Proprietary BMPs in the Chesapeake Bay Program Watershed Model

Gary Shenk

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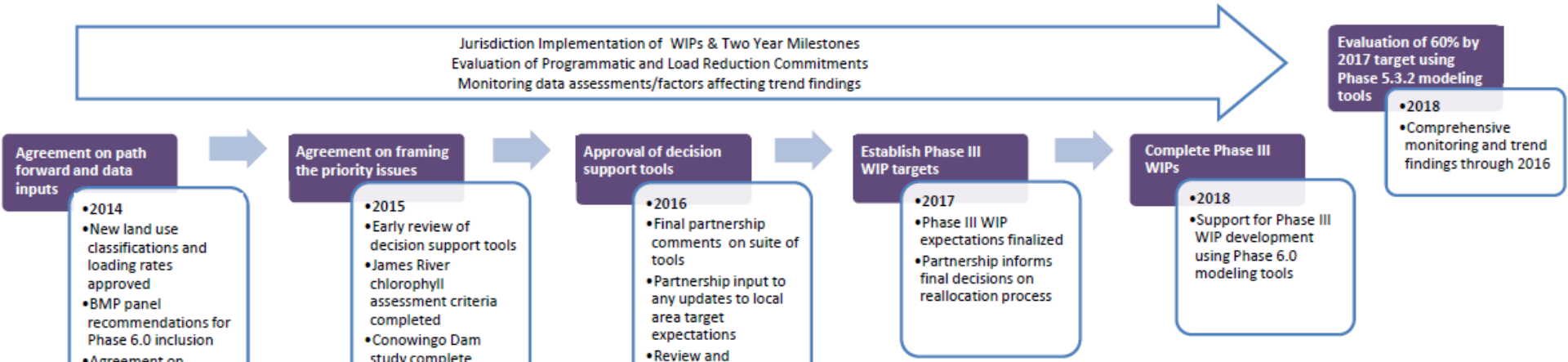
1. Process Must Deal W/ Chesapeake Bay Watershed Model

- Panel Recommendations Need to Be Integrated into the Bay Watershed Model:
  - Scale Issues: Delivery Ratios from the Site to the Chesapeake Bay
  - Existing vs. new practice…does it violate the calibration ?
  - Double counting issues (has another upstream BMP already removed it?)
  - Over -counting issues (Dealing w/ stormwater but neglecting groundwater)

Midpoint Assessment Timeline



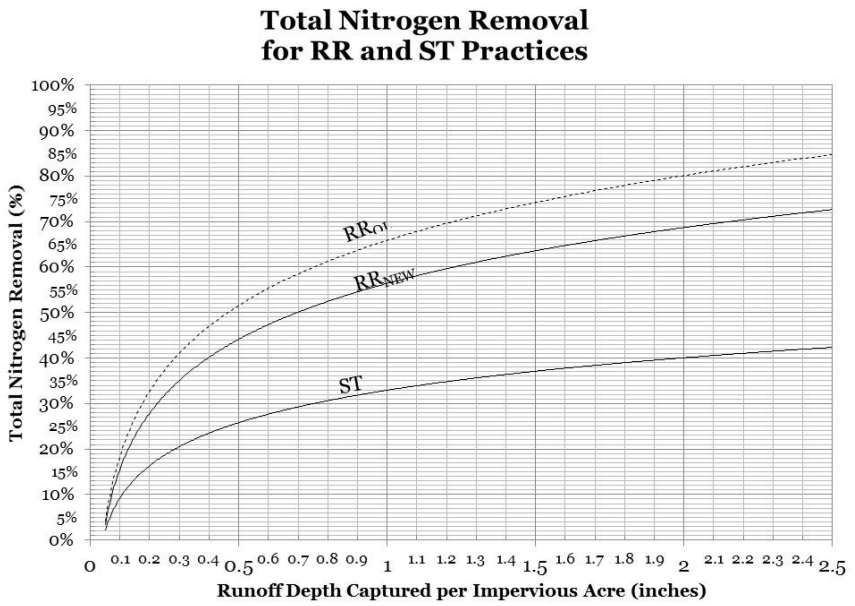
Phase 5 CBWM in use
Phase 6 CBWM in development

P5 for tracking
P6 for decisions

Phase 5 CBWM retired
Phase 6 CBWM in use

Phase 6 is the likely target

- Timeline of BMP development can be long
- Still can be a part of phase 5 – panels sometimes develop 2
- Can have more freedom to develop complexity



