



BMP Verification and QAPPs

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Water Quality GIT Meeting
February 11, 2019



2018 Progress Scenario

Verification

- EPA CBPO did a preliminary review of data submissions received by the December 3, 2018 deadline – for verification purposes
- EPA CBPO staff sent emails December 21, 2018 with preliminary verification findings to those jurisdictions who met the December 3 submission deadline
- Deadline for response to potential verification issues was January 9, 2019



2018 Progress Scenario

Verification

- Verification emails asked each jurisdiction to further explain the quality of particular data that potentially could be over-reported or BMP project information that was illogical
- Also, charted jurisdiction-wide nutrient loads by major source 2009-2018 and asked for comments on what the jurisdiction attributed significant ($>2\%$) 2017-2018 increases/decreases to?



2018 Progress Scenario

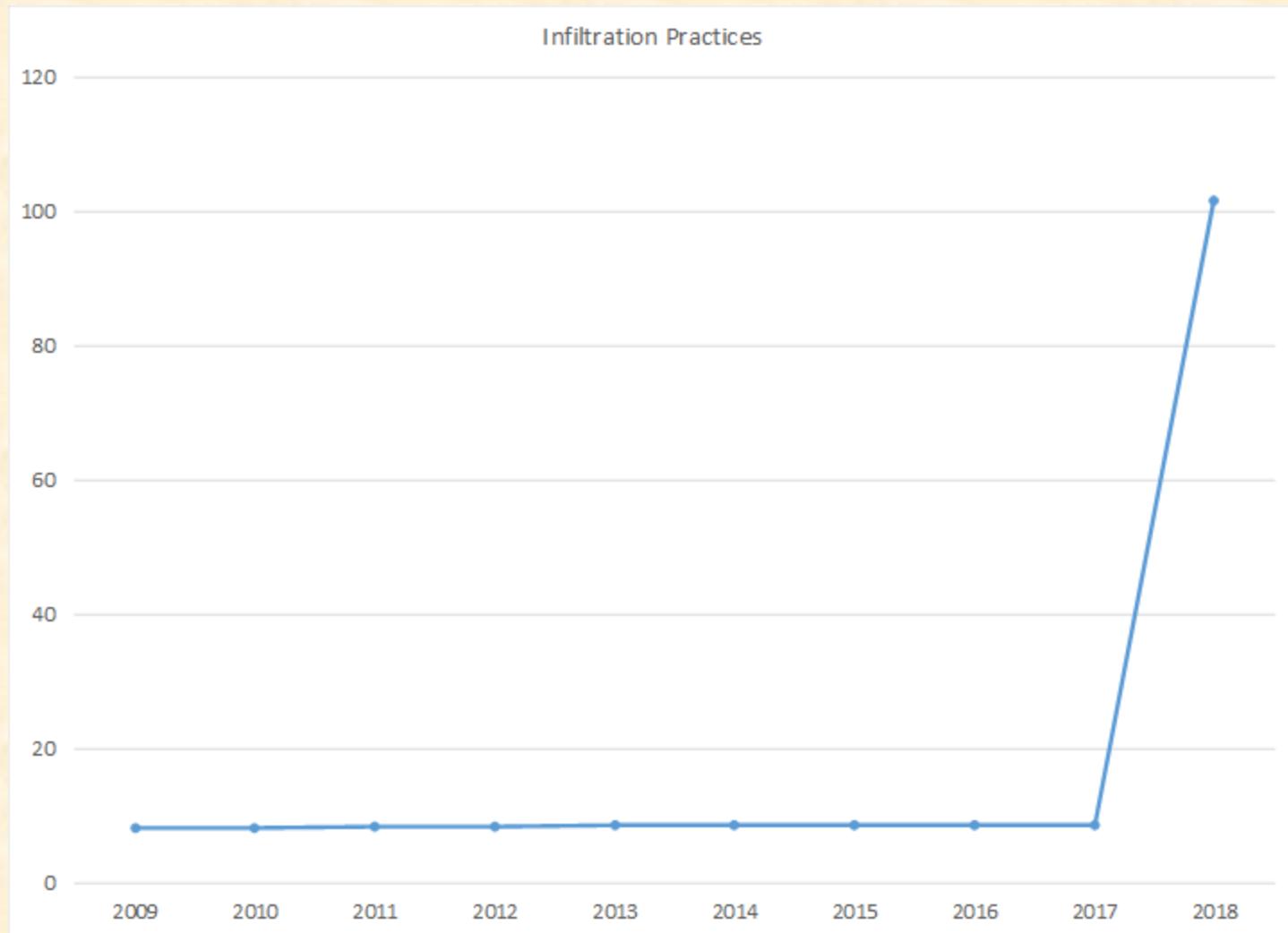
Verification

- Potential Verification Issues – Newly Reported BMPs
 - BMPs where there is no reported historic implementation before 2018 Progress
 - “Please identify the sections and page numbers in your state BMP Verification Program Plan (QAPP) where there’s an explanation of the quality of the data for each of the following BMPs (compliance program, visual inspection, etc.) and why each BMP has not been previously reported. For example, does this represent new on-the-ground implementation between 7/1/17 and 6/30/18 – or a new source of data – or both?”



2018 Progress Scenario Verification

- Potential Verification Issues – Newly Reported BMPs





2018 Progress Scenario

Verification

- Potential Verification Issues – Potential Over-Reporting
 - BMPs where the 2017-2018 rate of implementation is more than double the 2009-2017 annual rate
 - “For each of the BMPs below, please explain the significant increase in the rate of implementation between 7/1/17 and 6/30/18 compared to the longer-term (2009–2017) annualized implementation rate. For example, does the new implementation represent stronger programs and, if so, highlight the program – or a new source of data – or both? See the BMP charts below for each of the highlighted practices.”



