

Phase 7 Watershed Model Plans

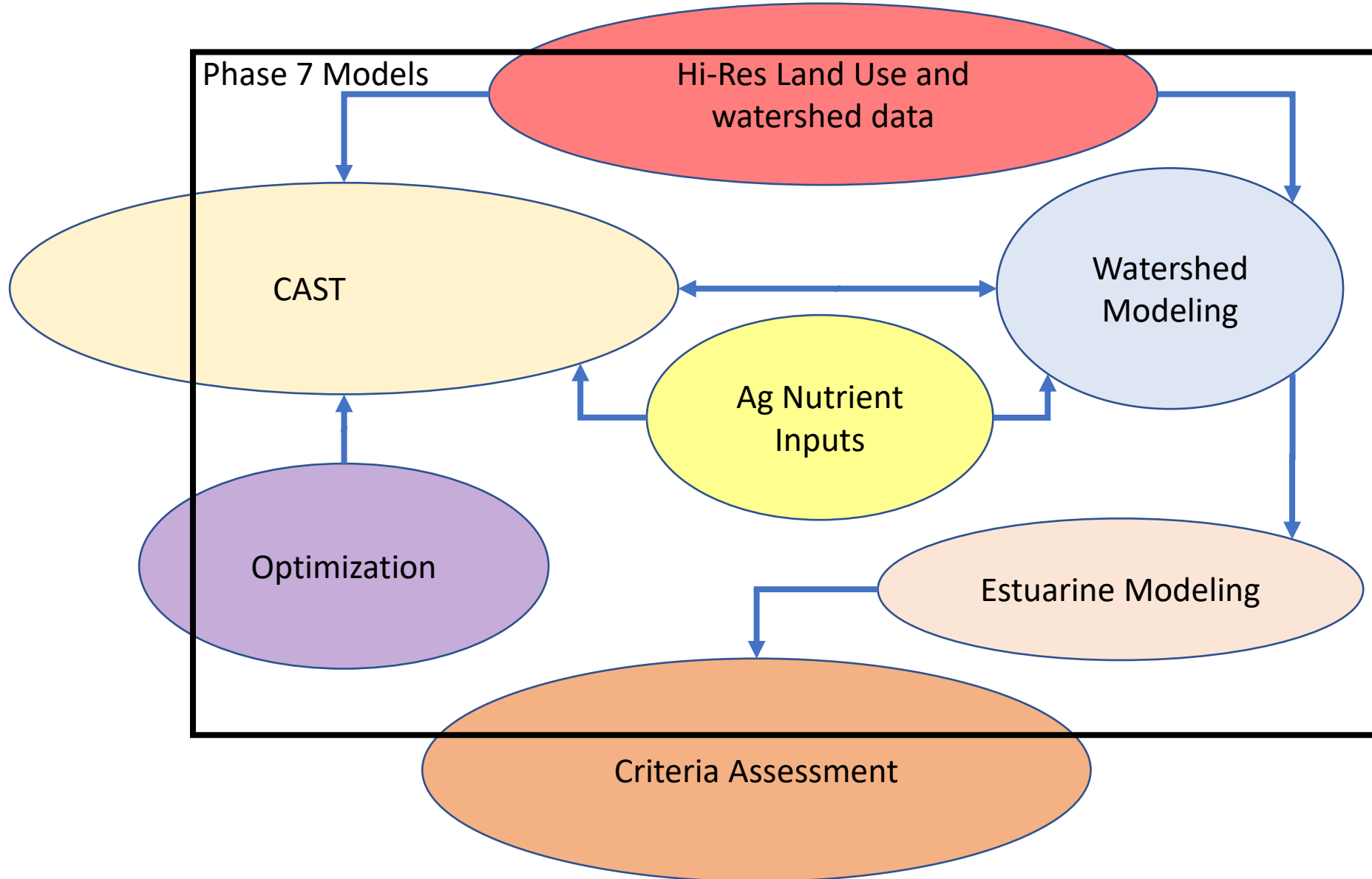
CBPO Staff

Gopal Bhatt, Isabella Bertani, Lewis Linker and others

MWG

10/17/2023

Phase 7 Development Tracks



Web page

- Overview
- Seven Projects
 - Descriptions
 - Documents
- Linked from
 - Modeling Workgroup
 - WQGIT
 - Many WQGIT WGs

Phase 7 Model Development | Chesapeake Bay Program

chesapeakebay.net/what/programs/modeling/phase_7_model_development

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Chesapeake Bay Program
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WHAT WE DO > PROGRAMS & PROJECTS > PHASE 7 MODEL DEVELOPMENT

Phase 7 Model Development

The Chesapeake Bay Program is updating its modeling and analysis tools used in the Chesapeake Bay TMDL.

f t e

Currently in development, the Phase 7 Modeling Tools will be used by the partnership to inform decisions related to nutrient and sediment reduction goals outlined in the Chesapeake Bay Watershed Agreement. Integral to this updated suite of tools is the ability to project climate change effect through 2035. The model, which will be ready for use by 2027, consists of six interrelated projects:

1. High Resolution Land Use
2. Chesapeake Assessment Scenario Tool (CAST)
3. Optimization
4. Agricultural Inputs
5. Watershed Modeling
6. Estuarine Modeling
7. Criteria Assessment

