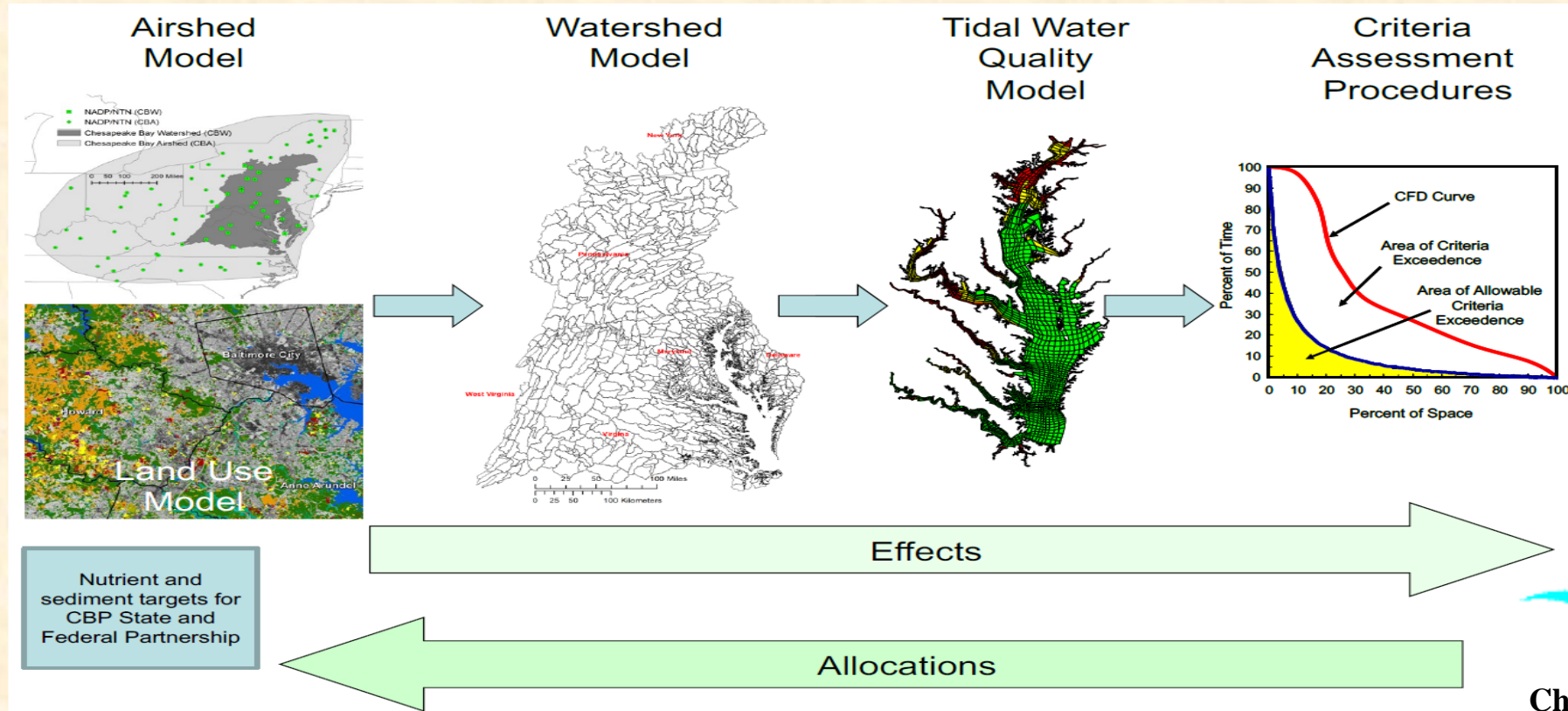


# Proposed Timeline For Phase 7 Model Suite

July CBP Modeling Workgroup Quarterly Review  
July 8, 2025

Low Linker (EPA-CBPO) and the CBPO Modeling Team  
*linker.lewis@epa.gov*



**Chesapeake Bay Program**  
Science, Restoration, Partnership



# Key Points

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- Events beyond the control of the Modeling WG have delayed Phase 7 (P7) Model development.
- Delays are in key data sets augmented by loss of key model practitioners in the Phase 7 Modeling Team.
- Nevertheless, the new P7 timeline will deliver a P7 model product with better performance than the previous Phase 6 Model Suite.
- Ultimate decisions on the final P7 timeline, year of P7 Model review, and P7 application to Chesapeake future conditions in 2027-2030 will be made by the PSC, MB, and/or WQGIT.

