Nontidal Network Workgroup Monthly meeting

Wednesday, July 20th, 2022
1:00 PM – 2:30 PM

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

ACTIONS

- ✓ Kristen Heyer, Doug Moyer and Peter Tango will discuss how best to approach the issue of one of MD DNR's monitoring sites being inaccessible for a period of time.
- ✓ At the August 2022 meeting Chris Mason will present on the loads and trends for the Nontidal Network through WY2020, which he is completing and will be available soon.
- ✓ Durga Ghosh will connect Mark Brickman with other groups and people who are having similar supply chain issues for monitoring and lab supplies to work together to find cost effective solutions.
- ✓ Matt Cashman will follow up to find out who the Maryland USGS representative to attend the NTN call should be.
- ✓ All agencies will submit their available dates for field audits on here, and anyone with interest in volunteering to help with field audits please also put your information on there or email Durga (dghosh@chesapeakebay.net)

MINUTES

1:00 PM **Welcome and Announcements** – *Peter Tango (USGS)*

- PSC Monitoring Report and Funding updates – network maintenance (Including Conococheague Creek), nontidal monitoring growth, brief insights on collaborator reports and publishing with USGS – Peter Tango, Mark Nardi

Peter thanked everyone for their contributions to discussions building the PSC Monitoring Report and feedback on the findings and recommendations. Most of what the team put as line items for funding needs is receiving favorable support, not just for established grants but for new work as well. The findings of the report were presented to the Management Board and the Principals' Staff Committee, and the report is currently undergoing USGS review. There has been some restructuring requested due to the USGS requirements for a USGS collaborator report (the category of report that the PSC Monitoring Report is classified under) by the Bureau Approving Officials (BAO). They have specific requirements especially in regards to reports that contain management recommendations, and reports authored by multiple agencies. The USGS frequently contributes to the CBP's Scientific Technical Advisory Committee (STAC) reports, which often mesh science with research findings, so there is some guidance now from the BAO that is focusing on guidelines for collaborator reports. If you think you're getting into blended

reports with funding, management and research recommendations, and with authors from different agencies, the BAO are a resource to make sure you're not in conflict with the USGS mission due to the report's content and/or structure.

- SRS updates – Breck Sullivan

The work done through this workgroup and through members' organizations is part of the workplan for the Water Quality Standards Attainment and Monitoring (WQSAM) Outcome, one of the 31 Outcomes under the Watershed Agreement. Breck reminded everyone what the Strategy Review System (SRS) is as the CBP's process of Adaptive Management. The team is working on explaining work done over the past two years, and will present to the Management Board in October, then work on what they'll do in next two years to progress on outcome. If interested in attending the September 15th Management Board Quarterly Progress Meeting (MB QPM) the calendar event is posted here. The team has already done a great job of compiling concerns related to the NTN through the PSC monitoring report.

- Report out on USGS Chesapeake Bay workshop – Ken Hyer, anyone that attended too.

Peter commented that the workshop coincided with a youth conference of young Native Americans who were focusing on climate change and solution building from their experiences as young people and as Native Americans.

1:15 PM Round Robin

- Routine and storm sampling programs status this year

- Doug Moyer: For Virginia United States Geological Survey (VA USGS) network everything is going well. We're on track with routine and storm samples. We've had a good rain distribution, and some severe flooding. The same can be said for Virginia Department of Environmental Quality (VA DEQ). Our offices are working together, USGS is helping DEQ cover staffing shortfalls, and we'll be working with DEQ to train new hires.
- Doug Chambers: For West Virginia, things are going well. We're on track with our routine and storm samples. We're one or two behind on storms but we'll have plenty of opportunities to catch up with the cruise out this week collecting storm samples.
- Lucretia Brown: For District of Columbia (DC) things have been in full swing for ambient monitoring for a year. We've managed to push through in spite of covid. With the nontidal monitoring I got a report from Bryan Banks. We've gotten all of our samples collected for the year. We'll have the final data on the USGS website. I'm working on a new grant for FY 2023; as soon as we get our budget numbers in we'll do that.
- Kristen Heyer: For Maryland (MD) we're doing fine for routine samples. For the quarter that just ended for storms we were a few samples short. Some of the sites that we had when we had all that rain we were already doing for routine sampling so those don't count as storms samples. But we've already gotten some for this quarter as well. The

only issue we have coming up is one of the bridges we use for both low flow and high flow sampling is going to be closed and they'll be putting dams around the bridge itself. When it's low enough we should be able to wade in to get our routine sample but I'm not sure if we'll be able to get any storm samples at that location. We went out a couple weeks ago to look at other bridges. I have to see how far away they are. One of them is not safe, and one will not work based on how the bridge is. The one that might work may be too far away. Do you have a recommendation on how to approach that?