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graph TD; HL[Hi-Res Land Use] --> CAST[CAST]; HL --> WM[Watershed Modeling]; CAST <--> WM; AI[Ag Nutrient Inputs] --> CAST; AI --> WM;
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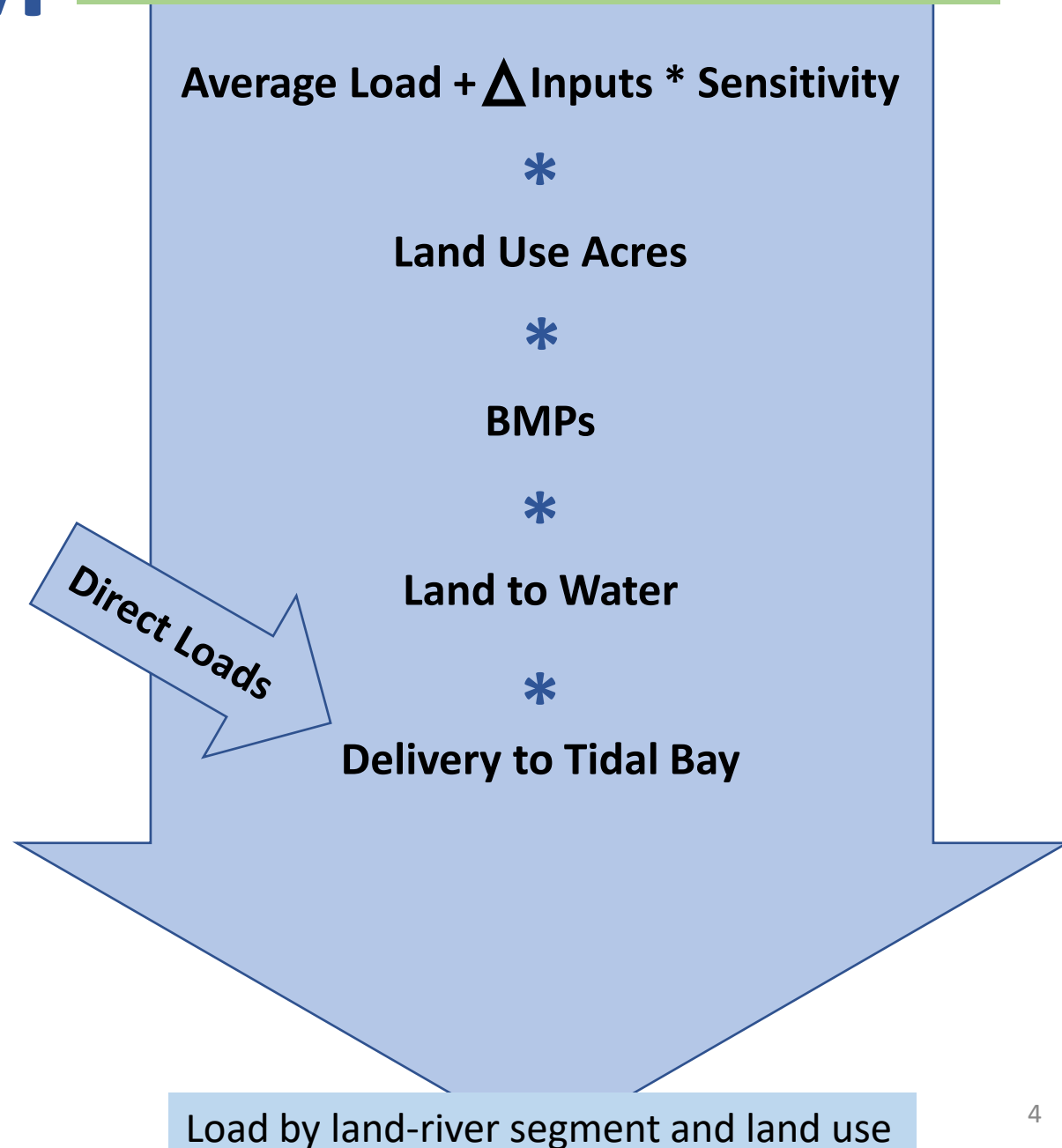
Modeling
Phase 7 Model Development

Programs & Projects

- Modeling
- Monitoring
- Quality Assurance
- Resource Lands Assessment
- Chesapeake Bay TMDL
- Watershed Implementation Plans
- BMP Verification

