DRAFT Conowingo Dredging Expert Panel Process

<u>Background on the Modeling-Based Expert Panel Approach for Evaluating Nutrient Reduction Effectiveness of Conowingo Dredging</u>
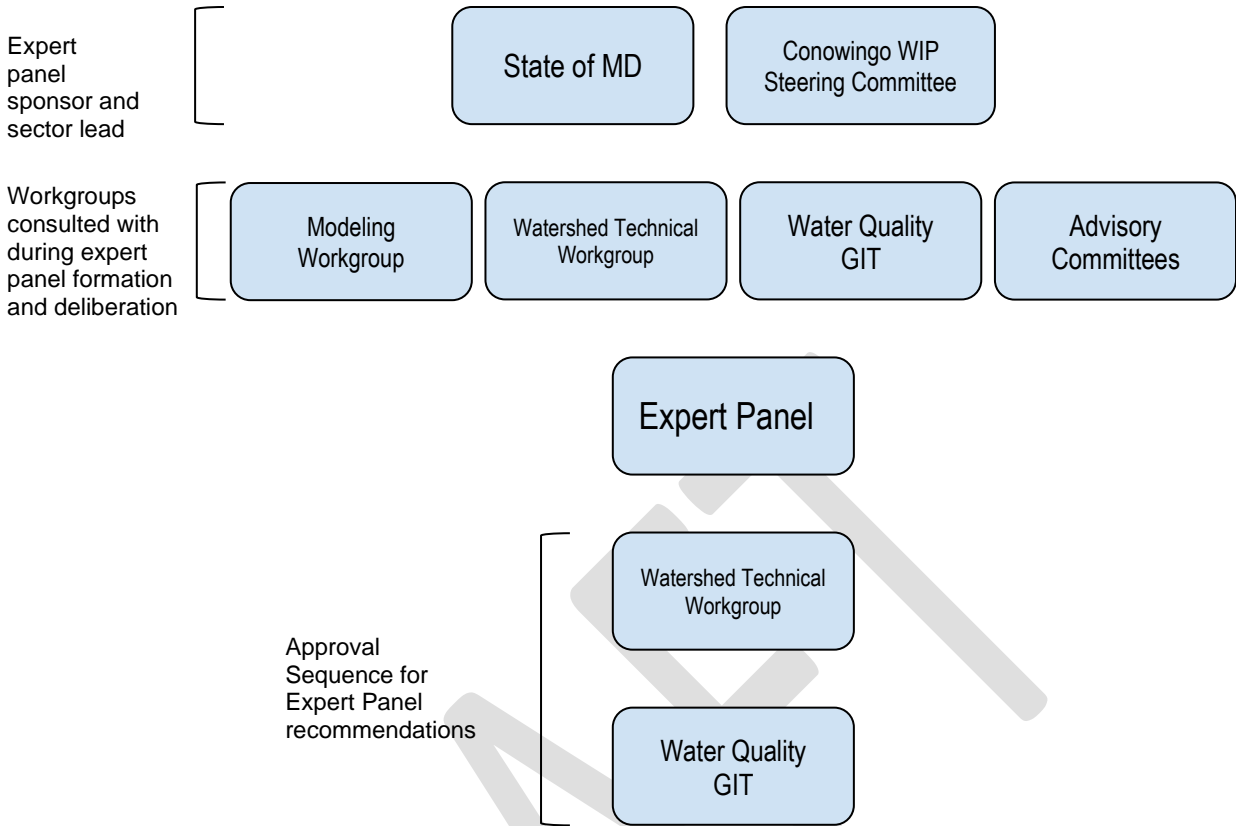
A review of the scientific literature finds that the success of dredging as a nutrient management technique is site-specific and depends on the sources and composition of nutrients entering the particular reservoir system (Lee and Oh, 2018; Peterson, 1984). As a result any nutrient reduction from Conowingo dredging cannot be extrapolated from studies or literature values developed from other reservoir systems. In addition, robust science and related modeling tools (Cerco, 2016; Fitzpatrick, 2017; Palinkas et al., 2019) already exist for both the Conowingo reservoir and Chesapeake Bay such that application of those models and the corresponding updated science will effectively fill science gaps related to Conowingo dredging as a viable Chesapeake Bay restoration practice.

