



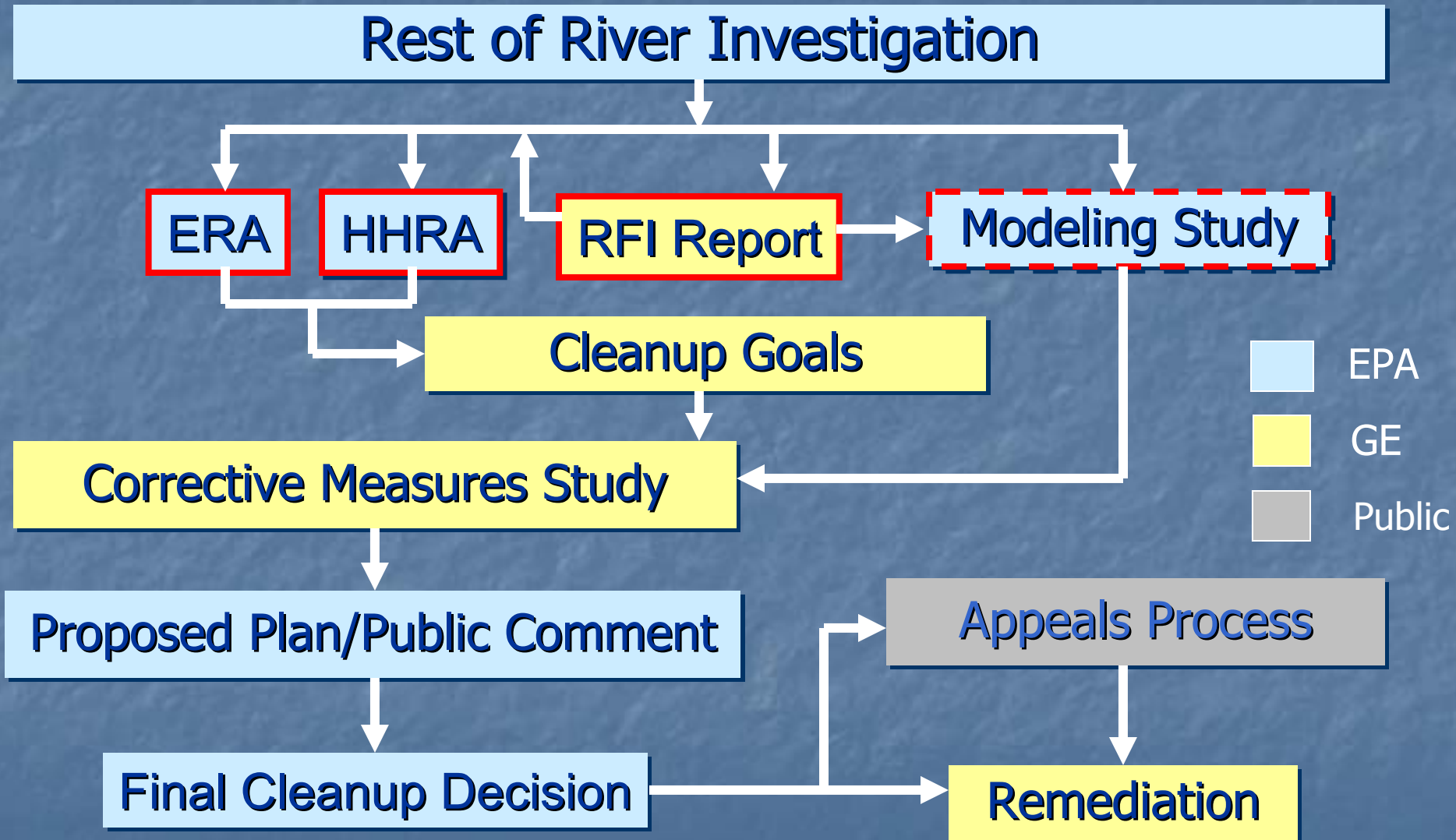
Presentation on the Housatonic River Modeling Study Calibration Report

Citizens Coordinating Council
Meeting

January 5, 2005

REST OF RIVER PROCESS

Rest of River Investigation



Modeling Study Objectives

- Quantify future spatial and temporal distribution of PCBs (both dissolved and particulate forms) within the water column and bed sediment.
- Quantify the historical and relative contributions of various sources of PCBs on ambient water quality and bed sediment.
- Quantify the historical and relevant contribution of various PCB sources to bioaccumulation in targeted species.
- Estimate the time required for PCB-laden sediment to be effectively sequestered by the deposition of “clean” sediment (i.e., natural recovery).