- Peter: First of all, stay safe. Sounds like you're doing what we need as far as evaluating the other bridge sites.
- Kristen: Do we have guidance on how far is too far? Considering different variables such as different creeks. The site is Deer Creek up by Conowingo. And the bridge will be closed from Labor Day to Memorial Day. We've had other sites (not necessarily for NTN) when the timeline goes longer because they can't get the materials - projects are taking longer than expected. We also talked to on site engineers to see if there's a way to access it through construction, but they said no. Another group within the Department of Natural Resources (DNR) will be relocating fish due to this closure. The one wading site we have is just upstream of the bridge. I'm not sure if that will be affected. Already it has to be fairly low to safely wade. This could be a compounded problem for routine sampling.
- Doug Moyer: We've had other sites that had a one-year gap. Our River Input Monitoring (RIM) site at the Rappahannock had a gap when the cable way, which was the only way to access it, was being replaced. The key is long term. We've moved a couple temporarily in the network as well to deal with transient bridge issues.
- Peter: We'll get together on that.
- Jamie Shallenberger: For Pennsylvania (PA) our crews are out getting our samples. We've had a few areas of the basin with light rainfall but otherwise things are looking good.
- Tammy Zimmerman: For PA USGS, ditto to what Jamie said. We've had a handful of sites that localized rain isn't hitting, but we're mostly on track for the year.
- Peter: Qian Zhang (UMCES) has been working with Gary Shenk (USGS) on a new Nontidal load indicator that's better able to look at load Total Maximum Daily Load (TMDL) related outputs. Your work is increasingly being asked for to help tell the story and we have some new support from Water Quality Goal Implementation Team (WQGIT) leadership to continue to make better use of the available data. There was a comment during the Principals' Staff Committee (PSC) meeting that Delaware (DE) was feeling like their data isn't being used and isn't part of the network. I thought there were a couple of sites in DE - is there an issue with us not having proper DE representation?
- Doug Moyer: On the loads and trends we have two DE sites; the Nanticoke and Marshy Hope. One group that may not be represented on the call but should be is the MD USGS.

I'm not sure who that representative is. Mark? Alex Soroka? It would be good to have someone on the call from MD USGS.

- Matt Cashman: I agree. Let me follow that up on my end.
- Durga Ghosh: Would it be Brenda? I get updates about the Quality Assurance Project Plans (QAPPs) from her. Is she taking over from Joel/Mark?
- Peter: Mark's been coordinating on the awards side. Alex took over the RIM assessment. We'll sort that out.
- Doug Moyer: I'd like to have an update on the loads and trends status. Chris Mason (USGS) has presented to this group on the RIM loads and trends; he's responsible for the VA USGS portion of network, and for running the entire network loads and trends. We're about to release the latest loads and trends for the entire NTN network for the period through 2020. It's in the final approval process. It would be good to share these results to the next NTN WG meeting or at least before the end of September (before a WQGIT meeting). The data will be on the USGS webpage where you can download specific station results, and we'll be updating the Nontidal Dashboard, working with EPA and CBP. We've also updated the story map that allows you to navigate the results by filters such as by state, by basin, by status of station. Chris Mason collaborated with James Colgin (PA USGS) and Mike Mallonee, who gets the data from providers.
- Peter: Aiming for August presentation of the loads and trends is great and syncs up with our efforts in SRS for WQSAM since reporting on monitoring results is an important part of our narrative analysis. Can you confirm the number of stations? We'd been talking about 123 stations but Mike said there are 125.
- Doug Moyer: We started with 125 but two have been discontinued according to our notes. Mike, let's confirm those numbers.
- Mike Mallonee: The events log totals for the last 2 water years (listed by station, data provider and event type for routine storm samples) is posted to the meeting web page. I'm working on WY19 now.
- Doug Moyer: Because of how long it's taken we're less than a year away from starting the next NTN runs, the 2022 runs. Those are the data that are being collected now, delivered to Mike next few months and going through QA. The process for those starts next June or July. Those data are being used and incorporated into indicators.
- Mike: I sent the WY2021 set. The WY2022 data won't be submitted until next April with the goal of getting it to you guys by June or July.
- Doug Moyer: You mentioned a summary. When those 2021 or 2022 results come out, could we have a report generated to provide to data providers here to say do we have the right number of sites and samples represented? A concern came up in the last round of analyses of whether some of the historical or current data were transmitted or provided to James Colgin and to Chris. Might be good check and balance to get providers involved to confirm that the sample count and number of stations is correct. If

