Data Integrity Workgroup Quarterly Meeting

Friday, June 17th, 2022
10:00 AM – 12:50 PM

Meeting Materials: Link
This meeting was recorded for internal use to assure the accuracy of meeting notes.

Actions

- ✓ Amy schedule a lab only meeting for early fall
- ✓ Anyone interested in helping Durga with field audits let her know (dghosh@chesapeakebay.net)
- ✓ Tammy Domanski connect with Durga Ghosh, Suzanne Doughten, Jerry Frank, and Jay Armstrong to find relevant lab to visit
- ✓ Durga Ghosh, Liz Chudoba, Mike Mallonee, and Becky Monahan will work together and with anyone else interested to draw up clearer guidelines and standards for Tier 1 and Tier 2 community-based data.

Minutes

10:00-10:10 Introductions & Announcements **All**

Carol Cain is sitting in for Renee Karrh and works under her at Maryland Department of Natural Resources (MD DNR).

10:10-10:30 Monitoring and Laboratory Analysis Updates **All**

Kristen Heyer (MD DNR) said they've still been having staffing issues but they hired seasonal staff and are getting back on track to getting everything deployed in a timely fashion. Everyone is tired. Some of the quality assurance and quality control (QA/QC) is delayed because they're trying to get field work done. Some instrumentation went out a little later, but they are keeping up with most of their routine Bay program work.

Cindy Johnson (VA DEQ) said in Virginia they had two regional offices that had vessels down, one still hasn't been repaired and has been down since May. Cindy said it wasn't expected to be repaired until August. Two regions have lost several personnel to retirement but are working on hiring replacements.

Betty Neikirk (VIMS) said they're good and things are moving along.

Jay Armstrong (DCLS) said they had new hires, are doing well and keeping up as best they can.

Kyle Kessler (SRBC) said that Susquehanna River Basin Commission had no changes and no hiccups.

Tammy Domanski (AACC) said that Anne Arundel Community College is a small lab trying to move into the field of doing nutrient analysis. When they decided to get into this, they wanted to find out what their limitations were and how they could improve how they do things moving forward. However, this requires a huge investment and equipment. They are looking for advice and would like to do site visits to see larger labs' workflows and equipment. Vendors have stuff they want to sell to them, but it's

expensive, so they want to visit more established labs and get advice before moving forward and investing in that.

The lab is at Anne Arundel Community College Environmental Center, just 4 miles from the Bay Bridge. Tammy said she'll go anywhere in the state and take a day to do so and is even willing to go out of state to do a lab tour. Jerry Frank said that Tammy is welcome to come to Chesapeake Biological Laboratory (CBL) any time.

Cindy Johnson said that Suzanne Doughten, Jerry Frank and Jay Armstrong are great contacts, and that Tammy can work with Durga for analysis questions or Bay program requirements. There is a manual the Bay Program put out that details what the program requirements are for any Bay program partners in the field and in the lab and this is available on the website (link to manual here).

Suzanne Doughten commented that Lachat (a flow injection analysis system) will be discontinued in a few years. Suzanne suggested discussing what everyone is thinking of moving to instead of Lachat. Old Dominion University (ODU) has not decided yet.

Jerry Frank asked if the analytical labs be interested in having a lab only meeting twice a year to talk about issues such as what Suzanne brought up and take a deep dive into analytical issues. Jay Armstrong responded, that's a great idea. Suzanne said that would work. Keri Maull (DNREC) said that sounds awesome, and also offered to connect with Tammy about a lab visit.

Doug Moyer asked what constituents are impacted from the switch from Lachat? Suzanne responded that most dissolved nutrients are impacted, nitrogen, phosphorus, including Total Dissolved Phosphorous (TDP), Total Dissolved Nitrogen (TDN), nitrate, nitrite, phosphate, ammonia and silica. Every time they switch instruments, they get with the Data Integrity Workgroup and do a comparison study. Doug asked, what is that transition process in order to understand if there is any shift in data composition and analysis?

