Incorporating Soil P in the Phase 6.0 Model

AgWG July 19, 2018

INCORPORATING SOIL PHOSPHORUS IN THE PHASE 6 MODEL
Recommended Path Forward

Management Board Recommendation Adopted September 21, 2017

Working through the WQGIT (and its technical workgroups) and the Modeling Workgroup, the Chesapeake Bay Program Partnership commits to the following [7 steps] to improve the quality, quantity, and representativeness of the soil phosphorus data:

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BACKGROUND:

Phase 6.0 Model simulated P on Ag lands by Partnership-approved approach using:

- observed ag P soil data (where available)
- Annual Phosphorus Loss Estimator (APLE) model
- Baysian statistics

Issues (Concerns):

- Equity: treatment of soil samples and relative loads across urban and ag
- Soil P data:
  - Availability of data varies by county
  - Quality of data due to differences across labs
  - Appropriateness of APLE application across ag lands

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General Path:

Near-Term (Aug 2017):

- State reviewed soil P data source
  - opportunity to change standard deviations value their respective soil data.

Mid-Term (Future Data Collection-NOW):

- States can continue to submit soil P data
  - incorporated in each two-year milestone period

Long-Term (down the road):

- STAC Workshop
  - Impact of soil P on urban runoff for future versions of the Watershed model.
  - Supported by AgWG and Urban Stormwater Workgroup (USWG)
- Additional research on soil P issue across sectors needed
  - General consensus

Recommended Path Forward in 7 Steps

- #1: Analysis of current soil P data **(Set a Timeline TODAY)**
- #2: Development of Regional Standards for Soil P Data Collection, Analysis, and Recording
  - Informed by #1 **(Set a Timeline TODAY)**
- #3: Ensure collection of Representative P data from Existing NM and Permitting Frameworks
- #4: Establish Quality Assurance for Soil P Data Comparability
- #5: Reference Soil P sub-dataset by State
  - Informed by #1
- #6: STAC Workshop: Impacts & Representation of Soil P (Long-Term)
- #7: Process for Biennial reporting of Soil P at County-level

#1: Analysis of current soil P data

- Working through EPA, develop and implement a contract/grant to conduct a comprehensive statistical analysis of all the states' existing soil phosphorus data to better understand the statistical validity, viability, and confidence interval of the existing data and to support the development of a suite of expectations for future data collection efforts. This analysis would include, but not be limited to determining: sample size, confidence intervals, geographic domain, representativeness, data extrapolation and land uses. The results will also be used to prioritize future data collection efforts to address data gaps

#2: Development of Regional Standards for Soil P Data Collection, Analysis, and Recording

- Informed by the contractor's/grantee's work from number 1 above, and with the support of the Partnership's Agriculture Workgroup and the Scientific and Technical Advisory Committee [STAC], the Partnership will cooperatively develop regional standards for a comparable and consistent suite of soil phosphorus sample collection methods, sample data recording, and laboratory analysis methods. These new regional standards would be proposed for mutual adoption and implementation across all state, land grant, and private laboratories which provide analytical services for agricultural operations within the six Chesapeake Bay watershed states. These would guide the Partnership for future reporting of soil phosphorus data during each two-year milestone period.

#3: Ensure collection of Representative P data from Existing NM and Permitting Frameworks

- Identify and implement opportunities to ensure the collection of more representative soil phosphorus data into the future by building from existing state nutrient management and permitting requirements for soil phosphorus data collection.

#4: Establish Quality Assurance for Soil P Data Comparability

- Establish a quality assurance system to prevent future concerns about soil phosphorus data comparability within and across jurisdictions. This quality assurance system will utilize the Partnership's existing quality assurance structure (e.g., CBP Quality Assurance Coordinator), infrastructure (e.g., CBP Data Integrity Workgroup), and verification program plans.

#5: Reference Soil P sub-dataset by State

- Informed by the contractor's/grantee's work from number 1 above, develop a verified reference soil phosphorus sub-dataset for each state by obtaining soil samples and associated data using standardized collection methods.

#6: STAC Workshop: Impacts & Representation of Soil P

- Ask the Partnership's Scientific and Technical Advisory Committee (STAC) to sponsor a workshop to investigate the impact of and appropriate model representation of soil phosphorus levels of urban and other non-agricultural land uses for future use by the Partnership.

#7: Process for Biennial reporting of Soil P at County-level

- With the support of the Partnership's Agriculture Workgroup, the Scientific and Technical Advisory Committee [STAC], regional land grant universities and private laboratories, develop and implement a regional structure and process for the biennial collection, synthesis, and reporting of soil phosphorus analysis data by land use at an aggregated county-scale for inclusion in the Phase 6 Chesapeake Bay Watershed Modeling tools during future two-year milestone periods.

AgWG Action Plan for Soil P?

- #1: Analysis of current soil P data **(Set a Timeline TODAY)- NEXT STEPS…**
- #2: Development of Regional Standards for Soil P Data Collection, Analysis, and Recording
  - Informed by #1 **(Set a Timeline TODAY)**
- #3: Ensure collection of Representative P data from Existing NM and Permitting Frameworks
- #4: Establish Quality Assurance for Soil P Data Comparability
- #5: Reference Soil P sub-dataset by State
  - Informed by #1
- #6: STAC Workshop: Impacts & Representation of Soil P (Long-Term)
- #7: Process for Biennial reporting of Soil P at County-level