there's any Quality Assurance (QA) coming out of the Data Upload Entry Tool (DUET) at that time any flagging of samples from the providers would be good.

- Mike: These summary reports are there for the data providers to confirm what they entered is correct. I remember it might have been 2017 or 2018 when Cindy looked at the summary reports and realized she missed submitting one of her stations because something in the coding was off, so we uploaded those separately to get the complete set in there. I'll send the 2018-2021 files to this group this afternoon.
- Peter: Out of the PSC report findings Lee McDonnell is looking at us going through station by station in the network, understanding the funding that supports everything and looking for ways to improve efficiencies or for opportunities to align funding available. Lee's trying to get a picture of the "NTN spaghetti" that it takes to support the network from various contributions. If we defend a particular site for its needs, we want to track exactly what's being reported on.

1:45 PM **Prioritization criteria/Recommendations for Network Edits**

  - Decision criteria for ranking stations
  - Report out - which station would you cut if you needed to?
  - Which filters you'd like to see applied for the network optimization first run? (Future topic: Comparing network wide analysis results with state priorities)

- Peter: Not to view this as impending doom, but what could happen in the event support is lacking in a particular area; these are not imminent decisions necessarily. Matt and Qian have been champions of the prioritization effort. The programing is available, just awaiting input from us on which criteria we want to guide network level prioritization. Within the jurisdictions, you all want to have a sense of what your priorities are locally. Taking those criteria to rank the stations and putting them into a network wide assessment will allow us more power to see any redundancies. We're not yet in a crisis decision mode. Doug Chambers provided a summary of prioritizing and some filters he used: the importance of the historical sites and those with the longest data records were of highest priority and value to WV, with newer sites having a second tier priority level. There's one case of nested sites that would, looking at the overall picture, could be a place to cut if we need to reduce the network in WV. Other filters included what their BMP implementation status was, whether a signal was anticipated or not, and the geography and geology of areas, such as karst geology vs other types of geology which have differing levels of nutrient absorption into the groundwater. Appalachian plateau geography is not well represented from the West Virginia portfolio, and it's important to represent so that's a higher priority to retain those sites as opposed to sites with greater geographical representation in the network. Thank you to Doug for thinking through these filters you'd like to include.
- Doug Moyer: The table I sent is what Cindy Johnson and I use to routinely evaluate the network if we have funding issues. This is how we rank the stations. We include the

geologic setting, the size of the basin, is it nested, and things of that nature. It's hard to pick the one you would lose the first or which would stay to the very end. Longevity is important, the RIM stations are the most important in Virginia, unique land and basin types are also important. Of the lowest priority are the shorter-term records and nested stations. If we have two stations in a smaller basin it's giving us good information but we'd rather cut one and go back to one for the basin than lose an entire basin altogether. In the spreadsheet 3 means first to be cut. 1 means the highest priority (RIM stations), and 2 is in the middle if it gets really bad. We have three number 3s that would be the first to cut in VA if we came up on the short end of the funding side.

