




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

SEP 22 2016

OFFICE OF WATER

**MEMORANDUM**

**SUBJECT:** Renewed Call to Action to Reduce Nutrient Pollution and Support for Incremental Actions to Protect Water Quality and Public Health

**FROM:** Joel Beauvais  
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**TO:** State Environmental Commissioners, State Water Directors

Nutrient pollution remains one of the greatest challenges to our Nation's water quality and presents a growing threat to public health and local economies – contributing to toxic harmful algal blooms, contamination of drinking water sources, and costly impacts on recreation, tourism and fisheries. Recognizing the important roles, responsibilities and authorities of all levels of government, industries, agriculture, nongovernmental organizations, academia and the public, the Office of Water will continue to foster and support partnerships and collaboration which are critical to making sustained progress on reducing this significant threat to water quality and public health.

Five years ago, the Office of Water issued a national call to action and a framework for collaboration to address the substantial and growing threat of nutrient pollution to America's water resources.<sup>1</sup> Since then, the EPA has partnered with states and collaborated with other federal agencies and stakeholders to reduce nitrogen and phosphorus loadings to our nation's waters. While many entities have taken meaningful actions to reduce nutrient pollution, there continues to be a pressing need for concerted action to reduce nutrient pollution nationwide.

This memorandum highlights the continued need for action to address this challenge, calls upon states and stakeholders to intensify their efforts in collaboration with EPA, and announces support for state planning or implementation of watershed-based, multi-stakeholder projects to reduce impacts to public health from nitrates in sources of drinking water and from nitrogen and phosphorus pollution contributing to harmful algal blooms.

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<sup>1</sup> See "Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions" [https://www.epa.gov/sites/production/files/documents/memo\\_nitrogen\\_framework.pdf](https://www.epa.gov/sites/production/files/documents/memo_nitrogen_framework.pdf)

## Recent Examples of the Continuing Problem

There is an emerging body of evidence that documents threats to public health as well as continued findings of high levels of impacts to the ecological health of our nation's waters from nutrient pollution:

- Nutrient pollution contributes to an increasing trend in observed harmful algal blooms in surface waters that can release toxins that pose risks to human health. In 2014, 400,000 residents of Toledo, Ohio lost their public drinking water for three days due to algal toxins in the city's drinking water. In 2015, a 650-mile bloom on the Ohio River threatened drinking water treatment systems. In early 2016, the City of Ingleside Texas issued a 13-day do-not-drink advisory for cyanotoxins in their drinking water. This year, algal blooms have occurred from Alaska to Florida, closing beaches and affecting tourism and local economies, including a state of emergency declaration in four coastal counties in Florida. The State of Utah recently allocated \$1 million to respond to harmful algal blooms in Utah Lake, the third largest lake in the state, which closed beaches and marinas and led to irrigation water restrictions.<sup>2</sup> As of mid-August 2016, states have reported more than 250 health advisories due to harmful algal blooms this year.
- Nitrogen contamination of sources of drinking water can lead to high levels of nitrate in drinking water that are dangerous for infants. In 2015, 183 community water systems exceeded allowable levels of nitrate in drinking water. High levels of nitrates in Des Moines, Iowa's drinking water supply caused the city to install a \$4 million treatment plant in 1993, with recent plans for a new, multi-million dollar treatment plant for nitrates. Nitrate drinking water advisories in Columbus, Ohio, over a two-week period in 2015 and for one week this year, have led the community to build a \$35 million treatment facility. The Wisconsin Department of Natural Resources is responding to widespread nitrate contamination of groundwater wells in two counties and other states also face serious challenges with nitrate contamination of groundwater.<sup>3</sup>
- The National Aquatic Resource Surveys conducted by the EPA and state and tribal partners continue to show that nutrient pollution affects an alarming proportion of the Nation's waters. The 2012 survey of lakes found that 41 percent of the nation's lakes had high levels of phosphorus and 34 percent had high levels of nitrogen associated with harmful ecological impacts. The 2009-2010 survey of rivers and streams found that 46 percent have high levels of phosphorus and 41 percent have high levels of nitrogen.