Phase 7 CAST

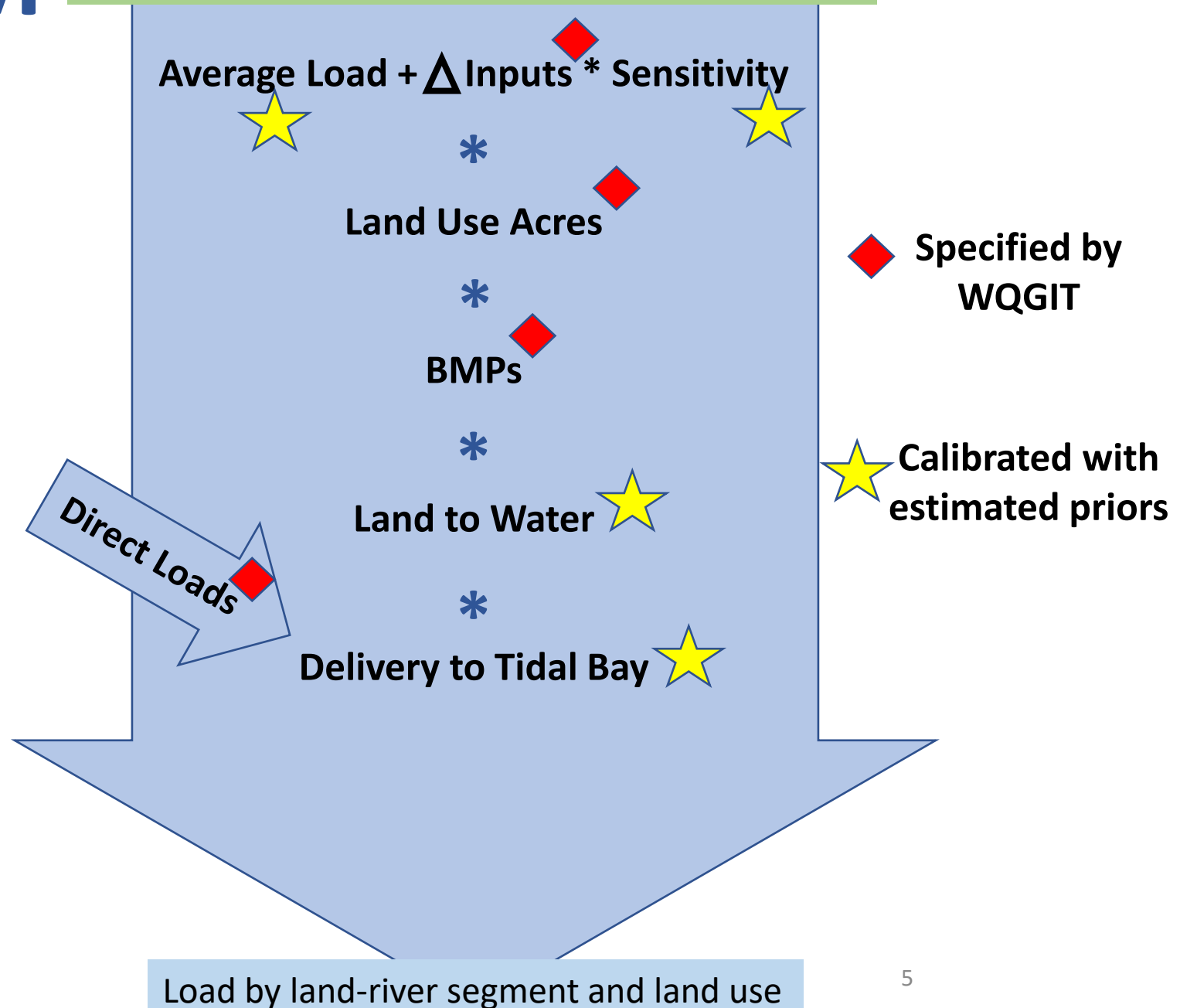
Deterministic
Scenario Tool:
1 set of loads for 1
set of inputs