2018 Progress Scenario

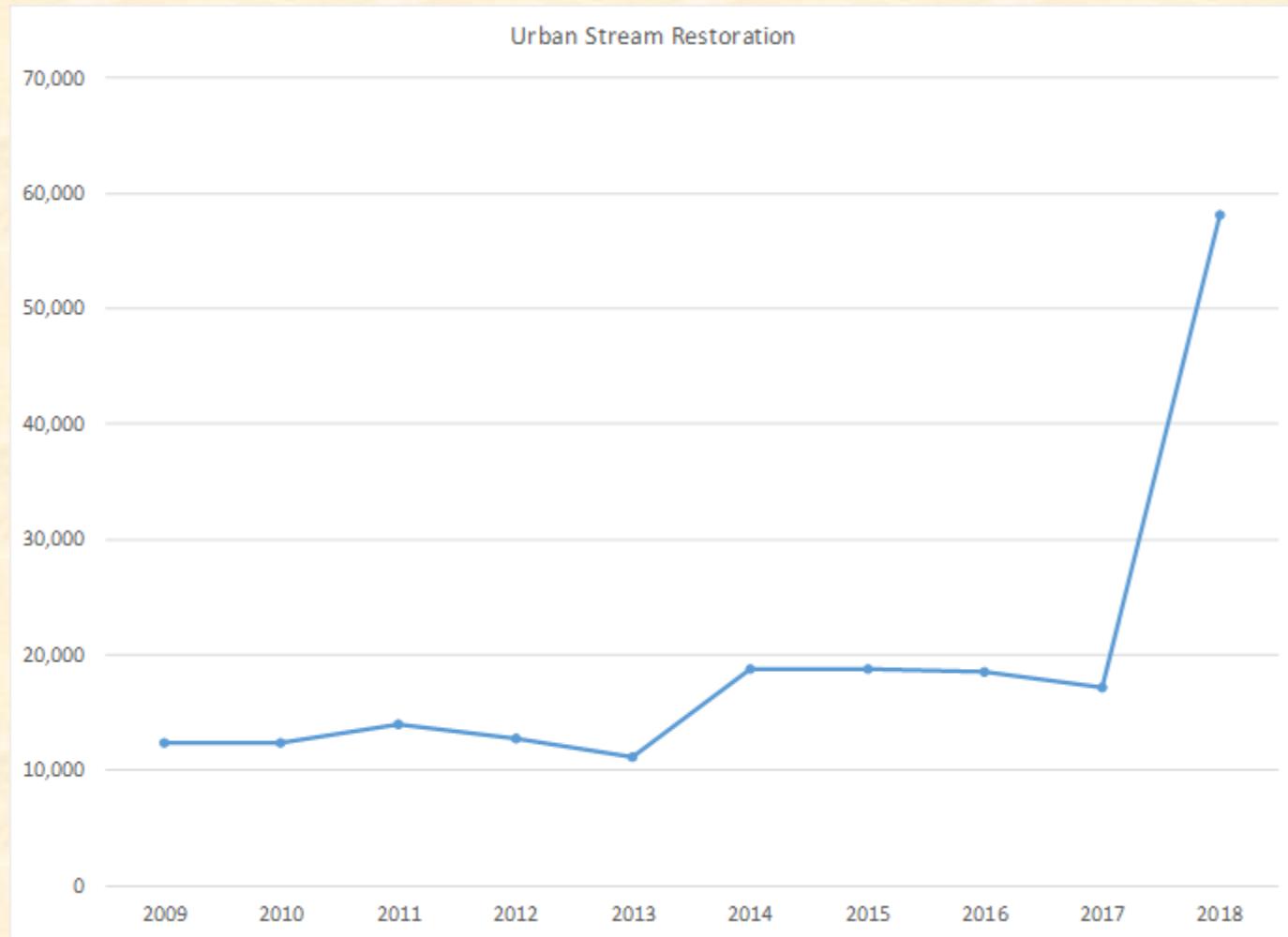
Verification

- Potential Verification Issues – Potential Over-Reporting
 - The same rules of potential “over-reporting” applied to every BMP and every jurisdiction
 - Looked at “Summary BMP” table at state-wide scale
 - Similar analyses had been used for 15+ years by the CBP office, typically with less-formal exchanges, e.g., emails and one-on-one calls with each jurisdiction about Progress data



2018 Progress Scenario Verification

- Potential Verification Issues – Potential Over-Reporting





2018 Progress Scenario

Verification

- Potential Verification Issues – Reported Dates
 - “For the BMP records within the period 7/1/17 – 6/30/18, the following implementation dates and/or inspection dates are repeated a significant number of times.”
 - “Are these accurate implementation and/or inspection dates and, if not, why are dates not being tracked and reported for the associated BMPs?”
 - For example:
 - 78% of the [7,630] BMP records over the reporting period are in 4 groups of the same date.
 - Where in the jurisdiction’s QAPP is this explained, e.g. what sections and page numbers?



2018 Progress Scenario

Verification

- Remember, we are trying to asses the quality of reported data – which should be described for each BMP in each jurisdiction's BMP Verification Program Plan – which should follow protocols developed by the WQGIT, workgroups, including BMP Verification Committee and its advisory group
- Wealth of verification information at
https://www.chesapeakebay.net/what/programs/bmp_introduction_to bmp_verification



2018 Progress Scenario

Verification

- According to CBP Grant Guidance, in the event that data are not submitted in time, are inaccurate, or do not use the appropriate NEIEN or wastewater formats for the CBPO to calculate annual progress, the CBPO will use the previous year's data submitted by a jurisdiction or will not account for implementation of the BMP or control measures.



2018 Progress Scenario

Verification

- BMPs reported through NEIEN for the 2018 Progress as new or re-inspected implementation that do not have approved verification protocols reflected in the jurisdiction's QAPP will not be credited. The exceptions are Nutrient Application Management (core and supplemental) since the deadline for establishing quality compliance data for these program was extended for another year for all jurisdictions.



