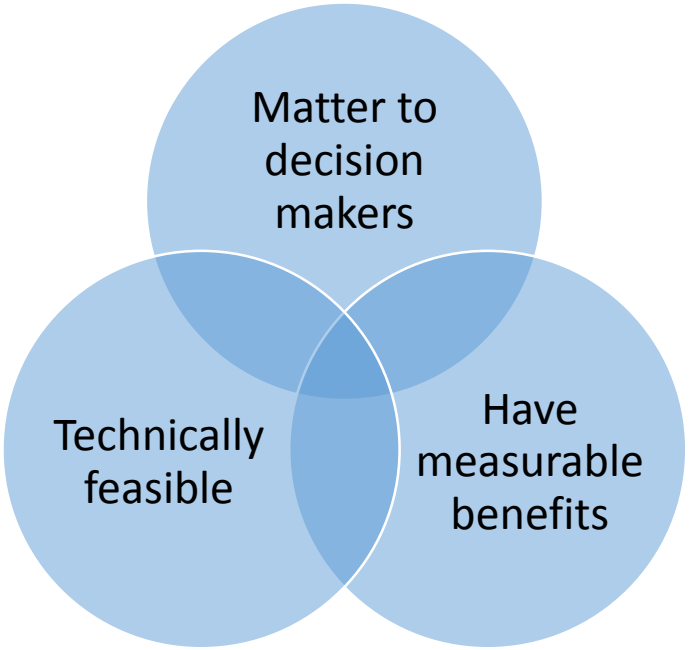
Cross-Cutting Topics

10:30 am: Day 1 – Wednesday January 17

Integrating ecological and economic models

1. Modeled outcomes reflect peoples' *utility*
   - Likes and dislikes - water clarity, ecosystem resilience
   - Proxies that support good decisions - Eutrophying units
   - Inputs to production - sediment in shipping channels, fish abundance
2. Model behavioral *inputs* = better projections
   - Peoples actions can exacerbate / alleviate change (e.g., climate change stressors)
3. Sufficient spatial / temporal resolution
   - Supports more refined management choices (e.g., compare buffer types)
   - Enables comparison to human use (recreation sites, shellfish beds, homes, etc.)
4. Capture in-situ conditions & relevant thresholds for benefit measurement
   - Effects on services delivered
     - Is change sufficient to achieve safe swimming, trout reproduction, etc.?
   - Effects on scarcity or viability
     - Is change sufficient to improve population viability?

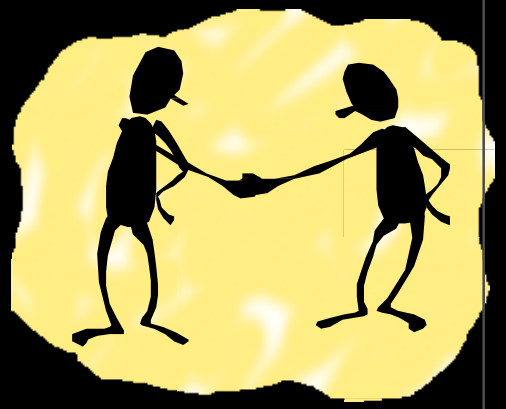
Modeling priorities



Participatory modeling

- Participatory modeling is a purposeful learning process for action that engages the implicit and explicit knowledge of stakeholders to create formalized and shared representation(s) of reality.
- Participants co-formulate the problem and use modeling practices to aid in the description, solution, and decision-making actions of the group.
- Open and transparent modeling process is a way to avoid potential conflict, misunderstanding and even litigation
- A model as a tool for deliberations and consensus building
- Helps to deal with uncertainties
- The process is more important than the result

