Historic Record of Practice Implementation

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Historic Record of Practice Implementation

- For the Phase 5.3.2 Watershed Model, record of implementation covers the period 1985-2012
  - In 1985:
    - NY = Ag
    - PA = Ag and stormwater
    - MD = Ag and stormwater
    - VA = Ag
    - WV = Ag and forestry

Historic Record of Practice Implementation

- Much of the BMP record was a carry-over from the Phase 4.3 Watershed Model which ended with year 2009.
  - Exceptions among jurisdictions and particular BMPs in a jurisdiction
    - In some cases, all available BMP data was assessed and submitted prior to Phase 5 calibration
    - On-the-ground survey was done after Phase 5 calibration – which would revise history

Historic Record of Practice Implementation

- BMP history cleanup process CBPO could use if no other information is provided
  - Jurisdiction will need to make key decisions on what should be considered in data clean-up, and how
    - CBPO will not make these decisions

Historic Record of Practice Implementation

- BMP history cleanup process CBPO could use if no other information is provided
  - Jurisdiction will need to sign-off (approve) final data sets to be used in the modeling tools as best reflection of how on-the-ground implementation rates and levels changed through time for all BMPs in all sectors at defined spatial scale(s)
    - Jurisdictions and localities "own" the data
    - Could be preferable for the results of data management to yield conservative levels and/or implementation rates

Historic Record of Practice Implementation

- BMP history cleanup process CBPO could use if no other information is provided
  - Jurisdictional (agency) QAPPs for the collection and use of environmental data will need to be updated prior to management use of 2017 re-assessment tools.
    - Data Acquisition and Management of Non-Direct Measurements

Historic Record of Practice Implementation

- Good to keep in mind or accommodate BMP verification principles for each sector
  - Includes voluntary practices if substantiated through protocols
  - Considerable amount of work in regards to verification and "crediting"

Historic Record of Practice Implementation

- Draft Agricultural Verification Protocol Concept Version 3.4
  - For all agricultural BMP verification protocol categories, verification procedures must be established that demonstrate an 80% (or greater) confidence level that the subject BMP has been implemented, is currently operational and is being maintained to meet the BMP definition for standards and requirements.

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- BMP Verification Protocol Category – Verification Method
  - Permit Issuing Programs - Through on-site permit compliance inspections by trained agency personnel.
  - Regulatory Programs - Through on-site regulatory compliance inspections by trained agency personnel.
  - Financial Incentive Programs - Through on-site contractual compliance inspections by trained agency personnel.
  - Farm Inventory - Through on-site visit by trained personnel while collecting data, check databases; Through on-site visit by trained personnel; Farmer certified during the visit at USDA or governmental office; By farmer self certification when submitted.
  - Office and Farm Records - Trained personnel verify through knowledge of the farm or through calls made to the farmer.
  - Transect Survey - Verified by the trained personnel completing the transect on the ground.
  - CEAP and NASS Survey - NASS certification procedures.
  - Aerial Photography and Remote Sensing - Verification can be same as Aerial Remote Sensing method or by visit to each site to collect and certify data.
  - NRI Point or some other statistically selected sites - NASS certification procedures.

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- Principles and Protocols for Urban BMP Verification
  - Urban BMPS – Traditional stormwater, new runoff reduction BMPs, non-structural or operational BMPs, and restoration BMPs
  - Regulated BMPs: Phase 1 or 2 MS4 permit with BMP maintenance program and the capacity to inspect within a portion or all of each permit cycle (typically 5 year cycle)
    - Removal Rate Tied to Visual Inspections - Urban BMPs will have a defined time-frame in which the pollutant removal rate applies, which can be renewed or extended based on a visual inspection that confirms that the BMP still exists, is adequately maintained and is operating as designed
  - Semi-Regulated BMPs: Installed locally under a state CGP outside MS4 community – not required to have inspection program to enforce maintenance
  - Non-regulated BMPs: Voluntarily installed in a non-MS4 community
  - Legacy BMPs: Urban BMPs in a community that the state has reported to CBPO for inclusion into any past version of the CBWM
    - Actual BMPs with a geographic address
    - Actual BMPs that lack a specific geographic address
    - Estimated BMPs that were projected based on some assumed level of development activity and compliance with state stormwater regulations
  - Discovered BMPs: Any BMP that was installed in the past but was never reported to the state or CBPO
    - Older BMPs installed prior to the establishment of state BMP reporting systems
    - Voluntary BMPs

