UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

April 5, 2022

MEMORANDUM

SUBJECT: Accelerating Nutrient Pollution Reductions in the Nation's Waters

FROM: Radhika Fox
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TO: State Environmental Secretaries, Commissioners, and Directors
State Agriculture Secretaries, Commissioners, and Directors
Tribal Environmental and Natural Resource Directors

CONTEXT

Nutrient pollution is a continuing and growing challenge with profound implications for public health, water quality, and the economy.[1] In a changing climate, the complexity and severity of the problem is increasing. Nutrients are the most widespread stressor impacting rivers and streams.[2] Fifty-eight percent of the nation's rivers and streams and 45 percent of our lakes have excess levels of phosphorus.[3] About two-thirds of the nation's coastal areas and more than one-third of the nation's estuaries are impaired by nutrients.[4] Excess nutrients contribute to harmful algal blooms, areas of low oxygen known as "dead zones," and high levels of nitrates that contaminate waters used for recreation, drinking water, wildlife, pets and livestock, and aquatic life—while also damaging the economy in many communities.

At the same time, promising innovations, creative partnerships, holistic One Water[5] solutions, and unprecedented opportunities to invest in clean and safe water through the Bipartisan Infrastructure Law (the Law) have the potential to rapidly accelerate progress on nutrient pollution. More effective strategies are particularly important as we see acute impacts of nutrient pollution fall on communities lacking the capacity to address them.

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[1] See: A Compilation of Cost Data Associated with the Impacts and Control of Nutrient Pollution at https://www.epa.gov/sites/production/files/2015-04/documents/nutrient-economics-report-2015.pdf.
[2] See: EPA Rivers & Streams Assessment 2013-4 at https://riverstreamassessment.epa.gov/dashboard/?&view=indicator&studypop=rs&subpop=national&label=none&condition=poor.
[3] See: EPA National Aquatic Resource Surveys at https://www.epa.gov/national-aquatic-resource-surveys.
[4] See: EPA Nutrient Pollution – Where This Occurs: Coasts and Bays at https://www.epa.gov/nutrientpollution/where-occurs-coasts-and-bays.
[5] One Water approaches integrate holistic planning and management of water resources across the landscape and built environment to protect public health, water-based economies, ecological health, and habitat. For examples of One Water approaches to address nutrients, see: Yahara WINS: A Groundbreaking Initiative to Achieve Clean Water Goals at https://yaharawins.org/ and Middle Cedar Partnership Project at http://www.cedar-rapids.org/residents/utilities/middle_cedar_partnership_project.php.

As the U.S. Environmental Protection Agency's (EPA) Office of Water looks forward to celebrating the 50th Anniversary of the Clean Water Act (CWA) this year, we are mindful of both our progress and how much further we need to go as a nation to ensure that every community in the United States has access to clean, safe water. It will take all of us to meet this goal. State co-regulators, territories, and tribes play a primary role in managing nutrients, with strong support from federal partners and the involvement of all stakeholders. Office of Water is committed to reenergizing our partnerships with all levels of government, tribes, agriculture, community organizations, research institutions, and the public to make sustained progress. There has never been a more important time for partnership, innovation, and a determination to do more.

EPA affirms the foundational principles and approaches that are described in previous Office of Water nutrient policy memos. In the coming years, a key area of focus for the Office of Water is to accelerate progress in controlling excess nutrients entering our nation's waters by scaling up existing approaches and more broadly deploying new data assessments, tools, financing approaches, and implementation strategies. The cost and magnitude of the challenges require us to work across our programs to integrate the objectives of both the Safe Drinking Water Act and Clean Water Act in a One Water approach to find durable solutions. The realities of climate change, a growing population, aging infrastructure, increasing nonpoint source pollution, and issues of affordability, equity, and environmental justice add complexity and urgency to our work.

EPA's Office of Water will invest in, and pursue, science-based and data-driven strategies to reduce flows of excess nutrients into our nation's waters. We will deepen and expand our partnerships with the U.S. Department of Agriculture (USDA), states, tribes, territories, agriculture, industry, and the broader water sector to identify, highlight, and scale effective nutrient reduction approaches. We will use the Clean Water Act framework to make progress and to provide an incentive and backstop for collaborative approaches. We are committed to taking bold action to tackle the nutrient pollution challenge.

GOVERNING PRINCIPLES

Five governing principles will guide the Office of Water's strategies to work with states, tribes, and local partners to drive reductions in nutrient pollution.

