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Submitted Online to MPCA Comment Site (<https://mpca.commentinput.com/?id=tFdSVcJQ3>)

Corrie Layfield, Minnesota Nutrient Reduction Strategy Coordinator
Minnesota Pollution Control Agency
520 Lafayette Rd.
Saint Paul, MN 55155

RE: Minnesota Nutrient Reduction Strategy 2025 Update

Dear Ms. Layfield,

This comment on the Minnesota Pollution Control Agency's (MPCA) Nutrient Reduction Strategy is submitted on behalf of WaterLegacy. We also support the more scholarly comments of the Natural Resources Defense Council and other groups.

WaterLegacy believes that MPCA's Nutrient Reduction "Strategy" is currently more like the "wish" many of us make each New Year's Day to lose weight in the coming year. We generally recognize that the way to achieve this goal is to stop consuming excessive nutrients and to change our habits so that nutrients are used for growth and energy, rather than unhealthy excess. But without measurement, documentation, specific changes in practices, and ongoing verification of whether our tactics are working, nothing changes.

The MPCA nutrient reduction goal of 45% reduction of nutrients in Minnesota watersheds by 2040 seems to have the same failings, as suggested by its missed mid-point target of 20% control by 2025.

WaterLegacy recommends that the MPCA take seriously the term "Strategy" for Nutrient Reduction and implement measurement and documentation, specific changes in practices, and ongoing verification of whether tactics are actually achieving nutrient reduction objectives. Below are specific recommendations to achieve the MPCA's 45% nutrient reduction goal:

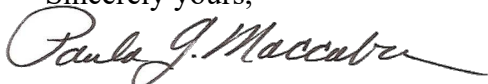
- Define "excessive fertilizer use" or "overapplication" of nitrogen fertilizer to prevent leaching of toxic nitrogen runoff and production of nitrous oxide—a potent greenhouse gas produced by overstimulation of soil microbes. This definition should be based on achievement of human health, ecosystem restoration, and climate sustainability. These and other specific requirements should be adopted in rulemaking within two years.
- Compile and analyze all existing data regarding in-field fertilizer levels and water run-off from applying chemical fertilizers and manure at different concentrations, at different times, and with different cover cropping and conservation drainage regimes to specify and set the conditions necessary to avoid and prevent excessive fertilizer use or fertilizer overapplication.

- Conduct rulemaking to mandate in-field management practices to prevent excessive fertilizer use and meet public health, ecosystem restoration, and climate sustainability goals. Use limits adopted as a result of the European Union Nitrates Directive as a template. Other requirements that may be needed in Minnesota include cover cropping, drainage management, and limits on the timing of chemical fertilizers and manure applications. Standards should be more stringent in karst areas and other areas with fissures in bedrock.
- Allow growers using Best Management Practices (BMPs) to obtain an exemption from mandates for no more than five years, and only if the grower verifies through in-field, surface water, and groundwater measurement that the fields using BMPs are preventing excessive fertilizer use and achieving reductions that will allow the state to meet its targets.
- Maintain an ongoing statewide database of on-farm data such as drainage tiling, chemical fertilizer and manure application levels and timing, correlated with monitoring of surface water runoff and groundwater quality. Use this data to identify priorities for action and areas where tactics have been effective, and make data accessible to the public.
- Set limits on fertilizer application in urban and suburban areas as well as agricultural areas. Require measurement, verification, and drainage reduction practices in all watersheds where downstream wetlands, lakes, streams, or groundwater have elevated levels of nutrients or algae blooms.
- Continually update strategies to consider impacts of new technologies that may improve targeting, verify that application of fertilizers is not excessive, or make it more difficult to document when application occurs. Consider how remote sensors, variable-rate application, and drone use could affect implementation of nutrient reduction strategies.

Minnesota's excessive use of nutrients—more than are needed for healthy crop yields and green urban/suburban landscapes—are harming more than just our state's human health, ecosystems, and climate sustainability. Minnesota's bad habits are making our downstream neighbors on the Mississippi River unwell, and the illness of our waters is affecting ocean ecosystems in the Gulf of Mexico.

It is long past time to adopt and implement a real Nutrient Reduction *Strategy*, rather than taking a wishful look in the mirror each New Year's Day and hoping that we will get a different and better outcome by repeating the same actions we took last year.

Sincerely yours,



Paula G. Maccabee

WaterLegacy Executive Director and Counsel