Phase 6

Nutrients

Estimate Spatial Average EOS Based on land use and inputs

Estimate watershed delivery variance based on landscape parameters

Sediment

Update the sediment EOF estimates

Estimate watershed delivery variance based on landscape parameters

Estimate small stream effects

Directly Simulated in HSPF for river averaging at least 100 cfs

Calibrated to WQ data

Phase 6

Nutrients

Load =

Calibrated load **+ Sensitivity * Δ Inputs**

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BMPs

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Watershed Delivery Variance Centered on 1

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Stream Delivery

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River Delivery

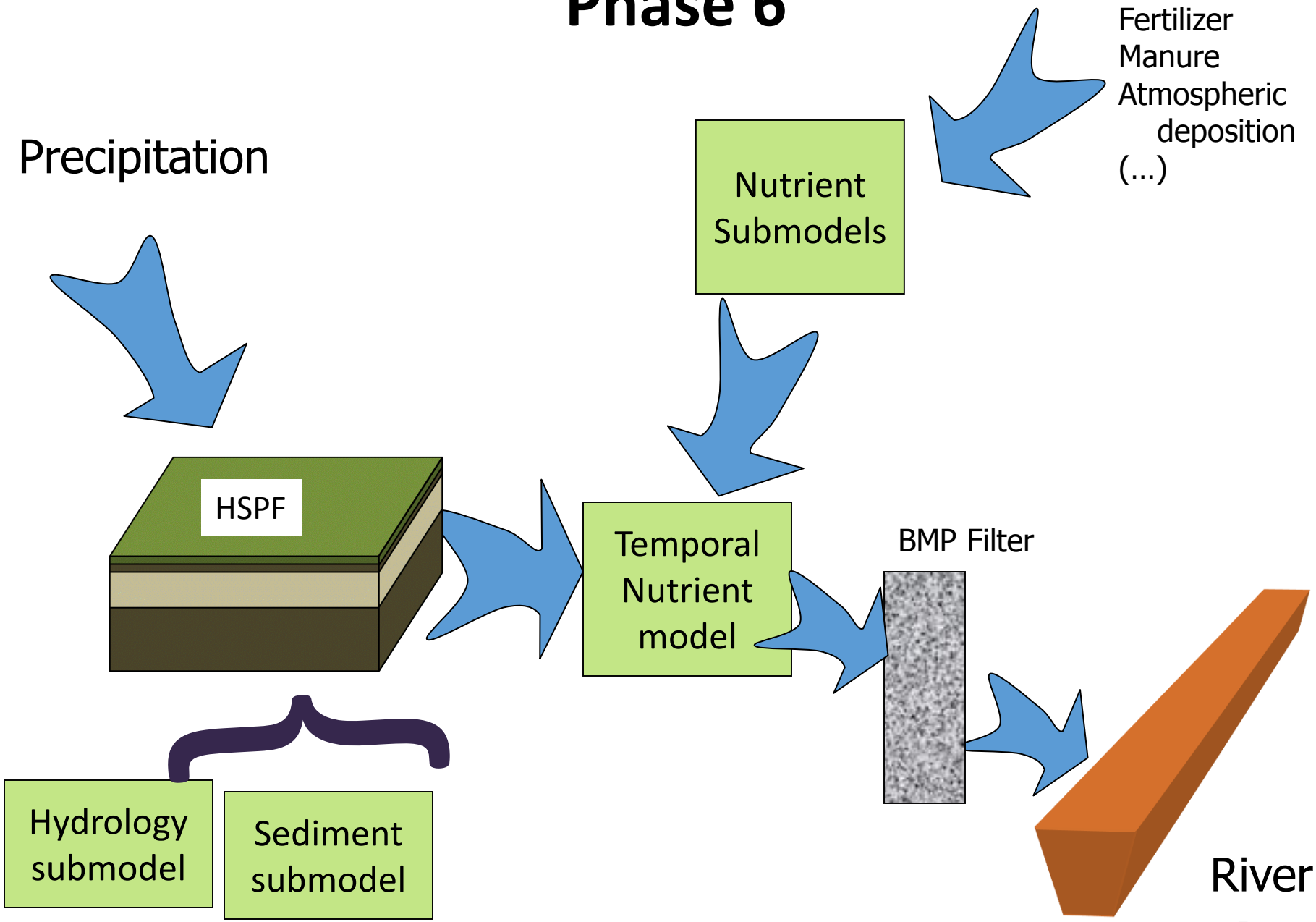
Estimate Spatial Average EOS Based on land use and inputs

