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Katrina Kessler, Commissioner  
Minnesota Pollution Control Agency  
520 Lafayette Road N.  
St. Paul, MN 55155-4194

RE: Minnesota Wild Rice Sulfate Water Quality Standard NPDES/SDS Wastewater Permit Implementation.

Framework for developing and evaluating site-specific sulfate standards for the protection of wild rice.

Procedures for implementing the Class 4A wild rice sulfate standards in NPDES wastewater permits in Minnesota.

Dear Commissioner Kessler,

The following comments are submitted by WaterLegacy regarding the Minnesota Pollution Control Agency's (MPCA) proposed implementation for the wild rice sulfate standard in the NPDES/SDS process, which includes both procedures for developing and evaluating site-specific standards<sup>1</sup> and procedures for implementing wild rice sulfate standards in NPDES permits.<sup>2</sup> WaterLegacy appreciates the efforts made by the MPCA to describe the value of wild rice and its ecological cyclicality. However, WaterLegacy is deeply disappointed in the proposed implementation concepts and procedures for enforcing the wild rice sulfate standard.

MPCA has resisted enforcement of the 1973 duly enacted and federally-approved wild rice sulfate standard for decades. WaterLegacy had hoped that decisions in the past five years by the Administrative Law Judge (ALJ) and Chief ALJ, the Minnesota courts, and the United States Environmental Protection Agency (EPA) determining that wild rice water quality standard (WQS) must be enforced to comply with the Clean Water Act in permitting and in listing and restoring impaired waters would change MPCA's modus operandi. However, both MPCA's site-specific standards and implementation procedures appear to allow the Agency and permittees to

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<sup>1</sup> MPCA, Framework for developing and evaluating site-specific sulfate standards for the protection of wild rice (June 2023), <https://www.pca.state.mn.us/sites/default/files/wq-s6-66.pdf> (Wild Rice Sulfate SSS Framework).

<sup>2</sup> MPCA, Procedures for implementing the Class 4A wild rice sulfate standards in NPDES wastewater permits in Minnesota, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm2-109.pdf>, (Wild Rice Sulfate Permit Procedures).

avoid application of Minnesota’s wild rice standard or to allow sulfate far discharge far in excess of the 10 milligrams per liter (mg/L) wild rice sulfate WQS.

MPCA’s proposals are contrary to law and/or inimical to science and must be altered before procedures for implementing the wild rice sulfate standard are finalized.

1. The 10 mg/L Wild Rice Sulfate Water Quality Standard is the Effect Criterion.

MPCA’s concept that a site-specific standard may be chosen based on “sediment-based equation” rejected in the 2017-2018 contested case rulemaking or a “likely sulfate effect threshold” based on the review of literature or sulfide concentrations in sediment porewater,<sup>3</sup> is contrary to scientific evidence, contrary to law, and contrary to EPA’s recent decisions overruling MPCA failure to list wild rice waters where sulfate exceeds 10 mg/L as impaired due to excessive sulfate.

MPCA’s proposal to allow more sulfate pollution where there is also a high level of iron in sediments was rejected by the Administrative Law Judge (ALJ) in the 2018 rulemaking, rejected by the Chief ALJ, and then withdrawn by the MPCA. There is no scientific justification for resuscitating this unprotective approach. MPCA’s 2017 “novel approach” that a model for sediment iron, organic carbon and surface water sulfate should be used to determine a sulfate effect threshold to replace Minnesota’s 10 mg/L numeric wild rice sulfate standard was debunked in the contested case rulemaking process.

There is robust scientific evidence that the mechanism of sulfate impairment of wild rice is not ameliorated by iron in sediments. Iron sulfide plaques form on roots and impair nutrient uptake and seed production. It was further demonstrated in the 2017-2018 administrative process that, from a mathematical perspective, the “equation” MPCA proposed in 2017 to replace the 10 mg/L wild rice water quality standard would have the effect of allowing more sulfate pollution, not protecting wild rice. Although the modeling equation approach is favored by both taconite and sulfide ore mining interests to avoid or minimize the need for sulfate treatment, it is not scientifically supported.<sup>4</sup>

