There seem to be several commonalities between the network analyses that are being proposed for (1) the PSC request to improve monitoring, and (2) the recent NRCS-EPA-USGS recommendations to enhance monitoring in agricultural areas. Connecting the analyses makes sense for the following reasons:

1. Both require site criteria and network analyses to understand current monitoring efforts, gaps, and potential new sites for monitoring.
2. By coordinating these analyses, any expanded NRCS monitoring will be informative to the NTN Network and prevent redundancy.
3. In theory, the outcome should expand NRCS monitoring at a complementary scale (smaller agricultural watershed), which is a gap in the current NTN.
4. It should not result in any loss or realignment of NTN sites – funding for the NRCS expansion would be completely separate from and not dilute NTN efforts.
5. USGS has some limited resources to support the NRCS analysis – applying these same resources to a collaborative analysis increases efficiency for both analyses.

Below are selected sections about expectations from the two CBP efforts to improve monitoring and we've highlighted the activities where coordinated network analysis could support both efforts.

NRCS-USGS-EPA water quality monitoring

I. RECOMMENDATIONS – Water Quality Monitoring

To inform its work, the Water Quality Monitoring Team conducted a review of programs pertaining to monitoring water quality of rivers and streams in the Chesapeake Bay Watershed; tools for consolidating water quality monitoring data for easy use by partners; data analysis and interpretation activities to link agricultural conservation practice implementation to trends in water quality in agricultural watersheds; and initiatives to measure the effectiveness of agricultural conservation practices. Both near-term and longer-term recommendations are listed below and described in more detail in the full report.

WATERSHEDS - OBJECTIVE 1: Identify watersheds with the greatest needs and opportunities for monitoring the impacts of conservation work on water quality of local streams and rivers.

Identify Watersheds: Develop criteria to identify watersheds that can show water-quality response to conservation practices. Criteria would consider watersheds with (1) existing long-term monitoring and (2) extensive implementation of conservation practices or a planned increase in practices.

Identify watersheds in each state that meet the above criteria.

COORDINATION - OBJECTIVE 2: Identify opportunities to further coordinate federal and state water quality monitoring programs, and interpretation of results, to assess the impacts of agricultural conservation practices on the water quality in the Chesapeake Watershed.

Evaluate Data: Evaluate data from current and past monitoring efforts in watersheds identified from Objective 1. Determine if and how existing data can be utilized to assess water quality response to agricultural conservation practices.

Summarize Interpretation Efforts: Summarize current interpretation efforts and how they align with watersheds identified in Objective 1. Identify gaps between watersheds and interpretation efforts.

Develop Effort to enhance Monitoring: Develop a coordinated, multi-partner effort to enhance monitoring and interpretation. The resources needed for these efforts should be identified with options to fund the efforts.

PSC Request to improve monitoring

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Updated April 1, 2021

Appendix A: CBP Networks to be addressed

A team for each of the CBP networks would develop its recommendations. Below is some summary information on current status of the networks, primary gaps and needs, and leadership for each team. For each of the networks the following information would be considered:

(1) What is the status of the network (including number of stations, sampling frequency, funding partners for tidal assessment and nontidal stream flow and water-quality monitoring at stations) and current assessment methodologies as it pertains to its stated purpose?
(2) How have the networks and assessment needs of the CBP partnership changed over time past 5-10 years and what are future threats?
(3) What needs to be done to sustain the current networks (i.e., stop the loss of stations and number of samples due to inflation over the past 5-10 years, address infrastructure challenges, manage the growing and diversifying databases), and what are the future benefits of doing so?
(4) What gaps need to be filled to improve the CBP monitoring networks to address management information and decision-support needs?
(5) How can existing monitoring data and analysis be used to address these gaps?
(6) What are some of the newer and innovative approaches that can be considered to improve the networks to address capacity shortfalls and provide management relevant data analysis products?
(7) What are the opportunities to support and fund the improvement of the networks? What other partners can help expand the monitoring capacity through adoption of existing data collections and analyses beyond the traditional Clean Water Act 117e grant funded monitoring programs?
(8) What are the estimated structural, programmatic and related financial needs associated with recommended network adjustment and improved assessment operations for the next 5-10 years?

Nontidal nutrient and sediment monitoring network

- Provides data to address the Standards Attainment and Monitoring Outcome: trends of nutrients and sediment in the watershed
- Present capacity: 123 stations sampled monthly, most with quarterly storm sampling.
- Current partners and funding: Estimated $6.6 Million annually (MD 803K (2021) NTN + 145K RIM, VA 769K NTN+RIM, PA 0.47M EPA+0.47M Match, WV 0.21M EPA + 0.21M match, USGS 1.17M, USGS 750K Streamflow network, estimated additional varied partner support >$2M) based largely on 117e grant funding and State match + USGS support.
- Gaps/Needs: 1) Small watershed monitoring in agricultural areas. 2) BMP effectiveness monitoring. 3) Climate impact to BMP effectiveness.
- Suggested analyses: 1) identify partner needs if beyond identified gaps, 2) Optimization analysis considering level funding for 5-10 years – stations reduced, 3) Identify sites to invest and address gaps, 4) Identify degree of new technology necessary for new or traditional stations, 5) identify new partners, 6) declare estimated costs associated with network updates.
- Suggested Lead: NTN monitoring team.