Multiple Tributary Model (MTM) Selection

Management Board - October 13th 2022

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Outline

- Why we are Developing Multiple Tributary Models (MTMs)
- Details about MTMs
- Our Process to Choose Tributaries for Development
- Current Options Proposed by the WQGIT and GIT Representatives

Decision requested: Approve one set of tributaries for Multiple Tributary Model development, by CBPO modelers in-house and a request for assistance (RFA).

We will present two options for your discussion and consideration.

Context - Why create MTMs?

Phase 7 Model Development is Underway

- Main Bay Model - covers all 92 tidal segments at a finer spatial resolution compared to Phase 6
- Multiple tributary models (MTMs) - Small number of tributary systems modeled at an even higher spatial resolution
    - Why MTMs?
        - Assisting and Improving Tidal Chesapeake TMDLs
        - Improved Assessment of Shallow Water Processes (Important Living Resource Component)
        - Improving CBP Science, Analysis, and Implementation for Chesapeake Climate Change Impacts
        - Adherence to STAC Guidance on Bay Modeling

See presentations given by Lew at the August WQGIT and July Modeling WG for more details.

"Short-term and long-term efforts should continue the present trend of resolving finer spatial scales to make the estuarine models more directly applicable to assessing the performance of management actions at scales relevant to local communities and stakeholders.
...refining spatial scale and increasing parameters have costs in computational time, development effort, data requirements, and parameter uncertainty. Some regions of the Chesapeake Bay may not benefit from further increases in spatial and temporal resolution and so careful consideration should be given to determining exactly where higher resolution is needed."
--Hood et al., 2021

Context - Details about MTMs

Number of possible MTMs - 6 (5 +1)

- 5 to be selected by the partnership (WQGIT + other GIT representatives recommend, Management Board decides)
  - 2 for in-house modeling by CBPO
  - 3 for a forthcoming RFA
    - Each MTM for an RFA costs $250K in total, $50k/year per team.
- (+1) York River is a bonus (in-house modeling by CBPO)
  - Mostly done already due to previous work by modeling team

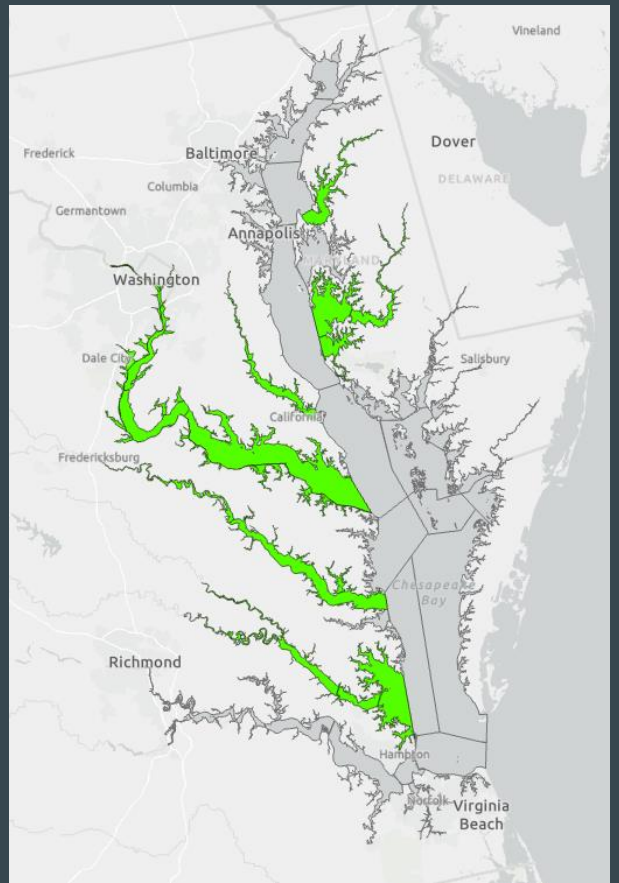
How to Choose which Tributaries to select for MTM Development?

Given the many number of tributaries and embayments, how should the WQGIT in conjunction with the partnership choose which tributaries to recommend to the Management Board for MTM Development?

- Our constraints:
  - Many tidal segments and a limited budget for the MTM teams
  - Many interests and many potential uses or applications across the partnership
  - A short timeline
- A structured approach (matrix) was used, which was inclusive of many GITs and the tidal jurisdictions. This approach used their input to determine the criteria and their relative weights in creating the final recommendations from the process. The purpose of the exercises was to serve as a guide and framework for discussions at the September 26 WQGIT Meeting.
  - A second discussion was held on October 3rd where Maryland and Virginia shared additional considerations and needs.

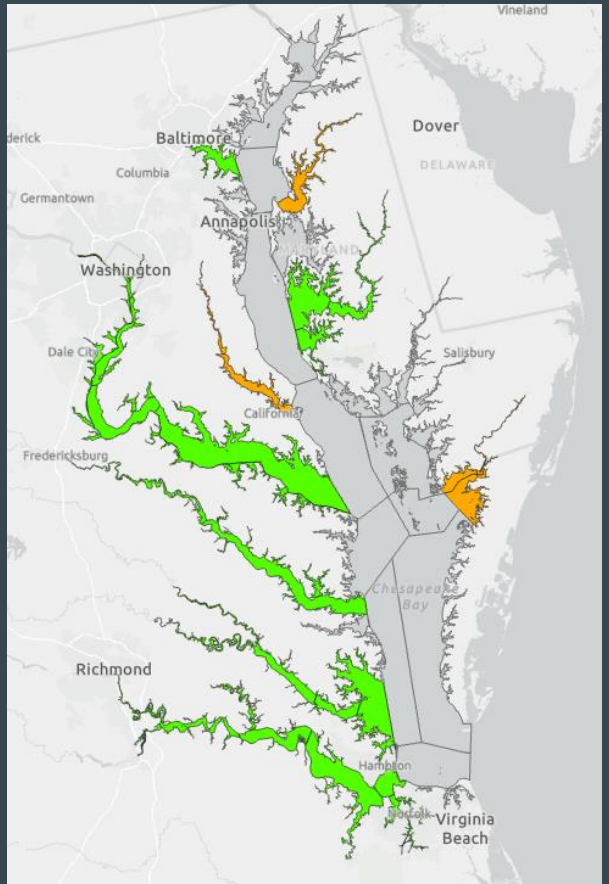
Options for the Management Board - Decision Requested

- Option A: Original top six tributaries recommended as the result of the exercises GIT representatives took part in (in green)
  - Potomac
  - Choptank
  - Rappahannock
  - York
  - Patuxent
  - Chester



Options for the Management Board - Decision Requested

- Option B: Reflects Jurisdictional Priorities after discussion of Option A at the WQGIT
  - For In house Development by the CBPO Modeling Team - in green
    - Potomac
    - James
    - York
  - For inclusion in an RFA - in green
    - Choptank
    - Patapsco
    - Rappahannock
  - Request for funding for one or two additional tributary teams, of which the following three options were suggested - in orange
    - Patuxent
    - Chester
    - Pocomoke



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  - Patuxent
  - Chester

Neither option is a consensus recommendation from the WQGIT

- Option B: Reflects Jurisdictional Priorities after discussion of Option A at the WQGIT
  - For In house Development by the CBPO Modeling Team:
    - Potomac
    - James
    - York
  - For inclusion in an RFA:
    - Choptank
    - Patapsco
    - Rappahannock
  - Request for funding for one or two additional tributary teams, of which the following three options were suggested
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Questions and discussion