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- For agriculture, NRCS and FSA data supplied to each state from single source in 2012
  - State assurance for single-counting
  - There is some recent history from this source
- Accommodate federal facilities data

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- Work at the scale of counties
  - From files developed for Phase 5 from Phase 4.3
- Or work at the scale of state and spatially distribute proportionally down to counties for each year

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- Apply each BMP to the same landuse group through time
  - Where original data varies among landuse groups for a BMP, choose the larger group, i.e., one with more landuses
- Beginning 2010 (first year of NEIEN reporting) add new implementation to cumulative record through 2009 – rather than looking at cumulative record each year

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- Take the following into consideration to address current "cut off":
  - Design-, practice-, or plan-life
    - Some states have considered life-span for some BMPs, others have not
  - Proportionally drop off historic implementation of relevant agriculture BMPs with loss or agricultural land
    - WTWG has considered loss of practice in the past due to land conversion
  - Maximum implementation level
    - Perhaps 90%
    - WTWG has considered maximum implementation level in the past

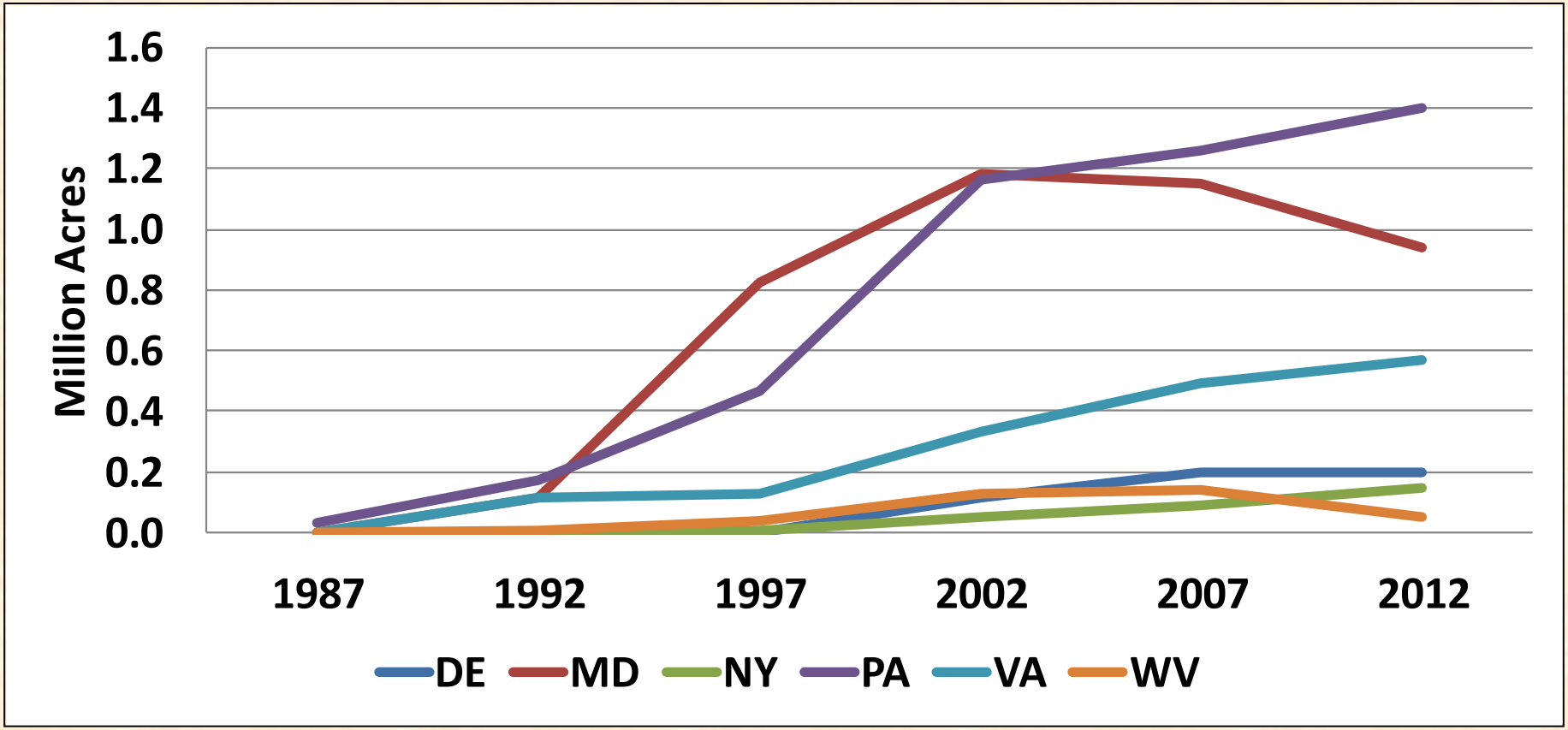
Historic Record of Practice Implementation