Maryland is interested in pursuing this model-based expert panel approach to evaluating Conowingo dredging as a nutrient reduction best management practice (BMP). Since the expert panel protocols are in the process of being updated and this model-based approach is different from traditional protocols, Maryland is engaging the CBP partnership to ensure the process proceeds in a logical and collaborative fashion. The BMP Review Protocols are expected to be approved by the WQGIT in July 2022. While most aspects of the BMP Protocol will still apply in the event that an expert panel is formed and a BMP is recommended, this document describes the unique, expected variance to the initial and overall review process. In other words, a scientific memorandum or report, and technical appendix would still be needed for the CBP partnership to review and incorporate a potential dredging BMP into the modeling tools, and while the process might be different in this case given the modeling needs, the data elements called for in the BMP Protocol and expectations for robust science are unchanged.

<u>Partnership Roles and Responsibilities in the Conowingo Modeling-Based Expert Panel Process</u>

Figure 1 below illustrates the roles and responsibilities of key CBP workgroups in the Conowingo dredging expert panel process, followed by narrative descriptions of each workgroup and entity role.

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Expert panel sponsor and sector lead

| State of MD | Conowingo WIP Steering Committee |

Workgroups consulted with during expert panel formation and deliberation

| Modeling Workgroup | Watershed Technical Workgroup | Water Quality GIT | Advisory Committees |

Expert Panel

Approval Sequence for Expert Panel recommendations

Watershed Technical Workgroup

Water Quality GIT

Figure 1: Expert panel consultation and approval process.

- State of Maryland: Maryland is the sponsor of the BMP expert panel process for Conowingo dredging. As the sponsor, Maryland will work with the Bay Program Partnership to find financial resources to support the technical assistance needed for developing model scenarios and performing the model runs that will generate required model outputs. The outputs would then be provided to the Modeling Work Group and the Expert Panel.

- Conowingo WIP Steering Committee (CWIP SC): The CWIP SC will act as the "sector workgroup", with MD as the sponsor for this review process. As the acting sector workgroup, the CWIP SC, with guidance and assistance from CBP staff, will help develop the scope and charge for the Expert Panel to ensure the process achieves objectives and that the appropriate deliverables are received in a timely manner.

- Modeling Workgroup (MWG): The MWG will review existing and proposed modeling tools to determine whether the scientific rigor, model documentation and model transparency is sufficient for achieving the Expert Panel goals. Specifically, the Modeling workgroup will review the existing Conowingo Pond Mass Balance Model (CPMBM) and related documentation. Based upon that review, the MWG will make recommendations whether the CPMBM is approvable for use in determining scenario-based nutrient reductions associated with Conowingo dredging. The MWG will also provide modeling advice and technical

support to the Expert Panel as needed and assist with integrating Conowingo model outputs with the Chesapeake Bay modeling suite to assess water quality impacts in the Bay.

- Expert Panel (EP): the EP will consist of modelers, engineers, hydrologists, geochemists, biologists and water quality experts. Selection will be coordinated with the MWG, Water Quality Goal Implementation Team (WQGIT), and Watershed Technical Work Group, with input from interested advisory committees (e.g., STAC). The EP will review and advise on the overall modeling framework, model inputs and outputs, model integration, hydrologic, geochemical, and ecological processes, evaluate dredging nutrient reduction results, and the fate and transport in Chesapeake Bay for both accuracy and precision. The EP will ultimately recommend dredging nutrient reduction estimates to the WQGIT for concurrence. CBP Staff can provide guidance or minor assistance as able to the panel to ensure that interactions between the panel and CBP groups occur in a timely and productive manner.

- Water Quality Goal Implementation Team (WQGIT): the WQGIT will serve in an advisory and coordination role throughout the model-based EP process. The WQGIT will approve of the process used for this effort and approve any recommendations from the EP to go to the Management Board for approval.

- Watershed Technical Workgroup (WTWG): the WTWG will serve in an advisory and coordination role throughout the model-based EP process and support the WQGIT on related items. The WTWG will also provide technical review and recommendations to the MWG on watershed model processes and input data.

- Advisory Committees: the EP sponsor and/or sector lead will meet with the Advisory Committees periodically and as requested to provide updates on the expert panel process and solicit input thereon.

Near-Term Next Steps

- The MWG will assess the CPMBM documentation and regression-based model information that the Conowingo WIP Steering Committee sent to the MWG for evaluation. Based upon this assessment, the MWG will develop related recommendations for use of the CPMBM in evaluating Conowingo dredging as a BMP. Following these recommendations, the CWIP SC and MD will evaluate options available for next steps as needed (e.g., contractual technical assistance to develop a model, and/or formation of a subsequent expert panel as described above).
- Maryland will present the model-based approach described here to both the WQGIT and WTWG to ensure they are comfortable with the process and related roles and responsibilities.

REFERENCES

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