# Chesapeake Bay Program’s (CBP)

**Scientific and Technical Advisory Committee (STAC)** **September 13-14, 2021 Quarterly Meeting Minutes**

**Webinar Meeting**

**Monday, September 13th**

**Attendance:**

**Members:** Adel Shirmohammadi, Alix Dowling Fink, Andy Miller, Brian Benham, Bill Dennison, Chanceé Lundy, Chris Brosch, Ellen Gilinsky, Eric Smith, Greg Noe, Jason Hubbart, Jay Stauffer, Jeremy Testa, Katherine Bunting-Howarth, Kathy Boomer, Kirk Havens, Kenny Rose, Kurt Stephenson, Lara Fowler, Larry Sanford, Lee Blaney, Leah Palm-Forster, Leonard Shabman, Mark Monaco, Mike Runge, Tess Thompson, Tom Ihde, Tom Johnson, Weixing Zhu, Zach Easton

**Guests:** Breck Sullivan (CRC, STAR), Caitlyn Johnstone (The Alliance), Cindy Palinkas (UMCES), David Maginnes (Maginnes Productions), Deni Chambers and colleagues (Northgate Environmental), Diana Esher (EPA), Deena O’Brien (Exelon), Doug Austin (CRC), Gary Shenk (USGS), Jeff Corbin (EPA), Jennifer Starr (The Alliance), JK Bohlke (USGS), Joel Blomquist (USGS), Karl Blankenship (Bay Journal), Kristin Saunders (UMCES), Lee McDonnell (EPA), Leon Tillman (USDA-NRCS), Lew Linker (EPA), Matt Rowe (MDE), Melissa Fagan (CRC), Renee Thompson (USGS)

**Administration:** Annabelle Harvey, Denice Wardrop, Meg Cole

**Call to Order, Announcements—***Andy Miller (STAC Chair – UMBC)*

Andy Miller (UMBC) called the meeting to order at 9:30 am. Miller requested a motion to approve the June 2021 Quarterly Meeting Minutes and the August 2021 Executive Board Meeting Minutes. Both documents are approved.

**DECISION:** The June 2021 Quarterly Meeting Minutes and August 2021 Executive Board Minutes are approved.

#  [Update on PSC’s Requested Improvements to the CBP Monitoring Networks](https://www.chesapeake.org/stac/wp-content/uploads/2021/10/2021STAC_Sept_Tango_Phillips_McDonnell_Sullivan_Wardrop_NEW_final.pdf)—*STAR*

Scott Phillips (USGS), Peter Tango (USGS), Breck Sullivan (USGS, STAR), and Lee McDonnell (EPA) presented on the Program’s response to the Principal’s Staff Committee (PSC) request to improve CBP Monitoring Networks. The CBP monitoring programs presented included the nontidal nutrient and sediment network, tidal water-quality monitoring network, submerged aquatic vegetation (SAV), tidal benthic monitoring network, and Citizen Science monitoring network. The PSC requested the following information be provided on these networks: the current status and threats to networks, what is needed to improve the monitoring sustainability, and what is already available to address monitoring and assessment capacity shortfalls. In addition to a number of key findings, a STAC Workshop on Advanced Monitoring is currently underway to provide recommendations on satellite-based SAV assessment based on a

2020 pilot study and current research, as well as recommend strategies for program adaptation.

Network information gaps are captured in the [CBP Science Needs Database](https://star.chesapeakebay.net/). This database is a repository for short and long-term science organized by goals and outcomes. About one-third of existing science needs relate to monitoring and of those, 65 total science needs connected to this specific monitoring review. A main goal of the monitoring review is to align the Program Science Needs with recommendations from the STAC Comprehensive Evaluation of System Response (CESR) effort. Denice Wardrop (CRC) suggested there may be a temporal mismatch between the Science Needs Database and CESR, as the CESR report is looking to 2025 and beyond; Sullivan and Phillips pushed back and emphasized a longer-term, strategic outlook is part of the report’s intent. Kenny Rose (UMCES) clarified that the Living Resources section of the CESR report uses existing data to perform a new analysis and Phillips agreed analysis-based science needs should be better incorporated into the outcome science needs. As one of the leaders of the CESR charge, Kurt Stephenson (VT) pointed out much of the identified monitoring needs are also discussed in the report and suggested a future meeting to speak about synergies. Similarly, Bill Dennison (UMCES) explained the transition zone is critical and the CESR Estuary section highlights the importance of monitoring in this shallow-water interface.

