

Phase 7 Model Activities

Potential Areas of Focus	Recommendations	Impacts Estuarine Model	Impacts CAST	Level of effort	Benefits
Variable scale modeling - Scale can be variable to support different needs	WQGIT, other GITs, STAC	✓	✓	High	Greater accuracy watershed modeling; Enables adjustment of scale for different purposes, Scale of various activities needs to be determined
Physical process simulation	STAC, WQGIT other GITs, CBPO	✓	✓	Low-High	Greater watershed model accuracy overall
Nutrient Application calculation	CBPO		✓	Medium-High	Increases transparency of CAST scenarios; Reduces unintended consequences of model and data changes
Improve climate change modeling	PSC, WQGIT	✓	✓	Low	Directly addresses PSC priorities; improves confidence in 2025 climate decision.
Main Bay Model and possible Multiple Tributary Models	PSC, STAC	✓		High	Needed to address 2035 and beyond, increases ability to model shallow/open water
High Resolution Land Use in Phase 7	LUWG, WQGIT		✓	Medium-High	This new method can only be applied with a model phase change. Utilize wall to wall land use change vs. change product

Additional Activities Through 2027

Potential Areas of Focus	Recommendations	Impacts Planning Targets	Responsible Team	Benefits
High Resolution Land Use P6 and other Products	LUWG, WQGIT		Land Data Team, Chesapeake Conservancy	Provide the most accurate land use data possible to aid in multiple facets of Bay restoration efforts
Co-benefits and ecosystem services	WQGIT, other GITs, STAC		All GITs, CAST Team	Helps partners develop comprehensive plans that benefit local citizens.
BMP Optimization	WQGIT, Partnership		Michigan State University	Helps partners target implementation money to most effective BMPs and locations
WQ standards Assessment	WQGIT, STAC	✓	Monitoring Team	Potential to assess all tidal oxygen standards and to delist segments
BMP Transparency Reporting	WQGIT		CAST Team	Provide a better way to upload and view data vs. current NEIEN reporting method
Spatially explicit CAST	Non-CB TMDL partners		CAST Team, Outside Contractors	GIS based user interface that allows for other views/options for visual representation
CAST - General	WQGIT		CAST Team	Need to increase ease of access, documentation, and trainings for items already available in CAST.
WQGIT – General	WQGIT		WQGIT and Associated Work Groups	WQGIT and its workgroups to consider options to improve assessment of BMPs (new or existing); BMP tracking, accounting or verification; program evaluation; process changes
Uncertainty Quantification	WQGIT, STAC		Modeling Team	Helps prioritize model updates; Incorporates trends in monitored data
Phase 7 Planning Targets	WQGIT	✓	Modeling Team, WQGIT	Vision for final use of the models. Planning Target/Allocation Strategy