Acknowledging concerns related to harmful algal blooms (HABs) and hypoxia, in 2014 Congress enacted the Harmful Algal Bloom and Hypoxia Research and Control Amendments Act which extended the scope of the legislation to include freshwater HABs and hypoxia.<sup>4</sup> In 2015, Congress amended the Safe Drinking Water Act and directed the EPA to develop a strategic plan for assessing and managing risks associated with algal toxins in drinking water provided by public water systems.<sup>5</sup> EPA's strategy identified source water protection (SWP) as a proactive and often cost-effective option to reducing contamination that would otherwise need to be removed by new or enhanced drinking water treatment technologies. While recognizing that factors like vertical stratification and water temperature may

<sup>2</sup> <http://beta.deseretnews.com/article/865660931/1-million-hardship-grant-awarded-for-Utah-Lake-study.html?pg=all>

<sup>3</sup> <http://www.greenbaypressgazette.com/story/news/local/door-co/2016/08/19/epa-official-promises-help-contaminated-well-owners/88965290/>

<sup>4</sup> <https://www.congress.gov/113/plaws/publ124/PLAW-113publ124.pdf>

<sup>5</sup> <https://www.congress.gov/114/plaws/publ45/PLAW-114publ45.pdf>

impact HABs, the strategy notes that addressing nutrient loading is the most immediate, controllable risk factor.<sup>6</sup>

### Keeping the Focus on Nutrient Reductions from All Sources

As the EPA underscored in its 2011 strategy, many of the most effective tools for addressing such pollution – including watershed and partnership approaches to protect source water through actions that address both nonpoint and point sources – are held by state and local governments. In the face of continuing public health impacts from excess nutrients, we ask that states and stakeholders, in collaboration with EPA, intensify efforts to take continued and concerted action to address nutrient pollution.

To help advance these efforts, the EPA Office of Water will:

- continue our support to states, territories and tribes through our “base” grant and technical assistance programs;
- make \$600,000 in additional FY 16 resources available for technical support, focused on incremental actions to reduce threats to public health from nitrates in sources of drinking water and from nitrogen and phosphorus pollution contributing to harmful algal blooms; and
- work with states through our Regional Offices to identify high-priority actions that each state intends to take to reduce nutrient pollution and then work together to assess progress and continue to hold ourselves accountable for achieving results.<sup>7</sup>

Key elements of the EPA’s plans for working with partners and stakeholders over the next several years include the following priorities:

### Prioritizing Watersheds and Setting Load Reduction Goals

Primarily through our “base” program grants to state water pollution control agencies, the EPA will continue to support states as they develop and implement nutrient reduction frameworks and strategies, including the 12 states that are members of the Mississippi River/Gulf of Mexico Watershed Nutrient (Hypoxia) Task Force. The eight elements of the nutrient load reduction framework outlined in the 2011 Memorandum continue to represent the minimum building blocks for an effective program to manage nitrogen and phosphorus pollution. We recognize that states may not combine all these elements into one document. In whatever form a framework or strategy takes, what remains important is that each state work expeditiously to:

- prioritize watersheds for nutrient load reduction;
- set challenging yet realistic load-reduction goals that improve water quality;
- reduce point and nonpoint sources of nutrient loads;
- provide for accountability and public reporting in its nutrient load reduction program; and

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<sup>6</sup> <https://www.epa.gov/sites/production/files/2015-11/documents/algal-risk-assessment-strategic-plan-2015.pdf>

<sup>7</sup> While this memorandum focuses on EPA’s engagement with states, EPA recognizes that a number of tribes are also concerned about and working to reduce nutrient pollution (see, e.g., <https://nationaltribalwatercouncil.org/nutrient-strategies/>). EPA encourages tribes to discuss appropriate next steps in their work to reduce nutrient pollution with their EPA Regional Office.

- continue to develop numeric nutrient criteria that clearly identify nutrient levels that are consistent with a state, tribe or territory's uses of its waters under the Clean Water Act (CWA) and serve as clear guides for protecting and restoring those uses for its citizens.