Wardrop confirmed that a shift to a more active management across all monitoring efforts is a recommendation resulting from CESR conversations. In agreement with others, Leonard Shabman (RFF) stated CESR will be in support of “a new imagined future for the TMDL.”

Citing an ongoing study on Chesapeake logperch showing fluctuating populations possibly due to more Northern Snakehead occurrences, Jay Stauffer (Penn State) proposed monitoring of not only invasive species but also species considered threatened or endangered by Virginia and/or Maryland. Additional suggestions for monitoring made by Adel Shirmohammadi (UMD) included extending the existing groundwater network and using an artificial neural network model for tidal and nontidal regions. With current resources, Greg Noe (USGS) wondered how to best channel under-resourced and unanswered questions and stressed the importance of data management for deeper analysis. At the moment, the Bay Program has one fulltime data manager and large data management gaps. Phillips stated monitoring gaps may be filled with personnel funded through the Bipartisan Infrastructure Deal (Infrastructure Investment and Jobs Act).

**ACTION: STAC Members** are requested to submit feedback on the CBP Monitoring Networks. You may either email STAC Staff or Breck Sullivan (bsullivan@chesapeakebay.net) directly with your comments and suggestions on the following questions:

* What monitoring-related recommendations from the CESR effort should be reflected in the CBP effort to enhance monitoring?
* What outcome science needs align with CESR recommendations?

Al**l** Science Needs are available on the database, [accessed here](https://star.chesapeakebay.net/). Additional Chesapeake Bay Program Online Data Tools:

* [Chesapeake Bay Open Data Portal](https://data-chesbay.opendata.arcgis.com/)
* [Chesapeake Bay Watershed Data Dashboard (Beta)](https://gis.chesapeakebay.net/wip/dashboard/)
* [Chesapeake Bay Healthy Watersheds Assessment (ArcGIS)](https://gis.chesapeakebay.net/healthywatersheds/assessment/)
* [Chesapeake Bay Watershed Data Dashboard (Beta)](https://gis.chesapeakebay.net/wip/dashboard/)
* [Chesapeake Bay Healthy Watersheds Assessment (ArcGIS)](https://gis.chesapeakebay.net/healthywatersheds/assessment/)

**STAC Membership Update** —*Annabelle Harvey (CRC)*

Annabelle Harvey (CRC) presented the final announcement of the STAC online nomination form, membership vacancies, and membership process. The Committee and STAC Staff have been working together to update both the membership and nomination procedures to solicit nominations from a wider, more-diverse network. In previous years, STAC Members would approach and nominate individuals for the Committee, which has led to less-varied nominations. The final call for nominations will be distributed through the STAC and CRC networks as well as other channels the CBP Diversity Workgroup has recommended. The online nomination form will accept self-nominations only. STAC Executive Board (EB) will review all nominations using an informal rubric designed by STAC Staff and by December, new members will be rotating onto the Committee.

STAC Member Shirmohammadi suggested Members prioritize individuals with a social science background, possibly with a specification in community service tools, for a position on the Committee.

**ACTION: STAC Members** are requested to share the STAC nomination announcement, online nomination form, and membership vacancies with their networks.

# [CRC Environmental Management Staffer Spotlight](https://www.chesapeake.org/stac/wp-content/uploads/2021/10/CRC-Environmental-Management-Staffer-Spotlight.pdf)

—*Hilary Swartwood (CRC) Water Quality Implementation Team Staffer*

The Chesapeake Research Consortium’s (CRC) Environmental Management Career Development Program provides early career professionals with a stepping stone to a future career in the fields of environmental science, policy and management, and outreach and education. Hilary Swartwood (CRC) is the Water Quality Implementation Team (WQGIT) Staffer and provided the Committee with an update on current team activities within the CBP partnership as well as her current and future plans.