Phase 7 CalCAST

Tool for finding
parameters that
best match
observations

Isabella Bertani

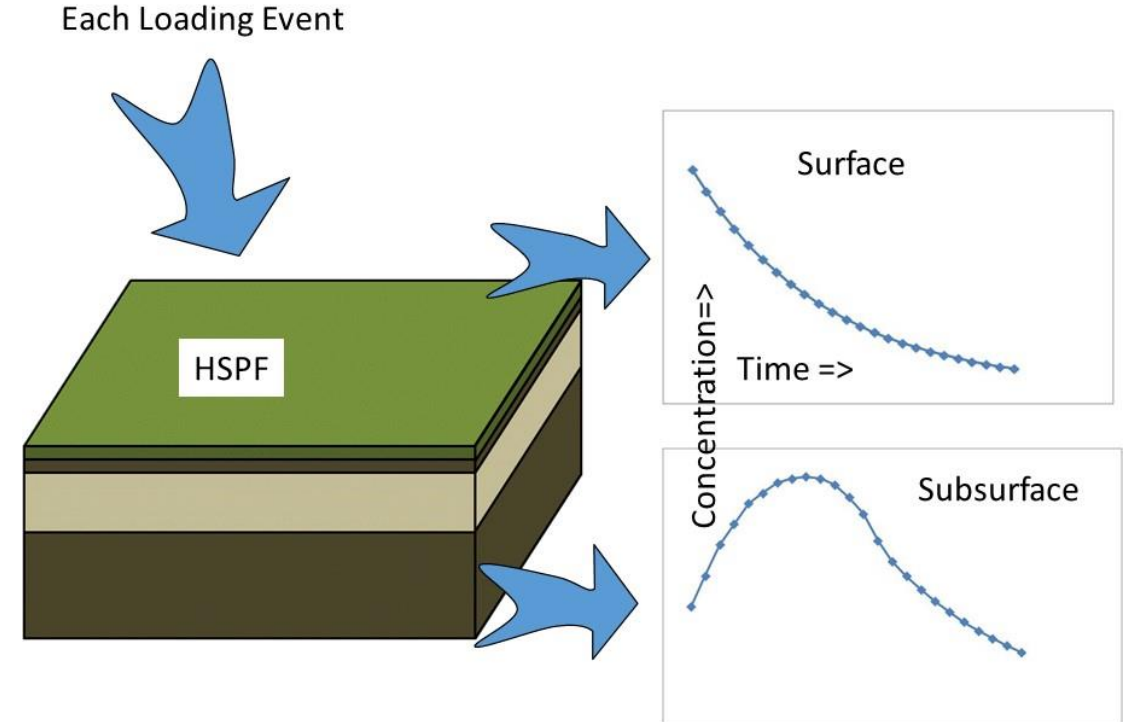


Cast/CalCast/DM

Phase 7 Dynamic Model

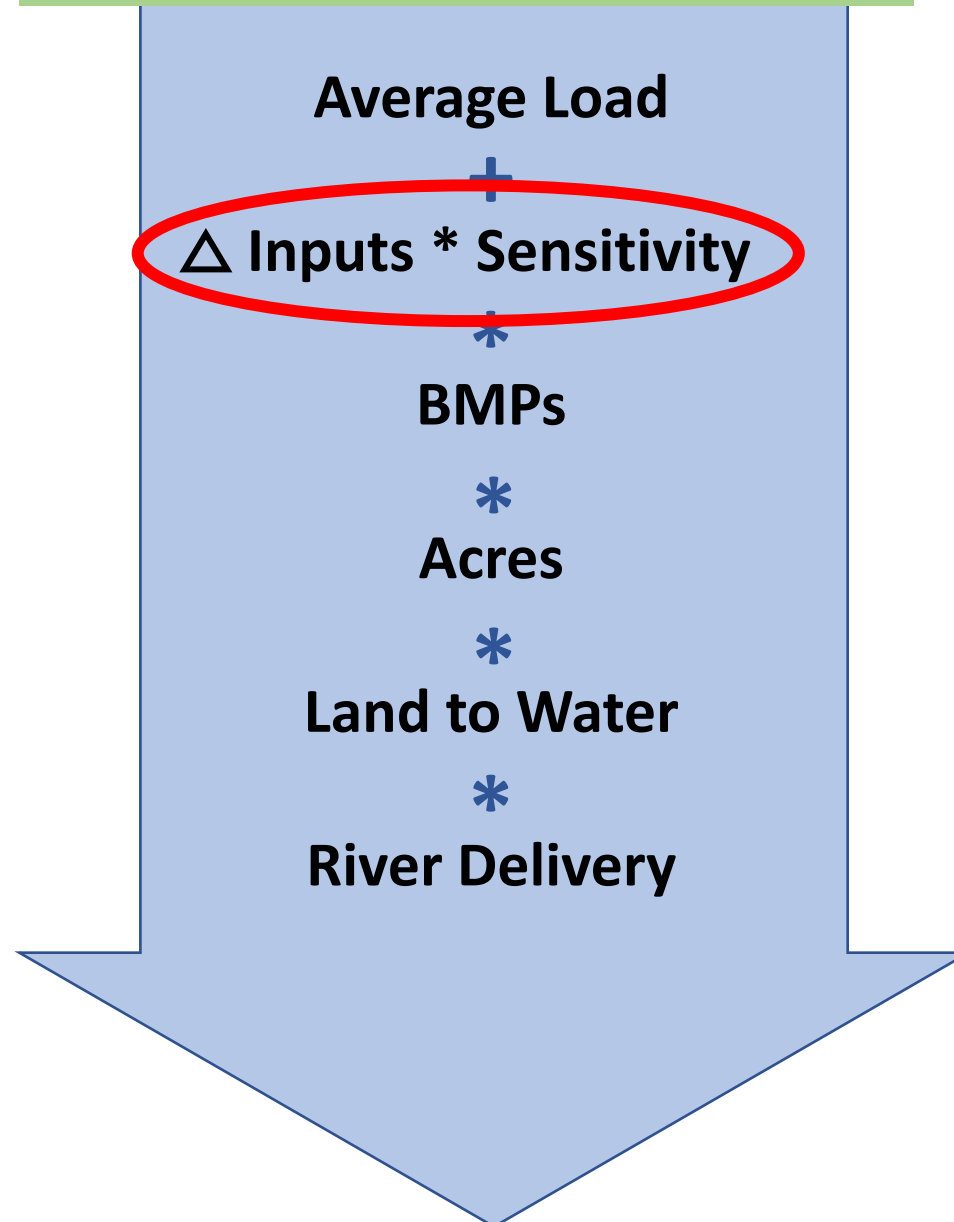
Tool for

- loading estuarine models
- Comparing against observations
- Other potential collaborative projects