Suzanne said that Heather Wright did the comparison study. They did 100 or so samples throughout the year and froze them, and selected ones of all different time periods and concentrations for all of the analyses. Jerry Frank said that a formal documented process was developed by AMQAW (the former name of the Data Integrity Workgroup) for doing exactly this. Jay commented that it calls for a 100 sample parallel study and doing it over the entire year is not always feasible. Suzanne clarified that they didn't do it over the entire year, they just froze samples. Doug asked how it's documented, if there are publications that come out of that? Suzanne said that they presented it and gave it to the Data Integrity Workgroup. Keri Maull said there is a Data Analysis Issues Tracking System (DAITS). There are documents whenever they have these comparison studies. There used to be a place where you could search the different data analysis issues and read the report on what was decided and how things have changed. Kristen Hyer provided the link to DAITS and added that she thinks she has at least two more documents that are not included here (comparisons of frozen versus acidification versus iced dissolved parameters).

Peter commented in the chat that DAITs was the place he understood as documenting issues and their review and resolution, and he would expect the new lab instrumentation comparison issue and report would have its home here when complete. This should be a resource for all analysts looking for factoring in consideration for lab related changes into our assessment of condition changes in the results.

Jay commented that the formal documented process for shifts in data analysis is in the 2017 quality manual. There's a form along with the change tracking form. The form they fill out and send through the Bay Program is a summary of what they see when they do the parallel studies. When they do the parallel studies, they also do lab control samples, spikes, duplicates, calibration verification, everything done in routine runs. They look to see everything done by the new technology is acceptable and meeting the requirements of what's laid out in the quality manual. They do the parallel studies and document a trend or bias because when switching technology it's rare to not see a difference just because of the age of what is being compared. For example, Lachats at ODU have probably been in service for 12 years. The studies help to determine if the changes are significant or not and how they'll be handled. There is limited instrumentation to do what they're trying to do with this type of work.

Doug commented that helps knowing results of the study because they're trying to detect changes or trends in constituents across watershed and tidal waters. When they start to see a trend, people say, is it environmental or related to a lab change. It is good to know what's happening and tease apart any shift in trends that might be related to a lab change.

Suzanne said when they do them, Mike Lane does an in-depth statistical analysis of every one of them and comes up with any correction factors.

Cindy Stevenson commented that they have been stocking up on Lachat parts in order to extend their life. A lot of theirs aren't that old, they were the series twos. They do have someone coming from FIAlab this summer to show their new instruments. Cindy asked if there is an SOP that lays out the criteria for a comparison study for when they do start to make a change?

Jay Armstrong replied that the manual that Cindy Johnson was referring to has 2-3 pages dedicated to that, and also has an outline for how to set up a form for moving that information forward. The form guides you through the process.

Cindy Stevenson added that she is now the manager at MDH and Lara Phillips is the new supervisor of inorganics. Cindy then gave an update for MDH. Things are going well at MDH. They did have a network incident and lost their internet for 6 months. That's back up and running now. They were able to continue operations as normal during whole time. They haven't been hit hard by covid and most people are vaccinated. Their people were also drafted to help with metadata, triage, receiving samples and other parts of the covid testing operations in 2020. However, that has leveled off and people aren't being drafted anymore.

Durga commented that Amy will help find a time for the lab only meeting. Durga also said to Suzanne that she has the ODU report that Durga sent and will put the link in the chat for the report so everyone can see it, or email it later.

Pam Higgins gave the update for Pennsylvania Department of Environmental Protection (PA DEP). Like a lot of labs, they're having supply chain issues. Particularly, a helium shortage is putting a dent in organic analyses. Moving forward they're going to try to switch to hydrogen generators but so are a lot of other people so there are backlogs in supplying them. They have to ration helium as they get it since they're only getting 35% of the helium requested. That's been a strain on their analysis of organics. Nutrients have been fine. They've also had some setbacks with disposable supplies. They've run into some problems with Lachats with not being able to run EPA methods exactly the way they're written and get

results on the Lachat, particularly on sulfate. For those thinking of switching instrumentation, they use OI analytical and also ion chromatography units on occasion to do nutrient testing. If anyone's looking to switch over to any of those because of Lachat, they can provide assistance and insights from our instrumentation as well.

