Chesapeake Bay Program Water Quality Goal Implementation Team
August 8th, 2011 Conference Call

Constant Delivery Factor Discussion Paper

BACKGROUND

A number of jurisdictional partners have recommended application of constant deliver factors while running WIP development "what if" scenarios given the issues encountered during development of their Phase I WIPs.

PROPOSAL

It is proposed that delivery factors be held constant at the TMDL level when running "what if" scenarios through the Phase 5.3.2 Chesapeake Bay Watershed Model throughout the Phase II WIP development process. Delivery factors are highest at the TMDL loading level so holding them constant at this level is a conservative assumption at all higher levels of loadings and an accurate assumption at the TMDL loading level. Load reduction will be proportional to effort in that delivered load reduction will be proportional to edge-of-stream load reduction. This means that the 60% goal by 2017 will translate directly to a 60% edge-of-stream reduction rather than a greater than 60% edge-of-stream reduction (see this concept illustrated on page 2).

RATIONALE

Pros:

1. Jurisdictions will have an easier time creating their Phase II WIPs, determine local area targets, and calculating N:P exchanges if they know their delivery factors in advance.
2. The MAST/CAST tool does not contain variable delivery factors, so the agreement between MAST/CAST and the Phase 5.3.2 Bay watershed model will be much better with constant delivery factors.
3. Addresses requests by the partners.
4. Much easier to explain to public. Public comments were received on this issue during the development of the December 2010 Bay TMDL.

Cons:

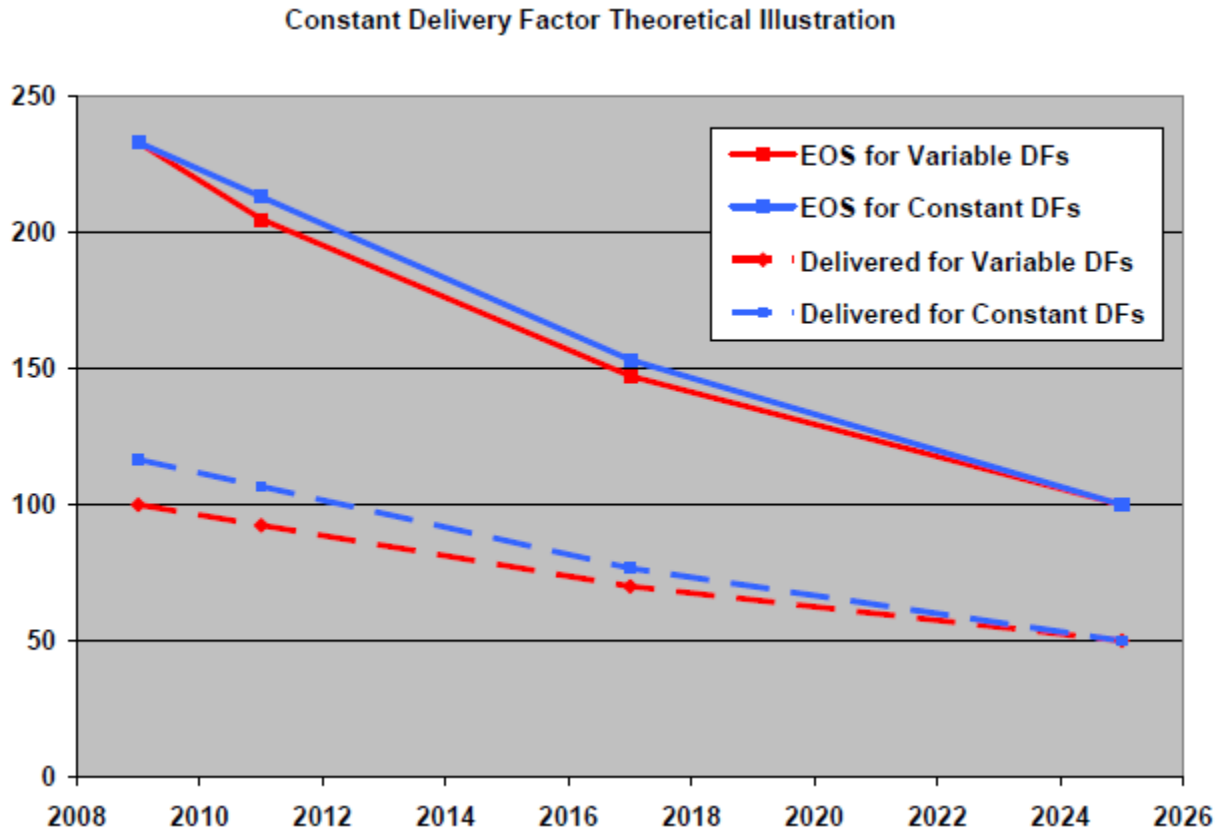
1. There will be multiple scenarios for each year for multiple purposes. For example, there will be a 2011 scenario for load indicator use with the variable delivery factor and also a 2011 scenario with a constant delivery factor for accounting purposes.
2. Scientifically, the variable delivery factor is more defensible. However, we are setting it at a conservative point.

ILLUSTRATION

In the example below illustrating constant delivery factors with respect to 2017 and milestones, a theoretical basin is shown with both constant and variable delivery factors. The 2009 and 2025 edge-of-stream (EOS) loads are the same in both cases. The 2009 EOS is a historical fact and the 2025 EOS is the EOS necessary to meet the TMDL with the TMDL delivery factors.

The delivered loads for the constant delivery factor are higher for all years other than the TMDL since these are calculated using the TMDL delivery factors, which are higher. The 2017 load is

calculated using 60% of the delivered reduction and the milestone is set along the 2009-2017 line.
Translating the delivered loads to Edge-of-stream loads, the 2017 and 2011 checkpoints have a higher edge-of-stream load target with the constant delivery factors than the variable delivery factors, making them easier to meet. Using constant delivery factors, the edge-of-stream reduction for a 60% delivered reduction is 60%. Using variable delivery factors, the required edge-of-stream reduction is higher than 60%.



FEEDBACK REQUESTED

• Reactions from the Water Quality Goal Implementation Team on the proposal as stated above.