

Ag Data: Updates & Moving Forward

Agriculture Workgroup
February 17, 2022

Today's Items

- Phase 7 Timeline- *Update*
- BMP Partial Credit Proposal- *Update*
- CAST-21 Review & Release- *Update*
- Hillandale → Ag Data Concerns- *What's Next?*
- Discussion

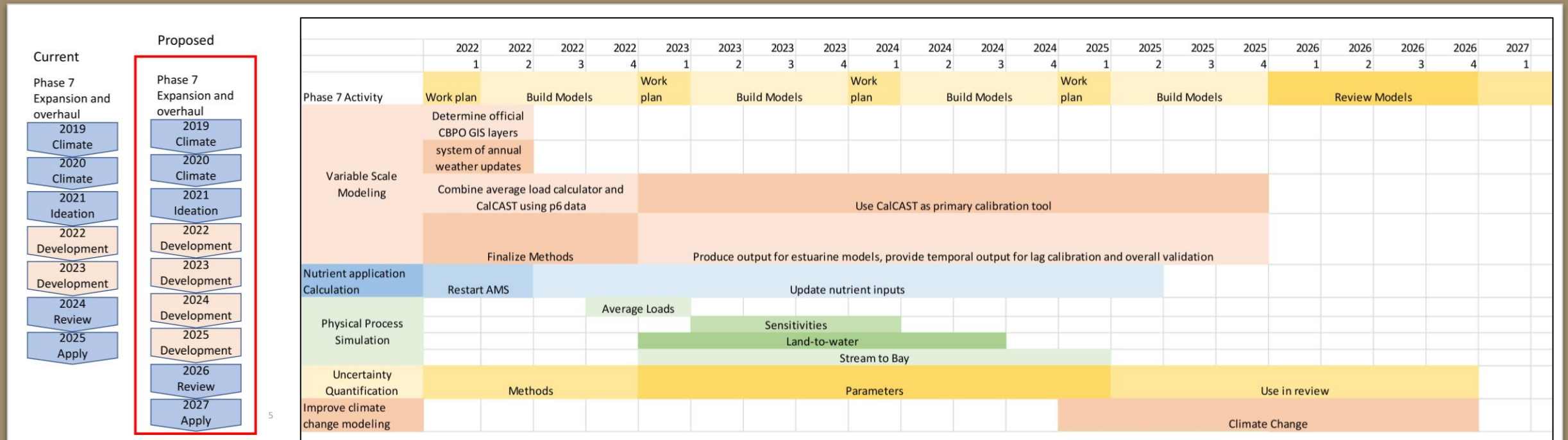
Phase 7 Timeline

Update

Phase 7 (Revised) Proposed Timeline

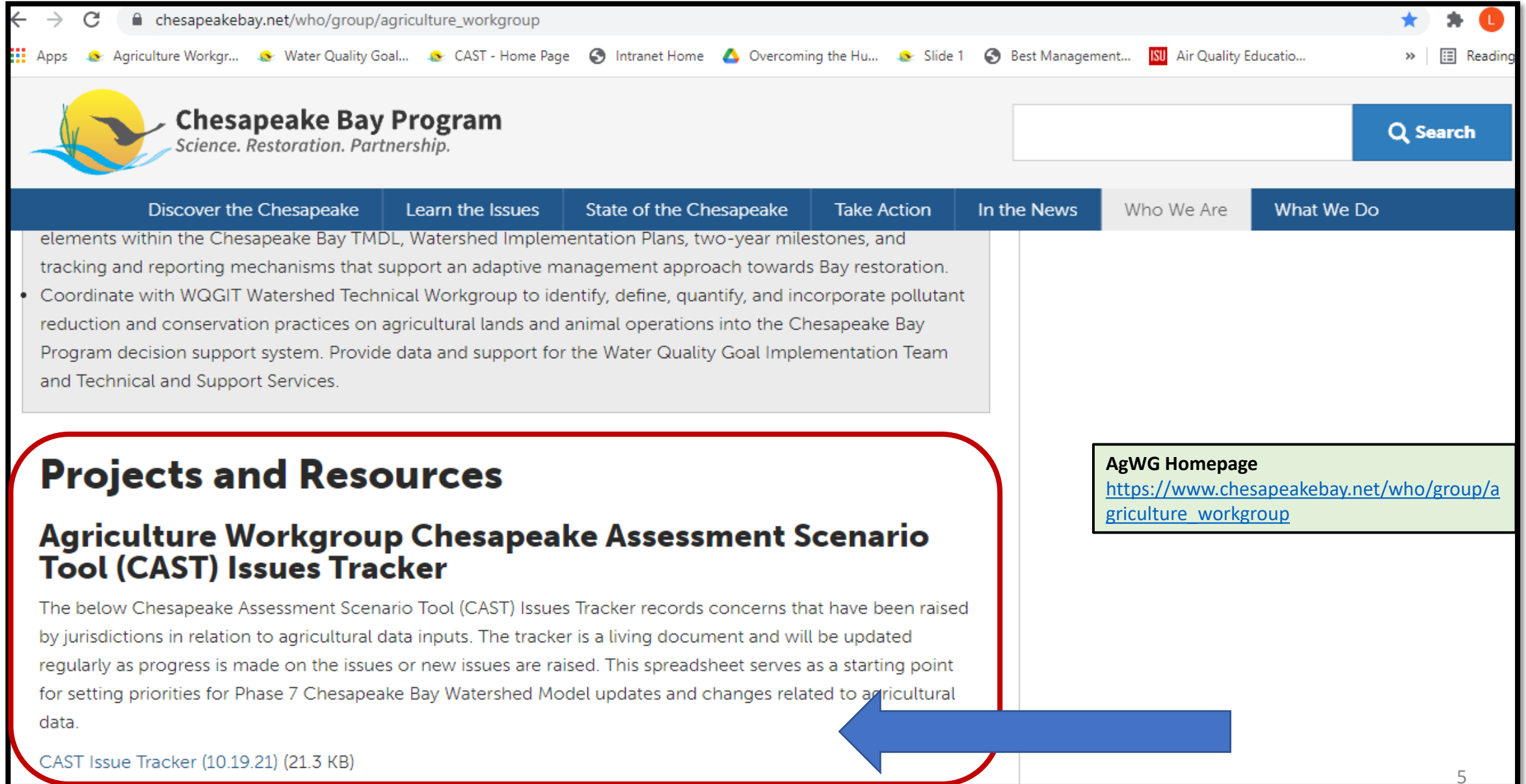
Water Quality GIT- approved timeline BUT activities have not been prioritized

Management Board- Reviewing TODAY




AMS = Agricultural Modeling Subcommittee → Phase 6 [Decisions](#)

Prioritizing Concerns (Post- CAST-21)



chESAPEAKEbay.net/who/group/agriculture_workgroup

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elements within the Chesapeake Bay TMDL, Watershed Implementation Plans, two-year milestones, and tracking and reporting mechanisms that support an adaptive management approach towards Bay restoration.

- Coordinate with WQGIT Watershed Technical Workgroup to identify, define, quantify, and incorporate pollutant reduction and conservation practices on agricultural lands and animal operations into the Chesapeake Bay Program decision support system. Provide data and support for the Water Quality Goal Implementation Team and Technical and Support Services.

Projects and Resources

Agriculture Workgroup Chesapeake Assessment Scenario Tool (CAST) Issues Tracker

The below Chesapeake Assessment Scenario Tool (CAST) Issues Tracker records concerns that have been raised by jurisdictions in relation to agricultural data inputs. The tracker is a living document and will be updated regularly as progress is made on the issues or new issues are raised. This spreadsheet serves as a starting point for setting priorities for Phase 7 Chesapeake Bay Watershed Model updates and changes related to agricultural data.

