Session 3:
Advances in Hydrologic Modeling to Evaluate Sustainability of Natural Water Systems and Water Supply

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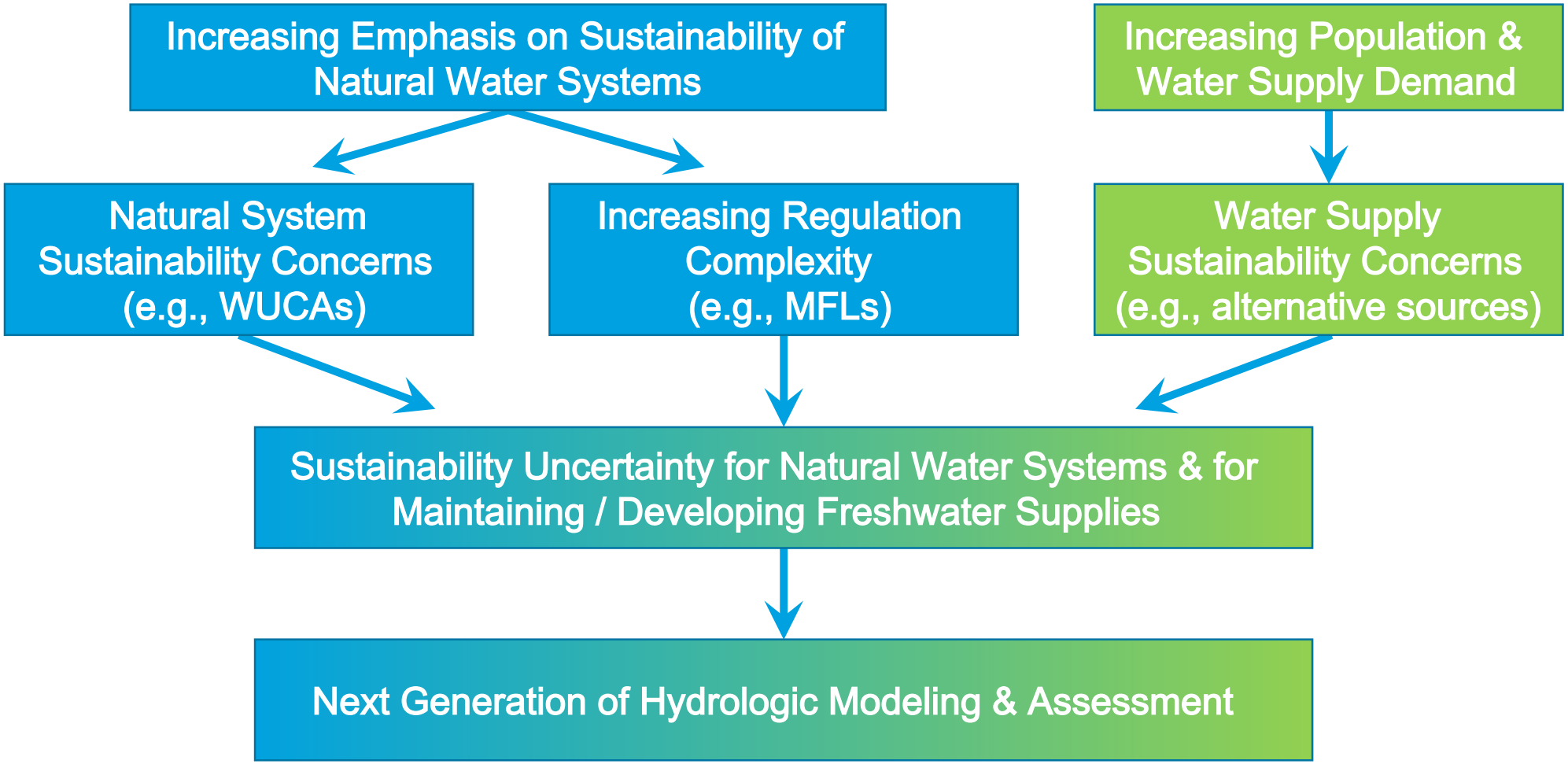
Evaluate Sustainability
Natural Water Systems & Water Supply Systems



