Data Integrity Workgroup (DIWG) Meeting

Thursday, March 26th, 2026
1:00 PM – 3:00 PM
Visit the meeting webpage for meeting materials and additional information.

Purpose: This was the quarterly meeting of the Data Integrity Workgroup. This meeting began with the regular updates, including monitoring and laboratory analysis updates, blind audit updates, coordinated split sample program updates, USGS standard reference sample updates, and community and participatory science updates. Then, Mary Stack (ICPRB) shared the Chesapeake Bay Program's (CBP) updated Chesapeake Bay Program metadata specifications with the group. Lastly, Alex Fries (UMCES) presented two questions on chlorophyll *a* sampling and analysis, which the group discussed.

Minutes

I. Welcome, Introductions & Announcements
Lead: ***Cindy Johnson*** *(Virginia Department of Environmental Quality, VA DEQ), DIWG Chair and* ***Durga Ghosh*** *(U.S. Geological Survey, USGS), DIWG Coordinator*

II. Monitoring and Laboratory Analysis Updates
Lead: ***Cindy Johnson*** *(VA DEQ)*

West Virginia:

No updates given.

Pennsylvania:

Susquehanna River Basin Commission (SRBC) – Tyler Shenk: Pennsylvania's Non-Tidal Network has had regular monitoring throughout the months and hit all of the storm samples. They are on track for the season. Everything has thawed out since the winter season.

Maryland:

Department of Health (MDH) – Lara Johnson: The department currently have a hiring freeze. The lab is currently at capacity for employees, but it has been somewhat difficult to keep up with sick leave and vacations. They are keeping up with their routine work. They are trying to validate the new SEAL instruments. They have audits coming up for drinking water methods. Their ISO (International Organization for Standardization) accreditation is in May and EPA is visiting the first week of June. They have open procurement requests for more instruments, but they have been at a standstill.

Department of Natural Resources (DNR) – Kristen Heyer: For the main stem, they got the University of Maryland Center for Environmental Science (UMCES) vessel back at the beginning of this year. They used the Virginia Institute of Marine Science (VIMS) boat, the Bay Eagle,

through the end of last year and have been using the Rachel Carson this year. They are in the process of procuring another new small boat for the tributary work. The non-tidal network is doing ok. They are a little behind because of storms and freezing temperatures. They are getting organized to do a new segment for continuous monitoring and they have their regular continuous monitoring for other programs, which has been ongoing.

University of Maryland Center for Environmental Science: Chesapeake Biological Lab (UMCES CBL) – Jerry Frank: CBL is at capacity and everything is going well. They are currently preparing for their biannual onsite inspection to maintain their National Environmental Laboratory Accreditation Conference (NELAC) certification.

District of Columbia:

No updates given.

Virginia:

Old Dominion University (ODU) – Suzanne Doughten: They've been sampling the mainstem. They've had a lot of bad weather, so they didn't get every station for every cruise, but they were able to take every cruise. They've had two new hires, Abby Ethridge and Peyton Hamilton, who are doing both field and lab work. Lab work has been going fine.

Virginia Institute of Marine Science (VIMS) – Dave Parrish: They just submitted their 2025 shallow water quality monitoring data for dataflow and fixed station verification data to the Bay Program. They are still working through some quality control before it's accepted into the database. They just did their first dataflow cruise of 2026 in the Lower York and Mobjack. They pulled a couple of continuous stations in the Rappahannock because of ice, but they are back in the water now and working as normal.

Virginia Department of Environmental Quality (VA DEQ) – Cindy Johnson: They had a late start on the contract with USGS because of some issues with the new computer system on their end. They got a little behind and didn't get started until January. There is a plan to get everything in place. USGS has been sampling regularly to catch up on storms. They want to make sure they don't stack all of the samples in a given season so they will spread them out to make up the samples in the months they would have been collected. This process will likely move into the next year. They are on track for the tidal monitoring. They have been able to do most months but had some issues with weather at the Virginia Beach office. Besides that, they are on track.

VA DEQ Non-Tidal – Meighan Wisswell: The non-tidal monitoring is on track. They missed some samples because of the ice storms, primarily at the Blue Ridge Parkway site. Now that things are getting warmer, they are back on track and expect to be throughout the season.

Division of Consolidated Laboratory Services (DCLS) – Jay Armstrong: They are getting ready to fill the position Jay left vacant. Once that happens, that person will be brought into this group.

Delaware:

Delaware Department of Natural Resources and Environmental Control (DNREC) – Ian McMullen: The Delaware Environmental Lab will be moving from Dover to Smyrna, which will begin next week and go through the end of May. Three new instruments will be installed. They don't plan on shutting down the lab but operating out of both as they move and revalidate instruments.