CAST Issue Tracker (10.19.21) (21.3 KB)

AgWG Homepage
https://www.chesapeakebay.net/who/group/agriculture_workgroup

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CAST Ag Issue Tracker

EVOLVING* List of Agricultural Updates & Changes to be Considered for Future CAST Versions & Phase 7

Last Update 02/16/22

*Items below in no particular order
Contact Loretta Collins (lcollins@chesapeakebay.net) with comments/questions.
Greyed - out items are withdrawn and/or resolved

BMP- Effectiveness, Tracking and/or Reporting (DPF)	ORIGINAL APPROVAL	AgWG Priority Level	Potential TIMELINE	INTERESTED JURISDICTIONS	LEAD	CBPO Contact	ACTION	NOTE	Status
Dairy Precision Feeding (DPF)	Simpson & Weammert, 2009 https://archive.chesapeakebay.net/pubs/BMP_ASSESSMENT_REPORT.pdf	?	2022 Progress Reporting (not reliant on CAST changes)- if approved by relevant groups in the partnership.	PA	Mark Dubin, UMD	Mark Dubin, UMD	Proposal for suggested change in implementation tracking based on updated science	Several state WIPs include DPF as part of 2025 goals, only NY has reported DPF as of 2019. PA actively working on solution to tracking challenges. Seeking flexibility in CBP requirements. This would require a change to the Simpson & Weammert (2009) report recommendations. Dr. Virginia Ishler (Penn State) and Dr. Kathy Soder (ARS), both involved in original recommendations, have more recent research on dairy herds and MUN levels. Jennifer Reed-Harry (Penn Ag Ind. Assoc.) & Ron Ohrei (Mid-Atlantic Dairy Assoc.) working on dairy processor co-op sub-population verification. Brady Seeley (DEP) writing up a narrative of path forward. Interested in tracking % of PA dairy population under DPF versus individual herd management. Up to 70% of PA dairy population may use	PA assembled team to discuss new science, tracking, and reporting for dairy precision feeding. June 2020AgWG presentation on MUN research. https://www.chesapeakebay.net/what/event/agriculture_workgroup_conference_call_june_2021 PA and CBPO working on proposal to present at future AgWG for approval for 2022 BMP progress reporting.
Riparian Grass Buffers	Riparian Riparian Forest and Grass Buffer Expert Panel https://www.chesapeakebay.net/documents/Riparian_BMP_Panel_Report_FINAL_October_2014.pdf	?	?	?	?	Loretta Collins	Propose review of grass buffer effectiveness efficiencies and credit duration as part of prioritization process in the AgWG. Partner lead needed, as well as identification of resources needed.	Discussed in the context of credit duration at BMP Verification Ad Hoc Action Team. From EP (2014): Both grass and forested buffers have been shown to reduce nitrogen effectively. Grass can provide dense protection of soil surfaces, but usually generates more runoff than forest. Several studies have found that grass buffers are less effective than forest buffers at removing nutrients (Lowrance 1998, Mayer et al. 2005). Sweeney and Newbold (2014) looked at forest and grass buffers through a meta-analysis and found that there is a lack of research on natural landscape grass buffers, as opposed to experimental plots with artificial flow. Few studies were cited that could definitively point to an appropriate TN efficiency for grass buffers. The original TN discount to 70 % of the forest buffer efficiency was reaffirmed in the 2009 BMP Assessment Report which clearly noted that more research was needed to support this (Simpson and Weammert 2009). In the absence of data to support or refute this estimation, the Panel recommends no change. Both forest and grass buffers receive the same TP and TSS efficiencies. Grass buffers receive 70 % of the forest buffer TN efficiencies. The regional efficiencies established by Simpson and Weammert (2009) are averages referring published literature from that region when available. More information on the ranges, standard errors, and measures of dispersion among the estimates for each region is needed (see Section 7). The same studies did not provide	BMP Verification Ad Hoc Action Team determined that review of grass buffer BMP should go through the AgWG (September 2021). Item added to this list for consideration of the AgWG.

