Models and multiple models in the Chesapeake Bay Program
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Gary Shenk provided an overview of the suite of linked models that the Chesapeake Bay Program (CBP) Partnership uses in decision making and provided some details about how they were used by the partnership in the Chesapeake TMDL. As in all TMDLs, a precise load target was required. A range of targets generated by multiple models may prove beneficial, but eventually the goal must be expressed as a single value. The CBP is currently looking at multiple models in both the estuary and watershed. Marjy Friedrich's presentation was referenced for the estuarine example. The watershed model has been envisioned as a single assessment tool for the entire watershed, but that tool would likely contain multiple models. Specifically, multiple models will be used to generate sensitivities to inputs of atmospheric deposition, fertilizer, and manure and also to assess the effects of BMPs on loads of nutrients and sediments. There is currently very good agreement between STAC and the CBP on the advantages and disadvantages of multiple models. Multiple models help with identifying confidence levels in general and for specific processes or modules and so provide better understanding of the physical system and so can increase confidence in the decisions based on the modeling system. However multiple models may increase confusion and highlight uncertainties, which may delay meaningful decisions. For management, the largest objection to multiple models is that they can be much more expensive to develop and operate.