Alongside another Staffer, Swartwood works with the WQGIT and the following Workgroups: Toxic Contaminant Workgroup (TCW), Watershed Technical Workgroup (WTWG), Urban Stormwater Workgroup (USWG), and the Trading and Offsets Workgroups. Major WQGIT accomplishments this year included approving all method and data changes indicated in the CAST 2021 Work plan and approving the high-resolution land use change data product to inform CAST 2021. In the past year, the Toxic Contaminant Workgroup (TCW) drafted a 2-page factsheet on monitoring objectives for a PCB Monitoring Network, the TCW and Stewardship Workgroup continue to develop resources for PCBs in schools, and a STAC Workshop on per- and polyfluoroalkyl substances (PFAS) is currently being planned.

Recently Swartwood published a [USGS PFAS Blog](https://www.usgs.gov/center-news/tracing-forever-chemical-chesapeake-bay) and co-presented a poster at the National Conference on Ecosystem Restoration 2021. After this position comes to an end, Swartwood is

interested in working in the fields of community engagement, environmental justice, and/or science literacy.

**ACTION: STAC Members** looking to connect with Hilary Swartwood regarding her current work with the WQGIT or future professional development, can reach out to Swartwood via email ([swartwood.hilary@epa.gov](http://swartwood.hilary@epa.gov/)).

# Presentations on Conowingo

—[*Cindy Palinkas*](https://www.chesapeake.org/stac/wp-content/uploads/2021/11/conowingo_stac21.pdf) *(UMCES), Sam Merrill and colleagues (Northgate Environmental), Joel Blomquist (USGS),* [*Matt Rowe*](https://www.chesapeake.org/stac/wp-content/uploads/2021/10/MDE-Conowingo-Presentation-for-Sept-2021-STAC-Quarterly-Meeting.pdf) *(MDE)*

With increased activity and interest surrounding Conowingo, including the Conowingo Watershed Implementation Plan (CWIP) and the pilot dredging studies currently underway, STAC has recently begun a series of conversations reflecting on Conowingo and its impact on the Upper Bay. Prior STAC involvement in Conowingo include the following: STAC Review of the [Lower Susquehanna River Watershed Assessment](https://dnr.maryland.gov/waters/bay/Pages/LSRWA/Final-Report.aspx) (LSRWA 2014), USGS long-term analyses of sediment and nutrient flux, STAC Workshop on Conowingo Reservoir Infill (2016), UMCES Reports on Biogeochemistry, Geology, and Physics of Conowingo Reservoir and Upper Chesapeake Bay (2017), 2019 USGS analysis of orthophosphorus flux trends, and 2020 STAC comment and recommendation to Federal Energy Regulatory Commission (FERC) on the Exelon agreement.

The primary goal of this session was to evaluate anticipated management actions based on current and previous long-term trends affecting the Conowingo Reservoir mass balance. Four speakers were invited to help identify additional research needed to better inform the Partnership after 2025. Invited speakers were Cindy Palinkas (UMCES), Joel Blomquist (USGS),

Matt Rowe (MDE), and Sam Merrill and colleagues (Northgate Environmental). Comments following Palinkas’ presentation suggested nitrogen across the Bay is improving as well as in some places, phosphorus. Bill Dennison (UMCES) shared links to [USGS nutrient trend maps](https://ian.umces.edu/site/assets/files/22139/nutrient-trends-and-drivers-in-the-chesapeake-bay-watershed.pdf) in

the Chesapeake to illustrate this finding. Weixing Zhu (Binghamton) asked a clarifying question on particulate nitrogen and particulate phosphorus calculations and Noe elaborated on increasing loads of total nitrogen (TN), total phosphorus (TP), and sediment versus the load entering the mainstem reservoir.

