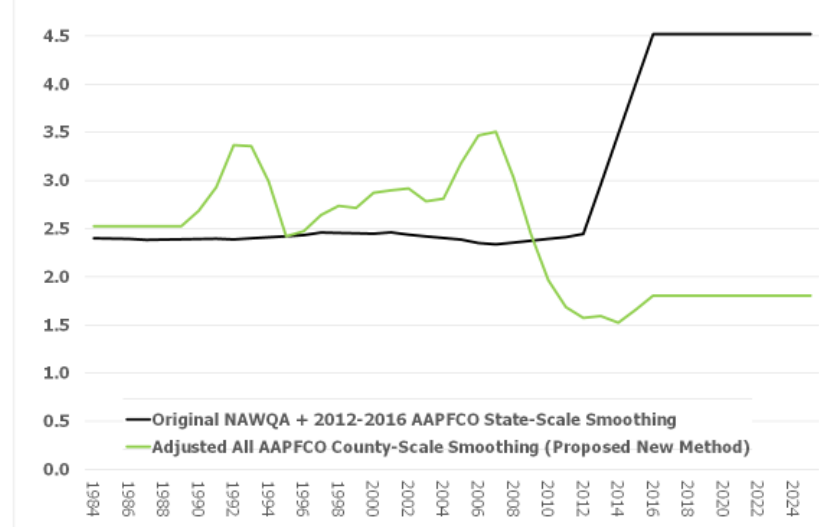
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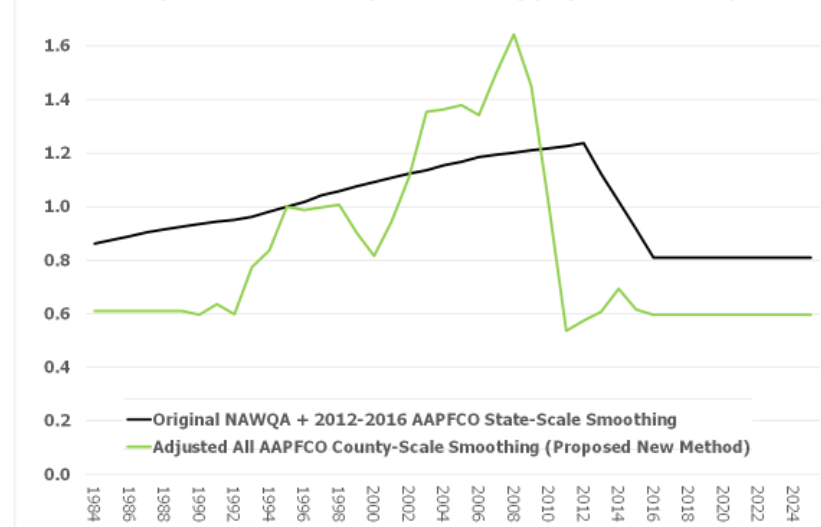
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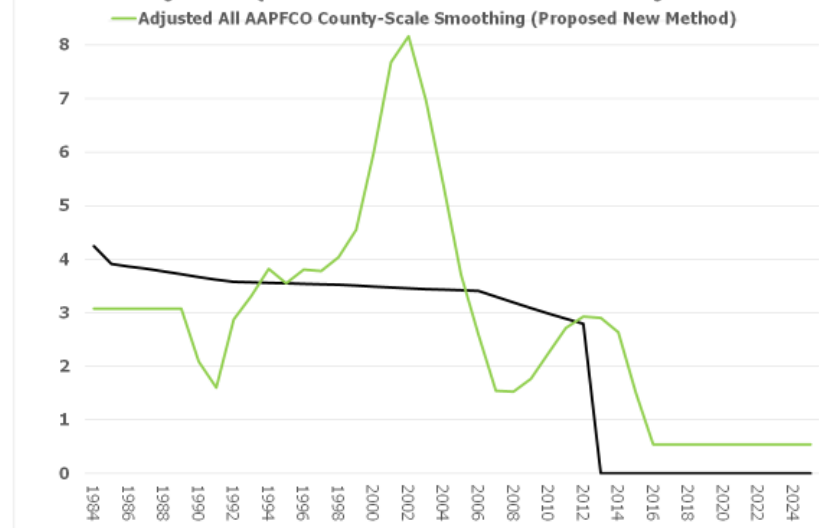
