

Finalizing CAST 2019

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June 9, 2020 Management Board Conference Call

Purpose of Today's Discussion

Approval of CAST 2019, which has been developed consistent with existing partnership decisions on updating the model:

- (1) hold the assumptions set at the beginning of the milestone period constant over the two-year period, and
- (2) at the end of the milestone period, factoring in the information, BMP efficiencies, and data previously approved by the partnership into the present and past history of progress runs, back through 2009.

Commitment to Adaptive Management

- Through the 2014 Chesapeake Watershed Agreement, the partnership committed to “Adaptively manage at all levels of the Partnership to foster continuous improvement.”
- This commitment includes using adaptive management principles to ensure that knowledge of science, improvements in technology, and knowledge of changing practices and land uses are continuously improving the models’ capability to estimate pollutant loads entering the Bay and the impacts of those loads on attaining water quality standards.

Partnership Decisions to Update the Chesapeake Bay Program Models

- The partnership, while recognizing the importance of continuing to evolve with new information and knowledge, also recognizes the need for a level of stability in the management of this complex ecosystem.
- Beginning in 2014, the Milestone Workgroup conducted a year-long investigation and deliberation into how best to introduce new data and methods to the accounting tools.
 - The impetus for the investigation was new data from the 2012 Agricultural Census, the 2011 National Land Cover Dataset, and human population projection data from states.
- The Milestone Workgroup recommended to the WQGIT that jurisdictions be evaluated with the same model over a two-year milestone period that they used to develop their 2-year plans.

Partnership Decisions to Update the Chesapeake Bay Program Models, Cont'd

In December 2015 and January 2016, the WQGIT and the Management Board, respectively, reached consensus on the Milestone Workgroup recommendations:

“Starting with the jurisdictions’ development of their 2017 milestones, the partnership will:

1. hold the assumptions set at the beginning of the milestone period constant over the two-year period and
2. at the end of the milestone period, the partners will factor in the new information, BMP efficiencies, and data previously approved by the partnership into the present and past history of progress runs, back through 2009.”

Why Update the Model?

- Updating the model helps ensure that it's more accurately measuring and capturing changes in the landscape over a two-year period, as well as historical progress.
 - This leads to a better understanding of how those changes impact water quality and living resources at the regional and local levels.
- The process for these model updates and transitions is approved and directed by the partnership, and the partnership has the opportunity to review and approve any new data sets.
- Any changes to the decision to update the model every two years would need formal review and approval by the CBP partnership.

Impacts of Updating the Model

- Updates to the model can change the pollutant loads (i.e., nitrogen, phosphorus, and sediment loads) that are coming off the landscape.
 - For example, if data shows there are more chickens in a given geographic area than previously reported and reflected in the model, that may mean an increase in nutrient loads because of more manure.
- This could mean that jurisdictions may have to adjust implementation efforts to account for any pollutant loads not accounted for in earlier projections.
- However, potential changes in loads do not mean that the WIP or local action plans need to change. The two-year milestones are in place in order to make any necessary adjustments to planning and implementation efforts, as part of the partnership's adaptive management framework.

Impacts of Updating the Model, cont'd

- In addition, the 2025 Phase III WIP planning targets **do not change**.
 - The Principals' Staff Committee made the decision at their July 2018 meeting that these planning targets would not change between now and 2025, even if new scientific data and information is added to the model over that seven-year period.
 - Keeping the 2025 goals fixed is intended to provide stability to the state and local jurisdictions while also allowing for the incorporation of best available data into the model.