# Delay in Key Phase 7 Data Sets

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Three key data sets are due by February 28, 2026:

- Inorganic fertilizer
- Poultry broiler population
- Poultry layer population

Other Phase 7 Model Suite data sets and decisions are on time and tracking for completion by September 30, 2025.

# Loss of Key CBPO Modeling Team Personnel

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- Gary Shenk, CBPO-USGS: Watershed Modeling Expert
- Jesse Bash, EPA-ORD: Airshed Modeling Expert
- Isabella Bertani, CBPO-UMCES: CalCAST Development and Analysis Expert
- Alex Gunnerson, CBPO-USGS: Phase 7 Land Use Expert
- Nicole Cai, EPA R3 ORISE: Expert MTM Modeling and Lead for James and Potomac MTMs

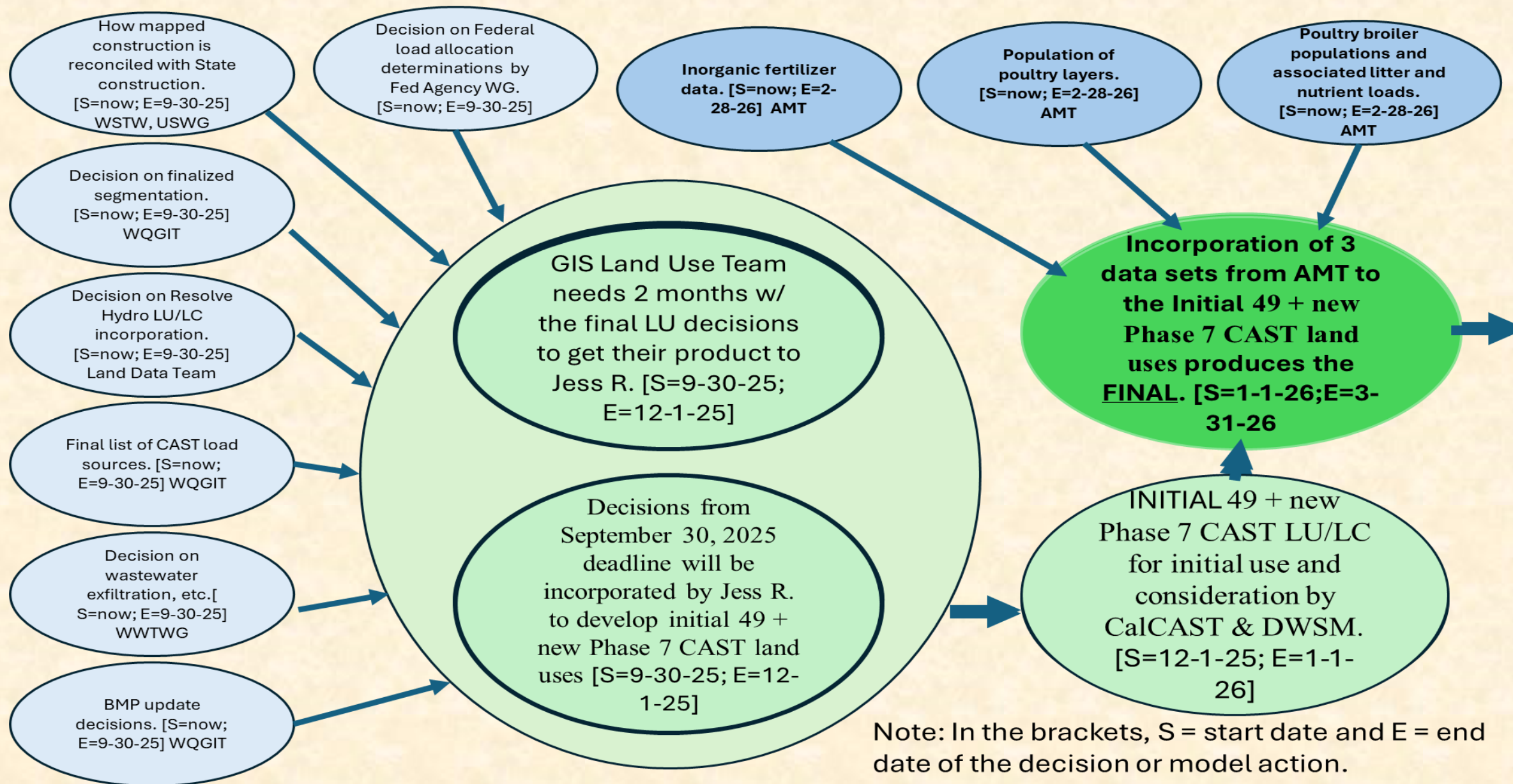
## Remaining CBPO Modeling Team (not including CAST Team)