Jay said that for those still using Lachat, they ran into a problem getting tubing, it's backordered quite a bit. They're looking at getting it from a company called Easy Kim. Another one that can get some of the tubing is sap science. Jerry said that they've gone to SCP science for numerous things over the years. They're easy to work with. Jerry offered to share his contact there.

There was nobody on the call from West Virginia so no update from West Virginia was provided.

Doug asked about field audits and where they stand on the process. It might be good to communicate with this group and the Nontidal Network Workgroup the timing of audits, when were last audits performed, who did them, and how the re-implementation of the field auditing process will happen.

Durga said that now would be the time to start back up on field audits and Durga has one slated for August for a citizen monitoring group. However, this is the only audit scheduled. The last audit was 2020. At this point, looking to restart the entire loop and starting in August Durga will add to the list for field audits. She will reach out to individual agencies and see what availability they have. Durga is looking for volunteers to help with the field audits.

Doug said that it's good to get all the Nontidal Network (NTN) elected agencies on schedule to get everyone on the same page and see how they can help audit each other. Many of the different jurisdictions are helping with that audit. It would be good to bring this topic to NTN Workgroup to see what resources may come up for helping on NTN side for completing those field audits. Peter agreed.

Cindy said that in VA they just audited their valley regional office and they have two more audits scheduled.

10:30-11:00 Updates on PSC Monitoring Program Review Tango & Goldfischer

Peter Tango gave a brief update on the Principals' Staff Committee (PSC) Monitoring Review. In March 2021 the PSC requested a review of monitoring programs recognizing diminishing capacity over the past decade due to level funding while costs increase. Over 9 months the review team captured the various issues and made it into a report, which was distributed to the community for review. They know that EPA has $1.5 million to distribute across program needs. Lee McDonnell has been meeting with different groups and letting people know that he wants to sustain what is in place. Since the review team finished the report there are new issues that have become apparent – especially the rapid increase in inflation. The report will be available once the USGS review is finalized, which is expected to be in mid-July. Peter added to note you won't see inflation in there because it was developed prior to that becoming such an issue; however, right now they're in hourly to daily discussions on how to address those challenges.

11:00–11:25 Citizen Monitoring Updates Liz Chudoba

Liz Chudoba gave the update for citizen monitoring. Liz announced that Alex Fries is back so hopefully you'll see her on future meetings. Liz also introduced Matthew Kierce, who is with the Izaak Walton

League of America and is the new Chesapeake Monitoring Cooperative (CMC) project coordinator taking over from Emily Bialowas.

Liz said that Blue Water Baltimore (BWB) and Maryland Department of Environment (MDE) shellfish 2022 Quality Assurance Project Plans (QAPPs) have been approved and finalized (they are both Tier 3 QAPPs). Nanticoke is working on comments from Durga and hopes to have those back by end of month and be able to approve that QAPP for 2022. Arundel Rivers Federation is working on updating their QAPP. They've had 100% staff turnover for their monitoring program. They should get their QAPP submitted by end of month. They're the group that is being field audited in August. They want to make sure there is someone willing and able to do that in August so they can keep the ball rolling and make sure to keep their status for the 2022 season. Liz said that CMC has all of their Tier 3 data into the data explorer for 2021. They will be making the upload into the Data Upload and Evaluation Tool (DUET) by early July at the latest.

Liz added that there is a gap with community-based monitoring in certification. She said maybe she needs more clarity on what Bay program approved means versus what certified lab means and who needs what kind of certification for the data to be used. Since a lot of the CMC's monitoring groups use data beyond the Bay program and want the agencies to use their data it seems there are different certification standards across the different states which makes it hard to connect community collected data. They had an issue with a community based IDEX bacteria lab in DC which was trying to get some kind of certification. This is perhaps a topic for a future call.