III. Blind Audits Update

Lead: ***Jerry Frank*** *(University of Maryland Center for Environmental Science – Chesapeake Biological Lab, UMCES CBL)*

Jerry shared that everyone should have received the FY27 round 1. They were sent out a couple of weeks ago. There was only one reported instance of breakage. Please look at things closely and let Jerry know if you need any backups. The next round will go out within the next month. Ideally, they can have all of the data together by the end of the fiscal year and wrap up the data analysis by the end of the summer.

IV. Coordinated Split Sample Program

Lead: ***Mary Stack*** *(Interstate Commission on the Potomac River Basin, ICPRB)*

Mary shared the mainstem split sample data from November 2024-2025 and the tributary split sample data from December 2024-2025.

Discussion Notes:

Q: *Lara Johnson:* Would you be able to add the Maryland Department of Health September to December data?

- ***A:*** *Mary Stack:* Thank you for pointing that out. I will redo that and send it out to everyone.

V. Community and Participatory Science Updates

Lead: ***Alex Fries*** *(UMCES) and* ***Liz Chudoba*** *(Alliance for the Chesapeake Bay, ACB)*

Alex Fries: Community Monitoring Cooperative (CMC) has been getting in touch with their tier 2 and 3 groups about any changes happening to their monitoring programs and updating quality assurance protocol plans (QAPPs). Everything is going smoothly. They have established new items that will be discussed later in the meeting.

Liz Chudoba: Last year, they created a tier 3 pathway for bacteria data collection that's consistent throughout Virginia and Maryland. The processes are slightly different, but they are mainly focusing on Maryland, who did not have a process. This is for community-based monitoring groups within the CMC who are collecting data with the IDEX system in the office. Last year, they onboarded four tier 3 groups in Maryland. Their process is to get a QAPP for field and lab, go through a field audit with Becky Monahan and Liz Chudoba, and then do a proficiency test with NCI laboratories. Those four groups are Anne Arundel Community College, Anacostia Riverkeeper, Blue Water Baltimore, and Upper Potomac Riverkeeper. Potomac Riverkeeper also went through the process, but they are already approved through VA DEQ. They are also onboarding Shore Rivers and Gunpowder Riverkeeper into that process.

VI. USGS Standard Reference Samples

Lead: ***Allison Welch*** *(Chesapeake Research Consortium, CRC)*

Allison shared the Fall 2025 standard reference sample results.

Discussion Notes:

Comment: *Ian McMullen:* On the orthophosphate low concentration slide, the outlier from DNREC is a transcription error on our end. Our actual result was 0.089.

VII. Updated Chesapeake Bay Program (CBP) Metadata Specification

Lead: ***Mary Stack*** *(ICPRB)*

In this presentation, Mary shared the updated Chesapeake Bay Program wide metadata specification and the monitoring data guidance. While the CBP wide metadata specification is published, the monitoring data guidance is currently under review and not publicly available. Mary will let the group know when it is published. The 2025 CBP Metadata Specification can be found here.

VIII. Updated Chesapeake Monitoring Cooperative (CMC) Methods

Lead: ***Liz Chudoba*** *(ACB)*

In this presentation, Liz shared the methods they are adding to the CMC QAPP, which is chlorophyll and turbidity from the Chesapeake Water Watch. Firstly, she reviewed the three CMC tiers. Liz introduced the group to their new chlorophyll method, known as In Vivo Chlorophyll, and compared that to existing chlorophyll lab analyzes. Liz asked if anyone had concerns about including this as tier 2 and no one responded. The next method is using the HydroColor Phone App to measure turbidity, which would be tier 1 data. A lot of groups are already using this method so it would be great to add that to the CMC Data Explorer. Liz asked if anyone had questions or concerns about including this as tier 1 and no one responded. The next steps will be adding these to the CMC QAPP, and they will be sharing this with Durga for approval.

IX. Chlorophyll *a* Lab Methods

Lead: ***Alex Fries*** *(UMCES)*

Alex used this presentation to introduce some concerns she has about the tier 3 chlorophyll analysis for the CMC. They are currently using fluorometry and spectrophotometry. Alex is wondering if both of these methods can be tier 3 for Chesapeake Bay Program purposes. CMC groups are currently using the fluorometry method, which is less expensive. They want to be sure that the data collected by these groups is usable and equivalent to the spectrophotometry.