- Lew Linker – CBP Modeling Coordinator
- Gopal Bhatt – Watershed Model and DWSM lead.
- Richard Tian – MBM development and application lead.
- Joseph Delesantro – Watershed Model processes and data lead.



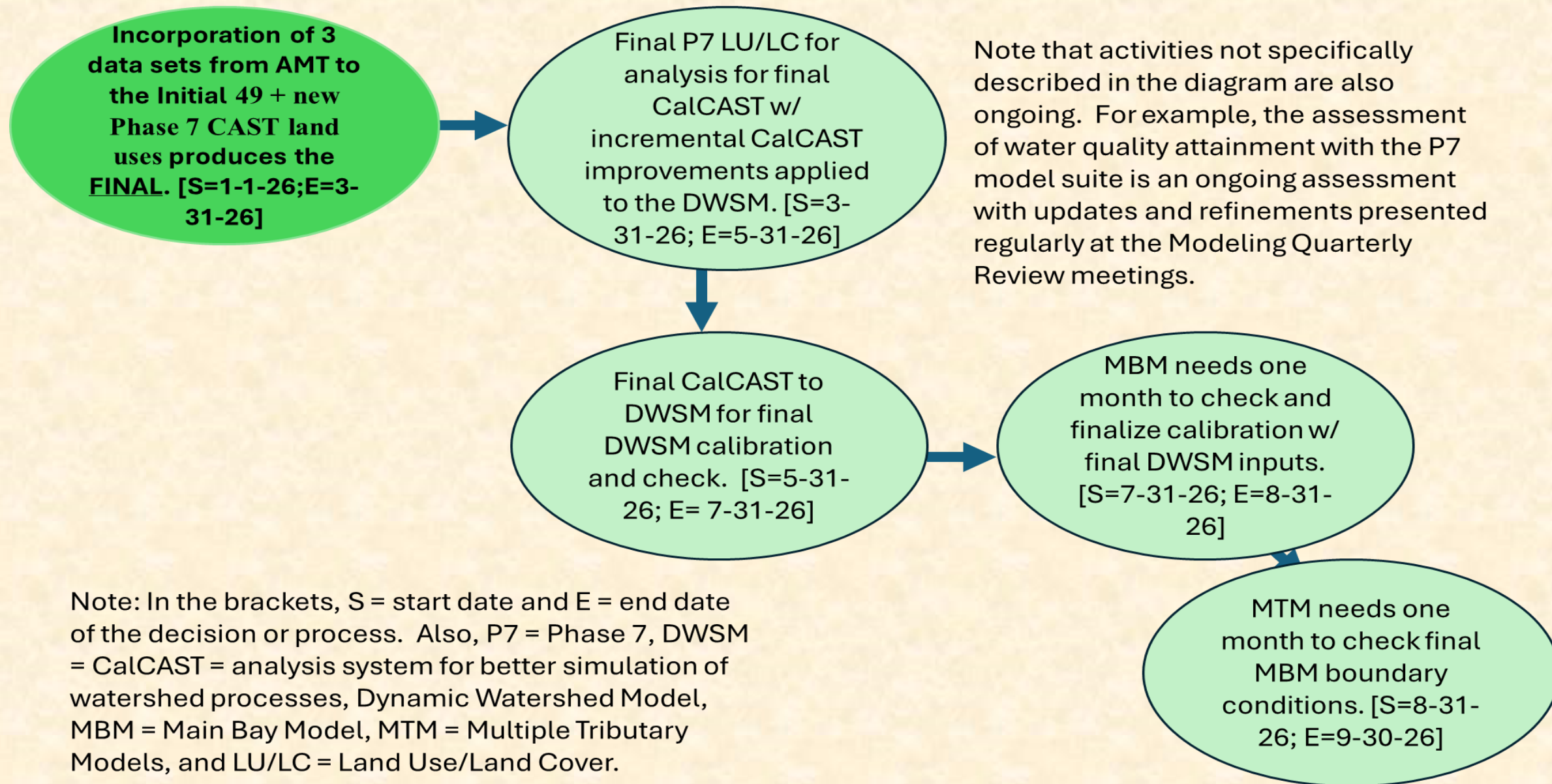


# Proposed New Phase 7 Timeline





# Proposed New Phase 7 Timeline (*continued*)





# What Doesn't Change

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- At every Modeling Quarterly a new tranch of DWSM results for MBM & MTMs will be developed.
- At every Quarterly we'll aim for incremental improvement.
- We'll have a functional, operational Phase 7 Model Suite by the close of 2025 but with many Phase 6 data sets incorporated.
- Even now hybrid the hybrid Phase 6/Phase 7 DWSM is quantitatively better than the Phase 6 Model in simulating coastal plain loads.



# What Happens to Year of Review and New Target Development Periods?

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- Decisions are out of Modeling Workgroup hands.
- Timeline for the Year of Review (STAC peer review and CBP review) likely to be from October 1, 2026 to October 31, 2027.
- Timeline for Phase 7 Model Suite application for development of new targets likely to be from November 1, 2027 to December 31, 2030 (3 years and 2 months).

