Last Updated November 6, 2012

WQGIT Workgroup and Modeling Workgroup Midpoint Assessment Priorities

Note: This document lists priorities by workgroups and gives a quick assessment of the relative level of effort by the CBPO using a stoplight color code. The purpose is to inform the WQGIT's deliberations on priorities. Efforts were made to include the latest version of each workgroup's priorities, however this is not meant to be the official list of priorities, but rather an informal document to be used during the Oct WQGIT meeting.

Color Codes

Not a modeling Question
Already in Motion
Low Effort
Medium Effort
High Effort

Agriculture Workgroup

1. Modeling Baseline/Input Data Assumptions/Needs – ***9 votes***

a. Examples and issues to be evaluated include: Land Use Categories and Conversions; Fertilizer Application Rates; Livestock and Poultry Populations and associated Manure Generation and Nutrient Values; Atmospheric Nitrogen Deposition Values; Use of Annual Census data/Remote Sensing Data vs. 5-Year Census; Blended Crop Yield Data; Manure Management Nutrient Loss Assumptions; Enhanced Modeling Suite Functionality/Assumptions; Manure Mineralization Values and Assumptions; Nitrogen Valorization; Management of model inputs, processes, and outputs for counties only partially in the Watershed

b. *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

2. Scenario Builder and Chesapeake Bay Program Modeling Suite Transparency, Accuracy, and Confidence – ***3 votes*** (combine with Modeling WG priority on model system structure)

a. Examples and issues to be evaluated include: Review time for Revised Models; Improved Access; Documentation of Assumptions; Public Demonstration of Accuracy and Variance; Increased Technical Staff Support Enhanced Modeling Suite Functionality/Assumptions; Incorporation of BMP Expert Review Panel Recommendations; State Review Process for Allocation of County BMPs Implementation to Model Segments; Use of PQUAL for Simulations; GIS Land Use Data Layers

b. *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

3. Establishment and Update of BMP Definitions and Efficiencies - ***3 votes***

a. Examples and issues to be evaluated include: Traditional and Commodity Cover Crops; Irrigation Cropland Management; Conservation Tillage and Continuous No-Till; Poultry Heavy Use Area Pads; N and P-Based Nutrient Management; Enhanced and Precision Nutrient Management; Alternative Manure Technologies; Animal Mortality; Enhanced Scenario Builder use of BMP Definitions and Efficiencies; Clarity and Consistency between CBP BMPs and NRCS CPs Definitions and Reporting Methods

b. *Initial suggestion for corresponding Guiding Principle: Draft Principle 3*

4. Model Data Processing - ***4 votes*** (federal segmentation is separate)

a. Examples and issues to be evaluated include: Phosphorus Transport/Accumulation; Address Concerns Regarding Manure Losses, Distribution and Fertilizer Algorithms,

Particularly Regarding Replacement of Manure with Commercial Fertilizer; Nutrient Processes in Enhanced Modeling Suite Functionality/Assumptions; Model Segments match County Size; Verification of Automatic Load Calibration for Split-Basin Counties; Improved Clarity of NEIEN BMP Reporting; Hydrology Calibration Alternatives; Federal Facilities Segmentation

b. *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

5. Chesapeake Bay Program TMDL and WIP/Milestones Policy – ***0 votes***

a. Examples and issues to be evaluated include: Jurisdictional goals do not change, regardless of any other programmatic changes; Reinstatement of 2003 Allocation Principle that Bay Jurisdictions who benefit more are expected to do more

b. Initial suggestion for corresponding Guiding Principle: Draft Principle 5

****Note: Please see attached AgWG Priorities spreadsheet for more detailed information on the Agriculture Workgroup member's priorities for the midpoint assessment.**

Land Use Workgroup

Note CBP Land Change Team considers all 3 priorities to be high level of effort.

1. Improve the spatial, temporal, and categorical representation of urban, agricultural, federal, and natural land uses (e.g., wetlands, riparian forests, high-functioning forests) through the use of remote sensing, geospatial analyses, and statistical techniques applied to local land-use information combined with a large suite of other relevant geospatial datasets. – ***9 votes*** (combine with Watershed Technical and Forestry Workgroups)
    - *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

2. Evaluate a variety of methods for backcasting historic land uses (present to 1980) and for developing future land use scenarios that are locally credible and relevant for consideration by the CBP Partners. A year 2025 land use could be considered as a new target for developing the Phase III WIPs and could then facilitate the crediting of water quality benefits derived from land conservation and land-use planning. – ***4 votes*** (combine with Forestry WG priority on 2025 LU)