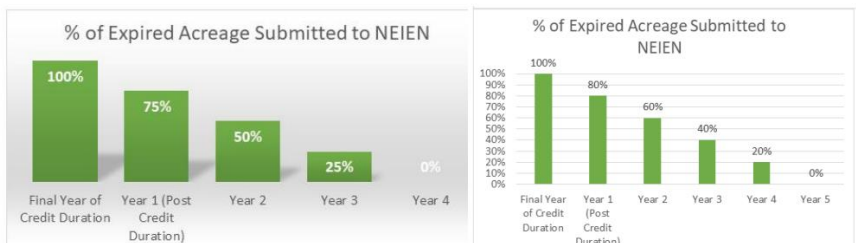
BMP Partial Credit Proposal

Update

BMP Partial Credit Proposal- *Feb. Update*

THE PROPOSAL

- Building upon the gradual phase out approach:



Partial Credit Proposal

Problem: Re-verification of “expired BMPs”* is resource intensive

- Multi-year BMPs that have reached established CBP-approved credit duration “drop out” of CAST until re-verified.
- Difficult to impossible to find federally-funded BMPs for re-verification (varies by jurisdiction)

Action Taken

- BMP Verification Ad Hoc Action Team established by the WQGIT: 1st meeting Sept 2020
- Monthly discussions resulted in proposed compromise

Current Status

- The BMPVAHAT did not seek consensus on proposed partial credit compromise on February 11

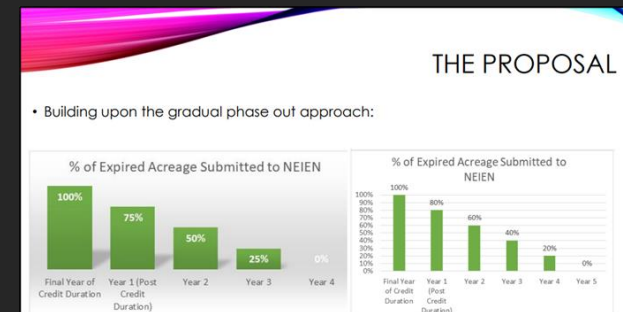
References

Partial Credit Recommendation: [Link](#)

Partial Credit Presentation: [Link](#)

*BMPs that have exceeded credit life w/o re-verification-typically 10-15 years for the BMPs in question (as approved by the AgWG for Phase 6 CAST development).

BMPVAHAT Feb 11 Rationale Summary



- Need a **Long-Term Solution**
 - Incl. location data & financial support
- Temporary Fix (this is a band-aid)
- **Provides Some Relief** to Verification Hurdles
- **Does not Solve Underlying Challenges** (USDA 1619 & all or nothing for BMP crediting)
- Needs Steps Towards Resolution (**Action Plan**) **Before Phase 7**
 - Scheduled check-ins on progress
- Do not Support Sunset
- Only Support w/ Sunset
- Proposal is **Policy Decision**- Should not Replace Field Data
- Need More Field Data to Support Extended Credit w/o Verification
- Need for **High-Level Policy Intervention**



**BMP Verification Ad Hoc
Action Team (BMPVAHAT)
BMP Partial Credit
Proposal
Feb 11 Vote**

16 Responses

- 0 Endorse
- 7 Agree w/ Reservations
- 8 Stand Aside
- 7 Hold
- 0 Stop



Next Steps TBD

CAST-21 Review & Release

Update

CAST-21 Review & Release

[Feb 14 Water Quality GIT](#)

Error identified by the Bay Program Office

- The **missing agricultural fertilizer data** for 2013 and 2014 was corrected.
 - ✓ Data was missing in CAST-19 (current version) and put in for the CAST-21 version that is out for review.

