

Addressing Nutrient Pollution

ISSUE SUMMARY:

Excess nutrients in waterways is a widespread and costly environmental and public health challenge. Excess nutrients such as phosphorus and nitrogen can degrade water quality, feed harmful algal blooms, and affect drinking water sources. These problems can lead to costly impacts on recreation, drinking water, tourism, and fisheries.

UPCOMING MILESTONES:

- **Fall 2024:** Finalize a revised policy statement on water quality trading baselines for nonpoint sources of pollution in watersheds where EPA established or approved state Total Maximum Daily Loads (TMDL).
- **Winter 2024-2025:**
 - Request comments on a proposed rule to clarify National Pollution Discharge Elimination System (NPDES) permitting authorities for market-based approaches (such as water quality trading) via permit conditions.
 - Release additional Gulf Hypoxia Program grants under the Bipartisan Infrastructure Law (BIL) to help state partners implement the Action Plan of the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (Hypoxia Task Force or HTF).
 - Finalize 3 more training modules for NPDES permit writers on tools for flexibility for nutrient permit limits.
 - Office of Water leadership will co-chair, with the State of Iowa, a meeting of the Gulf of Mexico Hypoxia Task Force on improving water quality in the Mississippi River Basin and Gulf of Mexico.
 - Take action to meet an August 2025 consent decree deadline on an Effluent Limitations Guideline for the Meat and Poultry Products Point Source Category. Nationally, the proposed rule options would reduce nitrogen and phosphorus discharges by between 16 to 96 million pounds per year.

• BACKGROUND:

Excess nutrients in waterways contribute to harmful algal blooms (HABs) in surface waters that can release toxins and pose risks to human health and the environment. In August 2014, a HAB contaminated the drinking water supply of Toledo, Ohio, with levels of cyanotoxins in finished drinking water that led to a weekend-long “do-not-drink” advisory. A similar 2018 event in Salem, Oregon, led to a “do-not-drink” advisory for vulnerable populations lasting several weeks. Major blooms were also reported in the Ohio River in 2015, in Utah lakes in 2016, and there have been multiple large annual blooms in Florida and other locations since 2016. Excess nutrients also contribute to hypoxic (low oxygen) zones, across the country, including the large dead zone at the mouth of the Mississippi River. In Florida’s Indian River Lagoon, more than 1,000 manatees have starved as nutrient-fed algal blooms block sunlight needed for abundant sea grasses.

While point source discharges of nutrients still cause or contribute to water quality problems in some places, the most significant opportunities to reduce excess nutrients in water are from nonpoint sources. EPA’s 2024 CWA Needs Survey identified \$94 billion in needs for reducing nonpoint sources of pollution, along with \$75 billion for upgrading/replacing decentralized systems like septic tanks. Because EPA does not have regulatory authority over nonpoint sources of pollution, partnerships, collaboration and financial support for states, tribes and stakeholders are critical to making sustained progress. In April 2022, the Office of Water released a nutrient policy memo that outlined three primary strategies to drive continued reductions in nutrient pollution: 1) deepen collaborative partnerships with agriculture; 2) redouble efforts to support states, tribes, and territories to achieve nutrient pollution reductions from all sources; and 3) utilize EPA’s CWA authorities to drive progress, innovation, and collaboration. The agency is investing significant time, effort and energy into strategic use of regulatory programs, promoting non-regulatory, geographically-based and community-driven approaches and using new financial assistance under the Bipartisan Infrastructure Law. In May 2024, EPA finalized revised guidelines for the CWA Section 319 Nonpoint Source Program with greater emphasis on state actions to reduce nutrient pollution.

Collaboration with the U.S. Department of Agriculture (USDA) is essential to controlling nonpoint source pollution from farms and other agricultural sources. Through the National Water Quality Initiative, EPA and USDA are accelerating adoption of high-impact conservation practices on vulnerable lands using a watershed approach to maximize water quality results. The EPA is working alongside state and utility associations, non-governmental organizations, federal agencies (including USDA) and other partners through the national Source Water Collaborative that supports effective source water protection strategies to reduce and prevent nutrient pollution, HABs and cyanotoxins in drinking water sources. In response to petitions to revise EPA's NPDES Concentrated Animal Feeding Operation (CAFO) regulations, EPA established the [Animal Agriculture Water Quality \(AAWQ\) Subcommittee](#) under the Farm, Ranch, and Rural Communities Federal Advisory Committee (FRRCC), with the purpose of providing recommendations that will inform the agency's decisions regarding how to improve the implementation of NPDES CAFO permitting to more effectively reduce nutrients and other types of water pollutants from animal feeding operations.

Under the BIL's new Gulf Hypoxia Program, EPA is awarding \$60 million to the Hypoxia Task Force states, Tribes and Task Force partners to assist with implementation of nutrient reduction strategies. Through BIL, the EPA is investing \$126 million to increase its support for NEPs as they work with 1,600 public and private sector partners, including over 100 state agencies and use non-regulatory, outcome-based programs to improve and protect water quality and address nutrient pollution. More than a billion dollars in BIL funding has been directed to geographic programs like those for the Long Island Sound, Chesapeake Bay, and Puget Sound to address priority concerns including nutrient pollution. EPA's Gulf of Mexico Division continues to award [Farmer to Farmer](#) Cooperative Agreements to fund farmer-led projects that improve water quality, habitat and environmental education in the Gulf of Mexico watershed.

