# NACWA Nutrient Summit – Discussion Synthesis Final: June 6, 2017

## Introduction

*On March 23, 2017, The National Association of Clean Water Agencies (NACWA) convened a meeting of representatives from the clean water sector, the agricultural sector, the environmental community, and other key water sector participants, to discuss opportunities and challenges related to the management of nutrients in waters across the United States. A neutral third party, Ross Strategic, facilitated the Summit. Discussions were conducted under the Chatham House Rule.*

*Prior to the Summit, interviews were conducted with participants from the different groups represented at the meeting. A complete interview synthesis was developed, along with a shorter "Briefing Document," which was used to inform discussions at the meeting. The meeting was structured around two topic areas:*

- *Watershed Collaboration and Non-Point Source Incentives Program; and*
- *Setting and Achieving Water Quality Goals and Priorities.*

*Summit discussions reflected the highly interrelated nature of these two discussion topics, with participant observations regularly crossing and making connections between them. Looking across the discussions, four major theme areas emerged: Enhancing Collaboration – Addressing Key Needs and Taking Advantage of Opportunities; Establishing and Achieving Water Quality Expectations; Utilizing Specific Flexibilities Provided Under the Current Clean Water Act; and Scaling Watershed Approaches.*

## Summit Discussion Themes

**Enhancing Collaboration – Addressing Key Needs and Taking Advantage of Opportunities**

Nutrient Summit participants focused substantially on the current benefits of and the need for furthering collaboration among nutrient sources (e.g., treatment plants, urban stormwater, septic systems, agricultural community), as well as other key stakeholders including regulators, manufacturers/vendors, corporations in the food supply chain (corporate sustainability initiatives) private agronomists, technical assistance providers, drinking water utilities and interest groups. An important emphasis of collaboration-related observations was the need to further understanding among stakeholders of each other's operating contexts (and related needs and interests) and to leverage this joint understanding into building greater trust (seen as a key ingredient in creating a virtuous cycle of greater and more effective collaboration).

Several participants characterized nutrient management as a complex social problem requiring collaboration among stakeholders, the success of which depends upon a strong foundation of joint understanding and mutual trust. Key points made by participants related to furthering joint understanding included seeking to understand the necessities in the respective sectors and across urban and rural communities and to formulate solutions with these in mind. As well, participants observed that a lack of understanding of and appreciation for each other's challenges has hindered progress in the past. Discussion signaled that further efforts focused on cross-education are needed to build on current successes such as watershed-level cooperative efforts in Iowa, Florida, and Wisconsin.

Participant discussions also addressed collaboration on the national level and watershed level.

- **National Level**: Participants acknowledged and reflected favorably on the emergence of enhanced collaboration between the clean water and agricultural sectors at the national level, with participants from both sectors encouraging further collaboration in the future. In particular, participants identified the upcoming renewal of the Farm Bill as both an opportunity and a necessity for further collaboration (with a particular focus on the Regional Conservation Partnership Program). Participants also noted that cooperation between NGOs and the agricultural sector on water quantity has been productive and suggested these efforts, as well as examples from water efficiency efforts, could act as models for furthering cooperation related to nutrients (and water quality more generally).
- **Watershed Level**: Watershed-based nutrient management approaches received substantial attention from Summit participants (see further discussion below regarding the specifics of watershed management approaches). Discussion consistently identified effective collaboration as fundamental to watershed nutrient management approaches and encouraged greater watershed-level collaborative engagements in the future. As part of this discussion, participants reflected on what they have experienced as some key critical success factors for effective collaboration at the watershed level. These key factors included: ensuring efforts are locally led (in general, using local, trusted sources); identifying and engaging agricultural producer leaders (as farmers will most trust other farmers); and ensuring a sense of fairness among watershed participants. One Summit participant summarized the key ingredients of success as: common data; common metrics; common effective actions; led by trusted person(s).