# Delaware Phosphorus Application Rates (lbs/acre)



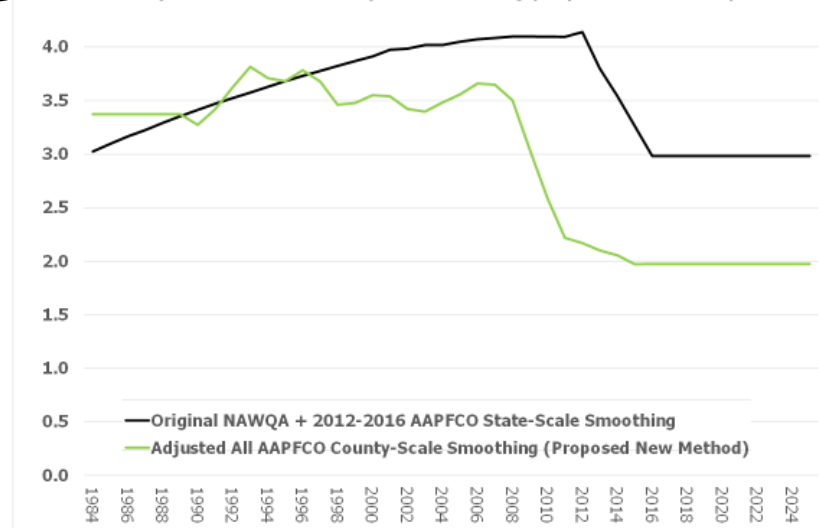
# Pennsylvania Phosphorus Application Rates (lbs/acre)



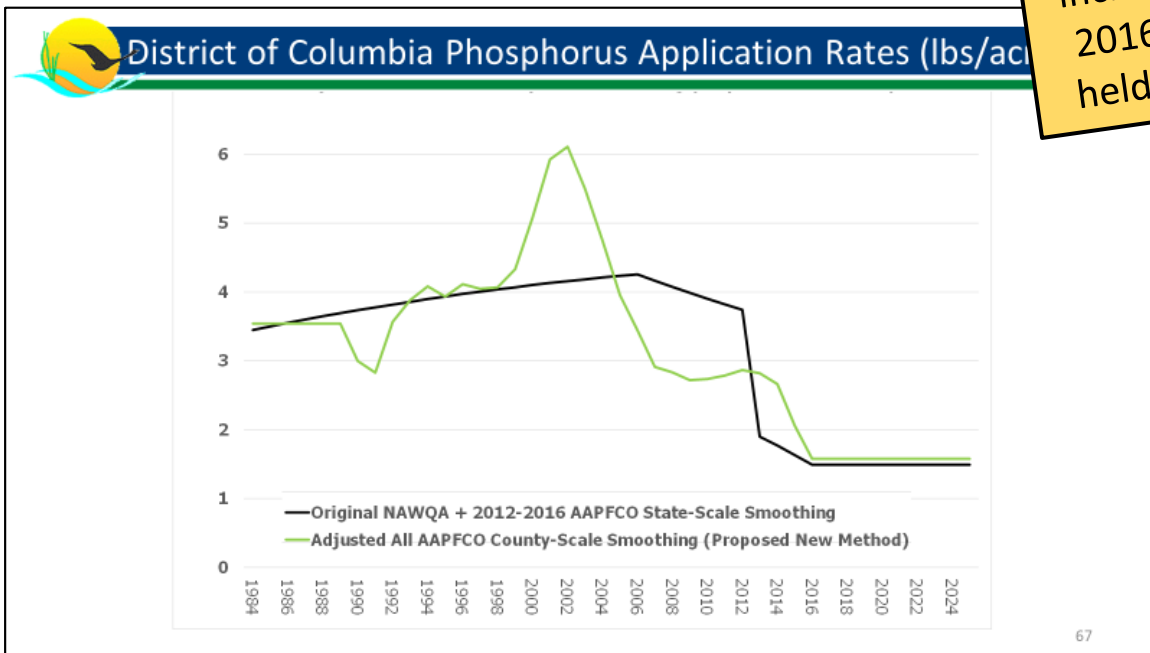
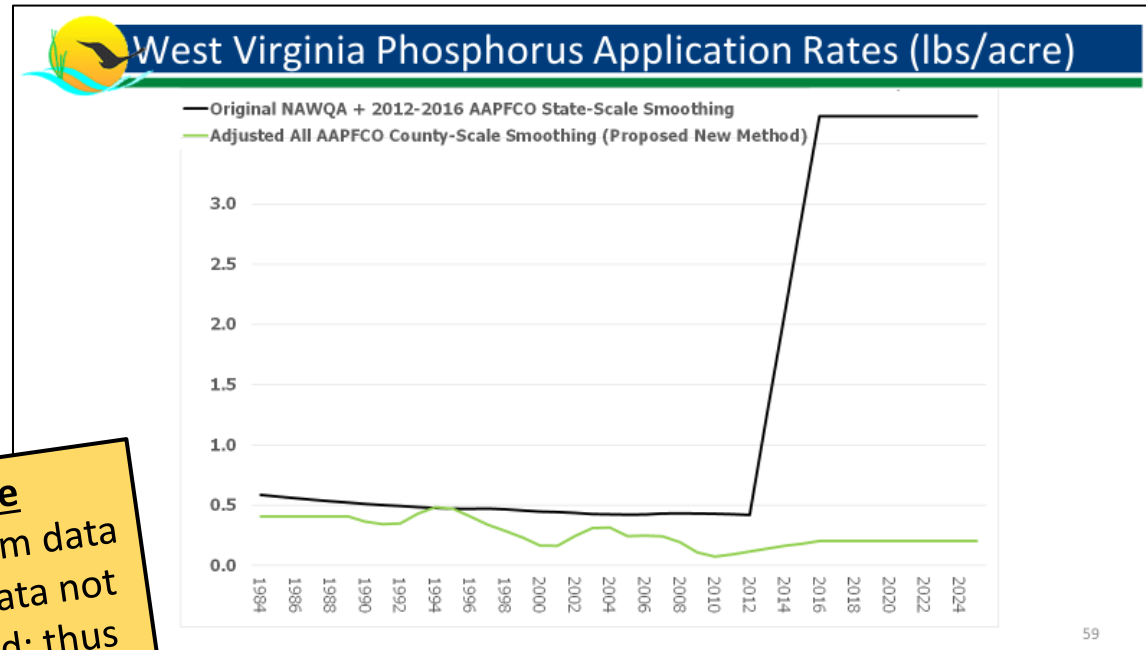
