DRAFT
MARYLAND BAY ENHANCEMENT WORKING GROUP
CONFINED AQUATIC DISPOSAL SUBCOMMITTEE
February 13, 2025, 1:00 PM
Hybrid Meeting

KEY TAKEAWAYS

- **Introduction and Agenda:** Ms. Derrick facilitated the meeting. The agenda, committee members, and observers were introduced. A matrix was shared with the CAD Subcommittee showing agencies/organizations/stakeholders' overall attendance. All meeting materials can be found in the Subcommittee share file including the meeting recording.
- **January Final Meeting Key Takeaways:** The final key takeaways from the January 16th meeting are available in the share file including the audio recording.
- **Action Items Review:** Ms. Derrick reviewed the action items from the previous meeting, categorizing them as completed or in progress, and provided updates on each item. (The list of action items can be found in the February 13th meeting presentation)
- **Meeting Schedule:** Ms. Derrick noted that the meetings are scheduled at the Cox Creek Operations and Maintenance Facility on the second Thursday of each month from 1:00 to 3:00 PM. However, the February and March meetings are anticipated to be the final CAD Subcommittee meetings, so the schedule has been modified to include an additional 30 minutes. The meeting agenda will include 120 minutes for technical presentations and discussion, followed by 30 minutes of open discussion for both Committee members and observers.
- **Hydrodynamics in Baltimore Harbor:** Ms. Derrick introduced three (3) guest speakers. Dr. Harry Wang from the Virginia Institute of Marine Science (VIMS), Dr. Jeremy Testa from the University of Maryland Center for Environmental Science (UMCES), and Dr. Aaron Bever from Anchor QEA presented information related to the hydrodynamics in the Baltimore Harbor (Harbor).
    - **3D Baltimore Harbor Hydrodynamic Model:** Dr. Wang reviewed the 3-Dimensional (3D) Baltimore Harbor Hydrodynamics Model derived from the Semi-implicit Cross-scale Hydroscience Integrated System Model (SCHISM), which is a community model with open-source code used worldwide. The fine-scaled 3D Baltimore Harbor model has detailed features, such as the inclusion of the four (4) major streams in the Baltimore area. The model calibration was conducted with water level, velocity, temperature, and salinity data from the Harbor. The calibration presented an overall satisfaction between the model and data. The model simulated total circulation which consisted of tide-driven, wind-driven, and density gradient-driven circulations. Dr. Wang emphasized that the non-tidal circulation is the net current responsible for transporting materials in and out of the Harbor. A three-layered non-tidal circulation was observed over the shipping channel due to the surface and bottom layers flowing landward, and the middle layer flowing seaward. In contrast, the shallow northern and southern banks of the Habor adjacent to the shipping channels exhibited a reversed two-layered

circulation. The 3D model can be used for various applications, such as effluent discharge evaluation and sediment management.

- **Dissolved Oxygen Survey:** Dr. Testa reviewed a survey of dissolved oxygen in the Patapsco estuary to help identify low oxygen conditions in the area. Oxygen depletion is common in the Patapsco River but the type of hypoxia is dependent on the location. For example, diel cycling hypoxia occurs in shallow parts of Patapsco, whereas seasonal hypoxia occurs in the mainstem of Patapsco River. The survey illustrated the shipping channel being typically devoid of oxygen over the entire summer. Shallow locations outside the shipping channel typically have short-term oxygen depletion.
- **Current, Waves, and Sediment Transport:** Dr. Bever reviewed the 3D Chesapeake Bay Model which evaluated currents, waves, and sediment dispersal. The model was calibrated and validated using a wide range of data sets, including the Water Quality Monitoring Program data, Maryland continuous monitoring data, National Oceanic and Atmospheric Administration (NOAA) data, and various other data. The model was used to look at a high-resolution grid in the Harbor, which was comprised of the dredged navigation channels, berthing areas, and shallow areas along the edges.
    - **Currents:** Higher current speeds were identified in shallow parts of the Harbor, including dredged navigation channels and the mouth of the Patapsco River. Spatial patterns were seen throughout the Harbor, and they remained consistent. For example, regions near the Chesapeake Bay generally had higher current speeds compared to the Inner Harbor regions.
    - **Waves:** The model simulated strong winds blowing across the Chesapeake Bay from east to west. The wave height was higher in the east and it decreased as it moved west into the Inner Harbor. The orbital velocity had a slightly different pattern. The orbital velocity was larger in the east, but there were low velocities in the dredged navigation channels where the water is deeper. When the model simulated strong winds blowing from the southwest, a different pattern was observed. The waves were larger on the northern side of the Harbor, but overall, the waves and orbital velocities were detected to be smaller.
    - **Sediment dispersal:** Currents, waves, and sediment transport were evaluated for a conceptual CAD location over a six-month period. The high-resolution model showed that CAD had minimal effects on currents in the surrounding area. There was a reduction in orbital velocity inside CAD due to deeper water depth, but minimal predicted effect outside the CAD footprint. The amount of sediment that filled CAD was predicted to be larger than the amount of sediment eroded from CAD, even during stormy events. The deposition thickness of CAD sediment moving outside of the CAD cell was predicted to be less than 0.012 inches, essentially negligible. The CAD cell is expected to be filled or self-capped over the course of time due to deposition from the Chesapeake Bay. The

modeling is used as a tool to inform evaluations of potential CAD placements or CAD sizing and then further site-specific modeling would be utilized to support design.