### Establishing and Achieving Water Quality Expectations

Drawing on a theme that emerged during the pre-Summit interviews, participants showed strong interest in formulating alternative strategies for establishing and achieving nutrient-related water quality expectations. This interest was based in the belief, at least for certain participants, that the current Water Quality Based Standards (WQBS) approach (and related Total Maximum Daily Load efforts) are failing to achieve water quality improvements in a timely and cost-effective manner. Importantly, discussions of alternative strategies also reflected certain concerns and cautions related to moving away from the WQBS approach. One participant specifically asked, "if not WQBS (and Total Maximum Daily Loads), what is the alternative mechanism for establishing (enforceable) water quality needs/objectives?" Discussions also indicated a need to shift public understanding of the nutrient challenge (that it is a long-term undertaking), and indicated that to more effectively engage the agricultural community there is a need to establish more "attainable," interim goals and to empower the sector with information.

In terms of deriving more workable and effective strategies, discussions revolved around three (not necessarily separate) concepts: attainability; adaptive management; and to a more limited extent, optimization.

- **Attainability**: During the pre-Summit interviews and again during Summit discussions, certain participants observed that, at least in certain waterbodies, current standards are unattainable (using "pristine" water as the basis for the designated use), and there is a need for more achievable nutrient goals under the CWA. To these participants, there is a need for a more workable approach than Use Attainability Analysis (UAA) coupled with a financial capability process. Alternatively, certain participants suggested further exploration of a stream biological indicators approach, with efforts in Ohio identified as an example.
- **Adaptive Management**: As a response to the complex nature and uncertainty imbedded in meeting nutrient management objectives (such as those set out in the Mississippi River Basin to address Gulf of Mexico Hypoxia), adaptive management approaches received substantial attention and interest from Summit participants (and from those participating in pre-Summit interviews). Although implementation specifics can vary from state-to-state (or region-to-region), at the core of the concept are: sufficient watershed-level (or regional-level) compliance flexibility to pursue the most cost-effective nutrient reductions and adapt to changing conditions; strong monitoring for water quality improvements associated with nutrient reduction investments (the key learning aspect for adaptive management); and extended compliance timeframes (e.g., 20-years) to allow time

for nutrient reduction investments to produce results (reflecting, in part, an understanding that land-based conservation measures are an iterative undertaking) and generate greater understanding of both investment effectiveness and ecosystem responsiveness. Participants provided various ideas/examples for workable approaches to adaptive management, some currently underway with others at a conceptual stage.

  - Wisconsin: participants cited the adaptive management approach in Wisconsin (currently in the early stages of implementation) as holding strong potential. Some basic elements of the approach include: nutrient trading; multi-discharger permit variances (to enable point and non-point nutrient reduction trade-offs); and ten-year permit terms.
  - Integrated Planning: participants cited the current EPA Integrated Planning Policy (which applies in the urban stormwater and wastewater context) as a potential model for watershed-based nutrient adaptive management. The current policy maintains existing CWA standards, but allows communities to create long-term water quality improvement plans with the flexibility to sequence investments between wastewater and stormwater sources to optimize cost effectiveness. Participants indicated a similar model could apply to nutrients allowing watershed nutrient sources to develop long-term reduction plans (e.g., clean-up plans, domestic action plans) with interim targets for accountability and the flexibility to sequence point and non-point source investments consistent with optimizing the cost effectiveness of nutrient reductions.

- **Optimization**: Summit discussions touched only lightly on the promotion of treatment system optimization as a strategy to meeting nutrient reduction objectives, particularly among smaller and medium size utilities. Certain participants expressed reservations with the blanket promotion of optimization, reflecting concerns that the operating conditions at utilities tend to vary substantially, making it challenging and potentially unproductive to create expectations for a consistent and cost-effective level of reductions from such a strategy.

Within the context of establishing and achieving water quality expectations, Summit discussions substantially stressed the role of accountability and permanence.