- *Initial suggestion for corresponding Guiding Principle: Draft Principle 4. 2nd: Draft Principle 2.*

3. Investigate differential loading rates for expanded urban and natural land use classes. – ***3 votes*** (combine with priority 1)

- *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

Milestones Workgroup

1. Evaluating Milestones – What is the most effective way to develop and ultimately evaluate the two-year milestones in order to be able to track these commitments in terms of the TMDL, 2017 and 2025 targets, yet at the same time ensure that jurisdictions are accounting for changes in land use/septic/animal numbers? ***- 2 votes***

a. Suggestions and further detail to this topic are included in the background material for the Milestone Workgroup priorities.

b. This supports a priority identified by the Land Use workgroup and suggest this priority corresponds with Guiding Principle 1 and 2.

2. Evaluating Milestones - Wastewater: Exploring the evaluation of wastewater in the annual progress runs examining current flows versus average flows. This topic may support a potential priority for the wastewater workgroup in the midpoint assessment. – ***0 votes*** (combine with Wastewater Workgroup priority on methodologies for reporting varilable WWTP loads)

   a. *This supports a priority identified by the Wastewater Treatment workgroup (#3) and suggest this priority corresponds with Guiding Principle 4.*

3. Ensuring milestones are evaluated using the same model that was in place when they were developed. ***– 0 votes***

   a. *This supports a priority identified by the Modeling Workgroup regarding potential model changes and communication of a transition and suggest this priority corresponds with Guiding Principle 1 and 2.*

Modeling Workgroup

1. Revisiting the Watershed Model calibration with the goal of improving local watershed results - ***11 votes*** (combine with Watershed Technical Workgroup priority on regional factors)

2. Incorporating the revised Airshed Model into the watershed and water quality modeling framework. ***– 2 votes***

3. Refinements to the Water Quality and Sediment Transport Model. ***– 0 votes***

4. Extending the Airshed, Watershed and Water Quality and Sediment Transport model simulation period. ***– 2 votes***

5. Revising the Partnership model system structure ***– 2 votes*** (combine with Ag WG priority)

6. Development of a) the Midpoint Assessment technical tools schedule to identify critical path items and milestone dates, and b) integrate of the technical tool revision and Phase III WIP development schedules to achieve an effective balance between sufficient review time for tool revisions/review/concurrence and sufficient time for target development and implementation planning. ***– 5 votes***

   a. Also included in Ag WG priority

7. Engaging STAC. ***– 0 votes***

While the above seven items represent broad topics, they allow the Modeling Workgroup to better identify its role in the Midpoint Assessment process. Regarding the technical tools, and giving consideration for a recalibration, the Modeling Workgroup is central to that process as all revised source sector inputs (or priorities from source sector workgroups) must be assimilated into the modeling system. More detailed information on these seven broad topics is available in AttC-Modeling WG MP Priorities 2012.10.15.pdf.

Trading and Offsets Workgroup

High Priority

1. Recognize in the MA principles or elsewhere that jurisdictions in 2017 could be using PS or NPS credits or offsets to achieve or maintain the MA goal (i.e., 60 percent load reduction by 2017 compared to the 2009 TMDL baseline). The MA will assess progress toward implementing practices to achieve the 2017 goal. Clearly, practices implemented in a sector could demonstrate progress toward meeting that sector's WLA or LA (e.g., WWTP upgrades, ag BMPs, sw SCMs). But with trading, practices from one sector could demonstrate progress toward meeting the WLA

or LA of another sector. Currently, no MA documents recognize this possibility**. – *0 votes***
(combine with Wastewater Workgroup priority on accounting for trades and offsets)

a. *Initial suggestion for corresponding Guiding Principle: Draft Principle 1 (eg, that midpoint assessment is separate from reaching 2017 goal, and that latter still needs to continue in parallel). 2nd: Draft Principle 4.*

2. Develop technical memoranda**. – *2 votes***

a. *Initial suggestion for corresponding Guiding Principle: Draft Principle 4 (to extent would affect how things done differently after 2017). 2nd: Draft Principle 1 (this should be happening in parallel to midpoint assessment as part of the 2017 goal).*