Cindy said that in Virginia they have a statute that any data used for assessment or regulatory purposes the analytical entity must be VLAP certified which is the VA program for certification and its run through DCLS. Liz responded that they appreciate that and that makes VA easy for them. It's other jurisdictions that don't have those requirements that make it tricky.

Durga commented that it's complicated. Not only are they faced with jurisdictional issues that they've had longstanding certification issues across state borders, but that they have tier level data that CMC collects. They can't really bin them discretely. They're very clear when it comes to Tier 3 data, they don't deviate from the guidelines. For the issue with IDEX, DC had a problem but they were not very clear. They've had issues where it's hard to understand where they're coming form. They want a certification but don't know who they want it from. They're clear about what they want for Tier 3 data. In terms of Tier 1 and 2 data Durga said they can have this conversation offline and come up with a matrix of what they're looking for and what CMC can provide them and try to find a middle ground. As far as states are concerned, not sure what they can do. They've struggled with DC.

Becky Monahan commented that she's happy to continue these conversations with Durga and Liz.

Liz said that the challenge is Tier 1 and Tier 2 community-based data, which have ambiguous or no standards, different from Tier 3 data which has very clear standards. Durga said that they can also have Mike's viewpoint from data perspective and how he would like to see it in DUET. It's time they revisited and draw up a set of guidelines just like they do for the Tier 3 data. Durga said she'd like to have this discussion earlier than fall lab discussion but that would also be a good place for folks to join in and give your perspective.

Jerry Frank had a question regarding PSC report - who was solicited for feedback? He was particularly concerned about lab costs and how those would factor in. Were labs given a chance to provide feedback?

Peter responded that there was a request for feedback sent out to 150 folks and an opportunity for them to share with anyone they felt necessary to provide feedback. He said that he hopes they've acknowledged the rising costs as part of the big picture of what each state agency provided to the review team in terms of their overall programming. There may not be specific line items for lab costs but they do have the broader summary picture.

Renee Karrh commented in the chat that they do include estimates of increases in lab costs each year in the overall program costs provided to the CBP team.

Jerry said that they have seen a 300% increase in the cost of some of their consumables, and complete unavailability of others which involves extending a lot of resources to change how they do things. MD had a mandated salary increase and even phased in over a year it constitutes a 5% increase in costs. Labor is the most expensive part of what they do.

Peter responded that discussions are continuing to acknowledge and refine things given changing conditions and new information.

11:25-11:30 Break

11:30- 12:00 Coordinated Split Sample Program Mallonee

Mike Mallonee (ICPRB) went over the Coordinated Split Sample Program, with the Mainstem Split Sample from February 2021 to 2022, and Tributary Split Sample from March 2021 to March 2022.

Jerry Frank commented on chlorophyll a, and added he was speaking to Mike and the field crew on this. It looked bad and he chased all the leads, but found nothing conclusive that led him to legitimately reject any of the values; it just had a high variable.

Mike said if that 10.04 value if the volume was off by a half that would brought it down to 5 and put it right in line but that wasn't the case. Jerry said there's no way to know for sure if that was the case. Everything on the paperwork was correct, the path matched the paperwork, there were no notations. The closest stations had higher values than normal for that cruise. There was nothing conclusive that would allow him to reject any of those numbers.

Kristen mentioned to Jerry that in latest split for June they did see some floating plant in there. If that was occurring in March, maybe one of the samples had an extra piece of something in it. When Kristen spoke to the person who processes it, she was thinking they may have collected this sample off the docks. Kristen looked back at their Potomac sampling and realized that they actually sampled the following day because the weather was bad and it was too windy to go out on the boat. Maybe they got the sample right off blue plains or something and maybe that caused some variability. She hadn't yet had the final follow up on that with the person who processes the sample.