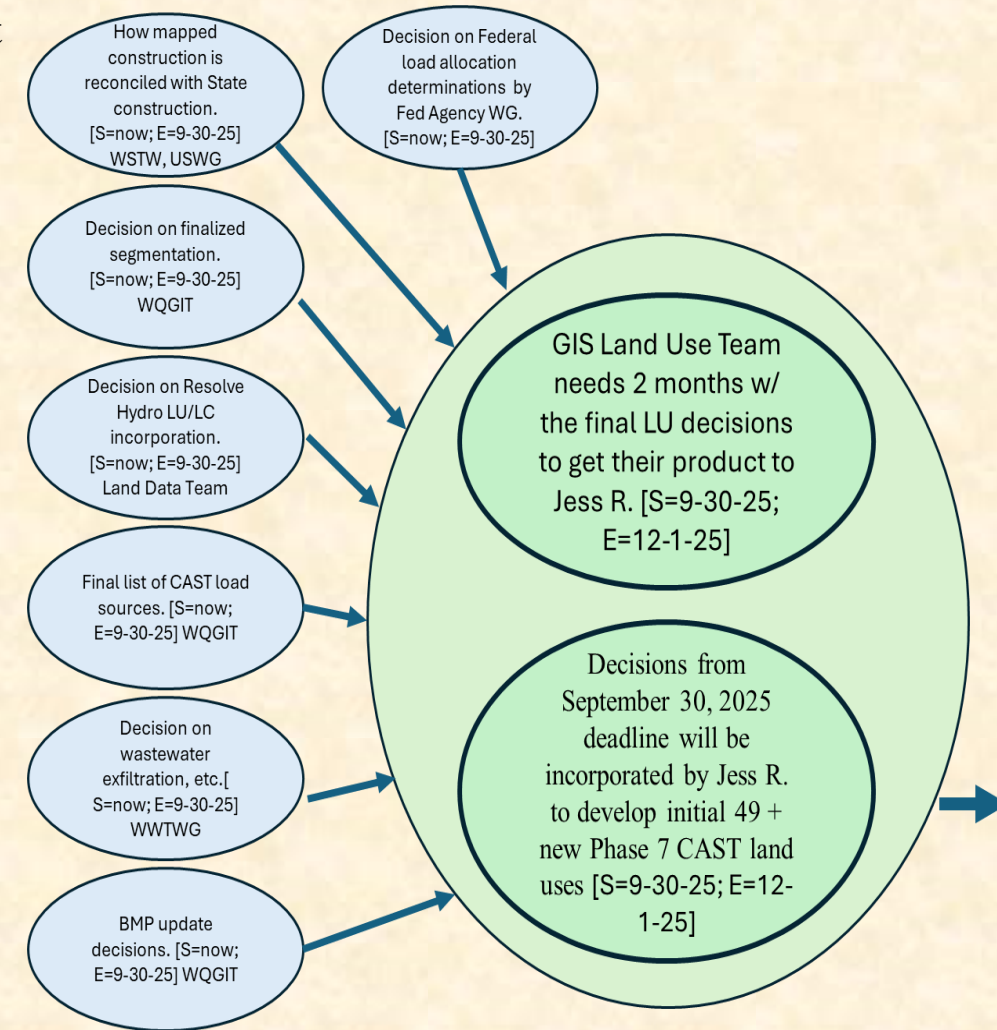




# September 30, 2025 CBP Decisions

The **September 30, 2025** deadline for key CBP decisions is unaltered. Below are partnership decisions needed to produce the LU/LC and other model inputs and that have a September 30, 2025 deadline. Following partnership decisions of September 30, 2025, the CBPO GIS LU team needs two months to deliver their product to Jess by **December 1**:

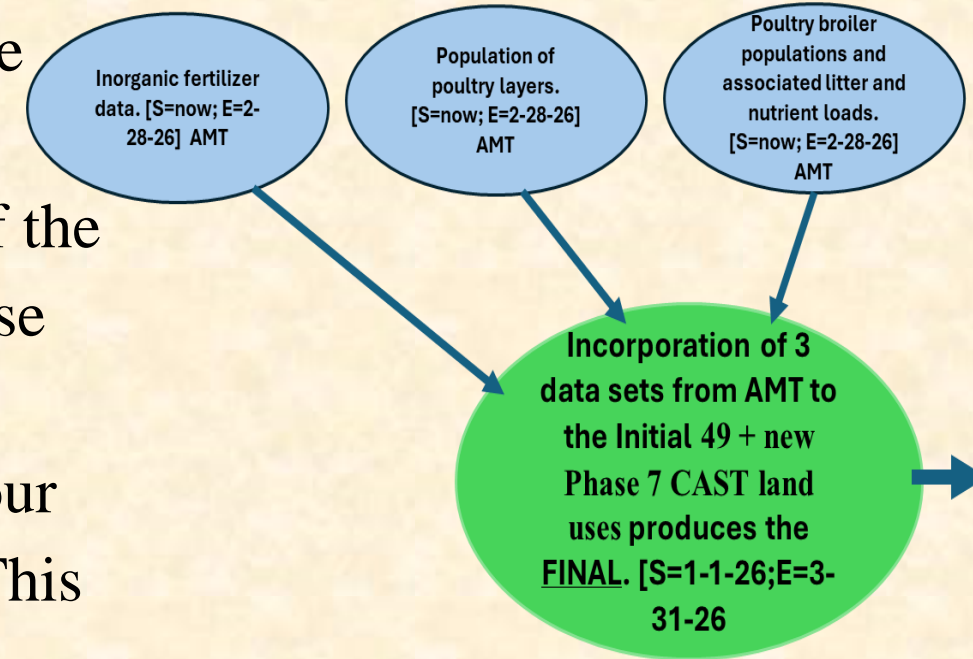
1. Decision on how mapped construction will be reconciled with State-reported construction. The decision is to be made sequentially by the Watershed Technical Workgroup and then the Urban Stormwater Workgroup.
2. Decision on finalized CAST segmentation to be made by the Water Quality Goal Implementation Team.
3. Decision by Land Data Team on the Resolve Hydro land use incorporation.
4. Decision on the final list of Phase 7 CAST load sources to be made by the Water Quality Goal Implementation Team.
5. Decisions on wastewater inputs including wastewater exfiltration and any changes needed from Phase 6 legacy inputs of CSOs or SSOs. These decisions are to be completed by the Wastewater Treatment Workgroup.
6. Any BMP updates or additions determined to be needed by the Water Quality Goal Implementation Team.
7. Decision on Federal load allocation determinations by the Federal Agency Workgroup.