Currently, more than 15,700 TMDLs have been established for nutrient-related pollution, primarily by states, for more than 11,300 waters. 45 states identified nutrients as a priority for development of TMDLs, advanced restoration plans or protection approaches.

To assist states in establishing protective standards for their waters, in August 2021 EPA published national recommended ambient [water quality criteria for lakes and reservoirs](#) to address nutrient pollution. These criteria represent the latest scientific knowledge of the concentrations of nitrogen and phosphorus that are protective of drinking water sources, recreational uses, and aquatic life in lakes and reservoirs. EPA provides direct technical assistance through the N-STEPS program (Nutrient Scientific Technical Exchange Partnership & Support) to help states, territories, and Tribes develop their own numeric nutrient criteria based on local data.

As mandated by the 2015 Drinking Water Protection Act, in November 2015, EPA submitted to Congress the [Algal Toxin Risk Assessment and Management Strategic Plan for Drinking Water](#). EPA continues to make progress on the short- and long-term activities identified in the plan, including a suite of tools for drinking water utilities, state and tribal partners to use to effectively implement cyanotoxin monitoring, treatment and risk communication approaches; development of factsheets on funding opportunities; and new analytical methods. With this increased focus and suite of management tools, drinking water systems are better prepared to manage algal toxin risks in drinking water supplies. From-2018-2020, EPA worked with public water systems to implement the first national finished drinking water monitoring effort for cyanotoxins under the fourth Unregulated Contaminant Monitoring Rule (UCMR 4). Using these and other data, EPA is evaluating how best to manage two of the more common algal toxins in drinking water supplies, including through the regulatory determinations process.

The EPA released the *FY 2023 – FY 2028 EPA Strategic Plan to Address Harmful Algal Blooms* in January 2023 which called for the formation of a National HAB Program (NHP) to improve interagency coordination of all HAB related activities. The NHP conducts and coordinates these main activities: 1) Promoting Inter- and Intra- Agency Coordination and Communication, 2) Implementing a National HAB Monitoring and Forecasting Program, 3)

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Providing Technical Assistance and Training, and 4) Developing Reports on EPA's Efforts to Address HABs. The [NHP website](#) serves as the main clearinghouse for NHP resources.

The Agency has received several Safe Drinking Water Act section 1431 nitrate petitions seeking actions by EPA to address nitrate contamination in Kewaunee County in Wisconsin (2014), the Lower Umatilla Basin (LUB) in Oregon (2020), Lower Yakima Valley (LYV) in Washington (2021), and the southeast area (karst region) of Minnesota (2023). These petitions allege that the contaminant (nitrate) presents an imminent and substantial endangerment to the health of persons and are seeking both short-term actions by EPA, including alternative water for impacted residents, and longer-term remedies that implicate EPA's regulation of CAFOs.

KEY EXTERNAL STAKEHOLDERS:

☒ Congress ☒ Industry ☒ States ☒ Tribes ☒ Media ☒ Other Federal Agency
☒ NGO ☒ Local Governments ☒ Other (name of stakeholder) Agriculture, USDA

MOVING FORWARD:

- Continue to implement the HAB Strategic Plan through the National HAB Program including:
 - Develop next generation high resolution Cyanobacteria Assessment Network (CyAN) HAB satellite monitoring in collaboration with partner agencies (USACE, NASA, USGS, NOAA) to expand daily HAB estimates to more than 270,000 lakes and nearly all estuaries, as well as expanding the 7-day HAB forecast.
 - Provide leadership for all freshwater responsibilities under the Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA) including co-chairing the Interagency Working Group, completing the South Florida HAB Final Assessment and Action Plan, completing the five-year HAB National Assessment, and completing implementation of a framework for freshwater monitoring and forecasting as recommended by the GAO.
- Work with states to implement new guidelines for their nonpoint source management programs, co-chair the Hypoxia Task Force, lead the new Gulf Hypoxia Program to support state nutrient reduction strategies, and work with USDA on reducing agricultural runoff.
- Expand the partnership between the Clean Water State Revolving Fund (CWSRF) and the CWA Section 319 Program to support the expansion of eligibility and funding for nutrient pollution control projects, including efforts to build the capacity of watershed organizations and conservation districts to establish watershed financing partnerships.
- Expand the use of National Estuary Programs' and Geographic Programs' watershed-based partnerships to develop and implement nutrient management programs in all coastal states.
- Continue to conduct critical research on nutrients and HABs.
- Continue to provide technical support and resources through EPA's Nutrient Scientific Technical Exchange Partnership and Support (N-STEPS) program to assist state and Tribal development of numeric nutrient criteria.

LEAD OFFICE/REGION: OW

OTHER KEY OFFICES/REGIONS: ORD, GREAT LAKES
NATIONAL PROGRAM, ALL EPA REGIONS