2018 Progress Scenario

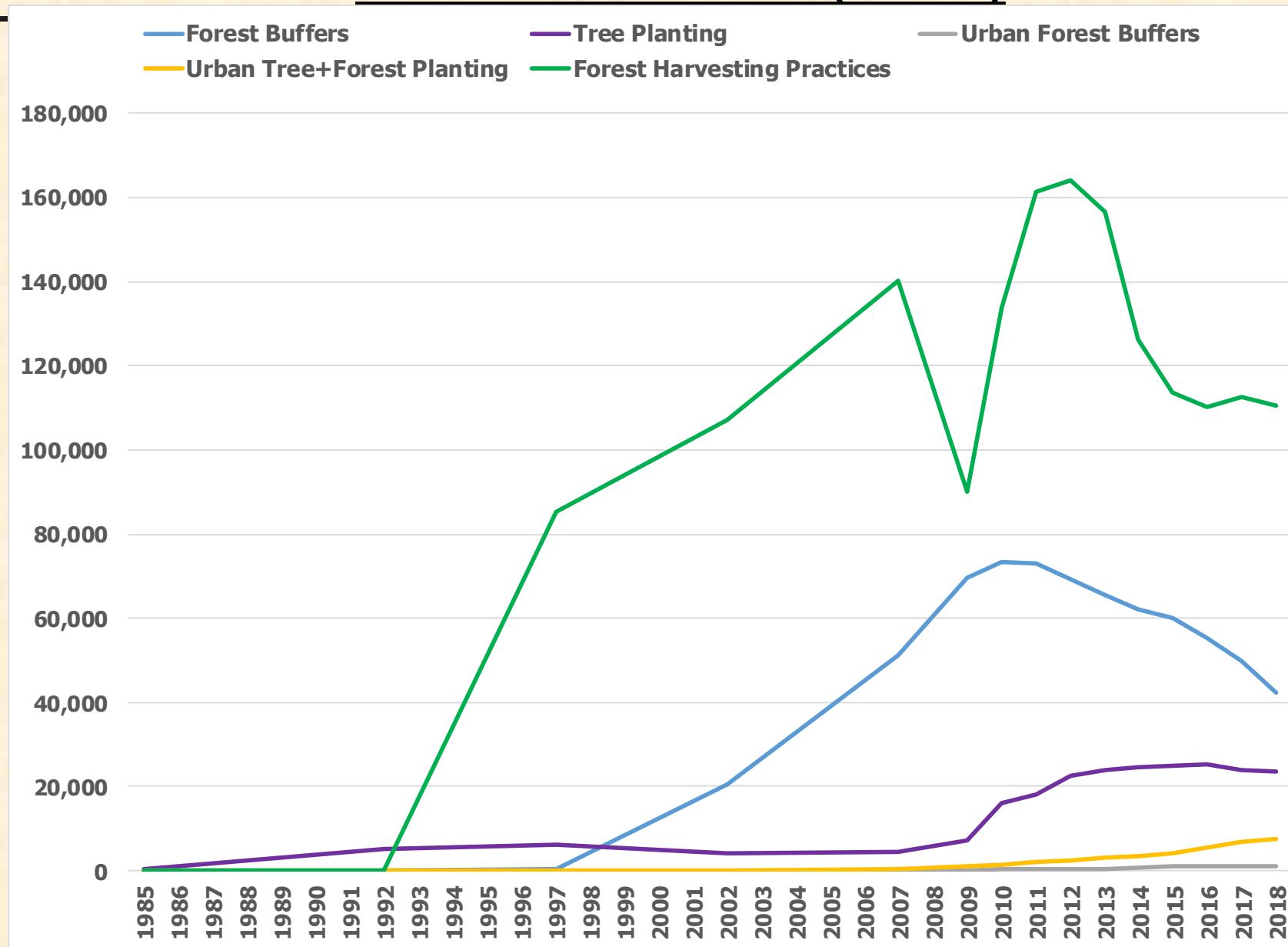
Verification

- One of most significant components of verification is credit-life – where BMPs are automatically dropped from the database unless reported as re-inspected and functioning or maintained – which resets the “credit” clock
 - Inspected and passed
 - Did maintenance
- This procedure came from the CBP partnership’s direction and approval