Modeling Study Objectives –con't

- Estimate the time required for PCB concentrations in fish tissue to be reduced to levels that no longer pose either a human health or ecological risk based on various remediation and restoration scenarios, including allowing for natural recovery.
- Quantify the relative risk(s) of extreme storm event(s) contributing to the resuspension of sequestered sediment and the redistribution of PCB-laden sediment within the area of study.

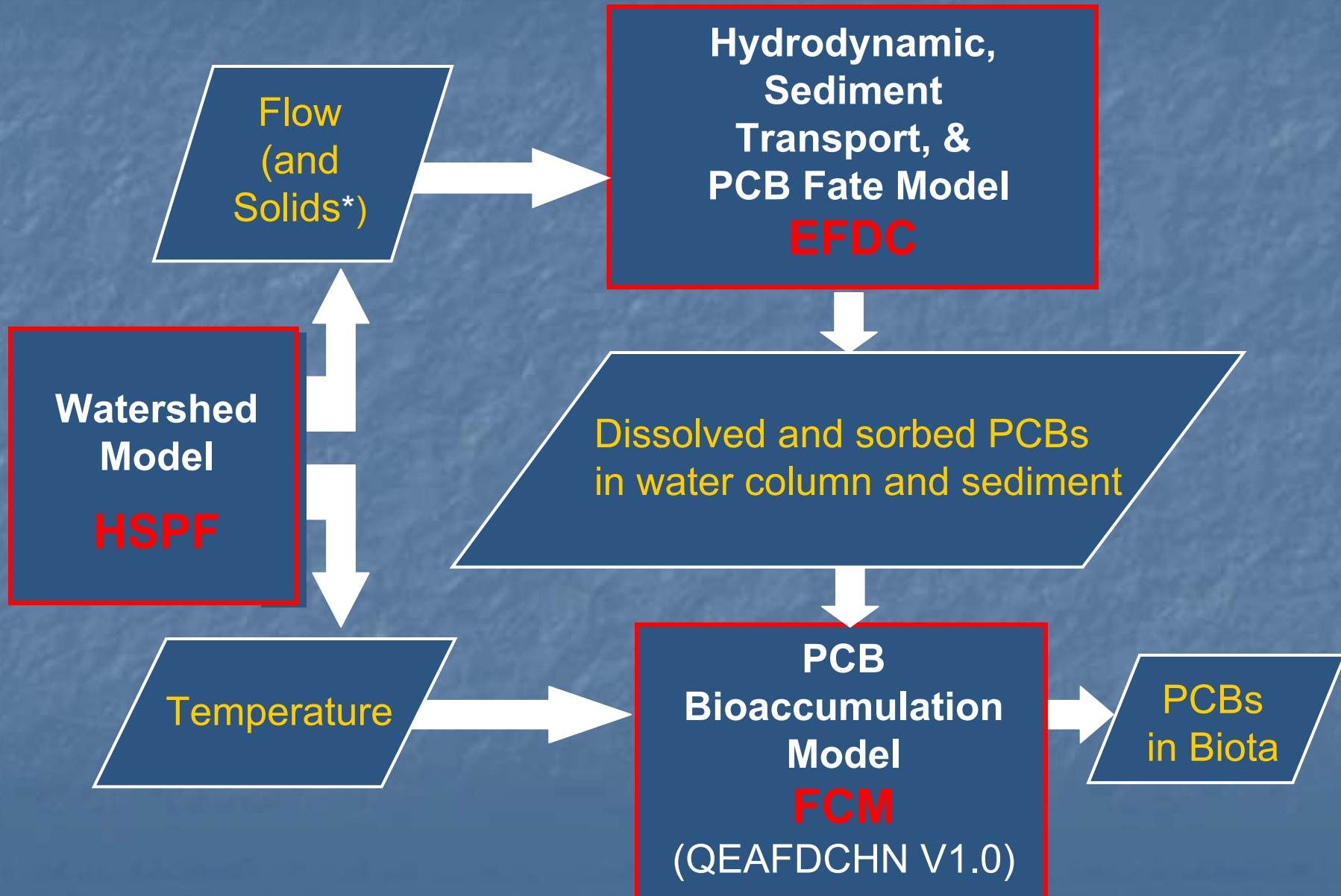
Modeling Study

- Models are a simplified representation of reality
- Mathematical (real-life processes represented by mathematical expressions in the computer program)
- Processes in time/space
- Component models are linked

What is Modeled?