- **Advance equity and environmental justice.** Nutrient runoff too often contaminates drinking water sources and compromises the health of waterways in rural, tribal, and low-income communities. EPA's Office of Water will prioritize nutrient pollution reduction, treatment, recovery, and mitigation activities that help protect public health and reduce pollution in communities that lack the resources to address these issues on their own.

- **Build and foster partnerships.** Many of the most successful and lasting efforts to significantly reduce nutrient pollution have resulted from partnerships between farmers, ranchers, local water utilities, municipalities, industry, and conservation organizations. These partnerships succeed because they benefit from the diverse knowledge and perspectives of their participants. We will seek opportunities to highlight successful partnerships, and to create the enabling conditions for their continued success.

- **Follow the science and invest in data-driven solutions.** Our focus areas and priorities will be based on the best available science and data. We will continue to build new tools and platforms that allow us to manage and analyze information to more efficiently target funding to identify and address sources of pollution and enhance tracking of progress in watersheds.

- **Support innovation.** New ideas and forward-thinking strategies are critical to meet the urgency of the nutrient pollution challenge. While we will continue to pursue the agency's tried and true work with states, tribes, and territories, we also plan to invest in and elevate new models, technologies, tools, and policies. The Office of Water is particularly interested in identifying and helping to scale programs that employ "outcomes-based" approaches that can maximize the delivery of water quality improvements and other benefits. EPA's Office of Water will identify and recommend financial innovations that can underwrite incentives for market-based investment.

- **Scale successful initiatives.** We will provide technical assistance and other support to help ensure that states, tribes, and territories have the knowledge, skills, and resources to scale effective nutrient reduction strategies.

STRATEGIES
To drive continued reductions in nutrient pollution, we will pursue three primary strategies:

- **Deepen collaborative partnerships with agriculture.**

- **Redouble our efforts to support states, tribes, and territories to achieve nutrient pollution reductions from all sources.**

- **Utilize EPA's Clean Water Act authorities to drive progress, innovation, and collaboration.**

Deepen collaborative partnerships with agriculture.
Deeper and more extensive partnerships with agriculture will be critical to reduce the nutrient loads that impair our nation's waters. Given the opportunity for nutrient reduction through conservation efforts on agricultural lands, working collaboratively with USDA and the agricultural community will be a central focus of EPA's nutrient agenda.

1. **EPA will actively collaborate with USDA leadership to build and maintain connections and momentum.** A primary goal of this partnership is to continue to target funds whenever feasible to the locations and practices that will generate the most significant reductions in nutrient loads. Areas for collaboration include:
   - Fulfilling Farm Bill requirements to devote significant resources to source water protection**.** We will support USDA efforts to reduce agricultural impacts on waterways and drinking water sources to protect public health and to document investments in source water areas.
   - Assisting USDA, utilities, and local partners in targeting conservation investments to improve water quality in waters suffering from nutrient pollution and measure their impact. Our goal is to expand our joint capacity to evaluate the water quality impacts of USDA investments.
   - Promoting and facilitating broader use of watershed assessments in USDA programs. In collaboration with EPA and states, USDA is expanding reliance on watershed planning to maximize the effectiveness of conservation investments. We will continue to work with states to support USDA in documenting water quality outcomes from its investments. Our

goal is to increase the proportion of USDA resources that are tied to watershed plans or other prioritization mechanisms, such as the National Water Quality Initiative (NWQI).[6]

- Expanding the strong collaboration between USDA and EPA's programs for drinking water and wastewater infrastructure in rural and tribal communities**.** Our goal is to help underserved communities and households improve their capacity to secure funds, comply with requirements, and sustainably operate and maintain their infrastructure.

2. **EPA will expand engagements with agricultural stakeholders and highlight their successes**. We will pursue additional opportunities to learn from and support agricultural leaders and innovators working to address nutrient loads. Our priorities include:
   - Initiating new partnerships and deepening our existing collaborations.
   - Identifying and elevating examples of producer innovation. To keep abreast of innovation, Office of Water will pursue opportunities to participate in agriculture convenings.
   - Maximizing engagement with agricultural stakeholder groups, including new quarterly roundtables and continuation of existing fora, including the Office of Wastewater Management's Animal Agriculture Discussion Group.[7]

