



Non-Tidal Network Meeting

Wednesday, July 21, 2021

1:00 PM – 2:15 PM

Meeting Link*: <https://umces.webex.com/umces/j.php?MTID=me37a330e8785daaa6870d724d9374bbc>

Meeting Number: 120 064 4701

Password: NTNWG

Conference Line: +1-408-418-9388 Access Code: 120 064 4701

Meeting Materials:

https://www.chesapeakebay.net/what/event/nontidal_network_workgroup_july_2021_meeting

*If you are joining by webinar, please open the webinar first, then dial in.

This meeting will be recorded for internal use to assure the accuracy of meeting notes.

Action Items:

- ✓ Peter Tango, Matt Cashman, and Qian Zhang talk about how to set up Qian to work on this analysis for the Nontidal Network. Results will be brought back to the workgroup at a future meeting.
- ✓ Tom Parham will provide Peter with groundwater data.
- ✓ Cindy Johnson will provide Peter with groundwater data.

AGENDA

1:00 Welcome, Introductions & Announcements – Peter Tango, Coordinator (USGS@CBPO)

Rebecca Hindin, head of the CBP administrative team, has moved to another position. For those that work with grants, there will be a shift in the personal. Peter Tango will provide an update on the personal at a later date.

Mike Mallonee announced the migration of the processing of the 1986 – 2019 macroinvertebrate will occur tomorrow. It will be available through the [Data Hub](#).

1:10 [Network Optimization Assessment: Insights and Directions](#) - Matt Cashman (USGS)

Due to frequent level funding of NTN operations, an optimization exercise is being planned to consider prioritizing decisions for adjusting the network size on a 5-year time horizon.

A network analysis is a comparison of the representatives of a monitoring network versus the underlying population it is supposed to represent. It is important to be representative of the whole network so that the results are not over representing or underrepresenting some parts of the networks. As a result, the predictions may not be valid or reliable. Matt Cashman has been working to make network analysis easier by packing R code to send colleagues. When talking about network analysis, he is using NHDPlus v2.1 because it easier to do the large-scale analyses. These analyses can help with decision-making to identify gaps in the network to fill and quantifying change in bias for network reductions. He presented a demo on the Chesapeake Bay for active real time temperature gauges. He looked at all NLCD2016 land-uses and how they

compare. Rather than create figures for every one of the land-uses, he distilled it down to a single value of which one was most bias (is it representative of the Chesapeake Bay or is skewed). The temperature gauge bias in the Chesapeake Bay Watershed graph showed development was the most biased. They are maybe gaging the high developed areas more for temperature and under gaging forests. If the circle is purple, it is gauged less than those rivers and streams are present in the watershed, and if it is green, there is more. To show if more gauges should be added to fill gaps, he made a cumulative distribution graph for the entire watershed. Each of the blue dots is an individual gauge that has temperature. There are some areas where there is a bit of gap, but there is a lot of flow lines. The area will provide a list of COMIDs to work towards filling the gap. If a gauge was dropped, they can run simulations where they drop a gauge and see how things change. Then they can rank the scenarios. On the graph, blue means if they remove the gauge, it becomes less bias, and red means if they remove the gauge it becomes more bias.

He is open to sharing this information and his packaged code. He is also open to collaborators that want to work and contribute on this type of analysis. It is important to know which variables to consider and why in terms of goals for the monitoring network.

Peter Tango mentioned he would like Matt to speak with Qian Zhang about the opportunity for using this approach.

Tom Parham said they had made a list of draft questions when looking gauging stations asking how many gaging stations, are they covering all the different land use types, and other questions. It would be good to look at those questions in relation to Matt's analysis. Matt said the most challenging part is deciding if the list of variables is the most important. Once he has the list of variables, he can produce those bias figures for all the variables of interest to help identify any areas of concern. Tom Parham asked how long the analysis takes. Matt said he has compressed the assembly time. The gauge simulation takes about 3 minutes for 3 variables. It is relatively quick.

Jamie mentioned SRBC has stations. Matt shared an example where USGS has gauges available. If someone had their own network of locations with latitude and longitude information, they could still use it to analyze a different network of monitoring locations.

Peter Tango stated an action item is to talk about having Qian Zhang set up to work on queries and then move into scenarios and look into different options in later workgroup meetings. The workgroup can make sure they are covering the priority questions for this analysis.

Peter Tango said this optimization effort will help provide information for the Principal Staff Committee (PSC) effort.

1:45 Groundwater Networks and Temperature Assessments Discussion – All

The STAC Water Temperature workshop is underway. The workshop team is seeking 1) a basic understanding of groundwater monitoring in the Chesapeake Bay watershed, 2) if temperature data exists, 3) if temperature trends are assessed and 4) considerations for an air:groundwater temperature ratio as a conservation or restoration targeting tool.

Tom Parham said MD Geological Survey has some of this information. He will provide Peter Tango the MD information.

Doug Chambers stated they have a small set of sites that have continuous monitoring of groundwater near the VA Beach area. They have not done an assessment of trends. Peter Tango asked if there was a database for the national assessment or is it project oriented. Doug said it should be available.

Ken Hyer said any USGS groundwater sampling should have water temperature and air temperature and should be publicly available through the national water quality database. They would need to mine through what is available for the watershed. He is not aware of a regional assessment of trends for water temperature.

Cindy said VA DEQ groundwater program samples wells and springs. The data includes water temperature. Data shipped to and housed in their database. She will give Peter a contact for the information.

Tammy stated the PA groundwater network is trying to get a well in each of the counties. They are sampled twice a year and water temperature is one of the parameters collected at the wells.

Lucrecia from D.C. said they have a groundwater program, and they collect water temperature data. She will email Peter Tango contacts in the groundwater program that collect the information. USGS does the well monitoring for them so they might have the information as well. Peter Tango commented it might already be in the NWIS system.

Matt Cashman commented it would be a small change to query groundwater wells in the watershed using the same tool he presented to look at a groundwater network analysis. Peter Tango said if out of the STAC Workshop, they want to do groundwater network development then the same tool can help them.

2:15 Adjourn

Team homework:

- Complete science needs homework assignment (Provide [track changes](#) or email Breck Sullivan with comments):
 - Review Monitoring Science Needs Spreadsheet.
 - Are there any Nontidal monitoring gaps missing?
 - Are there synergies between Nontidal work and Cross-GIT monitoring gaps?
- Offline discussions to continue about the challenge of Deer Creek station funding in the new FY.
- WVDEP is experiencing another year of algal blooms on the Cacapon River. They continue to look for recommendations on further sample collections and BMP implementation to understand and control the issue.

Next meeting: Wednesday, August 18, 2021, 1 PM – 2:00 PM

Participants: Breck Sullivan, Peter Tango, Matt Cashman, Doug Chambers, Doug Austin, Mark Brickner, Jamie Shallenberger, John Wirts, Lucretia Brown, Mike Mallonee, Tom Parham, Caroline Donovan, James Colgin, Ken Hyer, Doug Moyer, Tammy Zimmerman, Durga Ghosh, Cindy Johnson, Mark Nardi, John Clune