- **Accountability**: Participants stressed that measurement and accountability are critical to nutrient management strategy success, and participants suggested that they are particularly crucial in any adaptive management, flexible, long-term implementation approach. "Show me the results" was one participant's observation, indicating that adaptive management approaches will need to demonstrate that they can lead to improvements at reasonable cost where utilities are saving money and farmers feel good about their participation. Discussions also pointed out certain key challenges to measurement and accountability: point sources have reliably measurable discharges, while non-point sources are more challenging; and watershed scale and the unpredictable role of weather create uncertainties. Participants observed that it can take 10-20 years or longer to see outcomes from, in particular, non-point source practices, in part because of the swings caused by weather (creating a need to average over a long time to see the real impacts/outcomes of investments). A final aspect of accountability addressed by participants related to the "responsibility boundaries" of point source permit holders in the context of watershed-based, adaptive management approaches. A concern arises in the context of meeting reasonable assurance under TMDLs, as well as any "load trading or offsetting" that may take place with non-point sources. Under current practice, point sources remain subject to CWA compliance liability and/or further pressure on load limits in permits if non-point source reductions fail to materialize and/or remain permanent.
- **Permanence**: Participant observations related to permanence focused on the mid- to long-term reliability of non-point source reductions that an adaptive management, watershed strategy would rely on. Although the permanence of non-point reductions is a concern in other contexts, particular pressure arises when reliably measurable and generally more certain point source nutrient load reductions are substituted for by non-point source reductions. Under current practice, financial incentives for agricultural non-point source nutrient reductions (in the form of, for example, adoption of certain conservation practices), do not contain an accountability mechanism that supports the mid- to long-term permanence of nutrient reductions.

**Utilizing Specific Flexibilities Provided Under the Current CWA**

During the pre-meeting interviews and during discussions at the Summit, participants identified a series of opportunities for leveraging flexibility provided under the current CWA. These flexibilities, which participants indicated are currently underutilized, can help to better target nutrient investments and to reduce the transaction costs associated with innovative nutrient reduction strategies. Participants viewed these flexibilities as 1) important in and of themselves to reduce costs and expand opportunities within the context of, for example, individual permitting contexts, and 2) critical to the success and effectiveness of watershed approaches (discussed below) and to any strategy that involves adaptive management (discussed previously). As noted below under challenges, participants did identify several concerns and/or constraints on the use of these flexibilities.

Specific flexibilities fell into three, interrelated categories.

- **Permit Limits**: Flexibilities identified by participants included the use of annual limits to aid point to non-point trading (annual limits allow for a compliance basis consistent with the potentially different timing of nutrient loading between point sources and non-point sources, with non-point sources more intermittent and rain event driven); watershed general permits (the Virginia watershed permit approach was cited as an example); flow-based limits; bubble permits; and alternative limits (treatment requirements) for mid-size utilities and small utilities.
- **Trading/Offsets**: Were cited as critical to optimizing nutrient reduction investments within watersheds, and interest was expressed in better enabling downstream trading and the formation of nutrient banks. The City of Boise WWTP was cited as an example of building an allowable offset into a permit that supported meeting compliance with the City's phosphorus limit through reductions produced by a phosphorus removal installation owned and operated by the WWTP on an agricultural drain down river from the City.
- **Variances**: participants identified the expansion of the use of permit-by-permit variances as an important opportunity, as well as the use of watershed-wide variances.

Participants identified several challenges/concerns related to these flexibilities.

- **Regulator Capacity**: Participants indicated that, as currently practiced, accessing the existing CWA flexibilities can come with high transaction costs and high demands on regulator (in particular, state-level regulator) capacity. These demands come at a time when budget cuts to state regulatory programs have curtailed capacity, leaving many state staff disinclined or outright unable to support "innovative" approaches.
- **Environmental Equivalency**: Flexibility that involves the exchange of discharger obligations (either point-to-point source, or point-to-non-point source) to different geographic locations raise the prospect of increasing (or maintaining) load in one area while "over controlling" load in another. This raises concerns about the creation of "hot spots" in specific surface water locations, particularly when downstream trading or offsets are in play. Discussion also raised the related challenge of monitoring non-point source reductions. This difficulty in turn places pressure on demonstrating environmental equivalency even where it is anticipated to exist and raises concerns regarding the enforceability of permits that depend on non-point source reductions to meet compliance.
- **"Blanket" Variances**: Certain participants raised strong reservations relative to variances granted outside of an individually tailored, permit-by-permit framework. Concerns largely derived from concern about the environmental equivalence of load reductions made under such variances and the related challenge of enforceability.

In terms of moving to greater utilization of the identified flexibilities, participants suggested a number of key areas for future engagement:

- Creating an inventory of "tools" (e.g., model permit language) that draw on the experience with existing flexibility implementation to help inform and jump start utilization in additional jurisdictions.

- Working on capacity building with regulators to increase the expertise of and reduce burden on the staff that are needed to support, enable, and implement the flexibilities.
- Providing a basic "how to" guide to agricultural sources covering the options for engaging in joint nutrient reduction initiatives with point sources within a watershed.