Discussion Notes:

Comment: *Suzanne Doughten:* These are Jerry's methods. We use the spectrophotometer at ODU.

Comment: *Jerry Frank:* We're able to offer both methods. It's not a problem either way. I called Nancy Kaumeyer about these methods. The primary motivation for choosing spectrophotometric chlorophyll is that it is easier to calculate chlorophyll *b* and *c*. That was the guiding issue in the early days. For those who are state DNR, the prices listed are the outside prices, which is what the groups would pay. The states have a lower negotiated overhead rate. The spectrophotometer is slightly more labor intensive and therefore a little pricier.

Q (from chat): *Jay Armstrong:* Was there an issue at one time with Fluorometer agreement with Spectrophotometry?

- ***A (from chat):*** *Cindy Johnson:* Yes, but I never got the results. I think both methods are accepted by Bay just coded differently.
- ***Response:*** *Jerry Frank:* That was a while ago. There is probably a white paper somewhere that addresses that issue.

- ***Response:*** *Jay Armstrong:* I think that it was before you got here Jerry. When I first came to DCLS in 1997, all the Chesapeake Bay labs had started working towards refining the spectrophotometry method.
- ***Response:*** *Jerry Frank:* That aligns with the timeline I got from Nancy. I talked to Walter Boynton too. They both concur that in the 1980s OEP was using the fluorometer almost exclusively. The transition was made for the reasons I already mentioned – chlorophyll *a* and *b.* I think that spectrophotometric methods are more robust over a wider salinity range, which I think was a driving force as well.

Comment: *Alex Fries:* One of the main goals of the CMC is to have known high quality data that the Bay Program and states use for the decision-making process. I don't want groups to be spending time, effort, and money if their chlorophyll *a* isn't used at the Bay Program. I don't know if they could switch methods if they needed to. We're encouraging these groups to do this monitoring, and we want that data to be used.

Q: *Jay Armstrong:* Do we have anyone reporting chlorophyll in the split sample report that are using fluorometry? If all of the laboratories are using the spectrophotometric method, that would be something to consider if you are looking for comparability.

- ***A:*** *Mary Stack:* It looks like DNREC does.
- ***A:*** *Ian McMullen:* We use the Turner Fluorometer.

Q: *Jerry Frank:* I don't think Horn Point has a spectrophotometer. Are they using HPLC?

- ***A:*** *Meg Maddox:* At Horn Point, we only use the Turner, but we could use a spectrophotometer. We never offered that.
- ***Response:*** *Jerry Frank:* I think Jay was asking for a comparison exercise. I pulled up the main stem split sample results, and you are right in the mix with everyone else. The data looks good.

Comment: *Mary Stack:* In the Chesapeake DataHub, they are both considered tier 3.

Comment (from chat): *Peter Tango:* Sounds like DNREC and Horn Point always used fluorometer? Just wondering how far back we could build support for those comparisons. Some studies we have done 2-3 years. We could perhaps do a white paper analysis report. Meanwhile - I like Mary's point, right now, both are Tier 3. We could say that until proven different for CMC.

Q: *Jerry Frank:* Years ago, we talked about putting together a table of what everyone was using. Does that exist somewhere?

- ***Response:*** *Suzanne Doughten:* When you submit your data, you have to say what you're using. We have codes in the database for each thing.
- ***Response:*** *Cindy Johnson:* Back in the late 1990s or early 2000s, Mary Ellen Ley put together that method matrix file that had everyone's methods.
- ***Response:*** *Jerry Frank:* Yes. That's what I am thinking of. Do we have access to that? I would love to have that information.

Q: *Alex Fries:* Can they both be tier 3? I think the answer is yes based on what we've looked at and discussed. The second question is will the Bay Program use that in chlorophyll *a* analysis and reporting?

- ***Response:*** *Jerry Frank:* I don't think that's a question for us to answer.

Comment (from chat): *Durga Ghosh:* I wonder if Mary has access to any of Mike's files

- ***Response (from chat):*** *Mary Stack:* I can access his old files!

Comment (from chat): *Dave Parrish:* I just checked with Carol Pollard, who is the manager of VIMS Analytical Services Lab, and they use the fluorometry method

Comment (from chat): *Cindy Johnson:* I know at one point VIMS Dr. Haas did a comparison study with DCLS (99 ish?)

Comment (from chat): *Kristen Heyer:* Here is the link for the Methods Manual https://d38c6ppuviqmfp.cloudfront.net/documents/CBPMethodsManualMay2017.pdf

- ***Comment:*** *Kristen Heyer:* I don't know if the Methods Manual says which lab is doing which method, but it should include all of the methods.