Gopal Bhatt

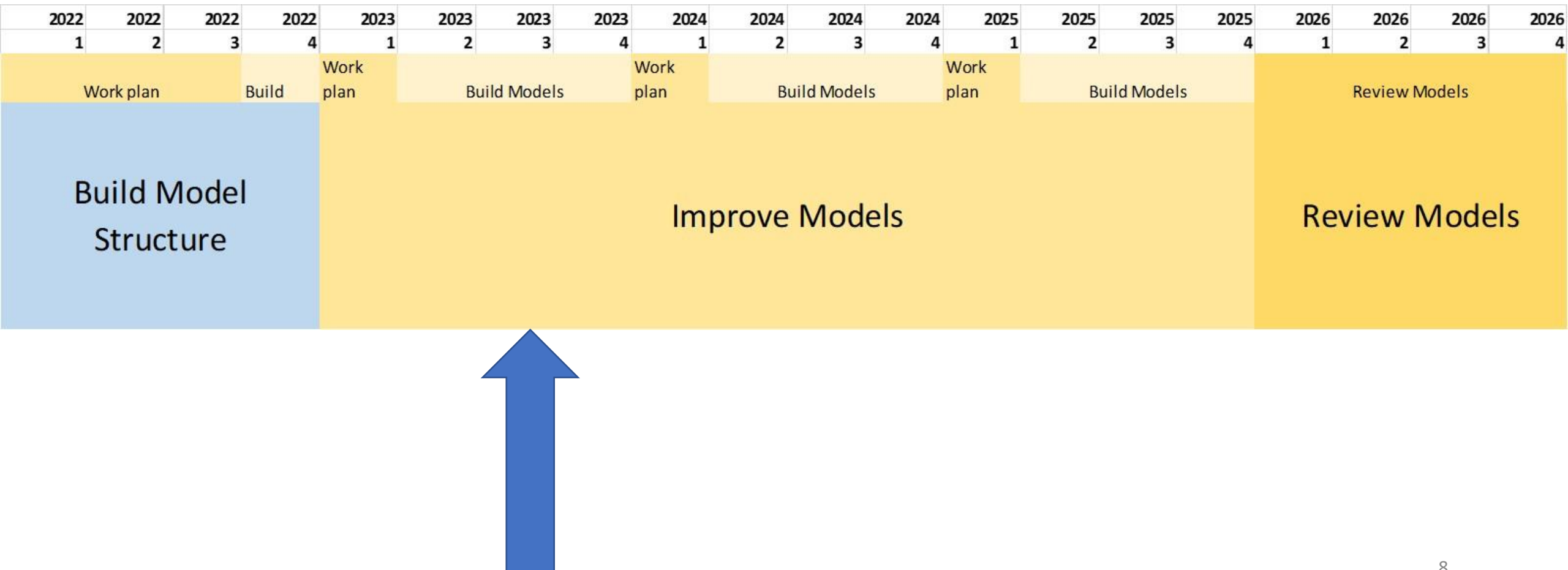
Phase 7 CAST



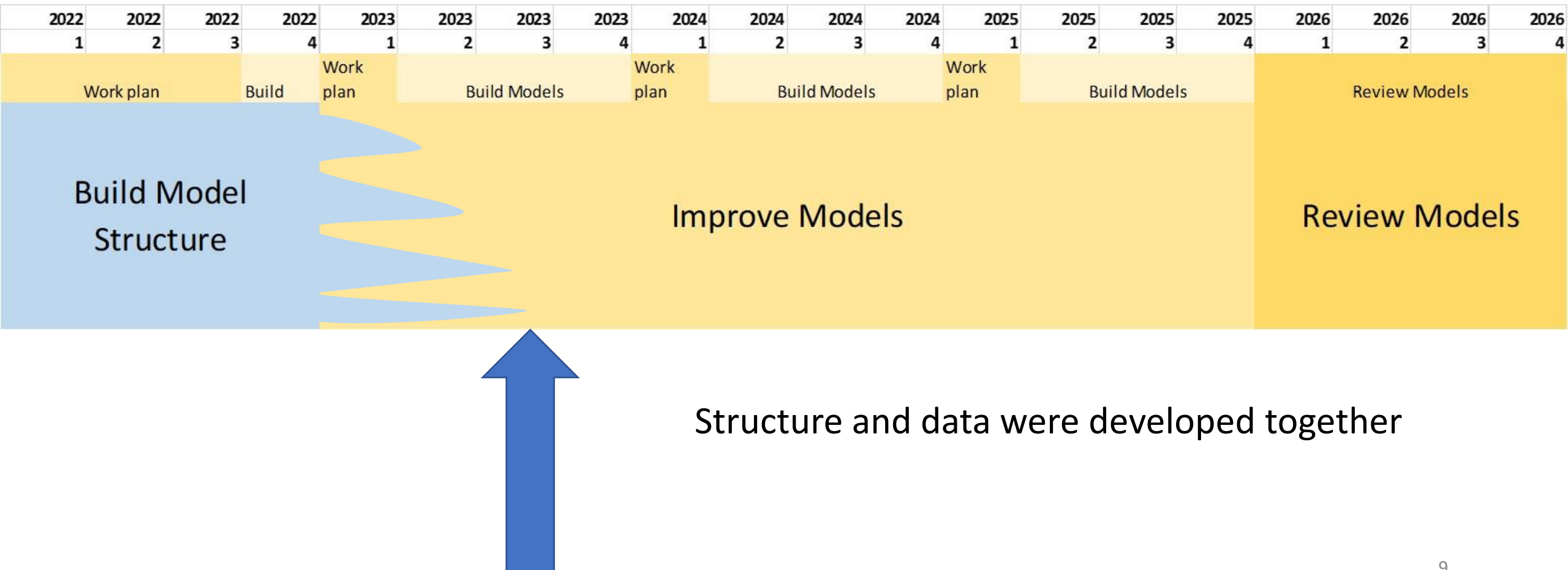