MPCA states that “tailoring” the wild rice sulfate WQS is consistent with the Clean Water Act, suggesting, in effect, that Minnesota’s 10 mg/L adopted and federally approved WQS is merely an advisory starting point, not a standard. This approach is contrary to the Clean Water Act, where water quality standards set criteria to protect the beneficial use. 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. § 131.3(i). Numeric standards, like the 10 mg/L wild rice WQS provide criteria establishing quantifiable concentrations of pollutants that can’t be exceeded in order to support a particular beneficial use. 40 C.F.R. § 131.3(b). Consideration of “guidance” under

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<sup>3</sup> Wild Rice Sulfate SSS Framework at 3.

<sup>4</sup> Expert reports from the 2017-2018 contested case hearing and subsequent peer-reviewed literature are provided in Attachment A (John Pastor opinion and supporting documents, 2017); Attachment B (Joel Roberts opinion 2017); and Attachment C (Sophia LaFond Hudson articles, 2018, 2020, 2022).

Clean Water Act regulations, 40 C.F.R. § 131.11(b)(1)(i) is used to adopt a numeric standard, not to deviate from that federally-approved standard.<sup>5</sup>

MPCA’s proposal that permittees return to the open-ended and unprotective equation proposed and rejected in rulemaking is also inconsistent with the EPA’s April 27, 2021 Decision Document Regarding the Sulfate Impaired Waters EPA is Adding to the Minnesota 2020 Clean Water Act Section 303(d) List (EPA Sulfate Impaired Waters Decision). In that Decision, EPA overruled MPCA’s failure to identify *any* Minnesota wild rice waters impaired due to sulfate exceeding the wild rice sulfate standard of 10 mg/L.

The EPA emphasized, “Since 2012, EPA has also strongly encouraged MPCA to develop an assessment methodology and to engage in a substantive effort to assess and list waters *against its current wild rice criterion*.”<sup>6</sup> EPA summarized the history of the rule, noting that after “the 2018 Chief ALJ Order disapproving [MPCA’s] proposed standards revision . . . MPCA withdrew its effort to clarify the wild rice beneficial use and associated criterion.” *Id.* at 9. EPA listed sulfate impaired Minnesota wild rice waters under Section 303(d) of the Clean Water Act based on data showing the “exceedance of the numeric 10 mg/L sulfate criterion.” *Id.* at 14.

MPCA’s Wild Rice Sulfate SSS Framework further demonstrates that MPCA is not intending to use site-specific standards in a manner that would be protective of wild rice beneficial uses. MPCA’s Mississippi River Pool 8 example presumes that a less stringent standard should apply to this waterbody since the number of wild rice locations has not declined since 1989. Wild Rice Sulfate SSS Framework at 8. However, beginning the analysis of decline at 1989 is insufficient under the Clean Water Act. In addition, MPCA’s own criteria for protection of the wild rice beneficial use requires more than counting locations. *Id.* at 3.

It is clear that any implementation of site-specific wild rice sulfate standards needs clear guardrails not provided in MPCA’s draft:

- The Wild Rice Sulfate SSS Framework must state that the 10 mg/L wild rice sulfate standard is the applicable water quality criterion that will be incorporated into all NPDES permits pending attempts by any party to conduct the research and devise a less stringent site-specific sulfate standard.
- The Wild Rice Sulfate SSS Framework must further state that the 10 mg/L WQS represents the “threshold effect” on wild rice.

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<sup>5</sup> MPCA’s discussion of this regulation in the Wild Rice Sulfate SSS Framework at 1, is simply incorrect.

<sup>6</sup> EPA, Sulfate Impaired Waters Decision, [https://www.epa.gov/sites/default/files/2021-04/documents/2021.4.27\\_2020\\_mn\\_303d\\_dd\\_phase\\_2\\_.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/2021.4.27_2020_mn_303d_dd_phase_2_.pdf), Attachment D at 8 (emphasis added)

- The Wild Rice Sulfate SSS Framework must state that any person seeking a less stringent site-specific standard must demonstrate that the wild rice beneficial use has been fully protected at all historical times for tribal uses and since November 28, 1975 for other uses, not merely that wild rice plants have survived despite elevated sulfate.