### Scaling Watershed Approaches

Summit discussions reflected an overall sense that working on a watershed scale and basis is essential to effective nutrient management and to achieving nutrient reduction goals. Participants cited a variety of integrated watershed efforts including in Iowa, Wisconsin, Florida, Ohio, Oregon, and Idaho that were seen as highly productive and as establishing strong models for emulation in other watersheds. At the same time, participants consistently observed that these efforts come with very high transaction costs, and that individual-by-individual land owner efforts, although productive, have left many of these efforts covering only a fraction of the overall need if nutrient reduction objectives are to be met. Participants also observed that weather impacts are a key factor in nutrient loading with an individual, large event having the capacity to overwhelm individual landowner efforts. This reality led participants to focus discussion substantially on how to "scale up" these watershed models in a manner that will support greater landscape scale efforts, bring the resources needed to operate at landscape scale into play, and blueprint the permitting and other processes needed to work with both point and non-point sources to reduce transaction costs. Discussions focused on institutional approaches, funding, and monitoring.

- **Institutional Approaches**: Summit participants discussed a variety of institutional approaches that hold potential to better support "at scale" initiatives. These included:
    - Preparing overall watershed (or regional) nutrient reduction strategic plans prepared through a collaborative process that helps nutrient sources and the public in general own the nutrient management issue together. Ingredients of such plans could include: an overall 30 to 40-year time horizon; integrated planning; improved approach to variances; 10 – year renewable permit cycles; and investment performance and overall water quality monitoring.
    - Commodity-level systems solutions that engage an entire agricultural value chain including manufacturers, vendors, crop consultants, researchers, producers, and product purchasers.
    - Creating a watershed, regional, or state-wide water quality utility with a mandate to achieve nutrient reduction goals and a fee base that creates regular revenue consistent with the investment need.
    - Establishing additional large-scale demonstration projects that can show how scale-based approaches can improve successes across the various parties involved. Demonstration projects could also show that returns on investment (ROI) are possible for large-scale projects.
- **Funding**: Summit participants discussed both the current amount and type of funding as a key constraint to operating at scale. As one participant stated, "HUC 12 Scale grants won't solve the problem." Additionally, discussions indicated an overall sense that current nutrient reduction expectations reflect a need for the implementation of higher cost practices and technologies (that operate more at a landscape scale), for example bioreactors and wetlands treatment for non-point source nutrient management. Other challenges related to the current funding environment included: the reality that many watershed groups do not have consistent, long-term funding as they go from grant-to-grant; the limitation on NRCS funding to cross county lines; and the limited ability of agricultural producers to pass along increases in production costs. In response, participants discussed the need, overall, for broader and more flexible funding mechanisms, as well as utilizing and continuing to develop nutrient capture practices and techniques that can produce positive cash flow. Ideas shared by participants included: utilizing current clean water SRF funds; establishing an entirely new federal SRF-type fund for non-point source control; implementing a national watershed health improvement fee (this concept could also be implemented on a state or regional basis); using Supplemental Environmental Projects (SEPs) to fund demonstration projects; and, on the practice/technology front, using harvestable buffers and investing in wastewater treatment technologies that support selling nutrients as a product.

- **Monitoring**: Summit participants identified enhanced monitoring efforts as critical to supporting existing watershed approaches and equally important to moving to operate at larger scale. New York City's success with watershed protection for source water was cited as an example where substantial monitoring and modeling was critical to success. Discussion indicated that there is a need to manage for increased risk when you move to watershed based nutrient management with the greater engagement of non-point sources where both controls and measurement can be more variable than controls at permitted point sources. This potential for greater uncertainty pointed to the need for enhanced monitoring efforts. Enhancements included establishing baseline conditions for non-point source nutrients and defining an appropriate time scale over which to measure water quality changes, particularly in light of the implications weather events have for overall system responsiveness. Participants also identified areas of important data gaps, for example, continued lack of understanding about who major sources are in non-agricultural dominated contexts such as urban watersheds with a mix of septic system, stormwater, and wastewater sources. Overall, discussion indicated that it will require a more complex monitoring system to support scaled up watershed management efforts, while technology advances hold the potential over time to provide more effective and efficient support to this need.