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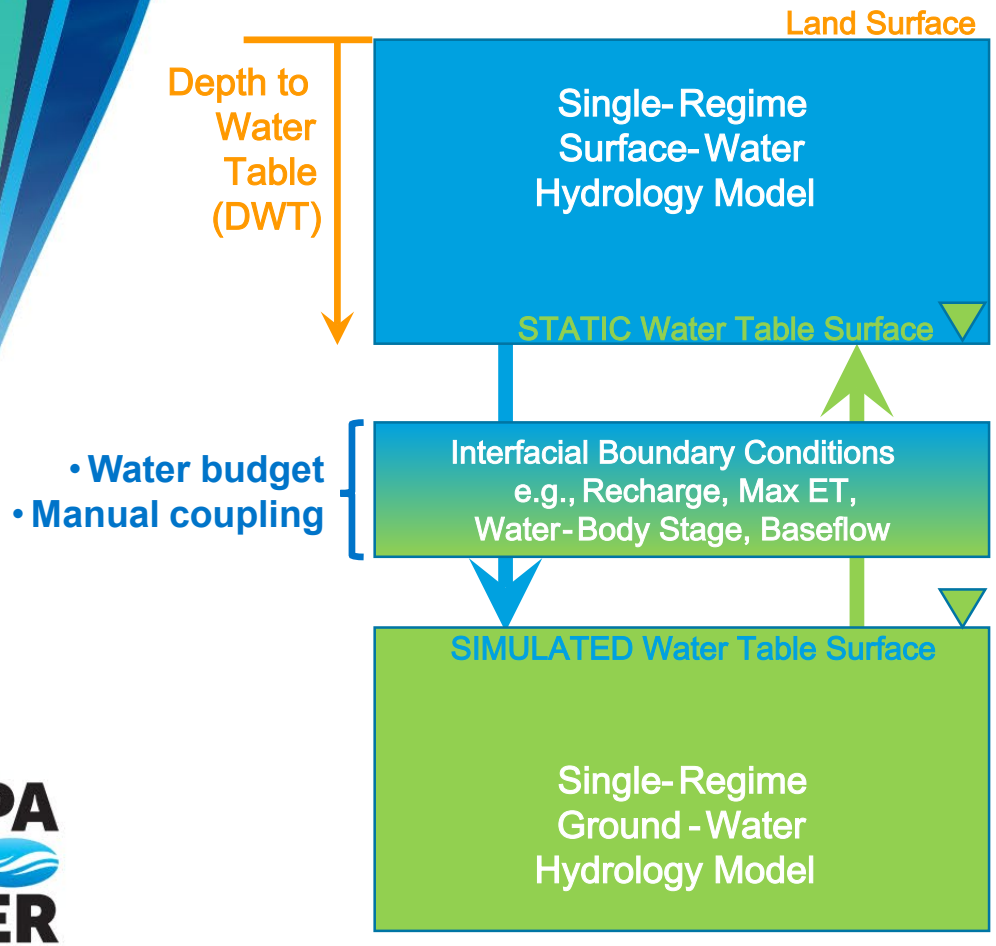
Sustainability Questions
Natural Water Systems & Water Supply Systems

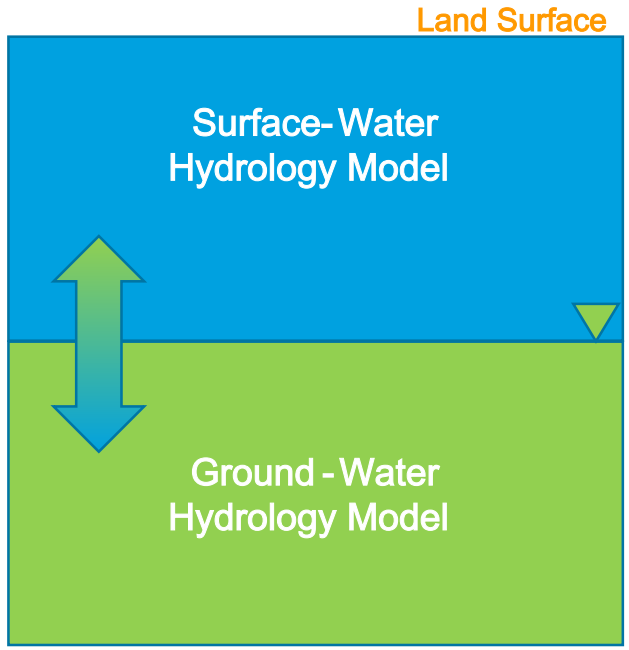
- Sustainability Questions | Acceptable Likelihood Metrics
  - Reliability: How often in satisfactory state?
  - Resiliency: How quickly to recover?
  - Vulnerability: How bad of an unsatisfactory state can the system handle?
- Uncertainty Assessment | Likelihood Outcomes
  - Stochastic approach; multiple plausible future realizations
  - Temporal variability of inputs (climate, anthropogenic stresses)
  - Hydrologic models must accurately reproduce observations & produce robust responses to modified climate & anthropogenic stresses

Next Generation Hydrologic Modeling & Assessment

Single-Regime Hydrology Models



Fully-Integrated Hydrology Model



- Dynamic water table feedback
  - Fluxes vary with depth to water table (DWT)
  - Soil moisture
  - Runoff
  - ET
- Simulated interfacial boundary conditions
  - Function of DWT
  - Recharge
  - Water-body stage
  - Baseflow

Climate time series inputs: Single Historical vs Stochastic

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