3. **EPA will deepen on-the-ground collaboration with USDA, states, territories, tribes, and stakeholders in key geographic areas**. Although we recognize that water quality improvements will take years to achieve, we are committed to sustaining partnerships over time to make progress. To leverage our current activities and identify other opportunities, our efforts will include:
   - Intensifying our engagement in geographies such as the Chesapeake Bay, Mississippi River Basin, Puget Sound, and National Estuary Program watersheds across the country, where structures for collaboration have been established and new resources in the Bipartisan Infrastructure Law can accelerate progress. The Law will deliver $132 million to support the National Estuary Program and more than $1.7 billion for Geographic Programs.
   - Building on regional collaborations such as the Hypoxia Task Force to leverage federal, state, local, and tribal resources and engage university, industry, and nonprofit partnerships to help advance state- and regionally-driven actions. The Law will be a key lever for scaling progress, with $60 million in new resources to implement the Gulf Hypoxia Action Plan.[8]
   - Supporting partnerships in areas where agriculture is the predominant land use and nutrient loss contributes significantly to water quality concerns. We will look for opportunities where EPA membership, research, technical assistance, or grant and loan programs can help amplify existing efforts.
   - Further broaden collaborations among USDA, EPA, and the agricultural community to enhance, encourage, and promote conservation cropping systems that minimize soil disturbance and maximize plant cover that preserves soil organic matter content, enhance farm profitability, promote sustainability, and improve water quality.

Redouble our efforts to support states, tribes, and territories to achieve nutrient pollution reductions from all sources.

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[6] For information on how the NWQI has led to significant improvements, see USDA National Water Quality Initiative at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/water/?cid=stelprdb1047761.

[7] For information about the Animal Agriculture Discussion Group, see: Factsheet on the Animal Agriculture Discussion Group at https://www.epa.gov/npdes/factsheet-animal-agriculture-discussion-group.

[8] See: Mississippi River/Gulf of Mexico Hypoxia Task Force at https://www.epa.gov/ms-htf.

EPA aims to address the diversity of point and nonpoint sources of nutrient pollution, including municipal and industrial wastewaters, stormwater, and decentralized systems. We will work to ensure that rural, environmental justice, low income, and tribal communities benefit from these efforts. EPA will use the urgently needed funding through the Bipartisan Infrastructure Law to expand our support for the work of our partners. Our priorities include:

1. **Strongly encouraging states and tribes to use a One Water approach to deliver a range of water quality benefits including protection of sources of drinking water.** The Office of Water will seek to support holistic water resource management efforts that protect public health, water-based economies, ecological health, and habitat. Expected activities include:
   - Encouraging states to incorporate a One Water approach in their overarching nutrient strategies. State nutrient strategies provide an opportunity to bridge existing planning to reduce nutrient loads from point and nonpoint sources with source water protection. We will continue to encourage states to establish and broaden these strategies to protect drinking water sources, as well as ecosystem health and other water quality benefits.
   - Working with EPA's Regional Offices to memorialize, in Performance Partnership Agreements or appropriate grants, state commitments to evaluate, update, and submit for EPA review State Nutrient Loss Reduction Strategies. These strategies should align with existing statutory and regulatory frameworks and target resources to the most important opportunities for progress. States with existing strategies will be able to use them as a basis for revisions. For states without Nutrient Reduction Strategies, Regional Offices will document state commitments to nutrient reduction actions. After consulting with state partners, the Office of Water will provide a memo to Regional Administrators outlining suggested review criteria later in 2022.
   - Deploying advanced watershed planning tools to identify critical source areas, track practice adoption, and quantify progress over a broad landscape, large watershed, or state or tribal areas. EPA has developed and will promote powerful tools such as Watershed Index Online,[9] DWMAPS[10] and Recovery Potential Screening[11] that can help evaluate key watershed attributes. These tools allow states to display Clean Water Act and Safe Drinking Water Act data alongside land use and other relevant spatial information to identify potential sources of contamination to drinking water sources.
   - Publishing a web-based tool to help states and tribes identify federal funding sources to protect drinking water sources and encourage cross-program coordination for shared water quality benefits.
   - Identifying and highlighting effective nutrient reduction approaches and projects that deliver a range of water quality benefits that could be useful in a variety of settings.[12]
   - Supporting state collaboration with USDA to improve the health of waters including source water protection through the NWQI and other targeted investments through USDA conservation programs Through the NWQI, USDA, state water quality agencies and source water protection programs can jointly identify priority areas for conservation, use traditional

[9] See: EPA Watershed Index Online at https://www.epa.gov/waterdata/watershed-index-online.
[10] See: EPA Drinking Water Mapping Application to Protect Source Waters at https://www.epa.gov/sourcewaterprotection/drinking-water-mapping-application-protect-source-waters-dwmaps.
[11] See: EPA Recovery Potential Screening at https://www.epa.gov/rps.
[12] For example, the use of Clean Water State Revolving Loan Funds to finance forest management to reduce the risk of devastating wildfires and post-fire flooding. That risk reduction helps prevent contamination of drinking water sources, damage to infrastructure, and increases in sediment runoff and associated nutrient pollution. EPA, USDA, and the Water Infrastructure Finance Authority of Arizona created a Measurable Benefits Tool that quantifies the environmental, financial, and social benefits associated with undertaking forest thinning projects.