- Water
- Solids
- PCBs
- Bioaccumulation in food chain

Modeling Framework

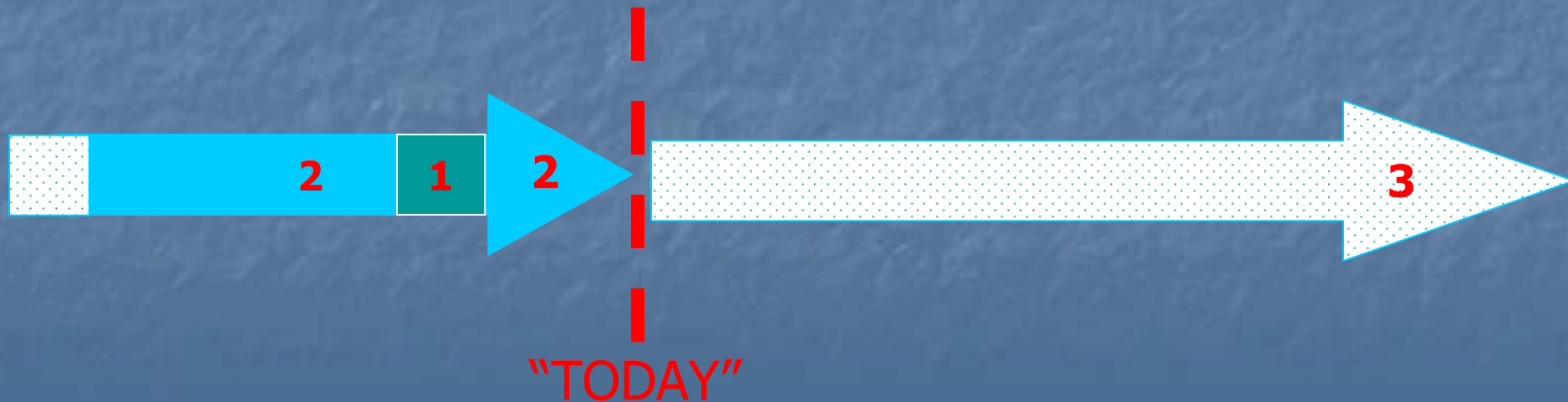


Calibration Report

- 2nd in series of 3 modeling reports to be Peer Reviewed
 - 1st was the Modeling Framework Design
 - 3rd will be the Validation Report

Calibration, Validation, Baseline Conditions

1. Calibration - Lots of good data, short timeframe
2. Validation - Sparser data, longer timeframe
3. Baseline Conditions - No data in future, longest timeframe



Peer Review Panel Members

- **E. Eric Adams, Ph.D., P.E.** - MIT, Cambridge, MA
- **W. Frank Bohlen, Ph.D.** – U. of Connecticut, Groton, CT
- **Douglas Endicott, P.E.** - Great Lakes Environmental Center, Traverse City, MI
- **Frank Gobas, Ph.D. *** - Simon Fraser University, Burnaby, BC
- **Marcelo H. Garcia, Ph.D.** – U. of Illinois, Urbana, IL
- **Wilbert Lick, Ph.D.** - U. of California, Santa Barbara, CA
- **John List, Ph.D., P.E.**- FLOW Science Inc. & CIT, Pasadena, CA

* New member

General Charge Questions

- Do the modeling frameworks include the significant processes, and are the descriptions of those processes sufficiently accurate to represent the hydrodynamics, sediment transport, and the chemistry, fate and transport, and bioaccumulation of PCBs in the Housatonic River?
- Are the available data sufficient for development of models of the hydrodynamics, sediment transport and the chemistry, fate and transport, and bioaccumulation of PCBs in the Housatonic River?

General Charge Questions – con't

- Are the processes in the final models calibrated/validated to the extent necessary for prediction of future conditions?
- How sensitive are the models to uncertainties in the descriptions of the relevant processes?

Questions Specific to Calibration Report

1. Are the comparisons of the model predictions with empirical data sufficient to evaluate the capability of the model on the relevant spatial and temporal scales?
2. Is there evidence of bias in the model, as indicated by the distribution of residuals as a function of the independent variables?
3. Does the model, as calibrated, based upon your technical judgment, adequately account for the relevant processes affecting PCB fate, transport, and bioaccumulation in the Housatonic River?
4. Based upon your technical judgment, have the adequate methodologies been employed to evaluate the sensitivity of the model to descriptions of the relevant processes, and to evaluate the uncertainties of model predictions?

Questions Specific to Calibration Report

5. Is the uncertainty indicated by model-data differences sufficiently inconsequential to permit use of the model to predict differences among remedial options?
6. Are the processes in the model calibrated to the extent necessary for predicting future conditions including future concentrations of PCBs in the environment under natural processes and under potential remedial options for sediments and floodplains soils in the Housatonic River in the reach below the confluence? If not, what additional work needs to be done to calibrate the model?

Peer Review Information

- Public Comment on Charge Questions to the Panel extended to February 7th
- Contact information:
 - SRA International
 - 2801 Clarendon Blvd
 - Arlington, VA 22201
 - gepittsfield@sra.com
 - 800-922-1566
- Peer Review Public Meeting – 1st week of May
- EPA website www.epa.gov/ne/ge