3. Determine effect on trading programs from delivery factors revised through draft Principle 4: Address Emerging Issues that May Impact Current Strategies and Future Plans. Specifically, determine the effect of "…factoring in [the] new understanding of the Susquehanna River dams' influence on nutrient and sediment pollutant loads…". (Less imperative priority, but still important.) **– *0 votes***

a. *Initial suggestion for corresponding Guiding Principle: Draft Principle 4.*

Lower Priority

4. Develop protocol, based on projected numbers for population growth, to estimate future offset demand. (Less imperative priority, but still important.) **– *1 vote***

a. *Initial suggestion for corresponding Guiding Principle: Draft Principle 4.*

5. Create a sixth principle that addresses the practical issue of funding practices to implement the TMDL and engages the private sector in that effort**. – *0 votes***

a. *Initial suggestion for corresponding Guiding Principle: Draft Principle 5 (eg, what will help w/ implementation, ensuring things don't fall off table). 2nd: New Principle 6.*

Urban Stormwater Workgroup

Priority #1 – Improved modeling accuracy of area-specific hydrologic networks, land use characteristics, and sediment dynamics. – 6 votes

a) The model currently fails to adequately differentiate between different classifications of urban land use. The USWG highly supports improved characterization of urban land use as also discussed within the Land Use Workgroup, e.g., differentiating loading rates.

b) Assess the Model's accuracy; specifically, the USWG suggests that the Model Team run small scale simulations for headwater areas with relatively uniform land use (all urban or all agriculture) to verify loadings based on input parameters.

c) Improve the Model's depiction of local hydrologic networks, the USWG suggests distinguishing connected from non-connected areas, and incorporating proximity to watercourses. This would help improve regionalization factors that currently display large variability between segments.

d) Improve the Model's depiction of explicit stream erosion; [*clarification added by DE: after a watershed reaches a certain impervious threshold,*] much of the sediment and phosphorus may be coming from stream erosion versus land surface wash off, especially in low density dominated areas.

- *Initial suggestion for corresponding Guiding Principle: Draft Principle 2.*

Priority #2 – Greater capture of local impoundments and reservoirs – 2 votes (combine with Other priority on sediment behind the dams)

Only the largest impoundments/reservoirs were incorporated in the previous version of the Model. Integrating a greater portion of these impoundments would supplement the USWG's previous priority.

- *Initial suggestion for corresponding Guiding Principle: Draft Principle 2.*

Wastewater Treatment Workgroup

Wastewater Plants:

1. Determine how permanent or annual trades/offsets are, or should be, accounted for when reporting annual progress or evaluating WLAs and how trade/offsets will affect WLAs. ***– 0 votes*** (combine with Trading and Offsets Workgroup priority on accounting for trades)

a) *Initial suggestion for corresponding Guiding Principle: Draft Principle 4 (to extent would affect how things done differently after 2017). 2nd: Draft Principle 1 (this should be happening in parallel to midpoint assessment as part of the 2017 goal).*

2. Determine how to improve nutrient loading data from Non-Significant Facilities, especially the Non-Significant Industrial Facilities***. - 0 votes***

a) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2.*

3. Agree on methodologies to reflect expected variability in point source loads when reporting on progress***: - 2 votes (***combine with Milestones Workgroup priority on wastewater)

a) To account for the expected variability due to wet weather impacts – to be consistent with how non-point source progress is characterized; and
b) To ensure that increases in loads attributable to growth that are under the load caps is expected/acceptable and is not mistaken for lack or a decline in progress.
c) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2.*

4. Standardize the methods used to calculate the net loads from industrial plants with river uptakes and defining the no-net-contribution dischargers. ***- 0 votes***

a) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2.*

5. Evaluate how biosolids that are land-applied are accounted for – to ensure that net loads are accounted for, and to ensure consistency with how other nutrient load ag practices are accounted for (e.g., manure, chemical fertilizers). ***- 0 votes***

a) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2.*

On-site/Septics:

1. Determine how to best to use local septic information to improve Bay model estimates to: ***- 0 votes***

a) Better reconcile local and Bay Program data; and
b) Assess how this information can be used to improve how loads are estimated in growth projections.
c) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2.*

2. Develop methods for identifying/quantifying loads from commercial and residential systems. ***- 0 votes***

a) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2.*

3. Agree on methods to account for reduced septic loads due to: ***- 0 votes***

a) Septic system/BMP upgrades;
b) Connections to sewered systems; and
c) Determine how to address affordability issues associated with onsite/septic upgrades for nutrient removal - and identify potential funding sources; recognizing the increased concerns as we move forward in the process.

d) *Initial suggestion for corresponding Guiding Principle: Draft rinciple 2. For 3c, could also consider under potential New Guiding Principle 6 – funding solutions.*