Key Updates to CAST

If CAST 2019 is not released, these key improved datasets will not be included in future versions of CAST:

- New or updated BMP efficiencies (e.g., agricultural stormwater management or the second oyster BMP panel report)
- Latest high resolution land cover data, led by the Chesapeake Conservancy
- State-specific land use data
- Census zone and human population
- Agricultural data (e.g., updated animal populations and crop acres and soil phosphorus data)

Updates to CAST 2019

1. 2017 Agricultural Census data incorporated into the land use, crop yields, and animal numbers.
2. 2013 – 2015 land use acres, septic systems, sewer service areas, MS4 areas (VA only)
3. Agricultural and urban fertilizer sales data
4. Wastewater year for all states except VA
5. Stream bed and bank loads are now credited by agency
6. Nitrogen fixation rate for “other haylage; grass silage and green chop”
7. Nitrogen fixation inputs for over-winter crops.
8. Projections are for 2018 and beyond. Previously the projected years were 2013 and beyond.
9. Planning BMPs that are now Official
 - Agricultural Stormwater Management
 - Conservation Landscaping Practices
 - Septic Effluent - Advanced
 - Septic Secondary Treatment - Advanced
 - Septic Denitrification - Advanced
10. BMPs submitted, including in the TMDL critical period
11. BMP costs
12. Biofilter credit

Transitioning to CAST 2019

- **2018:** Planning for CAST 2019 updates began
- **Summer 2019:** The partnership's Agriculture Workgroup, Watershed Technical Workgroup (WTWG), and the WQGIT had the first chance to review new and updated data inputs (e.g., 2017 Ag Census data)
- **September 9 and 30, 2019:** The list of updates explaining the effects was presented and approved by the WQGIT

Transitioning to CAST 2019, Cont'd

- **February 21, 2020:** A review of CAST 2019 was initiated with a request for the WQGIT and the WTWG to provide comments.
- **March 5, 2020 and April 2, 2020:** Presentations on the changes between CAST-17d and CAST-19 were made to the WTWG
- **March 23, 2020 and April 27, 2020:** Presentations were made to the WQGIT
- Meetings/calls were held with jurisdictions to address comments received.

WQGIT Polling Results, Consensus Continuum

- Consensus approval was requested at the April 27 and May 26 WQGIT calls.
- Additional discussions were held with those WQGIT members that registered a “hold” position.
- Consensus was not reached during the May 26 WQGIT call so it is now elevated to the Management Board for decision.

May 26th WQGIT Polling Results

- *MD*: Endorse
- *DC*: Endorse
- *NY*: Endorse
- *EPA*: Endorse
- *DoD*: Endorse
- *CBF*: Endorse
- *VA*: Agreement with reservations
- *CBC*: Agreement with reservations
- *PA*: Stand aside
- *UDel*: Stand aside
- *DE-MD Agribusiness Association*: Stand aside with reservations
- *DE*: Hold
- *WV*: Hold
- *PA Farm Bureau*: Hold

Efforts to Build Consensus

- Jurisdictions-specific responses to questions concerning changes in loads and progress (i.e., Response to Comments document)
- Development of a loads comparison tool between CAST 2017 and CAST 2019
- Technical documentation of changes between model versions
- Enhancing communications
 - Preparing a communication piece for the partnership to help explain model changes and the effects on restoration work done to date
 - Developed CAST 2019 Factsheet
- Workplan for CAST 2021

Issues for Further Exploration – CAST 2021

- **Ag Census** - Determine alternative or supplemental source of data. The data we use are crop land acres, harvested acres, and crop yields (bushels per acre, for example).
 - The Agriculture Workgroup has already begun discussions on the purpose and use of the Ag Census data
- **Soybeans** - The nutrient management expert panel did not consider that the Nutrient Management BMP could be applied to full season soybeans' nitrogen load. That should be reevaluated since there is a minimal amount of nitrogen applied to the full season soybean crop.
- **Double Cropping** - There are unexpected effects from the current methodology. The method for determining double cropped acres and the crops that are matched with each other in a year should be reevaluated. In addition, there is an existing glitch that could be corrected by using a more robust way of determining the total vegetable acres.

Decisions Requested

- Do you approve moving forward with the release of CAST 2019 for use and the development of CAST 2021?
- Some members of the WQGIT believe that certain aspects of past decisions seem open to interpretation, including the need of the WQGIT to approve new versions of CAST before releasing them for use by the partnership
- Does the MB expect that future versions of the model will need approval by the WQGIT? Or is it the intent of the MB that if updates are made following partnership-approved rules and that the partnership has the opportunity to review all input data, the updated version of the model will be released and available for use without formal approval?