MB/WQGIT Jam Board Responses: PSC Decision 3

Charge Considerations: Input on the Jamboard from the 10-19-22 MB Meeting

purple text- signifies comment that could go in either part or was too vague to determine

Charge: Refine the process to include additional safeguards to prevent data analysis variations and to assess reasonability of modeling results after Chesapeake Bay Program protocols are applied.

Track 1: ***Include additional safeguards to prevent data analysis variations for model inputs-***

Ensuring adequate QA and SOP frameworks for Bay Program data input processing are in place

- Public notification of changes in CAST should be made very clear and built into the overarching process.
- Publish QAPP and revise on an annual basis, akin to expectations for states.
- Parameters around the time or ability to adjust methods between the assessment/review and release, limit to iterations of adjustments or cutoffs for release
- Consider creating data usability review/report for individual datasets
- Consider having the WQGIT review and approve the QAPP for data management to have oversight of the process.
- Develop process for data transparency...fully document process, show your work, allow partnership review of input data, incorporate approved data, review outputs...
- Use State BMP reporting and verification processes as a guide for QA/QC standards for all other model inputs
- Clarify what is "preventing data analysis variations." Data is variable. Are we referring to CAST when we say "analysis?"
- Eliminate single points of failure by having process of verification spot checks on every input
- Agree with concept of QAPP for CAST process
- Review current process for acquiring/accepting data, what is missing? why did we miss the VA fertilizer data in CAST19? what happened and how we can avoid that
- Define/identify uncertainty in the datasets used and assumptions applied, and how to deal with changes and/or updates in model inputs (e.g. Ag Census method changes).
- Revise the framework for how we resolve differences in model inputs.
- Considering how other data might be used to adjust projections when we have gaps or lags in our primary data sets
- Consider longer intervals for model updates given the time needed to vet datasets and to resolve variations adequately.
- It's essential to establish an iterative process between data development, QA/QC and modeling to improve data quality (and models' structures) over time. - K.B.
- Should we reserve the right in our decision today to let the people most intimately familiar with CAST to make gut calls on data outside of guidelines as long as they explain.
- Consider constraints on forecasting. Could be based on historical variability, data reliability, etc.
- Be systematic about making changes to CAST so that the individual impact of each change can be quantified and evaluated

Track 2: ***Assess reasonability of modeling results after Chesapeake Bay Program protocols are applied.***

Scoping a proposed process for identifying and addressing "illogical" results after data updates occur, including definitions for key terms

- "Unreasonable" should be defined. Part of the definition should include what % change in loads triggers a pause and review
- Establish a process for defining what is "reasonable."
- I don't think that you can predefine illogical, unreasonable....(you know it when you see it) but the oversight group could first decide if they agree with the illogical claim-
- If the change results are illogical, the process should afford time to reconsider. If illogical can't be resolved, don't change.
- Process flow diagram/decision making tree for defining what is reasonable
- Consider how model results can be evaluated in light of monitoring observations as a reasonability check.
- There should be boundaries on what is reviewed and what is not. Whichever group is selected may not have expertise in every aspect of the model and data inputs.
- Procedural activity--how can additional information or data or both resolve the problem after CAST review.
- Consider whether confidence intervals can be established for the model outputs to understand whether changes in loads are significant or simply within the "noise" of the model.
- Opportunity for local data to inform unreasonable result
- Establish screening criteria to identify significant shifts in sector and geographic loads with updated CAST versions.
- Agree with the statement of "% change in loads triggers a pause and review" - much like how EPA "flags" BMP progress, a similar "flagging" process should be included
- Agree on data and information that can be used to resolve a result that is unreasonable
- CAST/model input should match what's on the ground locally as much as possible (rather that basin-wide assumptions)
- Provide time in the CAST update process (2-3 months) after input of new data under partnership approved protocols to examine model results.
- Should there be some consideration of data limitations or caveats? Should there be no consideration without those descriptions?
- A result is a CAST output or something different?
- Illogical, unreasonable, not representative of real change needs to be considered at State scale.
- Allow anyone to make a claim that the change is illogical, unreasonable, not representative of real on the ground change.

Track 1 and/or 2:

- Establish in the expectations what triggers a change to processes to be consistent in future years. Clearly define who decides what results in a change to protocols
- Charge needs to include some information on expectation of whether consensus-based recommendations are needed or not.

- Establish data acceptability criteria.
- Come up with objective criteria to accept data. If it doesn't meet the criteria, it is not considered "reasonable"
- Consider the cost, time, and source of resources.
- Consideration of third-party review process outside of CBP Partnership
- Should reflect on what worked and what didn't work with CAST-21 review and evaluation. Adjust as needed
- Ensure support is available for any kind of process determined as a result of this decision
- What types of data and what types of supporting information.
- Robust system of checks and balances
- Identify what are the additional safeguards
- Include expectations when data does not "fit" within the model framework
- Establish a standard for acceptable data quality...85% +- 10% MOE
- Realistic timing is key, especially with multi-workgroup involvement and the time that is required to make any changes, and retest to determine if modification is doing

Who would work on the charge?

- STAR and/or STAC participants if the group gets into specifics about how we define outliers, significance, or applying stats/math to determine "unreasonable"
- A collaboration of pertinent workgroups, STAR, and STAC
- WQGIT should have an oversight role with input/guidance from workgroups, STAC/STAR
- WQGIT with advice from STAC/STAR
- WHO: Watershed Technical Workgroup oversight of CAST/Modeling Team work
- Watershed Technical Workgroup, individual STAC/STAR experts, WQGIT and MB
- Ask the Watershed Technical Workgroup develop a policy to be approved by the Management Board that will clarify as to when the technical workgroup would be engaged an on issues such as data abnormalities, unrealistic results, and triggers for action. Would also suggest a review of how long we should lock out the model (e.g., moving from 2 yr to a 5 yr).
- Didn't we just form a "Watershed Technical Workgroup"? That seems like the logical lead to begin these discussions
- Workgroups/WQGIT do not approve QAPPs. But those groups can certainly discuss/approve methods or improvements to what's documented.
- Whoever works on this, governance should be included in the charge
- WQGIT decides which WGs in particular work on this. Identify roles and responsibilities of other entities (USGS, modeling team, etc.) to clarify expectations - J.W.
- With relatively short timeline, driven by having recommendations approved and in place for CAST23 development, a F/T Team will likely need to be assigned

Timeline:

- Until charge is more fully developed, difficult to suggest a timeline
- 6 months
- Timeline will need to reflect capacity and governance process. revisit timelines and adjust if needed after we have charge/timeline for all 3 decisions

- This ought to be iterative- as in go back to today's guidelines and edit if necessary as we refine CAST and learn from our guidelines and from the data
- Governance component should be included in the timeline. It takes time to get things approved throughout the partnership at varying levels - E.D.
- If timeline is short, then group needs to be solely focused on this. -E.D.
- With relatively short timeline, driven by having recommendations approved and in place for CAST23 development, a F/T Team will likely need to be assigned
- Ideally this is completed before going into next development cycle for CAST23 (September 1, 2023) - J.M.