## 2. Permitting Cannot Allow Degradation or Fail to Consider High Quality Waters.

The decision tree in MPCA’s Wild Rice Sulfate Permit Procedures has several important flaws that will result in inadequate protection of wild rice beneficial use. They will not ensure that sufficient effluent controls are imposed to prevent sulfate discharge from causing or contributing to exceedance of numeric standards or from degrading wild rice.

First, MPCA’s failure to address sulfate loading as well as sulfate concentration in waters that are impaired or lack assimilative capacity is scientifically untenable and inconsistent with applicable law. Sulfate is toxic to wild rice due to its effects on sediment chemistry and biochemical reactions that result in sulfide formation. Sulfate may form chemoclines in lakes, where sulfate concentrations are higher near the lake bottom than surface sampling data would suggest. Wild rice waters where water is shallow, slow-moving, or backwater may not sluice away the sulfate in the water flow. Limiting additional loading of sulfate to wild rice waters is necessary to avoid sulfide toxicity and excessive release of nitrogen and phosphorus nutrients that can adversely impact wild rice.

Applicable federal and state laws explicitly require that limits be placed on loading of new discharge of pollutants to impaired waters to comply with wasteload allocations and that water quality-based effluent limits control pollutants by weight or mass, not only by concentration. 40 C.F.R. §§ 122.4(i), 122.44(d)(1)(vii); Minn. Stat. §115.03, subd. 10; Minn. R. 7001.1080, subs. 1, 2(A); *see also In re Cities of Annandale & Maple Lake NPDES/SDS Permit Issuance for Discharge of Treated Wastewater*, 731 N.W.2d 502 (Minn. 2007).

Second, MPCA’s proposed “boundary condition” between wasteload discharge and wild rice waters is not sufficient to control discharge that has “the reasonable potential to cause, or contribute” to an exceedance of the wild rice sulfate standard in a downstream water. 40 C.F.R. §122.44(d)(1)(i); Minn. R. 7001.0180, subp. 1. If there are sulfate dischargers above and below a low-sulfate tributary that both contribute to an exceedance in a downstream waterbody, both dischargers of sulfate require water quality-based effluent limits. For example, in an otherwise 1.5 mg/L low sulfate stream, if upstream (NPDES 1) discharge of 100 mg/L sulfate is diluted to 9.5 mg/L by a clean tributary and then contributes to sulfate discharged by a second (NPDES 2) discharger, resulting in a sulfate level of 12 mg/L in a wild rice water, both the NPDES 1 and NPDES 2 entities should have effluent limits, since both have the reasonable potential to cause or contribute to the exceedance of the 10 mg/L wild rice sulfate standard in a wild rice water.

Third, neither MPCA’s Wild Rice Sulfate Permit Procedures nor MPCA’s Wild Rice Sulfate SSS Framework address the need to prevent degradation of the productivity, ecological health, and/or genetic diversity of wild rice. *See* Minn. R. 7050.0224, subp. 1; 7050.0250; 7050.0265; 7050.0280. In the areas of wild rice abundance, sulfate concentrations are generally much lower

than 10 mg/L. For example, average sulfate concentrations in Big Sandy Lake are 1.2 mg/L sulfate. Wild rice waters on which wildlife and harvesters rely for food and where tribal members exercise treaty-reserved usufructuary rights, are often low-sulfate waters. MPCA has cited no research and WaterLegacy knows of none demonstrating that increasing sulfate loading to low-sulfate wild rice waters or increasing sulfate concentrations until they approach 10 mg/L will not degrade the quality or quantity of wild rice.

MPCA's discussion of site-specific standards, similarly, contains no guidance for development of *more* stringent site-specific standards to preserve low-sulfate wild rice waters or wild rice waters with outstanding value for wildlife, human harvest, exercise of treaty-reserved rights, or preservation of genetic diversity. MPCA does not appear to have evaluated conditions under which a more stringent site-specific sulfate standard would be imposed. Given the devastation of wild rice caused by anthropogenic land use, pollution, and climate change across the nation as well as across Minnesota, MPCA must adopt a more more proactive approach.