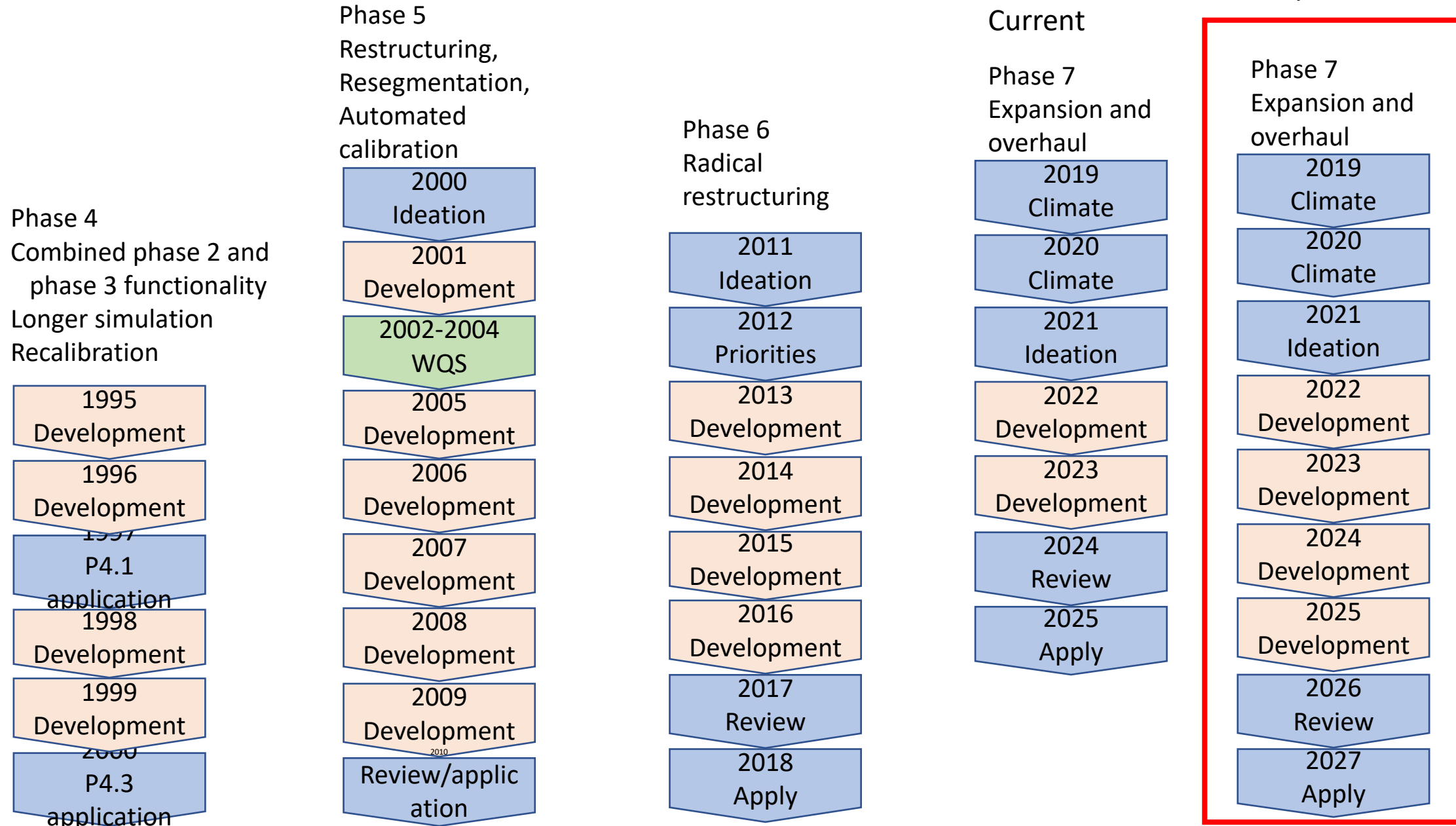
Evaluation and Model Timeline

Year	2022	2022	2022	2022	2023	2023	2023	2023	2024	2024	2024	2024	2025	2025	2025	2025	2026	2026	2026	2026	2027	2027	2027	2027
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	Phase 6 CAST																							
Phase III WIP evaluation	Implement												Final Progress				Evaluation							
Current Plans													New 2035 climate targets with P7 models											

Evaluation and Model Timeline

Year	2022	2022	2022	2022	2023	2023	2023	2023	2024	2024	2024	2024	2025	2025	2025	2025	2026	2026	2026	2026	2027	2027	2027	2027
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	Phase 6 CAST																							
Phase III WIP evaluation	Implement																Final Progress		Evaluation					
Under Discussion																					New 2035 climate targets with P7 models			

Model Development Schedules



Evaluation and model timeline

Year	2022	2022	2022	2022	2023	2023	2023	2023	2024	2024	2024	2024	2025	2025	2025	2025	2026	2026	2026	2026	2027	2027	2027	2027
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	Phase 6 CAST																							
Phase III WIP evaluation	Implement																Final Progress		Evaluation					
Under Discussion																					New 2035 climate targets with P7 models			
Model development	Work plan	Build Models			Work plan	Build Models			Work plan	Build Models			Work plan	Build Models			Review Models				Apply			
Planning target calculation methods	Discuss				Discuss				Discuss				Discuss				Discuss				Finalize			

Phase 7 Model Tentative Schedule

	2022	2022	2022	2022	2023	2023	2023	2023	2024	2024	2024	2024	2025	2025	2025	2025	2026	2026	2026	2026	2027	2027	2027	2027					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
Phase 7 Activity	Work plan	Build Models			Work plan	Build Models			Work plan	Build Models			Work plan	Build Models			Review Models				Apply								
Variable Scale Modeling	Determine official CBPO GIS layers																												
	system of annual weather updates																												
	Combine average load calculator and CalCAST using p6 data	Use CalCAST as primary calibration tool																											
	Finalize Methods			Produce output for estuarine models, provide temporal output for lag calibration and overall validation																									
Nutrient application Calculation	Restart AMS	Update nutrient inputs																											
Physical Process Simulation			Average Loads			Sensitivities																							
				Land-to-water																									
				Stream to Bay																									
Uncertainty Quantification	Methods				Parameters									Use in review															
Improve climate change modeling													Climate Change																

Requested Action from the WQGIT

Approve making a recommendation to the Management Board to elongate the current Phase 7 model development schedule to add two full years to the development timeline.

- This follows the timeline that was just presented to you
- It will allow all partnership teams and workgroups to do a more thorough job to address all of the great input we have received with regard to improving our modeling tools
- It will allow for the evaluation of 2025 progress to be completed before diving into application of the Phase 7 suite of models