Watershed Technical Workgroup

1. The Chesapeake Bay Program's Phase 6.0 Watershed Model should undergo a **thorough review process**, and the Phase 3 WIP schedule should be adjusted if changes are made to the model during this review process. This review should include***: - 3 votes*** (combine with Modeling WG)
    a) Uncertainty analysis
    b) Local groundtruthing of data
    c) Analysis of appropriate model uses (are the temporal and spatial scales appropriate?)
    d) *Initial suggestion for corresponding Guiding Principle: Draft Schedule*

2. **Regional factors** should be adjusted so that delivered loads reported by the model represent real world loads derived from local monitoring stations. This would result in better incorporation of lag times, and reduce the risk of drastically different loading rates from one locality that flows into separate basins. ***– 9 votes*** (combine with Modeling WG issues on calibration)
    a) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

3. **Local data** on both urban and agricultural land uses, and loadings should be incorporated to increase local confidence in the model and Scenario Builder. Specifically, the model should improve: ***- 4 votes*** (combine with Land Use and Forestry Workgroups)
    a) Agricultural manure and fertilizer use
    b) Animal numbers
    c) Urban fertilizer use
    d) Urban, construction and AFO/CAFO loading rates
    e) Septics
    f) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

4. Where local data is not available, the Chesapeake Bay Program should work to create **finer scale, more accurate distributions of loads** from both urban and agricultural lands. This will require better distribution of animals, manure and fertilizer application on all land uses, as well as more accurate land use classifications and spatial distributions. ***– 0 votes*** (combined with previous)
    a) *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

5. **Simulations of phosphorus and sediment dynamics** should be revisited for all land uses, and the source sector workgroups should be consulted for advice through the revision process. ***– 2 votes*** (combined with USWG)
    a) *Initial suggestion for corresponding Guiding Principle: Draft Principle 4*

Forestry Workgroup

1. **Account for true forest and riparian/floodplain forests** by making separate layers in the land cover model. The CBW model currently has one land cover that combines forests with other land types that do not fit in either urban or agriculture. The true forest land cover is important as a "natural background" – i.e., no pollution is attributed. The difference to water quality and habitat is significant when compared to a non-forested (e.g., "open") land use. Types of forest that differentially treat WQ (e.g., species, age) may also be delineated, TBD. A similar situation exists with riparian and floodplain forests – they are uniquely beneficial to watershed functioning. ***– 5 votes*** (combined with Land Use and Watershed Technical Workgroups)

a. **Report air deposition loadings**— more clearly communicate the additional loading from air that is being processed by land cover acreage in efforts to demonstrate how natural land cover is already reducing pollution from this source. For example, an acre of forest may be receiving 14 lbs of TN from air, but is able to process all but 4 lbs which becomes the pollutant loading of that acre of forest—the forest reduced 10 lb of TN naturally. There is no way to further improve upon forest loads—except to plant more forests.
b. As a land cover, **existing riparian/floodplain forests** could receive a similar or lower loading than true forests and/or become a BMP because of the ability of the forested floodplains and streams to continually process TN and prevent sedimentation. The value of this land cover would be made more obvious by taking this step. The re-connection of forests to their floodplain would also become a BMP (per Delaware).
c. *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

2. **Use projected future land cover data for WIPs** and other planning processes. This makes more sense since the future land cover is what each jurisdiction will be managing. It will also make more obvious the benefits of preventing conversion of forest lands. ***- 0 votes*** (combined with LUWG)
    a. *Initial suggestion for corresponding Guiding Principle: Draft Principle 2 and 4.*

3. **Refine the amount of forest land assumed to be harvested** (or disturbed) in any given year. Some states have regulatory programs around forest harvesting and can document acres of forests harvested and BMPs applied on those acres for any given year. 0 votes Jurisdictions that are unable to report acres of forest harvest, would refine a percent of forest land harvested annually in that jurisdiction. Currently, 1% of "forest" land cover in the CBW model is assumed to be harvested annually. ***- 0 votes***
    a. *Initial suggestion for corresponding Guiding Principle: Draft Principle 2*

Scientific, Technical Analysis and Reporting (STAR) Team

Issue. The Chesapeake Bay Program (CBP) will enhance the use of monitoring information as part of the Mid-Point Assessment to assess attainment of water-quality standards in the Bay, water quality responses in the watershed, and relationships to actions being implemented for *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (Bay TMDL). The CBP partners have endorsed (PSC, May 2012) an integrated approach that includes three primary pieces of information to assess progress toward water-quality standards:

- Reporting of water-quality practices.
- Trends of nitrogen, phosphorus and sediment in the watershed.
- Attainment of dissolved oxygen, chlorophyll-a, and water clarity/SAV standards.