CB Watershed Reported Forestry BMPs

1985 – draft 2018 (acres)



Strengthening Verification of BMPs Implemented in the CBW: A Basinwide Framework



On May 4, 2011, the NRC [National Research Council of the National Academy of Sciences] released the report, "Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation." The NRC Committee reached a number of findings and conclusions about the Bay Program's BMP tracking and accounting efforts, including:

- *Accurate tracking of BMPs is of paramount importance because the Bay Program relies upon the resulting data to estimate current and future nutrient and sediment loads to the Bay.*
- *The current accounting of BMPs is not consistent across the Bay jurisdictions. Additionally, given that some source-sector BMPs are not tracked in all jurisdictions, the current accounting cannot on the whole be viewed as accurate.*
- *The committee was unable to determine the reliability and accuracy of the BMP data reported by the Bay jurisdictions.*
- *The committee was not able to quantify the magnitude or the likely direction of the error introduced by BMP reporting issues.*

Strengthening Verification of BMPs Implemented in the CBW:

A Basinwide Framework



There are local, state, and federal programs with strong BMP verification programs in place and working effectively in carrying out the principles. However, the Bay Program partners recognize none of the seven jurisdictions' existing BMP tracking, verification and reporting programs, across all sectors and habitats, fully achieves all five principles. The National Academy of Science's in-depth evaluation of the Bay Program partners' existing practice accountability systems made that very clear.

Strengthening Verification of BMPs Implemented in the CBW: A Basinwide Framework



The BMP Verification Review Panel recommended the jurisdictions focus on:

- *Taking full advantage of their choice to vary the level of BMP verification based on the relative importance of a specific practice to achieving the jurisdiction's Watershed Implementation Plan nutrient and sediment pollutant load reduction targets.*
- *Grouping the hundreds of BMPs they will be tracking and reporting into categories that make sense for each jurisdiction and then develop and document the appropriate protocols and procedures followed for each logical grouping of BMPs.*
- *Structuring their verification programs to carry out an initial inspection for answering the question "is the BMP there?" and then follow-up checks carried out at the appropriate frequency to answer the question "is the BMP still there and operating?" throughout the lifespan of the practice.*
- *Providing documentation on procedures in place which prompt the need for conducting a follow-up check of a BMP at the end of its approved lifespan and for removing BMPs which go beyond their lifespans and are not follow-up checked to confirm the BMP is still there and operational.*
- *Having written procedures in place for assuring the quality of the BMP data for which the jurisdictions are now accountable for, which includes any practice data reported to the jurisdictions by other local, regional, and federal agencies, and non-governmental organizations.*

Strengthening Verification of BMPs Implemented in the CBW:

A Basinwide Framework



Section 3. "Development and Documentation of the Jurisdictional BMP Verification Programs", pages 23-24

Aim High or Explain Why. The Panel asks jurisdictions to adopt the "robust" levels of verification over time described in the respective workgroups' BMP verification guidance (see Appendix B) or explain in their quality assurance plan why they cannot, recognizing the legal as well as funding issues that may impede the levels of BMP verification recommended by the six workgroups.

Strengthening Verification of BMPs Implemented in the CBW:

A Basinwide Framework



Annual Progress Reporting, pages 47-48

CBPO Review of Annual Implementation Progress Data Submissions.
Chesapeake Bay Program Office staff will review the jurisdictions' annual NEIEN-based submissions of implementation progress data for the documentation of verification as part of their routine evaluations of the quality and completeness of the submitted data. The annual progress data reviews will be conducted following the specific guidelines and protocols agreed to by the Bay Program partners through the Watershed Technical Workgroup. Any implementation progress practice data submitted without the required verification documentation will be returned to the jurisdiction for incorporation of required documentation and resubmission.