- Matt Cashman: I was curious thinking about it from the code and script side, when you talk about unique land or basin types, what would those be? Or any more information that would be unique considerations? That would be helpful.
- Doug Moyer: We can put it in context of the evolution of the network. At time of the Monitoring Realignment Action Team (MRAT) process, under-represented watersheds at the time were small urban watersheds and coastal plain. Anything that could be done to add on urban or coastal plain, especially in VA we had hardly anything on the Western coastal plain. Funds were channeled to these places to bring those representations in. Large forested catchments dominate the watershed so small agricultural and small urban watersheds were unique and provided specific information for more homogenous basins.
- Peter: Yes. High impervious areas were poorly represented, and the coastal plain which modeling community wanted more information from. Across the jurisdictions, let's try to get some consensus on 5-6 filters we should apply.
- Tammy Zimmerman: Susquehanna River Basin (SRBC), Pennsylvania Department of Environmental Protection (PA DEP) and USGS met and we talked about prioritization of the nontidal network sites in PA. We didn't go through the entire list of all the sites and prioritize them, but we talked about some of the same things like if it's a small watershed (10 square miles or smaller), that might be high priority for keeping. And if you had a small watershed and single land use or mostly single land use that might be additional grounds to keep that within the network. We did come up with two sites that we would consider reducing if it came to that: similar to what others said, one is in a nested watershed. We have the Conewago Creek watershed where we have two sites close to each other so we would keep the downstream site if we had to cut one or the other.
- Mark Brickman: Similar to what VA just discussed. One of our focuses for our WQNs is looking at smaller watersheds. We lack the 5 square mile and less watersheds for our water quality networks so that might be beneficial to look at. My input for the nontidal network is to keep some of those smaller watersheds.
- Lucretia Brown: For DC, we have not discussed getting rid of any of the sites, we only have 3. Because we have expanded the use of those sites in order to help with our MS4

monitoring we're hoping to keep all of the sites. In the event push comes to shove about financing those sites that's something we can consider on our end in order to prevent losing a site so we're not completely closed down as it relates to additional funding to support the information we're getting.

- Peter: I don't have an accounting of whether our NTN sites are used in the same way elsewhere as far as leveraging additional constituents like DC's are, so that's important.
- Lucretia: Right now we're adding an additional $124,000/year to get those additional parameters monitored as part of our MS4 program. We're trying to keep all of our sites, at least for now.
- Peter: Yes. This helps us plan forward. That's another filter to think about the connectivity to other constituents monitored for complimentary reasons.
- Kristen Heyer: For Maryland, we started the process but need to go back through and evaluate. I have a different perspective on things being more field related and safety related rather than the bigger picture of longevity of sites. We have one site that when the flow is low can be tidally influenced so that's a problem. It makes it a little more difficult to manage. We need to look back into all the sites and do a good ranking on them.
- Tom Parham: The filters everyone else has mentioned are being considered. We have other factors like tidally influenced sites and safety. Apologies for not getting the ranking done.
- Peter: We can talk if those layers are already in the assessment framework from Qian and Matt or if those would need to be built in.
- Matt: Those filters talked about should be relatively easy to implement. There might be one or two that don't fit within the framework we have.
- Qian Zhang: I agree with Matt. We can follow up if people have additional feedback after the meeting. Maybe we could have another update at the next meeting or just shared over email.
- Doug Moyer: You see the list from the states and how they would approach resolving shortfalls. Then there's the investment in the network optimization tool. Are any of these pieces of information applied? If there's an issue in a particular state are we going to the optimization tool, or are we using the prioritization within that state to resolve shortfalls within that jurisdiction? How do we implement this information?
- Peter: The initial help from the network wide assessment to look at with the statewide assessments is if we have an output from network wide assessment that's able to help us refine comparability in terms of redundancies, if they're all the same landscape type at small watershed scales, if nesting is an issue, can we still see reasons why if there's a unique geography or geology the station can be maintained. The network wide assessment combined with the state specific assessment helps us with the bigger picture of the network. We could write a decision tree for how we're going to do that.

- Doug: It would be good if we say we have redundancy and VA has 3 sites and there is potential to remove redundancy, how can we find other locations in VA to take some of those lower priority sites and maybe channel the funds to find basins in VA that check a different box, or help the model, instead of saying there's a shortfall in this jurisdiction and we'll look to another jurisdictions to liberate funds that will get channeled across state lines. Each of the jurisdictions here have dependencies on the network within whatever we can depend on, and we have resources channeled to operating this network. It would be good to involve states in those discussions as programmatic shortfalls occur.
- Peter: I agree. We've talked about maintaining the integrity of what we have, we haven't talked about are there places we should be moving to and reinvesting to. I'm open to future discussions on that.
- Qian: Is there a list of stations that were previously monitored but have been stopped due to funding issues? Is there any value to re-instate the funding to those stations?
- Peter: Around 2011-2012 there were 4 stations we eliminated. We can consider that.

Introduction of Kaylyn Gootman:

- Kaylyn Gootman is new to the EPA and CBPO and will be part of the monitoring team. Kaylyn finished her post-doc at West Virginia University. Her research work was in the Eastern Panhandle, the headwaters of the Chesapeake Bay, and she's always been interested in the NTN, data availability and articles coming out of different agencies.

