

# **Toward Modeling and Analysis Tools For the 2017 Midpoint Assessment**

**Modeling Quarterly Review**

**April 18, 2012**

Lew Linker  
CBP Modeling Coordinator  
*[linker.lewis@epa.gov](mailto:linker.lewis@epa.gov)*



# Background:

**A system of models designed for the 2017 Midpoint Assessment will be applied to the last and most difficult reductions in CBP to take place from between 2017 to 2025.**

**Model refinements will be assessed on a *value added* basis for CBP decision making. Refinements should be forward-leaning in areas like water quality management by filter feeders or other innovative approaches.**

# Key Points:

- The CBP models guiding TMDL planning and implementation are well founded and fully suited to their current task.
- Nevertheless, over the last quarter century, the CBP has been committed to refinement of our watershed, estuary, and airshed analysis tools *to improve CBP decision making*.
- Refinement of the CBP modeling tools have always been oriented to *value added* development of the best available scientific tools for use by CBP decision makers.

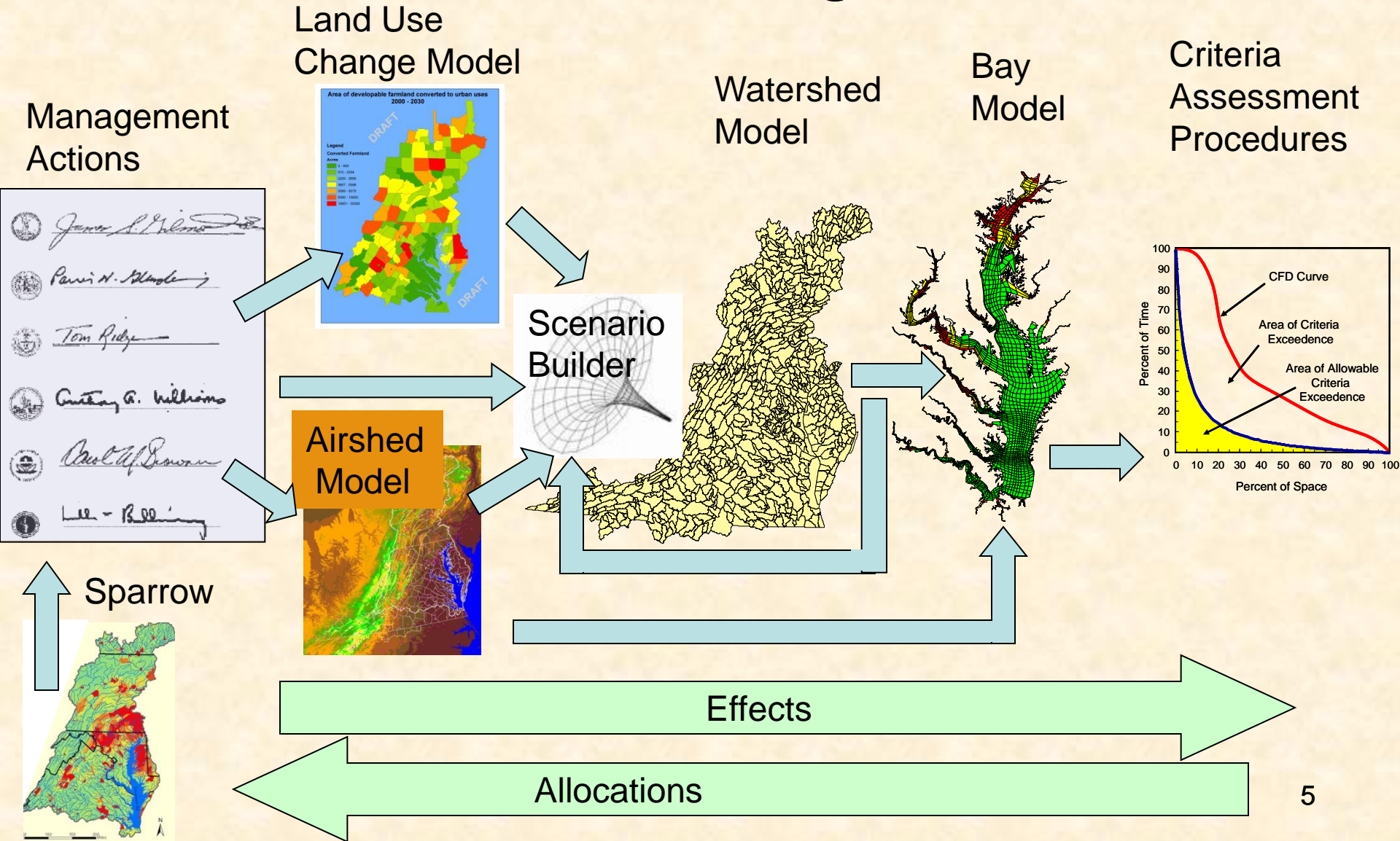


# Principles

---

- *The CBP partnership* continues to need a system of models from the *airshed*, watershed and estuary for the 2017 Midpoint Assessment.
- Management decision making needs of the 2017 Midpoint Assessment drive the process.
- The Bay Program State and Federal agencies represented *by the WQGIT, Management Board, PSC, and other CBP workgroups* implementing nutrient and sediment controls are key customers.
- Meeting model delivery deadlines are a priority.
- CBP partners are committed to continuing to improve the accuracy, utility, and reliability of the modeling effort.
- EO and EC commitments call for consideration of climate change capabilities and this needs to be part of CBP modeling tools.