Estimate watershed delivery variance based on landscape parameters

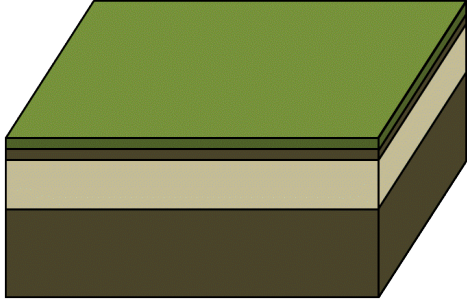
Estimate small stream effects

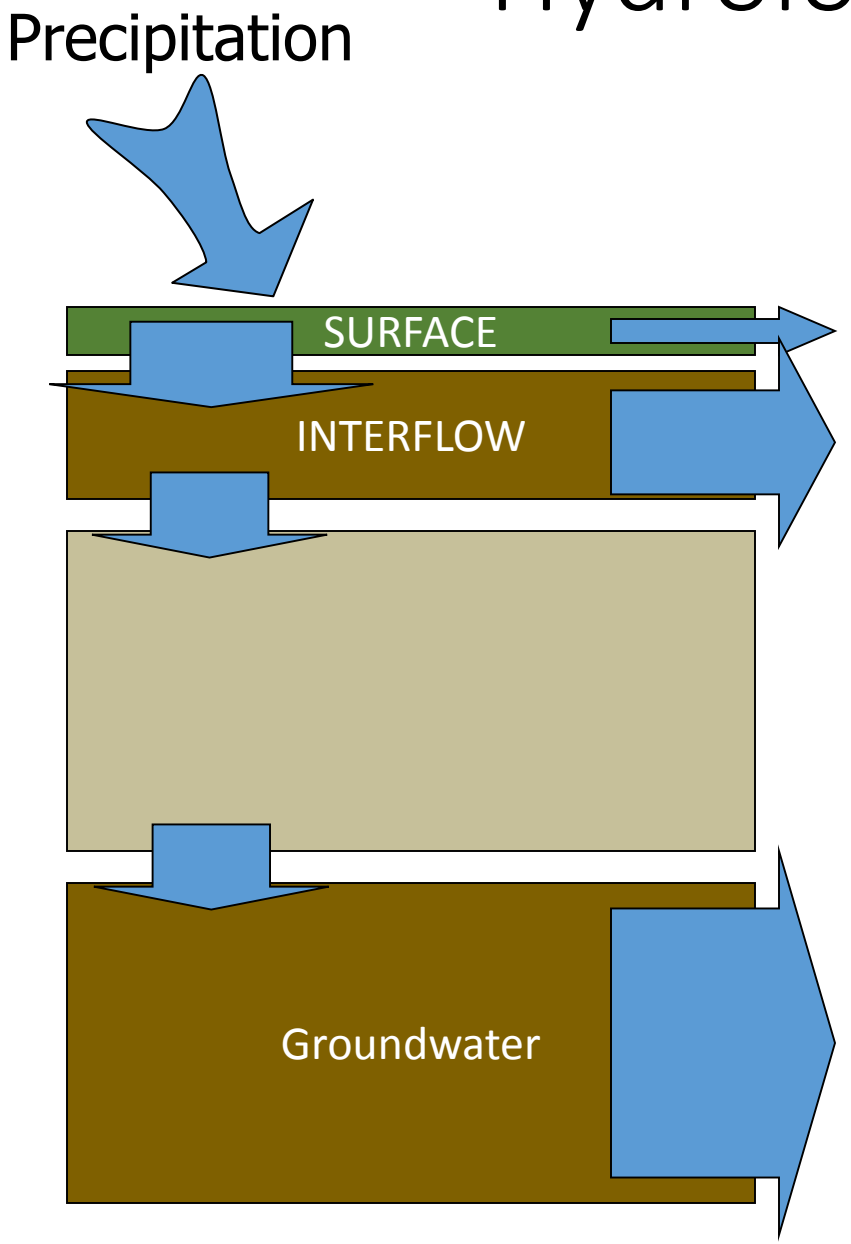
Directly Simulated in HSPF

Phase 6


Fertilizer
Manure
Atmospheric deposition
(…)
Precipitation
Nutrient Submodels
HSPF
Temporal Nutrient model
BMP Filter
Hydrology submodel
Sediment submodel
River

Hydrologic model





- Does the BMP treat the entire flow to streams?
- Just stormwater?
- Just surface?

Principles to follow implementing panel recommendations

- Honor the panel recommendations as the accumulation of the best science
- Ensure that it fits within the context of the watershed model
- Ensure that we are modeling in a way that best measures real changes on the ground.

BMP verification