2:15 PM Field Audits – Durga Ghosh, Doug Moyer and Peter Tango (USGS)

  - What resources do we have through Nontidal Network for completing field audits? How can we help audit each other?

- Durga: A critical portion of the work is QA. We have not had audits for about two years now with Covid. I did go out before that with some of the citizen monitoring groups. Since then we haven't had anything. I wanted to highlight that we need to get back on track with it. Going forward for the next fiscal year I was hoping to get all of you back on the list. In the past we've had assistance from the USGS offices and centers providing help to do the audits. Amy will send out a spreadsheet listing the agencies; please input your contact information and some potential dates that would work for you, we can come up with a plan. I was hoping I could get some volunteers to help me out with the audits. Please also let me know if you're interested in helping with the audits of our network. I'm hoping to get an audit done in August, then a couple each month until December, then take a break until spring.
- Peter: The audit process is something we depend on for the integrity of the program and the data.
- Doug Moyer: It is essential that we have the field audits. The assumption that we are completely consistent across the nontidal network in how we collect samples and

analyze at the lab, and that the only difference between load and trend results is environmentally based. We want to keep it that way and the only way to ascertain that is through auditing to see if any differences have crept in. Through last round of audits we detected some differences locality to locality and those are corrected where necessary. Some differences may not change the quality of the data. It's important feedback. It's also a natural function of the USGS since we have to audit each other and do a lot of QA. Having that understanding of how to collect the sample is essential. It would be good to have the jurisdiction being audit, turn around and audit another group. For example, if I'm giving the audit have MD DNR come and audit USGS. The goal is to see are you doing anything different than I am. It's surprising how subtle the differences are but they may make a big difference in some of the results we have. If you're familiar with collecting these samples it would be good if you have a list of individuals willing to come watch another team collect samples and ask questions.

- Durga: For people wanting to volunteer to help, we want you to be familiar with USGS methods for nontidal sample methods, but anyone who is interested is able to come along because it's good to train new samplers.
- Kaylyn Gootman and Breck Sullivan expressed interested in helping with field audits.
- Peter: There is interest from the new director, Kandis Boyd, in seeing what happens at the nontidal and tidal side and see our monitoring program in action.
- Tammy: It's an important part of the program. Doug brought up that within USGS we have our own review procedures. If there's any way we could piggyback on the reviews we already have internally that would be helpful – could we combine audits? I know what the review schedule is for this year for the PA water science center for internal reviews. That would be helpful to piggyback on that effort.
- Durga: Yes. Please send me the dates and we'll work around those.
- Mark Brickman: One of the things that comes to mind is we've run into supply chain issues with some of the supplies we buy for USGS for the nontidal and WQN sampling. I was curious where others are purchasing supplies and what other groups use for supplies and are there any cost savings we could look at. Our purchasing is typically through VWR; I know USGS has their own supply house. One of the items we purchase, the groundwater filter that we use for our dissolved constituents, has significantly increased in price. Now it's $60/piece or more.
- Peter: Please follow up with Mark over email if you have cost-effective sources.
- Durga: I'll put in a plug for the Data Integrity Workgroup (DIWG). We decided some of these issues can be discussed there, and the next meeting will potentially in September. I can connect you with other groups in the same boat with supply chain issues. I will send out an email to NTN as well in case you're not on the list. We've decided to have an afternoon session for the DIWG for issues such as this specifically. I'll make sure that gets out to you.

- Peter: In August we'll hear the NTN loads and trends, and follow up on the filter work for the network optimization.

2:30 PM Adjourn

Participants:

Amy Goldfischer (CRC), Jamie Shallenberger (SRBC), Mark Brickner (PA DEP), Nick Murray (WV DEP), Lucretia Brown (DC DOEE), Doug Moyer (USGS), Tyler Shenk (USGS), Breck Sullivan (USGS), Chris Mason (USGS), Doug Chambers (USGS), Durga Ghosh (USGS), Kristen Heyer (MDNR), Matthew Cashman (USGS), Tammy Zimmerman (USGS), Mike Mallonee (ICPRB), Peter Tango (USGS), Ellyn Campbell (SRBC), Tom Parham (MD DNR), Qian Zhang (UMCES), Kaylyn Gootman (EPA)