Load by land-river segment and land use

**Joseph
Delesantro
ORISE Fellow**

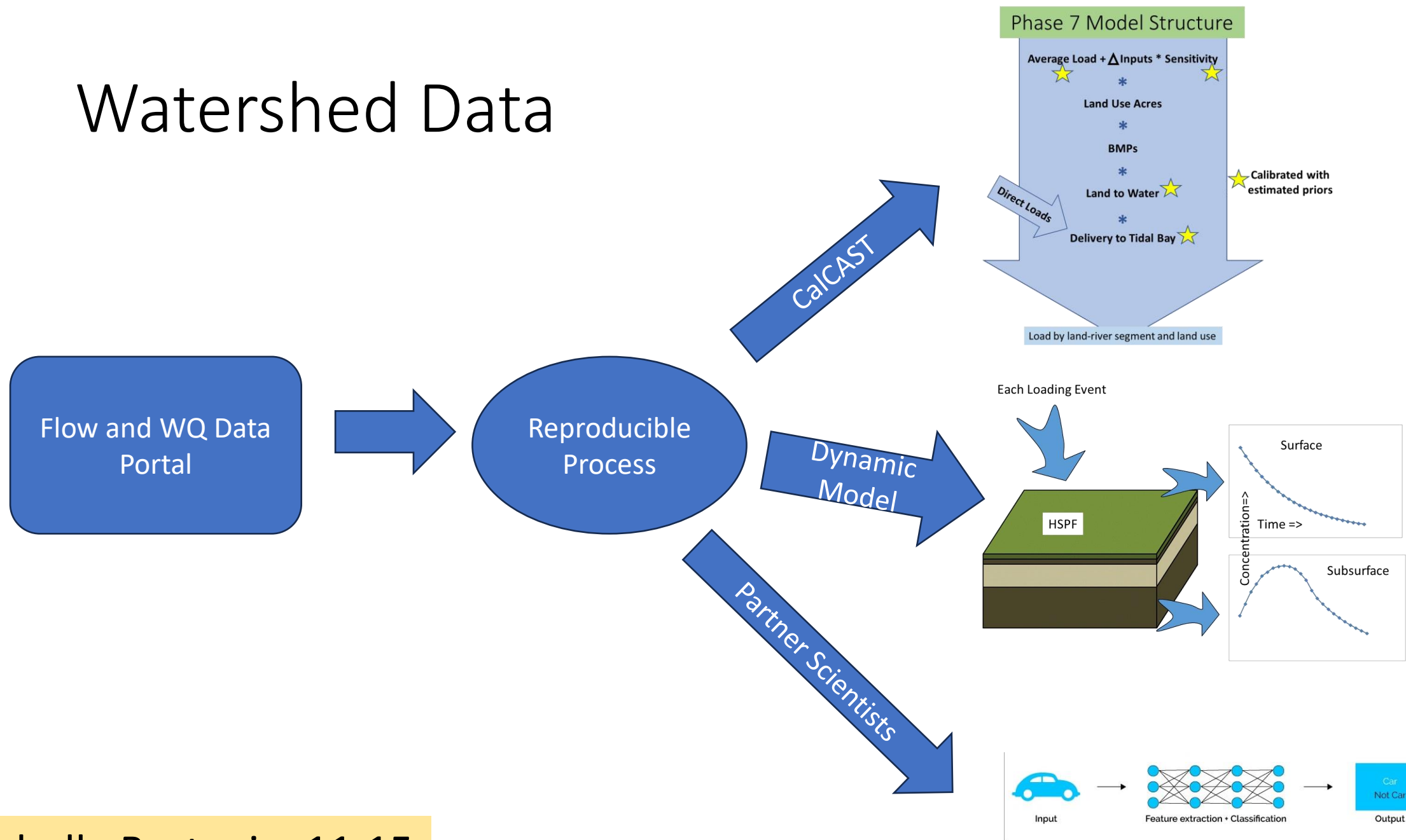
Watershed Model Plan – Big Picture