Strengthening Verification of BMPs Implemented in the CBW:

A Basinwide Framework



Table A-1. Transparency Addendum to the BMP Verification Public Confidence Principle

Transparency means operating in a way so any outside reviewer can determine what actions were taken, which data were synthesized to generate a report or conclusion, how data was collected and obtained, what measures were employed to ensure data accuracy, who is responsible for data collection and synthesis, who is responsible for ensuring data accuracy, and the methods of data analysis utilized.

- 1. The measure of transparency will be applied to three primary areas of verification: data collection, data validation, and data reporting.*
- 2. Transparency of the process of data collection must incorporate clearly defined quality assurance/quality control (QA/QC) procedures, which may be implemented by the data collecting agency or by an independent external party.*
- 3. Transparency of the data reported should be transparent at the finest possible scale that conforms with legal and programmatic constraints, and at a scale compatible with data input for the Chesapeake Bay Program Partnership's modeling tools.*
- 4. It is recognized that transparency of data reported will vary across verification methods and data collection and reporting programs. This variance, however, should not negate the commitment and obligation to ensure transparency at the highest level possible in collection, synthesis and reporting.*



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Watershed Technical Workgroup Meeting
February 7, 2019



2018 Progress Scenario Schedule

- December 21, 2018 – Emails from CBPO about BMP and wastewater data verification went out to jurisdictions that met Dec. 3rd submission deadline.
 - Response to verification questions and issues was due January 9, 2019
- January 31, 2019 – Original jurisdiction deadline for last model run of 2018 Progress



2018 Progress Scenario

Revised Schedule

- February 22, 2019 –
 - Jurisdictions finalize 2018 progress model assessment – needed for outside reporting of progress on commitments and to keep results relevant
 - **There will be additional model runs for jurisdictions of their draft versions of 2018 Progress COB Fridays on 2/8/19, 2/15/19, and 2/22/19 – if there are changes to data submissions since the previous run.**
 - Jurisdictions finalize BMP Verification Program Plans
 - QAPPs will then be posted publicly shortly thereafter