CWA Section 319 project funding, and technical assistance to support planning and fund plan implementation.[13]

- Helping states, territories, and authorized tribes use the CWA Section 319 grant program for projects that help to protect and restore drinking water sources. Currently there are more than 300 active projects across the country that address source water concerns.[14] We will also promote innovative approaches including new outreach strategies to reach non-operator landowners and new funding mechanisms to address barriers to conservation practices such as procurement of shared agricultural equipment.
- Exploring opportunities to help states track and account for the adoption of agricultural conservation practices, conservation planning, and technical assistance, including through USDA conservation programs, as they implement nutrient strategies, total maximum daily loads, and watershed-based plans.

2. **Championing innovative financing and using the flexibility of the Clean Water Act regulatory framework** to spur development of more effective technologies, drive market-based approaches, including water quality trading, third-party credit aggregation and banking, and stronger agriculture-water sector partnerships. Our activities will include:
   - Promoting state use of the Clean Water State Revolving Loan Fund for nonpoint sources, including expanded use of innovative approaches like pay-for-success models.[15]
   - Strengthening relationships between states, tribes, and territories with our federal partners, like USDA and its U.S. Forest Service, as well as non-profits, community organizations, foundations, and private sector stakeholders. These partnerships can leverage existing resources to effectively facilitate and fund nutrient management projects on a broad scale.
   - Finalizing a policy statement on flexibilities for implementing market-based approaches within the National Pollutant Discharge Elimination System (NPDES) permit program.
   - Initiating a rulemaking to explicitly state that NPDES permits may include conditions allowing market-based approaches, including trading, to meet applicable effluent limits.
   - Hosting web-based training for permit writers to increase the number of permits with nutrient limits that improve water quality and incentivize purchase of nutrient credits and agriculture-water sector collaboration.
   - Building connections between the state programs and market-based environmental services providers that can combine water quality outcomes with other commodities such as carbon sequestration credits. EPA will provide technical assistance as needed to support states' use of CWA Section 319 funds to purchase water quality credits generated by such projects.
   - Supporting development and evaluation of more effective technologies and approaches using funding from geographically targeted and nonpoint source management programs.

3. **Prioritizing strategies to support small, rural, and disadvantaged communities**. Our activities will include:
   - Providing clear guidance for the State Revolving Funds to outline Office of Water's expectations for using new authority in the Bipartisan Infrastructure Law to make grants and

[13] For example, Iowa Department of Natural Resources has used small investments from EPA technical assistance to develop source water protection plans which garnered substantial on-the-ground investment from the NWQI.
[14] For example, Virginia DEQ worked with local partners to implement best management and conservation practices in the Muddy Creek watershed that brought nitrogen levels into compliance with state water quality standards for surface waters that are used as sources of drinking water.
[15] For examples of successful approaches see: Clean Water State Revolving Funds Best Practices Guide for Financing Nonpoint Source Solutions at https://www.epa.gov/system/files/documents/2021-12/cwsrf-nps-best-practices-guide.pdf.

provide additional subsidization to address and mitigate the impacts of nutrient pollution in these communities.

- Engaging with states on an EPA memorandum that outlines near term actions to support environmental justice and other disadvantaged communities through their nonpoint source pollution programs.[16]
- Releasing a Lagoon Action Plan to help small, rural, and tribal communities protect public health and meet Clean Water Act requirements for ammonia and nutrients.
- Taking action to address decentralized systems, including promoting financing via the State Revolving Funds, conducting an Advanced Septic System Nitrogen Sensor Challenge, and supporting research pilots and demonstration projects for innovative/alternative septic systems.
- Working with entities that can help support state adoption and implementation of strategies to better support disadvantaged communities, including the Environmental Council of the States, the Association of Clean Water Administrators, and the Association of State Drinking Water Administrators.