- **Scoring and Parameters Review:** Ms. Mentzer reviewed the scoring matrix and parameters.
    - **Scoring Framework:** Scoring for most parameters will consider the end result of the CAD pilot project. The scoring considers long-term environmental and human use impacts associated with operations of a site or process, and selected short-term temporary impacts associated with construction as determined by the Subcommittee. The scoring also examines short-term social impacts, such as aesthetics, noise, public health, and public safety. Ms. Mentzer reminded the Subcommittee that each of the individual parameter scores is based on the Subcommittee's consensus. Caveats will be added for any dissent from the consensus.
    - **Raw Scores and Scoring:** Each parameter will be assigned a score of +1, -1, or 0. The raw scores are based upon existing data, historical information, and collective experience and knowledge of the Subcommittee and technical study team. The scoring will particularly depend on input from members with subject matter expertise. The Subcommittee will review the weighting factor, parameter descriptions, and scoring for each attribute.
    - **Regions for Potential CAD Pilot Cell:** A map was presented to show the nine (9) regions that will be scored for a potential CAD pilot cell. The nine (9) regions are listed in the 2025 draft scoring matrix.
    - **2025 Draft Scoring Matrix:** The parameters of the 2025 draft scoring matrix were updated based on input received during the January CAD Subcommittee meeting. The draft scoring matrix now addresses both short-term and long-term impacts. The Subcommittee is in the process of reviewing the scores which will be adjusted based on group consensus. Dissents received from agencies are noted so that they can be included in the final report. The committee reviewed all attributes under the Water Quality Section of the scoring matrix. A dissent was noted from Blue Water Baltimore (BWB) for the short-term nutrient impacts, as BWB believes nutrient impacts are known, but the extent is uncertain. The consensus for short-term nutrient impacts is 0, underscore for all the locations, meaning additional information is needed, while BWB believes all regions should be listed as -1. The draft scoring matrix was updated based on the Subcommittee's consensus. It is anticipated that the Subcommittee will continue reviewing the draft scoring matrix and parameters during the March CAD Subcommittee meeting.
- **Next Meeting Agenda:** Ms. Derrick announced that the next and final meeting will focus on the continuation of scoring and a review of the report outline. As a reminder, the meeting will be extended an extra 30 minutes. The final CAD Subcommittee meeting will be held on March 13th, 2025.
- **Action Items:**
    - No action items from the February CAD Subcommittee meeting.

Members Attending:

Anne Arundel County Waterfront Community Representative: Kelly Hunt

Bay Enhancement Working Group:
Anchor QEA (Anchor): Mark Reemts
Anne Arundel County Department of Public Works: David Braun, Karen Henry
Baltimore County Department of Environmental Protection and Sustainability: David Riter
Baltimore City Department of Planning: Grace Hansen
Baltimore City Department of Public Works (DPW): Kimberly Grove, Erik Michelsen
Chesapeake Bay Foundation: Gussie Maguire
EA Engineering, Science and Technology (EA): Cynthia Cheatwood, Peggy Derrick*
Maryland Board of Public Works (BPW): Bill Morgante
Maryland Department of the Environment (MDE): Matt Wallach
Maryland Department of Natural Resources (DNR): Roland Limpert, Richard Ortt
Maryland Environmental Service (MES): Dallas Henson, Lauren Mentzer, Christine Offerman
Maryland Geological Survey (MGS): Steve Van Ryswick
Maryland Port Administration (MPA): Kelvin Moulden, Darren Swift
Maryland Watermen's Association: Tim Mortus
National Ocean and Atmospheric Administration (NOAA): Jonathan Watson
University of Maryland Center for Environmental Science (UMCES): Andrew Heyes, Elizabeth Price, Lorie Staver, Lisa Wainger
Upper Bay Charter Captains Association: Mike Smolek
U.S. Army Corps of Engineers (USACE): Jo Ann Grundy
U.S. Environmental Protection Agency (US EPA): Byron Riggins
U.S. Geological Survey (USGS): Forrest Vanderbilt
Blue Water Baltimore: Alice Volpitta
Senate of Maryland Representative: John Garofolo

Additional Agency Members, Support Staff, and Others Attending:
Anchor, QEA: Aaron Bever**
Angie Ashley Consulting: Angie Ashley
Maryland Environmental Service (MES): Saeka Foreman, Kenna Oseroff
Maryland Port Administration (MPA): Katrina Jones, Holly Miller
Observers: Darrell Abed, Carl Callahan, Brooke Hurman, Chuck Thompson, Carl Treff, Marguerite Whilden
University of Maryland Center for Environmental Science (UMCES): Jeremy Testa**
U.S. Army Corps of Engineers (USACE): Caroline Etherton, Rachel Kierzewski
Virginia Institute for Marine Science (VIMS): Harry Wang**

*Confined Aquatic Disposal Subcommittee Facilitator
**Guest Speaker