- Also to address current "cut off":
  - Not enough acres, systems, AUs, etc. in the tools
    - Landuse and other workgroups considering revisions to landuse/land cover types, data sources and methods
    - Supplement data with "local" information but need history and forecast and need to align with, for example, land cover and landuse definitions
    - Landuse Workgroup under WQGIT is jurisdictional priority for Midpoint Assessment.

Historic Record of Practice Implementation

Trends in Reported Nutrient Application Management

By State (million acres)



Historic Record of Practice Implementation

- Increasing cumulative record of implementation for relevant (cumulative) BMPs
- Assume records in recent history are more accurate than early years
  - If cumulative implementation point is less than or greater than surrounding years, interpolate

Chesapeake Bay Watershed Model
Agricultural Practice Groups

Nutrient Management

- Nutrient Management
- Decision Agriculture
- Enhanced Nutrient Management

Conservation Tillage

- Continuous No-Till
- Other Conservation Tillage

Cover Crops

- Cover Crops and Commodity Cover Crops
  - Early, standard, late-planting
  - Species
  - Seeding method

Pasture Grazing Practices

- Alternative Watering Facilities
- Stream Access Control with Fencing
- Prescribed Grazing
- Precision Intensive Rotational Grazing
- Horse Pasture Management

Other Agricultural Practices

- Forest Buffers
- Wetland Restoration
- Land Retirement
- Grass Buffers
- Tree Planting
- Carbon Sequestration/Alternative Crops
- Conservation Plans/SCWQP
- Animal Waste Management Systems
- Barnyard Runoff Control
- Mortality Composters
- Manure Transport
- Water Control Structures
- Non-Urban Stream Restoration
- Poultry and Swine Phytase
- Dairy Precision Feeding and/or Forage Management
- Ammonia Emissions Reductions

Chesapeake Bay Watershed Model
Practices on Developed Lands

Stormwater Management

- Wet Ponds and Wetlands
- Dry Detention Ponds and Hydrodynamic Structures
- Dry Extended Detention Ponds
- Infiltration Practices
- Filtering Practices
- (Urban Stormwater Retrofit)
- (New State Stormwater Performance Standards)

Septic BMPs

- Septic Connections
- Septic Denitrification
- Septic Pumping

Other Urban/Suburban Practices

- Forest Conservation
- Impervious Surface and Urban Growth Reduction
- Forest Buffers
- Tree Planting
- Grass Buffers
- Stream Restoration
- Erosion and Sediment Control
- Nutrient Management
- Street Sweeping
- Abandoned Mine Reclamation
- Dirt and Gravel Road Erosion and Sediment Controls
- Shoreline Erosion Control

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- Process
  - BMP records should be submitted through NEIEN

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- Timeline
  - By mid-2016 for calibration of the next versions of environmental modeling tools for TMDL mid-point evaluation
- How to bring together validation requirements and need for historic BMP record for calibration, i.e., timing is off?

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- Resources to complete tasks
  - Please let us know where you need help with this clean-up
    - Contractual, e.g., Tetra Tech, with direction from agencies and CBPO
    - CBRAP grants