The EPA notes that in setting long-term priorities for their CWA Section 303(d) Programs, 45 states identified nutrient-related pollution as a priority to be addressed by TMDLs and/or alternative restoration plans.<sup>8</sup> To date, more than 8,600 nutrient-related TMDLs have been established, primarily by states, to guide nutrient reduction efforts in more than 5,800 waterbodies, including 1,800 nutrient-related TMDLs established for more than 1,200 waterbodies since 2011.<sup>9</sup>

### Reducing Point Sources of Nutrient Pollution

An important tool under the CWA continues to be issuing NPDES permits for point sources that limit nutrient discharges into priority waters. States have set end-of-pipe limits and used innovative approaches (e.g., trading) to reduce nutrient loads. Signs of progress include: 34 percent of the nation's 4,420 major individual wastewater treatment facilities that have numeric nitrogen and/or phosphorus limits, and 63 percent have nitrogen and/or phosphorus monitoring requirements.<sup>10</sup> The EPA will work with states to move towards the goal of including monitoring requirements for both total nitrogen and total phosphorus in NPDES permits for major municipal wastewater facilities.

To support states and their communities, the EPA will survey municipal wastewater treatment plants across the country to assess how efficiently conventional secondary treatment plants remove nutrients and how nutrient removal can be improved with enhancements to operations and maintenance. States and communities may be able to use this information to cost-effectively reduce nutrient loads from some POTWs. The EPA will continue to document community successes in reducing nutrient pollution using low-cost approaches that, in some cases, have reduced their energy bills.

### Reducing Nutrient Loads from Nonpoint Sources

Nonpoint sources play a substantial role in nutrient pollution in many watersheds, making watershed-based approaches at the state and local level – including those addressing nutrient pollution from agriculture and stormwater sources – critically important to addressing nutrient pollution. EPA, for its part, will continue to support state efforts with its \$165 million per year grant program under section 319 of the Clean Water Act, which, since 2011, has funded more than 1,100 projects to reduce agricultural nutrient losses and improve or replace onsite disposal (septic) systems.

Agriculture is an important contributor to nutrient pollution in many watersheds and can and should play a key role in addressing this challenge, through the implementation of cost-effective best management and soil conservation practices. EPA recognizes the importance of USDA's work to support the adoption of conservation systems through its national conservation programs and its initiatives,

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<sup>8</sup>Information provided by states to support reporting under EPA's new 303(d) program performance measure. U.S. Environmental Protection Agency, Office of Water, Water Quality Assessment and TMDL Information (ATTAINS) database. Data retrieved on November 4, 2015.

<sup>9</sup>U.S. Environmental Protection Agency, Office of Water, Water Quality Assessment and TMDL Information (ATTAINS). [Online] Available at: <http://www.epa.gov/waterdata/assessment-and-total-maximum-daily-load-tracking-and-implementation-system-attains>. [Accessed 23 May 2016].

<sup>10</sup> Source: U.S. Environmental Protection Agency's Integrated Compliance Information System- National Pollutant Discharge Elimination System (ICIS-NPDES). Data retrieved on February 5, 2016; as of this date, not all state permit data have been entered into ICIS.

including the innovative Regional Conservation Partnership Program (RCPP) and geographic initiatives for the Mississippi River Basin, Chesapeake Bay, Great Lakes and other regions. EPA and state water quality agencies will continue to collaborate with USDA's Natural Resources Conservation Service (NRCS) on the National Water Quality Initiative (NWQI), which is reducing nutrients, sediment and animal agriculture-related pathogens in more than 250 small watersheds across the country and helping to foster broader collaboration between NRCS and state water quality agencies.

EPA will continue to collaborate with stakeholders in the agricultural sector and urges an acceleration of efforts in this area. One example of promising recent work is a partnership of pork and dairy producers, USDA, EPA and others on the "Nutrient Recycling Challenge," a competition to develop affordable technologies that recover nutrients from livestock manure and generate products that make beneficial use of nutrients and reduce nutrient losses. EPA is also collaborating with partners in the agricultural industry to train certified crop advisors on high impact conservation practices and systems that reduce nutrient losses. Agricultural stakeholders can also play an important role in watershed partnership efforts to reduce nutrient pollution, as they are, for example, in Cedar Rapids, Iowa, through the Middle Cedar Partnership RCPP project, where the city is working with local conservation partners, farmers and landowners to install practices to address increasing nitrates and flood events in the Cedar River. EPA recognizes that the growing interest of private entities in sustainability of their supply chains has the potential to reduce nutrient loads.