Diversity of Verification Approaches

Tailored to Reflect Practices

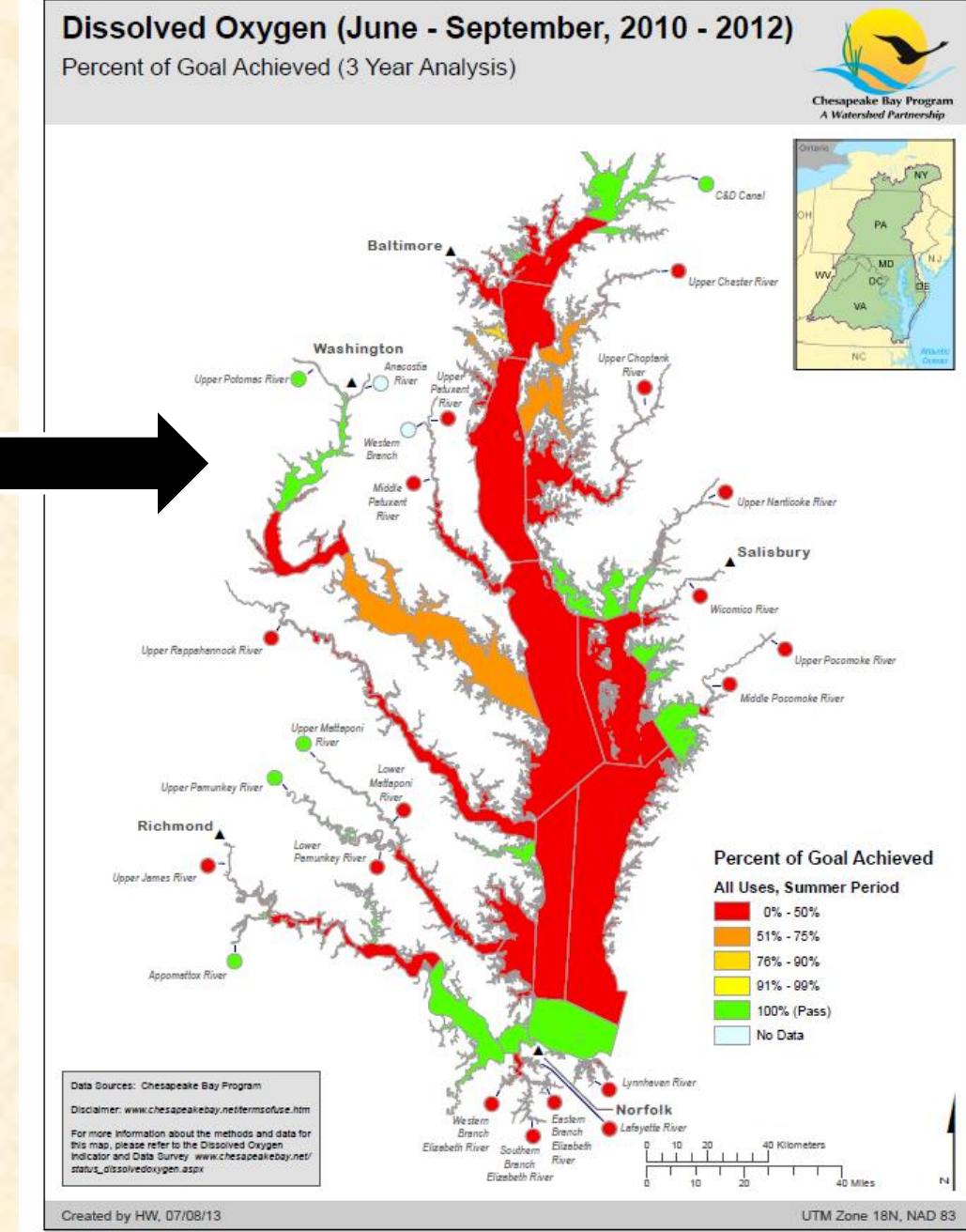
Sector	Inspected	Frequency	Timing	Method	Inspector	Data Recorded	Scale
Stormwater	All	Statistics	<1 year	Monitoring	Independent	Water quality data	Site
	Percentage	Targeting	1-3 yrs	Visual	Regulator	Meets Specs	Subwatershed
	Subsample	Law	3-5 yrs	Aerial	Non-Regulator	Visual functioning	County
	Targeted	Funding	>5 yrs	Phone Survey	Self	Location	State
Agriculture	All	Statistics	<1 year	Monitoring	Independent	Water quality data	Site
	Percentage	Targeting	1-3 yrs	Visual	Regulator	Meets Specs	Subwatershed
	Subsample	Law	3-5 yrs	Aerial	Non-Regulator	Visual functioning	County
	Targeted	Funding	>5 yrs	Phone Survey	Self	Location	State
Forestry	All	Statistics	<1 year	Monitoring	Independent	Water quality data	Site
	Percentage	Targeting	1-3 yrs	Visual	Regulator	Meets Specs	Subwatershed
	Subsample	Law	3-5 yrs	Aerial	Non-Regulator	Visual functioning	County
	Targeted	Funding	>5 yrs	Phone Survey	Self	Location	State



Chesapeake Bay

Impairments

- Dissolved Oxygen
 - Chlorophyll a
 - Water Clarity
- (SAV Abundance)



Water Quality Standards Attainment



- During the 2014 to 2016 assessment period, an estimated 40 percent of the Chesapeake Bay and its tidal tributaries met water quality standards: the highest estimate of water quality standards attainment since 1985.