Missing data

- **Broilers and turkeys** from the 2020 NASS Survey
- **Crop yields** from NASS Surveys for post calibration period
 - ✓ Data are not yet in the CAST-21 version available for review

CAST-21 Review & Release

[Feb 14 Water Quality GIT](#)

Change in Nutrient Loads to the Chesapeake Bay

Differences between CAST versions with each update: 6.2M lbs TN, -0.6M lbs TP
By source sector; 2020 Progress scenario

Nitrogen

Jurisdiction	Source	CAST19 - CAST21 (Reviewed)		CAST21 Effect of Broiler Data		CAST21 Effect of Yield Data		CAST19 - CAST21 (All Effects)	
		(M lbs)	(%)	(M lbs)	(%)	(M lbs)	(%)	(M lbs)	(%)
NY	AllSources	0.697	5.3%	0.000	0.00%	-0.042	-0.3%	0.655	4.9%
PA	AllSources	1.772	1.6%	0.124	0.11%	0.868	0.8%	2.764	2.6%
MD	AllSources	1.017	2.1%	-0.016	-0.03%	0.482	1.0%	1.483	3.1%
VA	AllSources	0.566	1.0%	-0.015	-0.03%	0.434	0.7%	0.985	1.7%
WV	AllSources	-0.153	-1.4%	-0.016	-0.20%	-0.005	-0.1%	-0.173	-1.7%
DE	AllSources	0.374	5.4%	-0.052	-0.71%	0.220	3.0%	0.542	7.9%
DC	AllSources	-0.002	-0.1%	0	0	0	0	-0.002	-0.1%
CBW	AllSources	4.273	1.8%	0.025	0.01%	1.957	0.8%	6.255	2.6%

Phosphorus

Jurisdiction	Source	CAST19 - CAST21 (Reviewed)		CAST21 Effect of Broiler Data		CAST21 Effect of Yield Data		CAST19 - CAST21 (All Effects)	
		(M lbs)	(%)	(M lbs)	(%)	(M lbs)	(%)	(M lbs)	(%)
NY	AllSources	0.004	0.7%	0.000	0.02%	-0.002	-0.4%	0.002	0.3%
PA	AllSources	-0.027	-0.8%	0.004	0.11%	-0.014	-0.4%	-0.036	-1.0%
MD	AllSources	-0.392	-10.6%	0.000	0.00%	-0.014	-0.4%	-0.406	-11.0%
VA	AllSources	-0.159	-3.5%	0.001	0.01%	-0.004	-0.1%	-0.163	-3.5%
WV	AllSources	0.067	15.6%	0.000	-0.04%	0.000	-0.1%	0.067	15.4%
DE	AllSources	0.013	10.7%	-0.004	-2.86%	-0.001	-1.0%	0.008	6.5%
DC	AllSources	-0.003	-5.4%	0	0	0	0	-0.003	-5.4%
CBW	AllSources	-0.498	-3.7%	0.001	0.01%	-0.036	-0.3%	-0.533	-4.0%

CAST-21 Review & Release

[Feb 14 Water Quality GIT](#)

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By source sector; 2020 Progress scenario

Nitrogen

Jurisdiction	Source	CAST19 - CAST21 (Reviewed)		CAST21 Effect of Broiler Data		CAST21 Effect of Yield Data		CAST19 - CAST21 (All Effects)	
		(M lbs)	(%)	(M lbs)	(%)	(M lbs)	(%)	(M lbs)	(%)
CBW	Agriculture	4.056	3.4%	0.024	0.02%	1.863	1.5%	5.943	5.0%
CBW	Developed	0.177	0.4%	0	0	0	0	0.177	0.4%
CBW	Wastewater	0	0	0	0	0	0	0	0
CBW	Septic	-0.080	-1.0%	0	0	0	0	-0.080	-1.0%
CBW	Natural	0.120	0.3%	0.001	0.00%	0.094	0.2%	0.215	0.5%
CBW	AllSources	4.273	1.8%	0.025	0.01%	1.957	0.8%	6.255	2.6%