#### Continued Progress on Developing Nutrient Criteria

Strengthening water quality standards to address nutrient-impaired waterbodies is one important tool for meeting clean water goals. EPA continues to advocate the benefits of adopting numeric nutrient criteria because they provide measurable water quality-based goals that are easier to implement than the narrative criteria statements in many state water quality standards. To date, 28 states, territories and one tribe have adopted numeric criteria into their water quality standards for nitrogen and/or phosphorus for one or more of their water bodies.<sup>11</sup> Since 2005, EPA's Nutrient Scientific Technical Exchange Partnership and Support Program (N-STEPS) has provided 30 states with technical assistance for development of numeric criteria for nutrient pollution, including development of numeric translators that can be used in the near term to implement state narrative nutrient criteria. EPA will continue to strongly encourage and support states and tribes as they develop numeric nutrient criteria and numeric translators for the narrative standards and will continue to track progress towards adoption of numeric nutrient criteria into water quality standards.

#### Financial Assistance, Including for Incremental Actions Focused on Public Health Risks

OW will continue to make assistance available through the Clean Water Act Section 106 and 319 grant programs and through infrastructure assistance via the State Revolving Loan Fund Programs. Other sources of funding include Section 604(b) planning grants, Wetland Program Development grants and geographically-targeted funding for the Chesapeake Bay, Great Lakes and other great water bodies. OW will continue its long-standing technical assistance, via the N-STEPS program, to support states' development and adoption of numeric nutrient criteria in water quality standards.

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<sup>11</sup> U.S. Environmental Protection Agency, Office of Water, State Development of Numeric Criteria for Nitrogen and Phosphorus Pollution. Available at <https://www.epa.gov/nutrient-policy-data/state-development-numeric-criteria-nitrogen-and-phosphorus-pollution> [accessed June 23, 2016].

Responding to the growing evidence of threats to human health, OW will use FY 16 resources to make an additional \$600,000 in technical assistance available for five to ten projects proposed by states or tribes to help them and their partners advance their planning or implementation of multi-stakeholder projects to reduce threats to public health from nitrates in sources of drinking water and from nitrogen and phosphorus pollution contributing to harmful algal blooms. Our experience shows that projects that focus on a defined, small watershed area, that address all sources of contamination, that have active local community involvement and that combine resources from multiple partners and stakeholders are most likely to be successful. We envision the modest resources we are offering could help meet a key technical assistance need for such a project and help EPA show the value of such projects and collaborative efforts for reducing threats that nutrient pollution pose to public health and water quality.

#### Transparency and Accountability

Documentation of areas in need of more attention as well as progress are critical to success of all of the efforts described above. The EPA encourages all states to be accountable to the public for their work on nutrient pollution. The EPA is collaborating with the Association of Clean Water Administrators as they work with their members to document state progress. As noted above, through our Regional offices EPA will work with states to highlight high priority, incremental actions they intend to take to address nutrient pollution going forward. The EPA will issue biennial reports that assess progress, prioritize action as needed, and provide accountability for addressing the nutrient pollution challenge with the urgency and sustained commitment it warrants.

The EPA will continue to document the extent and severity of nutrient pollution and algal toxins in its national and broad regional statistical surveys and continue to support state and tribal monitoring programs that document state-scale conditions and the status of individual waters. Recent advances in nutrient sensors and advanced monitoring technologies will help to track progress.

#### Need for Further Action

Given the scope and tremendous environmental and economic impacts of nutrient pollution on public health and water quality, it is critical that all of us renew our commitment and accelerate our efforts to address this challenge. The EPA looks forward to dialogue with states on renewed engagement, continued collaboration, and expansion of meaningful partnerships to help us meet this priority challenge; and to working together to ensure public transparency and accountability in this ongoing effort.

cc: Regional Administrators  
Regional Water Division Directors  
Office of Water Office Directors  
ECOS Executive Director  
ACWA Executive Director