



Chesapeake Bay Program
SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE
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Report to the Chesapeake Bay Program's Executive Council
July 9, 2012

The Chesapeake Bay Program partnership must make a number of difficult decisions that will define the future path of Chesapeake Bay restoration.

STAC believes the partnership has an opportunity to lead by example and the committee is anxious to help provide the science needed to make these tough decisions. Partners and outside groups have recently discussed the need for **next-generation models, effective policies to encourage real pollution reduction and adaptive management strategies to produce realistic outcomes**. Consequently, STAC is focusing its efforts on understanding how multiple models could function in a regulatory environment, how market-based policies such as nutrient trading could bring new momentum to restoration efforts, and how adaptive management strategies could offer the flexibility needed to achieve success given ever-changing information.

Next Generation Models. Computer models play an important role in the design and implementation of restoration policies. Models are tools to represent complex processes, understand trade-offs, and efficiently allocate limited resources. Over the past decade, STAC has continually provided peer-review of the technical basis for various components of the modeling framework and consistently concluded that the Bay modeling system remains state-of-the-art. However, recent innovations in environmental modeling and increased computing power are creating emerging opportunities to consider the use of multiple, complementary models in Bay decision making. This has the potential to further increase confidence, reduce uncertainty, improve predictions, and ultimately build stakeholder confidence in the Bay-wide TMDL process. The partnership now has a unique opportunity to lead by example once again by developing and utilizing a multiple model approach.

At the request of the Management Board, STAC has now held the first of two workshops devoted to the topic of multiple models. The first workshop report described how a multiple model pilot project could be conducted in order to improve the shallow-water modeling capacity of the CBP modeling system. Yet the decision to address the multiple model issue must be made swiftly due to tight model deadlines related to the Bay-wide TMDL. The Chesapeake Bay Program will need to have the next generation of models in place by 2015 to inform the 2017 mid-course corrections to the TMDL. Over the next six months, STAC will bring together modeling experts and decision makers from around the nation to discuss how the advances in multiple Bay models could benefit the Chesapeake Bay restoration effort. The results of these

discussions will be made available to all partners by early 2013. In the meantime, STAC encourages the Executive Council to support immediate efforts to test multiple models in the estuary and watershed.

Effective Policies. Better models must be complemented by better policies. Over the years, STAC has provided technical advice on almost every substantial policy issue facing the Bay Program. Recently, STAC members have paid particular attention to a new generation of so-called market-based policies, such as nutrient trading. These market-based policies have the potential to reduce the costs of necessary nutrient reductions, increase flexibility for regulated sources of pollution, and create new opportunities for profitable investment in restoration. Yet their effects need to be fully understood before partners can rely upon them to meet water quality and living resources goals. Moving forward, STAC will be looking for opportunities to help the Partners evaluate the impacts and implications of these potential, transformative policies.

Realistic Outcomes. Ultimately, new models and policies will be judged by their value in helping to achieve tangible outcomes for the Bay. STAC has a long history of helping the Bay Program understand restoration outcomes, including work on performance metrics, monitoring systems, and reporting. Today, STAC members are helping the Bay Program understand and implement adaptive management as the core of a systematic, science-based process of iterative learning and continuous improvement. In an adaptive management framework, restoration actions are treated as experiments. These experiments help managers improve their understanding of the Bay ecosystem, evaluate the effectiveness of specific strategies, and incrementally improve performance over time. This process is critical to helping the Partners plan for realistic outcomes based on the best available scientific and technical information. Moving forward, STAC will seek more opportunities to help the Bay Program institutionalize adaptive management in planning, implementation, and evaluation.

Sincerely,

Chris Pyke

A handwritten signature in blue ink that reads "Chris Pyke". The signature is written in a cursive, flowing style.

Chair, Chesapeake Bay Program's Scientific and Technical Advisory Committee