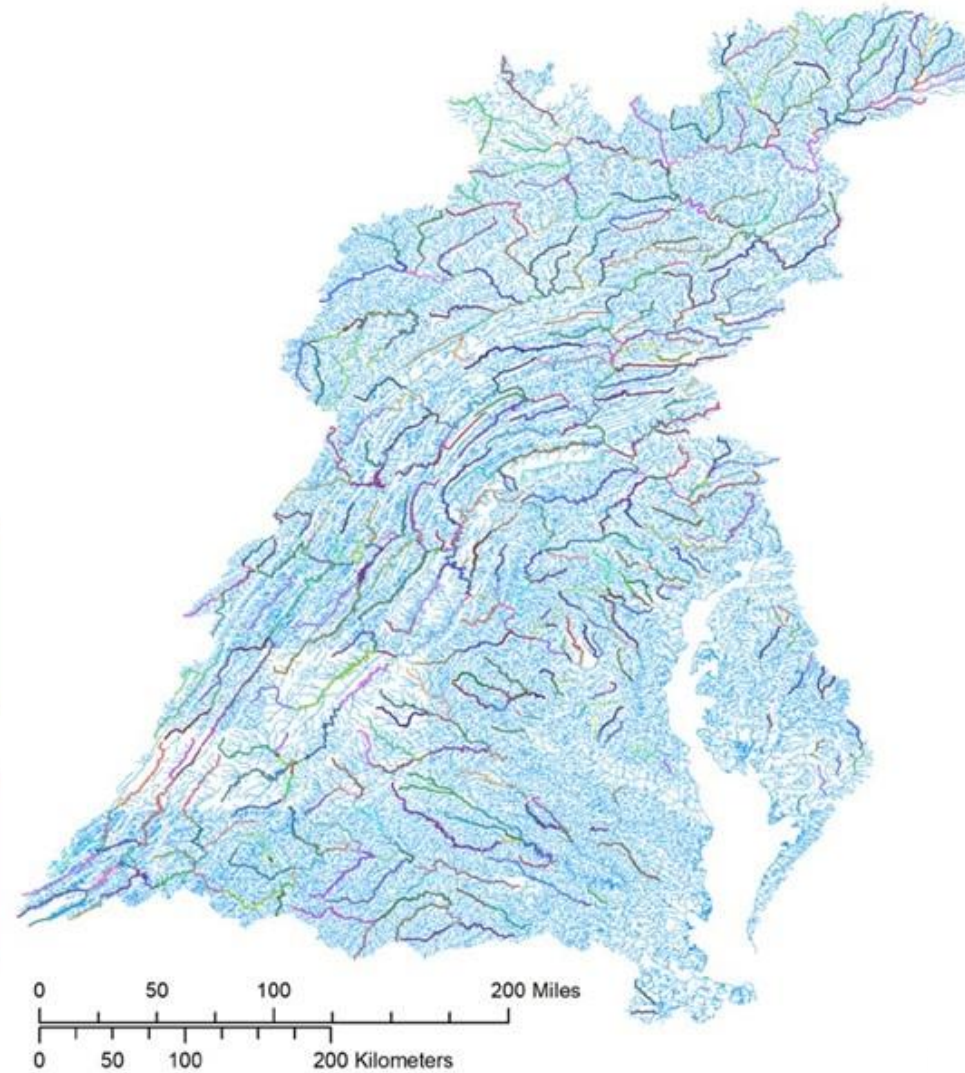
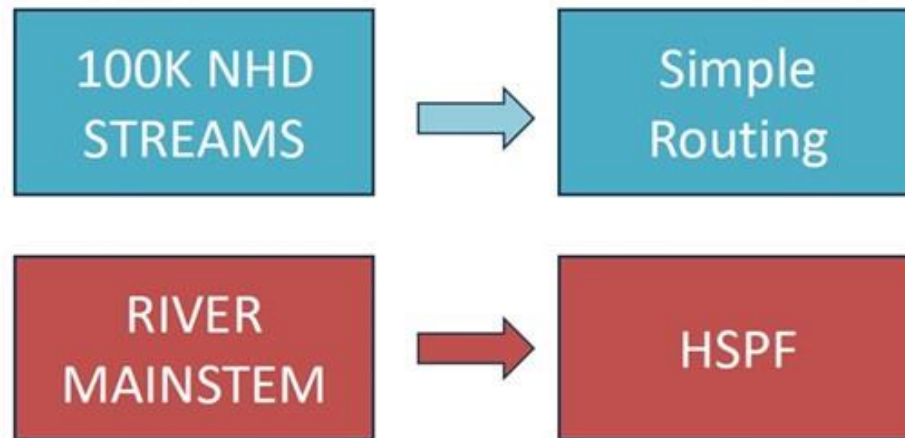
Watershed Model Plan – Big Picture



