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Illinois' Efforts to Improve Water Quality Detailed in 2023 Nutrient Loss Reduction Strategy Biennial Report

SPRINGFIELD, Ill. — Illinois' ongoing commitment to water quality is demonstrated in the 2023 Biennial Report of the Illinois Nutrient Loss Strategy (NLRs). The report has been developed by the Illinois Environmental Protection Agency (Illinois EPA), Illinois Department of Agriculture (IDOA), and University of Illinois Extension, and is available at go.illinois.edu/NLRS.

The 2023 Biennial Report is the fourth update to the strategy since its inception in 2015. Implementation of the NLRs is guided by research to optimize nutrient loss reduction while fostering deep collaboration and innovation across academia, the private sector, non-profits, wastewater agencies, and local, state, and federal government agencies. The report details the progress of the State's efforts to improve water quality by reducing nutrient pollution, which affects both local waterways and the Gulf of Mexico. It outlines initiatives in 2021–22 that reduce nutrient loss across the agricultural, wastewater, and urban stormwater sectors and stresses the multifaceted challenges to addressing nutrient loss.

The NLRs is a collaborative effort involving a diverse group of science, technology, and industry experts and stakeholders. The NLRs has a goal of reducing nutrient pollution in Illinois' waterways and the Mississippi River basin by recommending practical, research-based actions, and best management practices. The primary goal of the NLRs is a 45% reduction in both nitrogen and total phosphorus loads, with interim targets set at a 15% nitrogen decrease and a 25% total phosphorus decrease by 2025.

"This Biennial Report showcases the commitment of the agriculture industry to be good stewards of the land," **said IDOA Director Jerry Costello II**. "Through the works of the NLRs, the Department learned the value of having a 'boots on the ground' conservation presence state-wide working directly with farmers implementing in-field practices focused on soil health."

"This report provides a candid update on the outcomes and ongoing initiatives across all sectors, particularly in light of the climatic challenges faced by Illinois and neighboring states within the Mississippi River basin," **said Illinois EPA Director John J. Kim**. "Our collective endeavor is to integrate more effective measures to curtail nutrient pollution. We remain committed to the goals set out in the 2015 Strategy, and we are resolute in our collaborative approach to confront and overcome these environmental challenges."

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Nutrient pollution, primarily from excess nitrate-nitrogen and total phosphorus, promotes algal growth and impairs local ecosystems which can make water unsuitable for drinking, recreation, fishing, and aquatic life. Excess nutrients also contribute to the “dead zone” in the Gulf of Mexico where aquatic life struggles due to depleted oxygen levels. Illinois is one of 12 states with nutrient loss reduction strategies who are members of the Mississippi River/Gulf of Mexico Hypoxia Task Force created to address the issue.

The 2021-22 water quality measures present varied results. The five-year average from 2017-21 shows nitrogen loads increased by 4.8% to 416 million pounds annually and total phosphorus loads increased by 35% to 46 million pounds annually, when compared to the 1980-96 baseline. River flow, or water yield, was 23% higher than the baseline. Statewide nitrate-nitrogen and total phosphorus loads have been highly correlated with water yield, which itself is highly correlated with precipitation. Greater runoff and drainage associated with climate change also tend to increase river loads.

Throughout the state and across the nonpoint source (including agriculture), point source, and urban stormwater sectors, NLRS partners work to mitigate nutrient loss through at least 78 distinct nutrient loss reduction programs and projects. Community outreach and engagement to educate the public and encourage action are crucial components of the strategy. In 2021–22, source sector experts connected with 123,860 people at 1,080 community events. Topics included land management practices such as cover crops, wastewater facilities improvements, and stormwater tips for homeowners.

In the agricultural sector, surface runoff and subsurface drainage are the primary sources of nutrient loss. The NLRS recommends a variety of in-field and edge of field practices to reduce nutrient loss from these sources. During 2021–22, conservation efforts jointly funded by the IDOA and Illinois EPA successfully prevented 73,000 pounds of nitrogen and 30,000 pounds of phosphorus from entering the state’s waterways. These efforts included IDOA’s Partners for Conservation and Fall Covers for Spring Savings programs, Illinois EPA’s Section 319 Non-Point Source Pollution Control Program, and multiple U.S. Department of Agriculture programs.

The point source sector is implementing strategies such as optimizing operations of existing equipment, upgrades to wastewater treatment facilities, and watershed-based approaches to reduce nutrient loads. The Illinois point source sector decreased its total phosphorus discharges by 6.2 million pounds or 34% since 2011, surpassing the strategy’s 2025 interim goals for the sector. This is largely attributed to the Illinois EPA’s National Pollutant Discharge Elimination System permit program, which mandates treatment facility improvements and optimizations.

In the urban stormwater sector, water quality improvement efforts focus on managing runoff and reducing the duration and intensity of flooding. In 2021–22, initiatives funded by the Illinois EPA Green Infrastructure Grant program kept 1.2 million gallons of stormwater out of waterways through 11 Illinois EPA funded projects. A majority, 70%, of communities with Municipal Separate Storm Sewer Systems have adopted annual street sweeping and leaf

collection practices. The stormwater sector continues to provide public education on nutrient loss reduction from public and private property.

“Our partnership with NLRS allows University of Illinois’ research scientists and outreach educators to engage with industry experts and agricultural producers across the state, all in the pursuit of enhancing the health of our waterways,” **said Dr. Shibu Kar, Illinois Extension Assistant Dean and Program Leader for Natural Resources, Environment, and Energy.** “The findings in this report underscore the need to deepen our understanding of nutrient dynamics. It’s imperative that we bolster our research efforts and foster stronger ties with farming communities in priority watershed areas, ensuring the widespread adoption of best management practices.”

A variety of factors contribute to rising nutrient loads, including increased streamflow, legacy nutrients, nutrient management practices, and unknown sources. The impacts of climate change, particularly increased runoff and drainage, intensify river loads and will require greater efforts to achieve the strategy’s water quality goals.

Despite the ongoing implementation of nutrient loss reduction practices by each sector, challenges remain. In particular, the agricultural sector must rapidly adopt conservation practices on a wider scale. Continued support for research, conservation initiatives, and financial and technical assistance is critical.

More work is needed to encourage the voluntary adoption of agricultural conservation practices and foster deeper community engagement at the watershed level. Collaboration with partner organizations remains essential to realizing the water quality and implementation goals of the Illinois NLRS.

The 2023 NLRS Biennial Report and an executive summary are available at go.illinois.edu/NLRS. Print copies of the report and executive summary are available upon request to NLRS@Illinois.edu.

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