Q: *Alex Fries:* Can we come up with a numeric chlorophyll *a* criteria for the Chesapeake Bay? If Virginia can do it for the James, we could do it for the whole Bay!

Q: *Jerry Frank:* What do you mean by numeric criteria?

- ***A:*** *Alex Fries:* In order to assess chlorophyll *a* throughout the whole Bay and status of chlorophyll *a* as an indicator, could we come up with thresholds, targets, or criteria? Something that we can say for the whole Bay. We could use criteria or thresholds to understand what's happening.

Comment: *Peter Tango:* For CBP purposes, we'd use chlorophyll *a* for trends and analysis. We also use it in the application of the Bay model when combined with other parameters. We have numeric criteria in the James and in DC waters. Maryland has the narrative that's in the EPA publication. I think they have quantitative elements, like a certain concentration that shouldn't be exceeded. A lot of that falls under the 303d listing purposes. There has been work by USGS and NOAA, where they used elements of chlorophyll summarized over the water body and looked at that relative to impacts to come up with a satellite-based assessment. We could then ask what the satellite is using to make its assessment and calibrate. I don't know if they are separating the fluorometric and spectrophotometric. For trend analysis, I'm assuming we are using both since they are both tier 3. For regulatory purposes, it sounds like there is state use of both methods. I'd want confirmation on that. For future criteria development, I'd want to know if the satellite is using them equally or separating the calibration.

Comment (from chat): *Alex Fries:* https://www.potomacriver.org/wp-content/uploads/2016/02/ICP16-1_Buchanan.pdf

Q: *Alex Fries:* Who is doing the trend analysis at the Bay Program?

- ***A:*** *Peter Tango:* Rebecca Murphy and Qian Zhang. Rebecca has been instrumental on the tidal side.

Comment: *Alex Fries:* I feel like this conversation has been super helpful to understand what's going on and learning that labs are doing both methods and have similar results in the split samples.

Comment: *Kristen Heyer:* I put the data analysis tracking system (DAITS) document in the chat. There are 49 data analysis comparison studies from when we switched methods or labs. I know there are two that Mike and I didn't get in this DAITS system before he retired. We had DAITS #50 and 51. We did comparison studies that looked at freezing versus refrigerated samples. When we sampled on Fridays, we were unable to run them the next day. Is there someone I should work with? I have the files which were from Bill Romano. This is a good reference for people who want to see how and why some changes have come about.

- ***Comment (from chat):*** *Kristen Heyer:* https://www.chesapeakebay.net/what/publications/data-analysis-issues-tracking-system-daits
- ***Response:*** *Jerry Frank:* It looks like 037 is chlorophyll method comparison from 1999.
- ***Response:*** *Kristen Heyer:* In 046, it looked like you had been doing fluorometric and switched.
- ***Response:*** *Jerry Frank:* Yes, we took over the spectrophotometer in 2009.

Comment (from chat): *Peter Tango:* Mary - did Mike let you know about DAITS? We might need to invite him for pizza some lunch time for chat about DAITS

- ***Response (from chat):*** *Mary Stack:* Peter - We did not go over DAITS. Pizza and a chat sounds like a good idea!

X. Adjourn

Next Meeting: ***Summer 2026***

Attendees:

- Abby Ethridge, ODU
- Alex Fries, UMCES
- Allison Welch, CRC
- Andrew Keppel, MD DNR
- Becky Monahan, MDE
- Bruce Naylor, PA DEP
- Carl Friedrichs, VIMS
- Cassia Pianca, VIMS
- Cindy Johnson, VA DEQ
- Dave Parrish, VIMS
- Durga Ghosh, USGS
- Ellyn Campbell, SRBC
- Emily Young, ICPRB
- Gabriel Duran, CRC
- Heather Wright, ODU
- Ian McMullen, DNREC
- Jaclyn Mantell, UMCES
- James Shallenberger, SRBC
- Jake Kilczewski, MDH
- Jay Armstrong, VA DCLS
- Jerry Frank, UMCES
- Kristen Heyer, MD DNR
- Lara Johnson, MDH
- Liz Chudoba, ACB
- Mary Stack, ICPRB
- Meighan Wisswell, VA DEQ
- Meg Maddox, UMCES
- Peter Tango, USGS

- Rachel Terracina, SERC
- Samira Azemati, MDH
- Sidney Anderson, UMCES
- Suzanne Doughten, ODU
- Tammy Domanski, AACC
- Tish Robertson, VA DEQ
- Tracee Cain, DNREC
- Tyler Shenk, SRBC