Utilize EPA's Clean Water Act authorities to drive progress, innovation, and collaboration.
EPA will continue to evolve and implement the Clean Water Act regulatory framework. Technology-based controls for point sources, development and implementation of strong water quality standards, and strategies for addressing nutrients at a watershed scale remain critical. The Clean Water Act regulatory authorities are the foundation for much of the nation's progress to date on nutrient pollution and can provide both an incentive and backstop for collaborative approaches. We will prioritize:

1. **Urging more robust adoption of numeric nutrient criteria into Water Quality Standards.** EPA has strongly advocated for states, territories, and authorized tribes to adopt numeric nutrient criteria into their water quality standards since the publication of the *National Strategy for the Development of Regional Nutrient Criteria* in 1998, but many states have not yet done so. To accelerate progress, our priorities include:
   - Promoting EPA's newly published stressor-response based numeric criteria recommendations to address nutrient pollution in lakes and reservoirs.[17] Office of Water recommends states apply the criteria to protect drinking water, recreational and aquatic life uses and expects states to consider the new criteria during their next triennial water quality standards review. EPA regions are encouraged to negotiate commitments to establish numeric nutrient criteria in performance partnership agreements.
   - Supporting and strongly encouraging states to rely on numeric targets for water quality assessment, CWA Section 303(d) assessment and lists, TMDL targets, and NPDES permitting. Office of Water expects that states will either adopt numeric nutrient criteria into their water quality standards or commit to use numeric targets to implement applicable narrative criteria statements. For lakes and reservoirs that have previously been assessed using a state's nutrient-related narrative criterion, we expect states to consider the new criteria recommendations to determine whether more can be done to ensure the protection and restoration of those waters.

[16] See: EPA Near-term Actions to Support Environmental Justice in the Nonpoint Source Program at https://www.epa.gov/system/files/documents/2021-10/equity-in-the-nps-program-section-319-policy-memo-signed.pdf.
[17] See: EPA Ambient Water Quality Criteria to Address Nutrient Pollution in Lakes and Reservoirs at https://www.epa.gov/nutrient-policy-data/ambient-water-quality-criteria-address-nutrient-pollution-lakes-and-reservoirs.

2. **More Fully Using the Clean Water Act Assessment and Listing Process and Supporting Development of TMDLs for Nutrient Pollution.** There are more than 26,000 water bodies with nutrient-related impairments still on state lists of impaired waters that do not yet have a TMDL. Many completed TMDLs have not been fully implemented. To continue progress, our activities will include:
   - Expecting and assisting states to develop robust, ready-for-implementation TMDLs, and other restoration plans.
   - Supporting targeted water quality monitoring and developing scientifically robust assessment methods for identifying nutrient-related impairments.
   - Exploring ways to account for climate change in watershed protection and restoration plans, TMDLs, and best management practices so they will continue to be effective in the future.

3. **Further Reducing Nutrient Loads from Point Sources.** EPA strongly supports innovative permitting approaches that can drive deeper, sustained nutrient reductions. Our activities will include:
   - Supporting states by providing information on innovative treatment technologies analysis of performance, and management approaches such as water reuse.
   - Continuing training and technical assistance to wastewater treatment plants operators with secondary treatment to help optimize nutrient reductions. Optimization techniques are particularly valuable for small and medium-sized systems where system upgrades may not be affordable.
   - Supporting states to employ a variety of permitting approaches, including watershed-based permitting, integrated planning, adaptive management, and various market-based approaches including trading and offsets. We will encourage states to consider permitting approaches that strengthen upstream/downstream partnerships.
   - Issuing a compendium of state approaches for nutrient permitting to highlight the varied approaches states are using to make progress.
   - Promulgating revised effluent limitation guidelines for industries with significant nutrient loads that cause or contribute to water quality problems.
   - Working with states and EPA regional permitting authorities as they write water quality-based permit limits to meet water quality standards, including those that implement TMDLs. We will ensure that both EPA and state-issued permits: analyze whether nutrients have a reasonable potential to cause or contribute to a WQS exceedance in all permits; incorporate technically sound nutrient limits when necessary; and include permit limits that reflect the loads contained in the approved TMDLs.
   - Assisting states in using water quality standard variances, targeted designated use changes, compliance schedules in NPDES permits, and other flexibilities to make progress. The Office of Water will encourage mechanisms to facilitate a balance of appropriate point source and nonpoint source actions that makes best attainable progress toward water quality goals.

CONCLUSION

Nutrient pollution continues to present a daunting and costly set of challenges, despite considerable prioritization and investment. Our best hope for more effectively addressing our nutrient management challenges is to continue building partnerships. EPA is committed to working across federal agencies, with states, territories, tribes, and with farmers, ranchers, local water utilities, municipalities, and industry to make progress. Acting together, using foundational approaches, innovative new tools and programs, and an unprecedented level of investment in the work of our partners, we can do more to address nutrient pollution and protect water quality and public health.

cc: Regional Administrators
Regional Water Division Directors
Office of Water Office Directors
ECOS Executive Director
ACWA Executive Director
Chair, National Tribal Water Council
Chair, National Tribal Caucus