Urban Nutrient Management Task Force

Meeting Notes: May 3, 2023

**Attendees:**

David Wood (CSN); Jeff Sweeney (EPA), Kaylyn Gootman (EPA), Norm Goulet (NVRC), Olivia Devereux (Devereux Environmental Consulting), Greg Sandi (MDE), Dave Montali (Tetra Tech), KC Filippino (HRPDC), Jamie Eberl (PA DEP), David Dressler (PA Dept of Ag), Elaine Webb (DNREC), Jess Rigelman (JR7), Sushanth Gupta (CRC), Helen Golimowski (Devereux Consulting), Cassandra Davis (NYS DEC), Cecilia Lane (DOEE), Kevin DuBois (DoD), Lee McDonnell (EPA) Tom Butler (EPA)

**Introduction:**

Norm convened the meeting and provided a recap of the most recent meeting (April 18) and reviewed what the group would be seeing during the meeting. The UNM Task Force will be looking at the impacts of dropping the USGS NAWQA method for an entire history of AAPFCO data for establishing urban fertilizer application rates in Phase 6.

**Jeff Sweeney Presentation:**

Jeff presented on the existing method and the impacts of shifting to the new, proposed method. Major takeaways are summarized below:

* The original CAST21 method used NAWQA linear regression from 1987-2006 to develop application rates. A forecast was then made with double exponential smoothing up to 2012. Then AAPFCO data was used for 2012-2016 using a linear regression. Rates were then held constant from 2016 to the present.
  + NAWQA is a USGS program that no longer exists. NAWQA processed AAPFCO data for a shorter time period. Their processing removed outliers and smoothed the trend for the period that they had.
* Methods involve first removing outliers, THEN getting the 3-year rolling avg
* The proposed method eliminates the NAWQA data and replaces it with the entire history of AAPFCO data back to 1987. Outliers are then removed at the county scale by replacing data points that are outside 2 standard deviations with the average of two years of available data closest in time (often the year before and after). Then, we would take the 3-year rolling average.
* Once the pounds are determined, county data are summed to the state scale and that is divided by turfgrass acres to establish the application rate in lbs/acre.
* The last step is to shift the time series of the rates so 1995 application rates are equal between the two methods. This step ensures that we maintain the original model estimate of level of effort.

**Discussion:**

* Dave Montali: What about counties where county of use is unknown? If we use AAPFCO, a lot of times non-farm fertilizer county of sale is unknown.
  + Jess R.: Currently, those get dropped from this analysis. We can include them, but we don’t have a method for how to proportion them.
  + Dave M.: We don’t have a method to distribute, so I’d recommend leaving it alone.
* Questions about county level reporting of no fertilizer application
  + This has come up several times, but would have to be dealt with in Phase 7, most likely as a BMP update to the UNM report. The biggest challenges are how to track and report these acres, and then how do we shift the pounds to other acres if we take them out of one county (the total bucket stays the same).
* So far, there is consensus with the proposed approach.

Norm asked the group about two recommendations:

* Is there agreement to recommend the use the method proposed for the time period up through 2016? Switch from NAWQA to AAPFCO database, with county level outlier removal, followed by 3-year rolling avg?
  + Full consensus, no objections were raised
* Is there a consensus recommendation for whether to including state data from 2016 going forward? The existing rule is to lock in the 2016 rate going forward. We now have state data from four states (MD, VA, DE, PA) that aligns well with AAPFCO that extends out to more recent years. We would not change the method, just extending the data with state data.
  + There was recognition that we haven’t seen what the application rates would look like on a state scale if we were to extend the agreed upon smoothing method with new data.
  + Question: Since acquisition of 2017 AAPFCO data is in-process, would we lock in the 2016 data, or use the 2017 data when it comes in?
    - Recommendation to lock in rates at 2016 vs 2017 since it is in-hand already and we don’t have a timeline for when 2017 data would be ready.
  + All AAPFCO through 2016, but after 2016, decision needs to be made about whether to use state data vs AAPFCO
  + Recommendation that AAPFCO data be used for all states through 2016. For states that have state-data, those would be used for more recent years, even if AAPFCO data also become available. For states without state-data, they would lock in the 2016 application rates.
    - Full consensus agreement, no objections

FINAL RECOMMENDATION:

The UNM Task Force recommends to the Urban Stormwater Workgroup that they replace NAWQA data with the entire record of AAPFCO data (up through 2016). They also recommend a data smoothing method that removes outliers at the county-scale, then takes a 3-year rolling average. If a state has data after 2016, those data will be used instead of holding the 2016 rate constant. If a state does not have more recent data, the 2016 rate will be locked in and carried forward through time.

**Meeting Adjourned**