After speaker presentations, there was a panel moderated by Kathy Boomer (FFAR) with previously identified questions pertaining to Conowingo including the potential role of dredging and informed decision-making based on monitoring and modeling needs. The speakers each shared their understanding of current monitoring efforts to better understand Conowingo in overall Bay health; most agreed they were not set up for long-term monitoring. Sam Merrill (Northgate Environmental) stated the second Conowingo report on dredging should be completed by mid- October with a short-term goal of 1000 yd3. By 2022, MDE will complete a new report with modeling (dredging configurations and the differential nutrient reduction of each) and innovative reuses. Rowe clarified there is not a current plan to dredge Conowingo but could be a future strategy if dredging is found to achieve goals of restoring trapping capacity to mid- 1990s levels. If dredging is not found to be an effective best management practice (BMP), Rowe stated they would not complete a large-scale dredging project.

The pilot dredging effort is located high in the reservoir, near the Maryland state line. The area is predominately coarse sand. Rowe is hopeful modeling dredge scenarios in various areas of the Reservoir in combination with enhanced sediment characterization data should illustrate if, where, and in what amounts dredging may be helpful to mitigation efforts; MDE is working with the Bay Program to integrate findings with the Bay Program Model.

Likewise, Blomquist stated monitoring downstream at Conowingo will continue with USGS and DNR. In order to move to a larger-scale dredging operation, the impact of dredging on phosphorus and sediment fluxes in real-time relative to sediment disturbance needs to be observed more thoroughly. Blomquist also suggested that implementing a monitoring strategy to provide feedback would be critical for a long-term strategy.

After listening to the speakers, Boomer prepared slides on the Lower Susquehanna River Basin (LSRB) and highlighted the need to understand the range and magnitude of scour and deposition that occurs under dynamic equilibrium status, and acknowledged evidence to suggest it is minor compared to other sources. Before opening it up to the speakers for comment, Boomer questioned whether the system could be pushed back in time using dredging and if not, if the scour and deposition can be managed within the system to mitigate downstream effects. In theory, Palinkas remarked, dredging would create more room for sediment but in action, sediment and nutrients can become remobilized causing a system dynamic change. A smaller-scale resolution would be necessary to understand the uncertainties involved and the limitations of the system. Merrill agreed, but commented modeling has shown dredging could be a lower-cost tool to meet key water quality goals. Shirmohammadi supported the use of models as the least expensive and most accurate way to provide recommendations for monitoring.

# Tuesday, September 14th

**Members:** Adel Shirmohammadi, Alix Dowling Fink, Andy Miller, Brian Benham, Bill Dennison, Chanceé Lundy, Chris Brosch, Ellen Gilinsky, Eric Smith, Greg Noe, Jason Hubbart, Jay Stauffer, Jeremy Testa, Katherine Bunting-Howarth, Kathy Boomer, Kirk Havens, Kenny Rose, Kurt Stephenson, Lara Fowler, Larry Sanford, Lee Blaney, Leah Palm-Forster, Leonard Shabman, Mark Monaco, Mike Runge, Tess Thompson, Tom Ihde, Tom Johnson, Weixing Zhu, Zach Easton

**Administration:** Annabelle Harvey, Denice Wardrop, Meg Cole

[**Discussion with Exelon —***Deena O’Brien (Exelon) and colleagues Tom Sullivan (Gomez and*](https://www.chesapeake.org/stac/wp-content/uploads/2021/10/Exelon-Generation-Panel-Discussion-with-STAC.pdf)[*Sullivan), Marjorie Zeff (AECOM), and Andrea Danucalov (Exelon)*](https://www.chesapeake.org/stac/wp-content/uploads/2021/10/Exelon-Generation-Panel-Discussion-with-STAC.pdf)

On behalf of Exelon, Deena O'Brien (Exelon) joined STAC to discuss the background of the Conowingo Dam and the new 50-year relicensing agreement. O'Brien touched on "managing public perception" and referenced both the 2015 LSRWA and 2019 UMCES key findings. On the whole, Exelon wanted STAC to provide feedback on the public’s understanding of scientific study data and ways in which to curb misinformation on issues like sediment and nutrients.