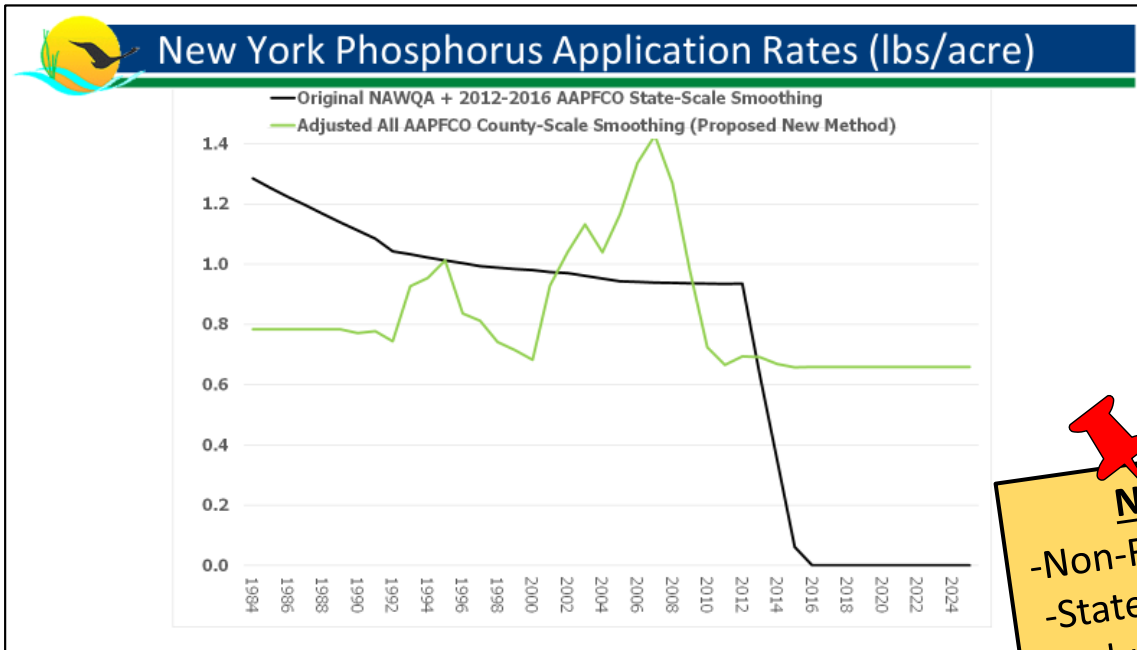
# Maryland Phosphorus Application Rates (lbs/acre)



# Virginia Phosphorus Application Rates (lbs/acre)



**Note**  
-Non-Farm data  
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