Mike commented that for these last few for the Tributary Split Sample (after and including TDP) he has spoken with Dongmei Alvi about elevated values. She indicated a possible glassware contamination. They are going to rerun samples and get back to me if there are changes.

12:00-12:20 Blind Audits **Frank**

Jerry said that they've now received all results from the participant labs for fall 2021 round. Results from spring 2022 round have started coming in, 3-4 labs submitted results so far. Next round (fall round) will go out in September. CBL has a local high school student working with them this summer in an intern capacity. She voiced interest in basic statistics. Jerry may have her work with some of the long-term data from the core labs and see if they can find something interesting.

12:20-12:40 USGS Reference Samples **Goldfischer**

Amy Goldfischer presented the USGS Standard Reference Samples (SRS).

Durga Ghosh explained how the USGS Standard Reference Samples work. The data is from the USGS SRS website. The Reported Values (RV) that are provided by the labs are grouped together and a mean is determined, which we call the Most Probable Value (MPV). The difference from the Most Probable Value is calculated by subtracting the Reported Value from there. For the available data, the upper half and lower half of the Reported Values are determined. The Z value is the Reported Value minus the Most Probable Value divided by the F sigma which comes from the upper end lower half. It's a statistical calculation. Shown here is the variability that they see for the labs that are submitting data for this program. Those Z values are color coded to show you how much they differ. The gray is the difference between the MPV and the RP.

Jay said that USGS used to have an explanation of how they derived the statistics on their SRS website. They called it a nonparametric statistic. It's actually the median value, not the mean, it comes from lining up all the labs and the lab in the middle is the most probable value. If you look at the different graphs, you'll see that the populations of labs supplying data for this is not that big, maybe 20 labs total. 5 or 6 of those labs all reported less than because the sample was below their reporting limits. Here is the link to the explanation on how the statistics for the USGS SRS are derived.

Durga responded that yes, they do still have that. They also have 5-year data plotted separately and explain how they go about it.

12:40-12:45 Website Feedback **All**

12:45-12:50 Topics for Next DI Meeting **All**

The next meeting will be in September or October. If anyone has any topics, let Cindy, Durga or Amy know. Cindy asked the group for opinions on staying virtual or having one in person meeting a year.

Carl Friedrichs said that covid has made it easier for him, being in southern VA, to be involved in CBP workgroups. The majority of meetings have been in Annapolis historically which is hard to get to regularly from southern VA. Having the meetings virtually has evened the playing field for people from ODU and VIMS relative to people from DNR and UMCES and the CBPO. Virtual meetings also reduce their carbon footprint. Carl said he does also recognize that in person meetings are nice to meet each other. He added one in person meeting a year could be ok but he would strongly be in favor of the majority of the meetings remain virtual so there is equal access to the meetings.

12:50 Adjourn

Participants:

Amy Goldfischer (CRC), Betty Neikirk (VIMS), Cindy Johnson (VADEQ), Elizabeth Ward (ODU), Jerry Frank (CBL), Kevin Minga (ODU), Lara Phillips (MD DNR), Heather Wright (ODU), Jay Armstrong (VA DCLS), Cynthia Stevenson (MDH), Suzanne Doughten (ODU), Durga Ghosh (USGS), In Ji (MD DNR), Matthew Kierce (IZWLA), Carl Friedrichs (VIMS), Carol Cain (MD DNR), Jaclyn Mantell (CBL), Keri Maull (DNREC), Mike Mallonee (ICPRB), Doug Moyer (USGS), M. Gitter (UMCES), Pamela Higgins (PA DEP), Peter Tango (USGS), Kristen Heyer (MD DNR), Nathan Miller (UMCES), Renee Karrh (MD DNR), Kathy Knowles (DNREC), Liz Chudoba (Alliance for the Chesapeake Bay), Becky Monahan (MD DNR), Tammy Domanski (AACC), Taylor Hughes (PA DEP), Melinda Cutler (MD DNR), Meighan Wisswell (VA DEQ), Kyle Kessler (SRBC)