Although STAC Members are not in position to distill external scientific findings into outreach documents expressly for public understanding, Miller recommended Exelon tap into the Chesapeake Bay Program's [Communications Office](https://www.allianceforthebay.org/stewardship-engagement/cbp-communications/) for tips on turning scientific output into articles of general interest.

After a short presentation, Miller opened the floor for discussion. Both Shirmohammadi and Zhu asked if sediment accumulation impacts power generation, Tom Sullivan (Gomez and Sullivan) verified high flows can cause issues to turbine blades but does not affect energy efficiency. Conditions that do negatively impact production are usually episodic (for example, Hurricane Ida in 2021) and Sullivan underscored there not needing to be “ideal conditions”. Pennsylvania and Maryland are experiencing higher-than-average precipitation this year and Lara Fowler (PSU) questioned how Exelon will manage this into the future. Sullivan elaborated on the cited 10% threshold flow in O’Brien’s presentation, explaining that if the reservoir has recently gone through a scour event, it is likely it will store material due to excess space. On the other hand, if the reservoir has sat for a long time and the scour is consolidated, the flow at which the scour event would happen would be higher due to consolidation of material.

Marjorie Zeff (AECOM) clarified between a net scour event and resuspension of sediment.

Larry Sanford (UMCES) referred to the presentation by Northgate on Day 1 and stated that the only strategy to deal with sediment in Conowingo is with a sufficient Sediment Transport Model combined with sediment collection. Bill Ball (JHU) agreed and cautioned against

miscommunicating nutrients as being “worse” than sediment.

Boomer thanked Exelon for joining STAC in this conversation and appreciated the emphasis on monitoring local shallow waters to fight misinformation. Further, Boomer proposed data

collection in a way that explicitly addresses the public’s conceptual model and suggested STAC work with Exelon on building upon modeling data found through core or primary sedimentary structure studies. These mentioned studies were completed in support of the TMDL Midpoint Assessment and licensing and have not been analyzed after the results were supplied to the Bay Program in 2018. To this point, Kenny Rose (UMCES) suggested Exelon agree on the state of the science and plans moving forward as it would provide a more unified message to the public;

O’Brien responded that Exelon does not but is thinking of pulling in a scientific body of researchers to help provide clearer messaging. In previous STAC quarterly meetings, Miller presented on previous scientific investigations and STAC involvement in Conowingo, including a summary of long-term trends affecting the Conowingo Reservoir mass balance. What is missing, Miller stated, is a consistent document on the current state of the science; O’Brien proposed STAC help Exelon build such a report.

**ACTION: STAC Members** are requested to provide additional questions or topics for further research on Conowingo. **Andy, Kathy,** and **Larry**, volunteered to work on a follow-up conversation to the STAC September QM Conowingo discussions. Other Members interested in joining this synthesis effort, please email STAC Staff.

# Comprehensive Evaluation of System Response (CESR)

**—***Kurt Stephenson (VT), Denice Wardrop (CRC)*

The update on the CESR report was held in executive session due to the sensitive nature of the document. Miller made a motion to close the remainder of the meeting to the public and Tom Ihde (Morgan State) seconded. No STAC Member objected to the closing of the session.

For this remainder of the meeting, Denice Wardrop (CRC) and Kurt Stephenson (VT) presented to STAC on the progress of the report.

**ACTION: STAC Members** should submit any relevant comments or questions to Denice Wardrop (**dhw110@psu.edu**). Denice will draft a document with notes from

the September Quarterly Meeting to share with the CESR Steering Committee.

# Wrap Up

The STAC [December Quarterly Meeting](https://www.chesapeake.org/stac/events/december-2021-stac-quarterly-meeting/) will take place virtually on December 7th. This is the first Quarterly under the new leadership of Kathy Boomer and Larry Sanford as Chair and Co-Chair, respectively. At this meeting, there will be updates on the following: the STAC Overcoming the Hurdle workshop, the new Potomac summary story map, the Comprehensive Evaluation of System Response (CESR), and a synthesis of recent STAC conversations on Conowingo. A two- hour discussion lead by Boomer is planned for the afternoon in which Membership will talk about plans for the Committee over the next two years.