Phosphorus

Jurisdiction	Source	CAST19 - CAST21 (Reviewed)		CAST21 Effect of Broiler Data		CAST21 Effect of Yield Data		CAST19 - CAST21 (All Effects)	
		(M lbs)	(%)	(M lbs)	(%)	(M lbs)	(%)	(M lbs)	(%)
CBW	Agriculture	0.086	2.1%	0.001	0.03%	-0.029	-0.7%	0.058	1.4%
CBW	Developed	-0.454	-17.4%	0	0	0	0	-0.454	-17.4%
CBW	Wastewater	0	0	0	0	0	0	0	0
CBW	Septic	-0.003	-60.6%	0	0	0	0	-0.003	-60.6%
CBW	Natural	-0.127	-2.2%	0.000	-0.01%	-0.006	-0.1%	-0.134	-2.4%
CBW	AllSources	-0.498	-3.7%	0.001	0.01%	-0.036	-0.3%	-0.533	-4.0%

CAST-21 Review & Release

[Feb 14 Water Quality GIT](#)

Friday, 2/18 - Release of revised CAST-21 with updated poultry, crop yields

Friday, 3/18 - Comments due from states

Thursday, 3/31 - Response to comments, both those provided in November and those provided most recently.

Release of CAST-21 to occur soon after response to comments

Draft
Schedule for
Deliberative
Purposes

Hillandale → Ag Data Concerns

What's Next?

Incorporation of Hillandale Layer Population Data into CAST

Problem: CAST does not account for millions of layers across two PA counties.

- Current population data source: USDA Census of Agriculture
- Challenge: USDA-NASS privacy protection

Action Taken

- Population data acquired from Hillandale
 - QA/QC against CAFO permits & NMPs
 - ~5 million layers
- Review & Analysis of Census of Ag county & state totals
 - Published data underestimates layers (order of magnitude)

Current Status

- Hillandale pop. data can be incorporated in FUTURE VERSION of Phase 6 CAST (as a change product) *with partnership approval*.
- Hillandale & other alt. data can be incorporated in Phase 7 CAST *with partnership approval*.

References

Incorporating Private Industry Data Into CAST – Nov AgWG: [Link](#)
Commercial Agricultural Production Data Decisions – Nov AgWG: [Link](#)

AgWG Dec 2021 Survey:
Indicate your current level
of approval for
incorporating Hillandale
layer population data in
the CAST 2023 update.

17 Responses

- 7 Endorse
- 3 Agree with Reservations
- 3 Stand Aside
- 3 Hold
- 1 Stop



Comment Summary

Ad Hoc Group to Address Questions & Knowledge Gaps

- Why must changes in one county affect far reaches of watershed?
 - Can we change that?
- Standardization of process for industry data
 - QA/QC
 - Addressed duplication & equity
- Standard of quality across all types of data (data equity)
- Shared understanding of available data sets & use
 - Feasibility of incorporating alternative data sets
 - Consideration of data privacy
- Shared understanding of NASS data sets
 - Opportunities and constraints
- Identify other data gaps

Next version of
CAST?



Next Step: Understanding Current animal data sources

Starter Questions for USDA-NASS

Intended Purpose of Ag Census?

Who is it for?

Who participates & how?

Response rate?

Accounting for non-response?

Privacy protections? (What happens with a “d” county)

What hinders participation?

Intended Purpose of Annual Surveys?

Who is it for?

Who participates & how?

Response rate?

Accounting for non-response?

Privacy protections?

What hinders participation?



TODAY Management Board

- Proposed Timeline for Phase 7

Feb 28 WQGIT

- CAST-21 Follow-up (tentative)
- Overview of path/plan for Phase 7

March 3 WTWG

- Animal Mortality Management Technical Appendix (discussion)

Mar 17 AgWG

- Decision on NEIEN proposal
- Animal/Crop Data Discussion
- Phase 7 Ag Modeling Subcommittee

Discussion