Integrated Approach to Assess Progress toward Water-Quality Standards. The integrated approach relies on information and enhanced analysis of BMP implementation data and monitoring results from the Bay and its watershed. The following priority activities will be coordinated through the CBP Scientific, Technical Analysis and Reporting (STAR) team and the WQGIT to help to assess and communicate progress for the Mid-Point Assessment:

1. *Using BMP information being reported for progress toward the Bay TMDL*. The CBP is working to enhanced tracking and verification of BMP implementation. The CBP Principals' Staff Committee has approved an initiative to enhance verification of BMP implementation that will

increase the accuracy of annual progress reports that are used to track 2-year milestones. The same BMP information will be used to help explain observed WQ trends. ***– 0 votes***

2. *Expanding monitoring of nutrients and sediment in the watershed*. The EPA is working with the jurisdictions and USGS (through the STAR NTWG) to add 40 monitoring sites in suburban, urban, and agricultural areas. With the new sites, CBP nontidal water-quality network will have 125 locations where monitoring data can be used to help assess progress in reducing nitrogen, phosphorus and sediment loads. Integration of non-traditional partners into the watershed (and tidal) monitoring network could further expand the data available for analysis and interpretation. ***– 3 votes***
3. *Enhancing analysis of trends of nitrogen, phosphorus and sediment in the watershed*. The USGS will continue to provide an annual update of concentration trends in nitrogen, phosphorus and sediment concentrations for two time periods: 1985 to present, and the last 10 years. The USGS has also developed an additional technique to assess change in nutrient and sediment loads and is working with the CBP Office and STAR NTWG on how to best compare these loads with watershed model results and Bay TMDL allocations/targets loads. The initial emphasis will be focused on the nine river-input stations. ***– 1 vote***
4. *Using tidal monitoring data to assess attainment of water-quality standards in the Bay and its tidal tributaries*. EPA is working with the partners to develop a combined indicator of progress toward attainment of DO, clarity/SAV and chlorophyll-standards in the tidally-influenced segments of the Bay and tributaries. Work is underway through the Criteria Assessment Protocol Workgroup to develop criteria assessment procedures addressing the full suite of DO criteria***. – 4 votes***
5. *Providing more explanation of water quality trends.* The CBP STAR team is summarizing information from case studies in the Bay watershed and other national efforts for a "lessons learned" report about the effect of BMP implementation on water-quality improvements (to be released in fall 2012). The USGS will produce reports better explaining nontidal nutrient and sediment trends for the Delmarva (2013) and Potomac (2015) and work with STAR to help explain estuary trends. ***– 3 votes***

Next Steps: STAR will work with the WQGIT to further develop this information to help partners more effectively implement practices to achieve Watershed Implementation Plans (WIPs), assess progress toward the 2-year milestones, evaluate the effectiveness of management actions taken to date, and support the Mid-Point Assessment of the TMDL.

Other Issues

Overarching Theme: Midpoint Assessment is not just about the Watershed Model There are other issues that we need to consider.

1. TMDL revision – how, why, when – ***2 votes***
    a. EPA lead, but consider based on input from Partners as to whether modification is needed (including in part based on margin of error)

2. Items mentioned in TMDL as needing to be addressed
    a. Assessment of Chlorophyll-a Standard in James ***– 0 votes***
        i. VA work underway
    b. Trapping capacity behind the dams, particularly in the Susquehanna (see item 1) – ***5 votes*** (combine with USWG priority on local impoundments and reservoirs)
    c. Filter Feeders***– 0 votes***
    d. Climate change – ***1 vote***

3. Expectations for Phase III WIPs***– 0 votes***

4. How to credit 60% by 2017 **– *0 votes***
    a. Programmatic credit
    b. Timing

5. Air – what CBP GIT or workgroup owns this topic? **– *1 vote***

6. How do we transition to new models while maintaining stability? **– *0 votes*** (combine with Ag priority on policy)

7. Communication – what's happening in real vs model world**– *0 votes***

8. Need to consider that wastewater plants have completed upgrades based on past allocations **– *0 votes*** (combine with Ag priority on policy)

9. Constant Delivery Factors – do we still want to use them given that they make interim progress look lower in some cases? This was a decision of the WQGIT in summer 2011 – ***1 vote***

10. Federal land – segmentation vs. separate land use? – ***1 vote***

11. Other BMPs: Algal Turf Scrubbers – ***0 votes*** **-** WTWG