Watershed Data



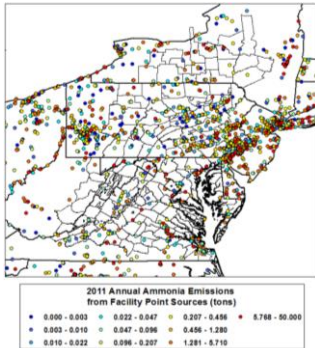
Dynamic Simulation



Atmospheric Deposition

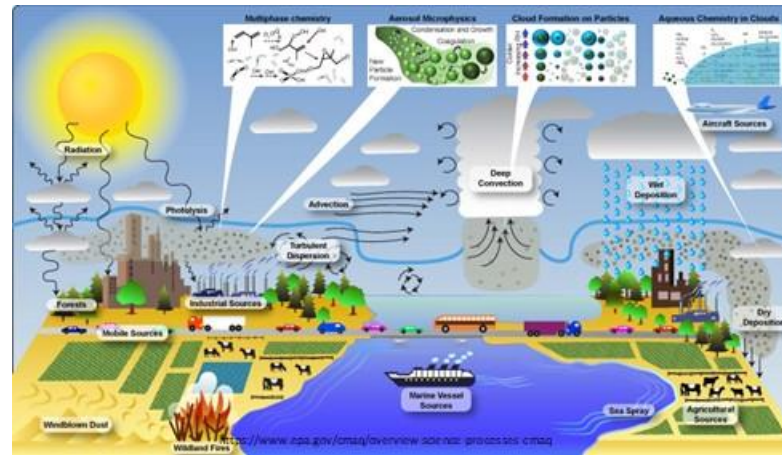
Phase 6

Regression Model Wet Deposition



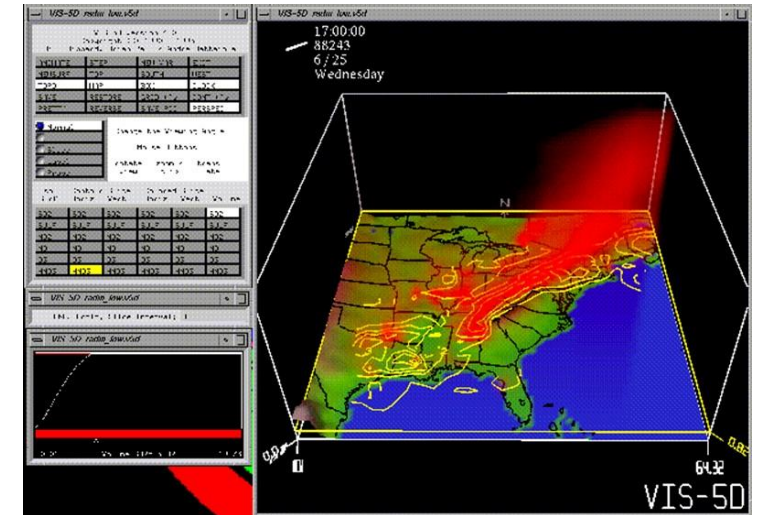
CMAQ

Dry Deposition and future scenarios



RADM

Management actions that restrict emissions



Atmospheric Deposition

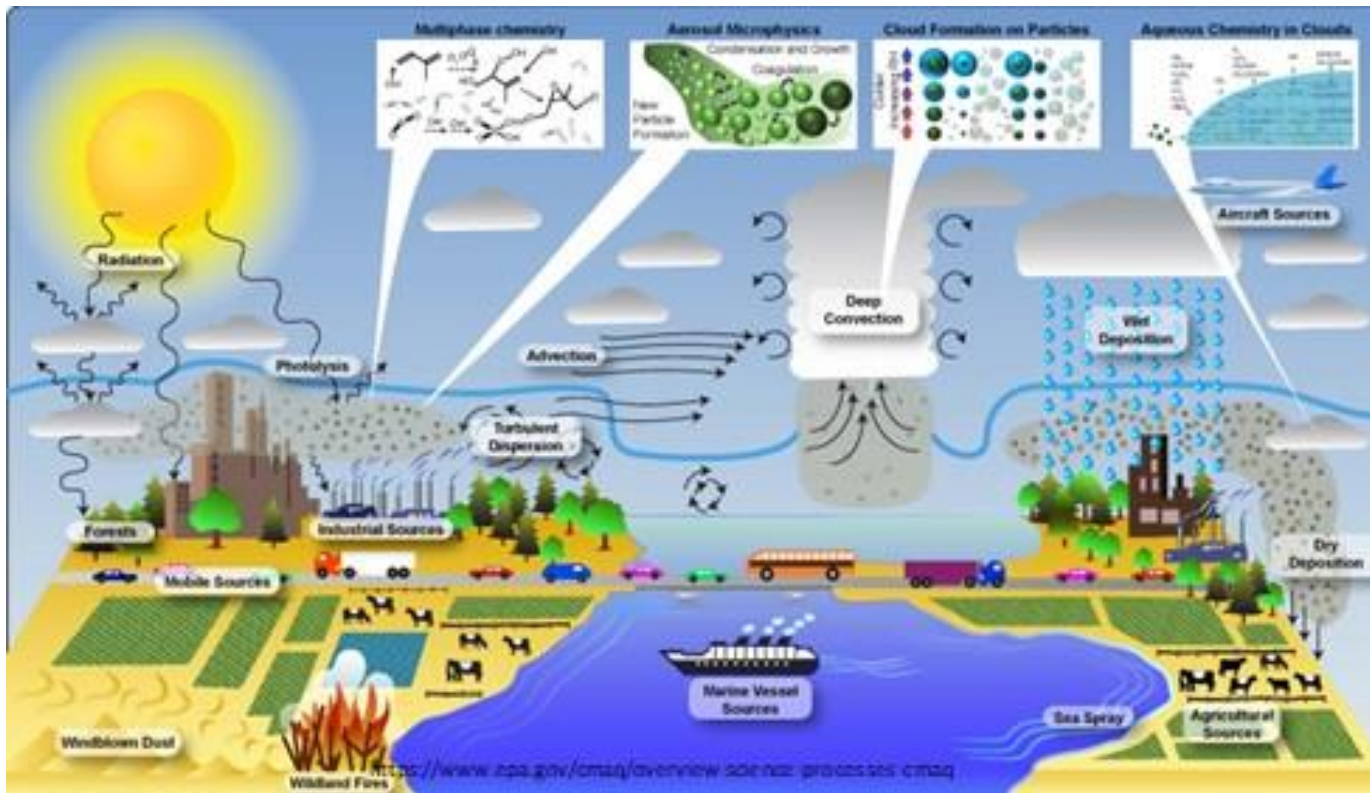
Phase 7 Plan

CMAQ

Wet Deposition

Dry Deposition and future scenarios

Management actions that restrict emissions



Atmospheric Deposition

Phase 7 Plan

CMAQ

Wet Deposition

Dry Deposition and future scenarios

Management actions that restrict emissions