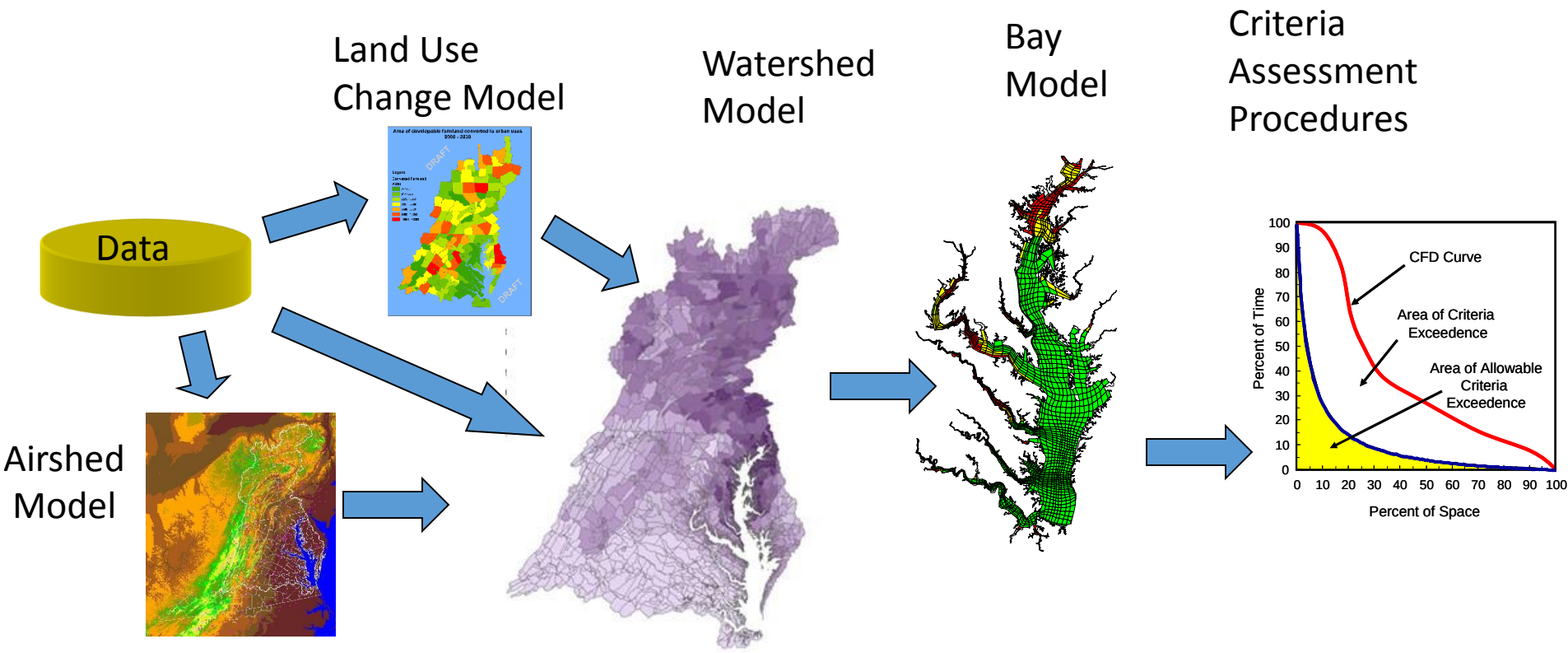
https://www.participatorymodeling.org/node/2



Lessons Learned at the Local Scale:

- Local managers want access to tools for decision making, with flexibility to assess multiple scenarios
- Planners are tasked with convincing their local legislators that implementation will be effective
- Scalable models useful at the county level help with decision making and planning
- Local water quality insights and responses (from models or data) are critical in soliciting investment in restoration
- Technical Capacity may be limited at the Local scale

Uncertainty Estimation – CBP Decision Support System



What is the confidence that a certain set of management actions will result in a particular amount of standards attainment?
Where should the CBP spend resources to increase that confidence.

Questions to Consider

1. Of all the cross-cutting topics presented, which ones felt the most relevant to your own field of expertise?

2. Are there any critical topics that have been omitted from this list? (other than climate)

3. Is it possible to prioritize which might be more important to explore across the Chesapeake Bay modeling suite?

4. What are the **a)** challenges and **b)** opportunities to implementing cross-cutting topics in the models?