# Three Key Phase 7 Data Inputs by February 28, 2026

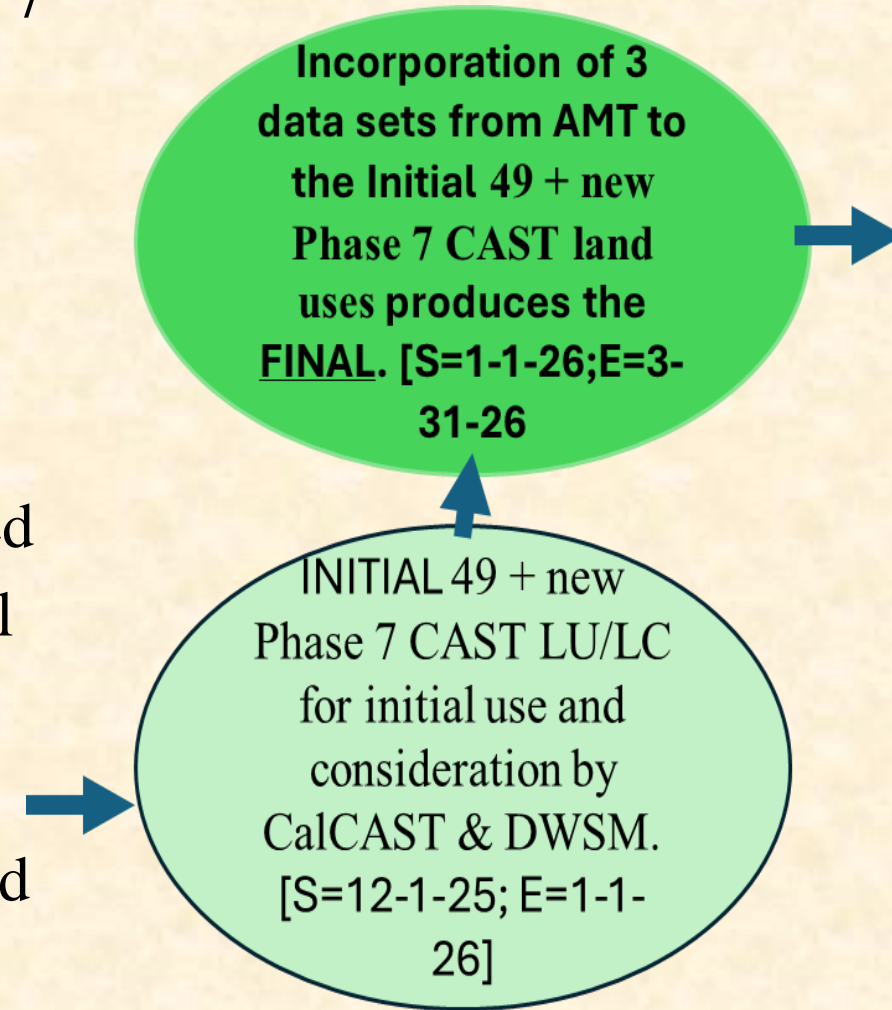
The extended deadline for three key data sets below is **February 28, 2026**. If possible, the data should be delivered prior to the final input deadline so there is sufficient time for processing and integration into the model.

1. Inorganic fertilizer data including the investigation of the sources and possible modeling efforts to improve these data utilizing multiple lines of evidence.
2. Animal populations for poultry layers omitted from our primary sources such as the Census of Agriculture. This includes, but is not limited to, the layer operation at Hillendale Farms in Adams County, PA.
3. Collection and incorporation of broiler populations, litter tonnage, and litter nutrient concentrations.