MPCA's Wild Rice Sulfate Permit Procedures and Wild Rice Sulfate SSS Framework must be revised to provide protection of wild rice consistent with ecosystems knowledge and applicable law:

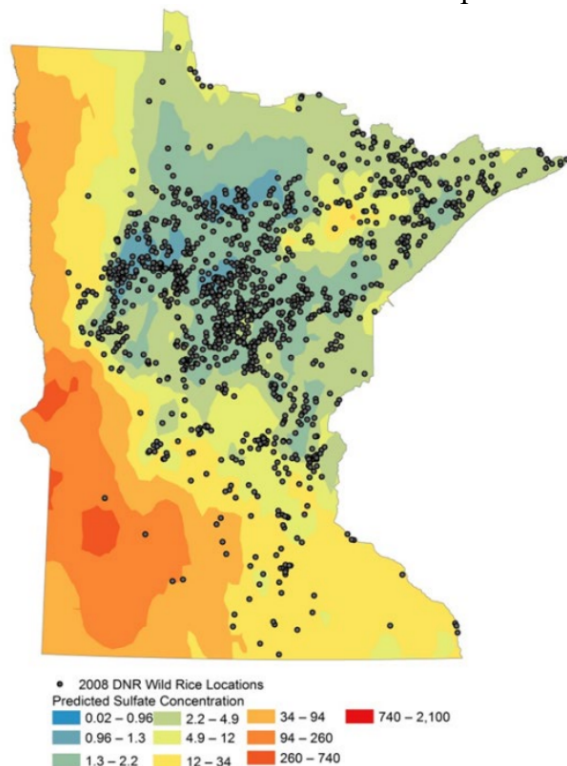
- MPCA's Wild Rice Sulfate Permit Procedures must limit sulfate loading to comply with wasteload allocations, restore impaired waters, and prevent degradation.
- MPCA's Wild Rice Sulfate Permit Procedures must require water quality-based effluent limits if discharge causes or contributes to an exceedance, whether or not there is an intervening waterbody with less than 10 mg/L of sulfate.
- MPCA's Wild Rice Sulfate Permit Procedures must impose effluent limits to prevent degradation of low-sulfate and high value wild rice waters and must explicitly set forth a process of setting more stringent site-specific standards to protect these waters.

### 3. Regional Data Shows Gaps in Monitoring and Analysis.

MPCA's discussions of regional waters and historical sulfate data are not well developed, and their rationale is dubious. The example of monitoring high sulfate in the main channel of the Mississippi River upstream of back channels with wild rice is ambiguous. It is not clear whether MPCA is asserting that the wild rice in back channels should be identified as impaired with or without more proximate sampling or whether MPCA is asserting that factors other than sulfate influence the growth of wild rice in these locations.

Similarly, MPCA's documentation of ambient sulfate in regional waters is poorly connected to the topic of site-specific standards or protection of wild rice beneficial use. The MPCA has not distinguished "baseline" conditions that may be due to anthropogenic land use and pollution from "natural background" conditions that occurred before European settlement. The map of high and low sulfate conditions is uninformative for the wild rice sulfate standard implementation since it does not illustrate the relationship between wild rice and sulfate levels.

The previous map on this topic prepared by the MPCA in 2014 in the wild rice sulfate standard rulemaking<sup>7</sup> (below) is a more useful indicator of the relationships between sulfate and wild rice.



**Figure 1.** Locations of reported lakes with wild rice (black symbols; from DNR 2008) as compared to surface water sulfate concentrations (in mg/L). The sulfate contours were generated from 3,230 surface water sulfate values in DNR and MPCA databases (see Table 6 for summary statistics of these data).

WaterLegacy requests a more rigorous analysis of the relationships between sulfate and wild rice prevalence as well as the specific policy changes in the Wild Rice Sulfate Permit Procedures and Wild Rice Sulfate SSS Framework detailed above. MPCA proposed procedures and framework must be substantially revised to protect the beneficial use of waters for the growth of wild rice.

Respectfully submitted,

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<sup>7</sup> MPCA, Analysis of the Wild Rice Sulfate Standard Study, June 2014 at 9, Figure 1  
<https://www.leg.mn.gov/docs/2014/other/140594.pdf>