# Chesapeake Bay Program Modeling







# Next Generation CBP Models for Mid-Point 2017 Assessment

---

- The outlines of a draft five year plan.
- Assumes Phase III WIPs due 2017.
- Our long-term planning for the CBP models is focused on refining the land use, watershed, airshed, and estuary/living resource models with the goal of a completely calibrated and operational suite of models by December 2015.



# Next Generation Models for Mid-Point 2017 Assessment

---

The overall timeline might look something like this:

**December 2010** - Phase I WIPs published with Phase 5.3 WSM and existing Bay Model.

**December 2011** – Draft Phase II WIPs due to EPA with Phase 5.3.2 WSM and recalibrated Bay Model. March 30, 2012 – Final Phase II WIPs due to EPA.

**January 2012** - Begin post TMDL 2-year milestone tracking with Phase 5.3.2 WSM and Bay Model.

**December 2013** - Airshed Model updates planned and tracked for bi-modal  $\text{NH}_3$  & Hg and new CMAQ scenarios.

**December 2015** - Fully calibrated and operational Watershed Model and next generation Bay Model ready for analysis of Phase III WIPs.

**2016** – Jurisdictions develop Phase III WIPs with respect to what remains to be done in the final 7 years of planning (2018 -2025) to fully achieve the Bay water quality standards.

**2017** – Jurisdictions submit Phase III WIPs with 2018 - 2025 actions and controls for review and approval.

# Partnership Input Processes

- Normal BMP process for updating existing efficiencies with new research
- Issues related to inputs, land uses, BMPs, etc. will be discussed in source workgroups, WTWG, and WQGIT
- Issues of model theory, structure, and calibration will be discussed *by the Modeling Team* in the Modeling Quarterly Reviews.



# Partnership Input Processes

- *Modeling Quarterly Review – April 16-17 Annapolis Chesapeake Bay Program*
- *Chesapeake Community Modeling Program Symposium May 21-22 – Double Tree Hotel Annapolis*
- *STAC meeting on next generation shallow water model (tentative dates May 14-15 - Location TBD)*
- *Multiagency, multi-partner group is being formed as directed by the PSC and Management Board to respond to the NAS modeling laboratory recommendation. The first meeting date has yet TBD.*
- *STAC proposed workshop on multiple CBP management models to take place in late summer. The proposed workshop will discuss scientific questions on the benefits of multiple models and the opportunities and challenges in applying multiple models to CBP management.*

# Q's and A's:

- The Schedule – When will these updates happen?
  - Some aspects of the refinements can begin immediately, such as input data development for expanding model years in order to bring in more and better calibration data.
  - Other refinements will take more of a commitment and will need to be prioritized.

## Q's and A's:

- How can CBP partners suggest ideas?
  - Initially, aspects of model refinements will be developed through the technical work groups with guidance from key management workgroups like the WQGIT.
  - The Modeling Workgroup, Ag Workgroup, Urban Stormwater Workgroup, Wastewater Workgroup, Sediment Workgroup, Watershed Technical Workgroup, Modeling Quarterly Reviews, and STAC are all sources of initial ideas for next generation CBP model development.

## Q's and A's:

- Where can CBP partners go to see ideas on table?
  - A primary source of next generation CBP model ideas are the minutes from the *CBP* technical workgroups and STAC. As these initial ideas are developed they will be brought to the WQGIT for review and approval.
  - White papers that are under development will summarize ideas proposed to date.

## Q's and A's:

- How will CBP prioritize updates and proposed refinements?
  - The WQGIT will review the model refinements suggested by the technical work groups and STAC.
  - The WQGIT and the Management Board will then *consider* recommended updates and refinements of the CBP models.





# 2017 Air Model Recommendations

---

- **Update the wet deposition model from current 1985-2005 to ~1980 to 2012 or beyond.**
- **Include CMAQ Model refinements of bi-directional ammonia.**
- **Develop a new 2007 emissions/meteorology base to update the current 2002 emissions/meteorology base.**
- **New library of CMAQ Scenarios of:**
  - **current conditions**
  - **2025**
  - **2030**
  - **Maximum Feasible**
- **A regional modeling center for CMAQ Scenarios of local interest linked to CBP's WSM and WQSTM.**