# Phase 7 Initial and Final Land Use

The estimated time Jess needs to develop 49 + new Phase 7 CAST land uses from 16 aggregated Phase 7 LU/LC data provided by the CBPO GIS land data team and multiple other inputs is one month. While Jess needs all the data and decisions of the September 30 and February 28, 2026 deadlines to finalize this task, the partnership decisions from the September 30, 2025 deadline will be incorporated as they are made available which will move toward a final Phase 7 CAST land use-land cover for testing and model sensitivity analysis. Therefore, the new deadline for the complete and final Phase 7 CAST land uses and associated suite of inputs is **March 31, 2026**. Jess then provides the finalized CAST land uses and other necessary inputs to Isabella for CalCAST analysis and incorporation.

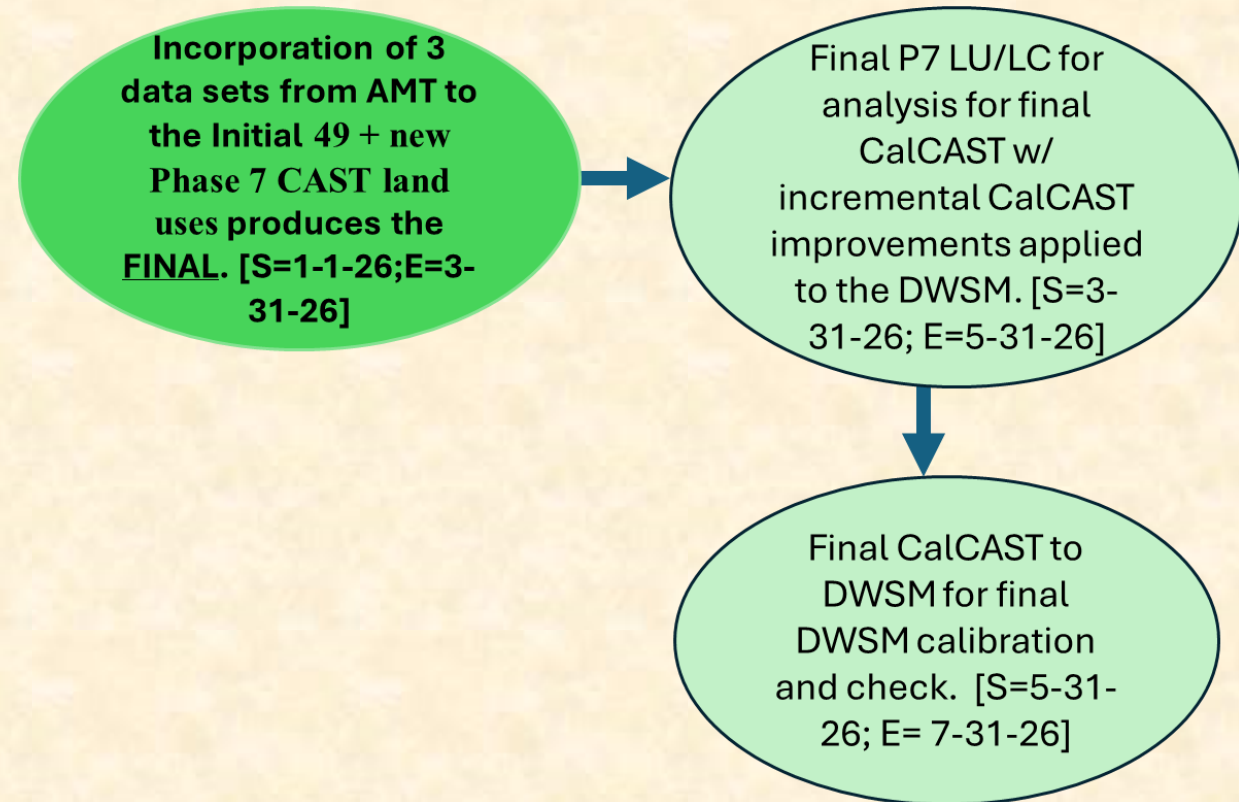






# Phase 7 Final CAST, CalCAST, and Dynamic Watershed Model

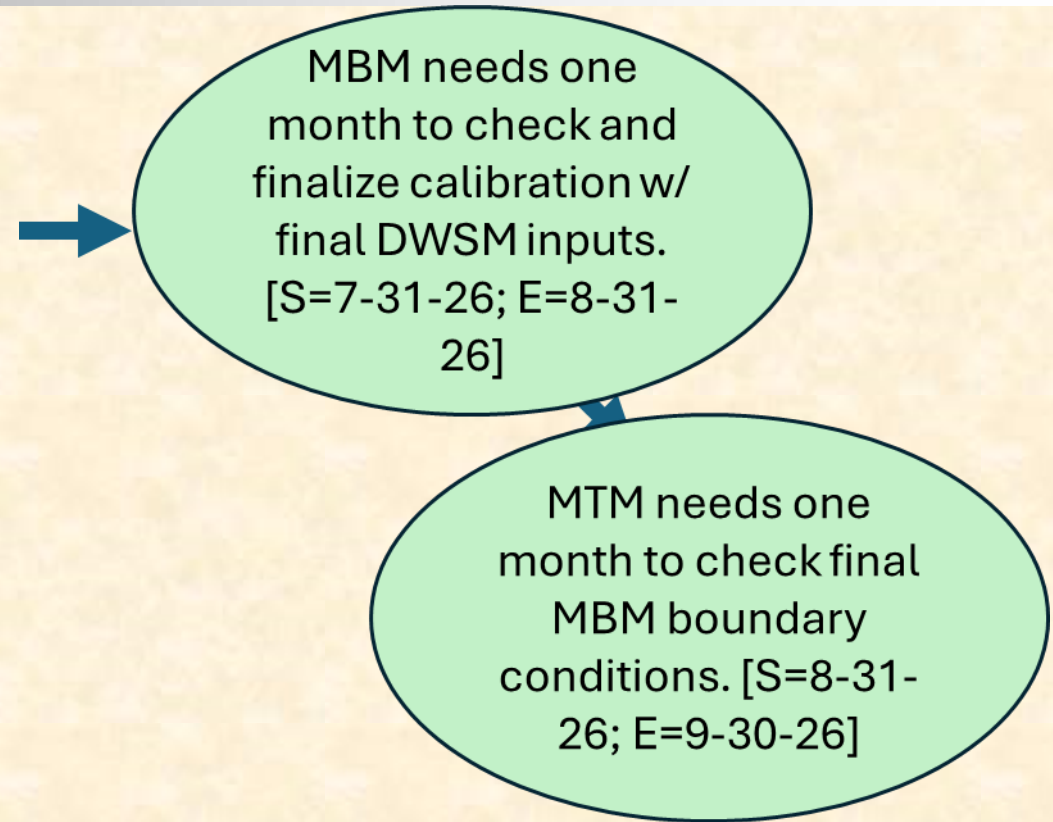
CalCAST requires two months to develop a final Phase 7 CalCAST with the final Phase 7 LU/LC data. Gopal needs two months to complete the final Dynamic Watershed Model (DWSM) calibration with the final CalCAST. The four-month time between March 31 and July 31 includes needed DWSM feedbacks among CAST, CalCAST, and the DWSM. Therefore, the deadline for the final Phase 7 CAST, CalCAST, and DWSM which together constitute the Phase 7 Watershed Model is **July 31, 2026.**





# Phase 7 Final Main Bay Model (MBM) and Multiple Tributary Models (MTMs)

The MBM Team will need a month to recheck and recalibrate as needed with the final Phase 7 Watershed Model. Therefore, the final Phase 7 MBM deadline is **August 31, 2026**. The deadline for the final MTMs will be one month following the MBM on **September 30, 2026**.





# Conclusions

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- Events beyond the control of the Modeling Workgroup have delayed Phase 7 (P7) Model development.
- Delays are in key data sets augmented by loss of key model practitioners.
- Nevertheless, the new P7 timeline will deliver a P7 model product with better performance than the Phase 6 Model Suite.
- Ultimate decisions on the final P7 timeline, year of P7 Model review, and P7 application to Chesapeake conditions in 2035 and beyond will be made by the PSC, MB, and/or WQGIT.