



Phase 6 Watershed Model BMP History

Jeff Sweeney
Environmental Protection Agency
Chesapeake Bay Program Office
jsweeney@chesapeakebay.net
410-267-9844

Olivia Devereux
DEC, Inc.

Watershed Technical Workgroup
November 5, 2015



Phase 6 Watershed Model Inputs for Calibration

- 1985 – 2013
- Manure + Fertilizer + Bio-solids
 - Application rates, timing, location by nutrient species
- Wastewater discharges
 - Significant + non-significant, municipal + industrial
- Septic fluxes
- Landuses acres + calibration LU loading rates
 - Agriculture + Developed + Forest
- BMP implementation levels
- CAFO/AFO loads
- Crop uptake
- Crop cover, detached sediment storage
- Nitrogen fixation routine



Phase 6 Watershed Model

BMP History

- BMP historic record should cover 1985 – 2013
 - Emphasis was on 2000 – 2013
 - But data for BMPs implemented 1985 – 1999 are needed as well
 - Need for comprehensive record versus verification



Phase 6 Watershed Model

BMP History

- Request for historic BMP data goes back almost 4 years
- Guidance documents + technical assistance
- Money resources = CBIG and CBRAP Grants+ WIP Assistance Funds
- For agriculture, introduction of NRCS and FSA data from CBPO
- Requests through PSC
- Regular reporting out of status by jurisdictions



Phase 6 Watershed Model

BMP History

- Like Progress data, reporting of historic wastewater data and non-wastewater BMPs are grant deliverables
- Jurisdictions will be expected to update this data through initial draft updates by June 30 and final updates by September 30.
- Documentation describing collection and estimation methods of historic BMP, wastewater and bio-solids data = QAPPs



Phase 6 Watershed Model BMP History

- Quality of the data submitted for initial Phase 6 calibration was highly variable among jurisdictions and sources within jurisdictions



Phase 6 Watershed Model Inputs for Calibration

On Your Password-Protected Sites For Review

- Base Conditions

By land-river segment

84, 85, 87, 90, 92, 95, 97, 00, 02, 05, 07, 12, and 13

- Animals
- Landuse
- Septic Systems



Phase 6 Watershed Model BMP History

On Your Password-Protected Sites For Review

- BMPs
- Validation reports
 - NEIEN
 - NEIEN event status errors + NEIEN BMP errors
 - Scenario Builder errors
 - Land BMPs + animal BMPs
 - Detailed and summary
- Scenario Builder Submitted Versus Credited



Phase 6 Watershed Model BMP History

On Your Password-Protected Sites For Review

- BMPs
- Status reports
 - The status of the BMP is draft, retired or NA
- Date reports
 - BMP is valid as implementation, inspection or maintenance falls within lifespan date range
 - BMP credit expired due to lifespan



Phase 6 Watershed Model

BMP History

- 300+ unique practice names available for reporting through NEIEN
 - About 50 unique BMP names available for conservation plans alone
- These lump into 200+ more-inclusive BMP categories in Scenario Builder across the agricultural, urban, septic, and natural sectors
 - 90+ individual cover crop BMPs available in the cover crop group alone
- Wastewater controls across significant + non-significant facilities, municipal + industrial.



Phase 6 Watershed Model BMP Expert Panels Underway

- Phase 5 and 6 Nutrient Management
- Manure Technologies
- Urban Tree Cover
- Floating Wetlands
- Street Sweeping
- Algal Flow-Way Technologies
- Advanced Onsite Systems
- Wetlands
- Cover Crops
- Conservation Tillage
- Manure Injection/Incorporation
- AWMS



Phase 6 Watershed Model

Inputs for Calibration

- Fertilizer, manure and bio-solids inputs to the model require:
 - Location of application to the land
 - Down to county level
 - Landuse type the nutrients are applied to
 - Crops + Pasture + Turf Grass
 - Application rate = mass of each species of nutrients divided by landuse acre
 - Species are TN = NH_3 , Organic N, NO_3
 - Species are TP = PO_4 , Organic P
 - Timing of application
 - By month
 - Over the 1985 – 2013 calibration period



Phase 6 Watershed Model Inputs for Calibration

- Phase 6 model review period begins no later than 1st week of January, 2016
 - Outputs = loads, calibration statistics, etc.
 - Inputs available now
- Next opportunity for Phase 6 data is (likely, but not guaranteed) April re-calibration \Rightarrow end of March, 2016 submission
- Final data to be submitted Sept. 30, 2016 which includes finalization of methods



Phase 6 Watershed Model Inputs for Calibration

- Questions on schedule or process?
 - What information would be useful to you to assist in review?